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 financial structure and firms' access to financial services. Specifically, it considers the importance of three different types of financial institutions: low-end financial institutions, specialized lenders, and banks. Two findings stand out. First, dominance of the financial system by banks is associated with lower use of financial services by firms of all sizes, while 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.

JEL classification: G10, G30, O16

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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. First, which institutions are best suited to expand financial services to low-end customers, including small and medium-sized enterprises (SMEs)? 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? Second, 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 financial structure and access to finance. We capture financial structure in two ways. Specifically, we consider the importance of different financial institutions – including low-end financial institutions, specialized lenders and banks – by calculating (i) their asset share relative to total assets and (ii) the average size of those institutions. Firms' access to financial services is measured by account and lending services. We thus relate the probability that a firm uses specific financial services to (i) the relative importance and (ii) the average size of low-end financial institutions, specialized lenders and banks. 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 asset tangibility, 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 and availability of tangible assets as collateral 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 SMEs, has become critical in many developing countries. SMEs 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 adopting 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).

While specialized lenders and low-end financial institutions make up only a small part of the financial system in most countries in terms of volume, their importance for SMEs' access to finance can be considerable. For example, in Bolivia, lending by microfinance institutions and cooperative made up only 8.8 percent of GDP in 2009 compared to 24.8 percent by banks. But the number of loan accounts per 1000 adults was 72 for these low-end financial institutions, as opposed to 76 for banks (CGAP, 2010).[1] As another example, according to Kraemer-Eis and Lang (2012) SMEs in the Eurozone finance 17 percent of their fixed asset investment with leasing contracts, compared to 31 percent with bank loans. While referring to developed countries, this example gives insight into the potential importance of non-bank lending and the institutions providing it.

This paper uses a unique 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

[1] Unfortunately, this data collection exercise on loan account penetration across different segments of the financial system is cross-sectional and we can therefore not use these data for the exercise in our paper.

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 SMEs, 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 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, across industries with different needs of external finance, and across industries with different levels of tangible assets 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 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.

[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.

[3] See Armendariz and Morduch (2005), Karlan and Morduch (2010) and Banerjee and Duflo (2010) for surveys and more in-depth discussions on microfinance.

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.

Third, our paper is part of a still growing literature on firms' access to external finance. Systematic and consistent cross-country data collections of firm-level survey data since the late 1990s have enabled a rigorous exploration of the finance-growth link on the micro-level. Financial development allows existing firms to exploit growth and investment opportunities (Beck, Demirgüç-Kunt and Maksimovic, 2005), and to achieve larger equilibrium size (Beck, Demirgüç-Kunt and Maksimovic, 2006). Small firms do not only report higher financing obstacles, they are also more adversely affected by these obstacles in their operation and growth (Beck, Demirgüç-Kunt and Maksimovic, 2005; Beck et al., 2008). Our paper adds to this literature by exploring the importance of non-bank financial institutions catering to SMEs for their financing constraints.[4]

Our results can be summarized as follows: First, dominance of the financial system by banks rather than other financial institutions is associated with lower use of financial services by firms of all sizes, while 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

[4] In a broader sense, our paper also adds to the finance and growth literature. For a survey, see Levine (2005). Among more recent contributions, see Rousseau and D'Onofrio (2012) who show that banking sector development is indeed important for economic development in Africa.

and banks are more conducive to firms' access to finance and larger low-end financial institutions are more conducive to firms' access to finance in low-income countries. These results hold controlling for a large number of firm characteristics, the level of economic development and a general indicator of financial development. We also find that the economic effect of the estimated relationships is large, especially on the credit side.

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.[5] 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[6], 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. In most

[5] We are less concerned about reverse causation, as this would bias our findings downwards, as we expect low-end financial institutions and specialized lenders to be actively fostered in countries with limited access by firms to financial services.

[6] 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.

regressions, however, we have fewer than 50 countries limited given data availability. 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 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, insurance companies 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.[7] 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

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

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 (*low-end NBFIs*) 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 SMEs. Second, specialized non-bank financial institutions (*specialized NBFIs*) which comprise – among others – finance companies, factoring companies, banks specialized in housing, merchant banks, and 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 (*banks*).[8]

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 and gauges the importance of each segment within the financial system. The three asset shares add up to 100.[9] The *average size* is computed by dividing the total amount of assets per category by the number of institutions per category. We do not normalize this indicator as we are interested in capturing scale economies proxied by the size of the respective institution.[10]

[8] We carefully screen and group institutions into those three categories to arrive at comparable institutional categories across countries. We believe that by focusing on those three aggregate categories (as opposed to more detailed categories) we can best construct comparable categories across countries despite potential regulatory differences.

[9] There are other categories such as insurance companies or pension funds that we do not include in our analysis. It is important to note that the relative share of banks is only relative to other non-bank financial institutions catering to the low-end of the market, not to other segments of the financial system, such as capital markets. It can therefore not be compared to the financial structure measures used in the previous literature, by e.g. Beck and Levine (2002) and Levine (2002).

[10] Note that we are controlling for GDP per capita, so we are conditioning on the level of economic development, which might cause a spurious correlation between the size of financial institutions and firms' access to financial services.

Both indicators vary widely across our sample countries. The share of banks varies from almost 99 percent in Ukraine to 61 percent in Colombia. The share of specialized lenders varies from 38 percent in Colombia to less than one percent in Senegal, Ukraine, Bolivia, and Madagascar. The share of low-end financial institutions varies from 21 percent 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.

While the share of low-end and specialized lenders in total assets of financial intermediaries catering to low-end customers might seem low, it is important to remember that behind a small volume can be a large number of borrowers, as we already discussed in the Introduction. Unfortunately, data on the number of loan accounts or borrowers across these different segments of the financial system catering to SMEs are even scarcer than asset data.

We combine the financial structure data with data from the World Bank Enterprise Surveys. The Enterprise Surveys collect firm level-data from key manufacturing and service sectors in over 120 countries since 2002.[11] Countries are surveyed every three to four years but not simultaneously. To ensure data consistency and inter-country comparability we only use data in the standardized dataset 2006-2010, which contains data for enterprises across 100 countries.[12] It is important to note that FSAP and Enterprise Survey do not necessarily take place in the same year, though we match the FSAP and Enterprise Survey that are closest in time. The number of firms surveyed in each country depends on the size of the economy with more firms 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 three indicators to gauge the access to and use of financial services: (i) *account* is a dummy variable equal to one if the firm has an

[11] Only private sector firms are surveyed; fully state-owned firms are excluded.
[12] 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.

account at the time of the survey and zero otherwise; (ii) *overdraft* is a dummy variable equal to one if the firm has an overdraft facility at the time of the survey and zero otherwise; and (iii) *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 1 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.

[TABLE 1 HERE]

The descriptive statistics in Table 1 show that over 90 percent of firms in our sample have an *account*. This percentage, however, varies significantly across countries. While in the Slovak Republic 20.8 percent of firms have an *account*, 99.8 percent do so in Croatia. Almost 50 percent of firms have an *overdraft* facility and 45 percent have a *loan*. Behind this average, however, are again large cross-country variations. While only 1.3 percent of firms have an *overdraft* facility and 3.1 percent a *loan* in Guinea-Bissau, 87.5 percent and 74.5 percent, 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 percent of all firms are small, 34.3 percent are medium-sized and 18.3 percent large. 13 percent are subsidiaries of other firms, and 5.8 percent are publicly listed. The foreign ownership share is, on average, 10.7 percent, while the average government ownership is 0.7 percent. On average, firms are 17.5 years old.

We control for the level of development and the depth of the financial sector using the log of GDP per capita and credit to the private sector as percentage of GDP, respectively. The data come from the World Bank's World Development Indicators. The rationale for including credit to the private sector as control is that, beyond the general level of development, financial structure might be a function of the depth of the financial sector. The average depth of the financial sector in our sample is 25.6 percent, ranging from just over 2 percent in Guinea-Bissau to 80.3 percent in Chile.

We also 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.[13] 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).

Finally, we control for the industry-level variation in the tangibility of asset as computed by Braun (2003) for listed firms in the U.S. in the period 1986 to 1995. Tangibility is defined as net property, plant and equipment divided by the book value of assets. Since tangible assets are typically more easily collaterizeable, firms in countries with weak contractability are often reliant on them to secure external funding and we would expect firms with higher tangibility to be more likely to have access to external funding. Similarly to Rajan and Zingales (1998), the underlying assumption here is that due to technology, tangibility is industry specific and does not differ across countries. We use the self-reported industry categorizations by firms in the Enterprise Surveys to match our data. Again, we lose about a half our sample due to the fact that

[13] As noted by Ciccone and Papaioannou (2010), using data from one specific country as benchmark for other countries can introduce attenuation or amplification biases in the estimation. Nevertheless, we follow a large literature using this difference-in-differences approach with industry characteristics based on U.S. data.

only manufacturing industries are covered by the variable. The average tangibility in our sample is 0.30, varying from 0.07 (pottery, china, earthenware) to 0.67 (petroleum refineries).

[TABLE 2 HERE]

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 variables of some of the institutional categories are positively and significantly correlated. The depth of the financial system as measured by private credit as percentage of GDP 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 our access to finance variables. There are, however, significant correlations between the average size of financial institutions and the access to finance variables. Countries with larger specialized lenders and larger banks have a higher share of firms with *overdraft* facilities and *loans*. There are also significant positive correlations between the depth of the financial system and all three measures of access to finance. Many of the firm characteristics are also correlated with each other. Countries with more small firms, for instance, have younger and fewer listed firms. Lastly, our access indicators are also significantly correlated with our industry indicators of external dependence and tangibility. In countries where firms are on average more reliant on external finance firms are more likely to have an *account*, a *loan* or an *overdraft*. A higher average tangibility of assets, however, is only significantly related to firms having *loans*.

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 the use of financial services we use the following empirical baseline specification:

$$\text{Financial Services}_{ij} = \alpha + \beta_1 \text{ Medium Firm}_{ij} + \beta_2 \text{ Large Firm}_{ij} + \beta_3 \text{ Subsidiary}_{ij}$$

$$+ \beta_4 \text{ Publicly Listed}_{ij} + \beta_5 \text{ Foreign-Owned}_{ij} + \beta_6 \text{ State-Owned}_{ij}$$
$$+ \beta_7 \text{ Firm Age}_{ij} + \beta_8 \text{ Firm Sector}_{ij} + \beta_9 \text{ GDP per Capita}_{j}$$
$$+ \beta_{10} \text{ Private Credit}_{j} + \beta_{11} \text{ Financial Sector Indicator}_{j} + e_{ij}$$

where *Financial Services* indicates one of our three dependent variables measuring the use of financial services of firm *i* in country *j*. We use a probit model to estimate the specification. *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. In order to gauge not only the statistical but also economic significance of our results, we report marginal effects rather than coefficient estimates.

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, across industries with different needs for external finance and across industries with different proportions of tangible assets. 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, with the Rajan and Zingales (1998) indicator of external dependence or the Braun (2003) measure of tangibility.[14] 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 and tangibility we include both external dependence or tangibility 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

[14] To evaluate the regressions for certain values of the interaction variables we use the margins command in Stata. The standard errors are calculated using the linearization method to allow for heteroskedasticity or other violations of distributional assumptions and correlation among observations.

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 marginal effects of all variables in Table 3, while in all subsequent tables we 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.[15]

(a) Asset shares across different segments

The results in Table 3 suggest that there is no significant relationship between the importance of low-end financial institutions and firms' access to financial services. However, we find that firms in countries with a larger share of specialized lenders are more likely to have an *overdraft* and a *loan*, and these relationships are significant at the 5 percent level. We also find that a larger share of banks in total financial assets is associated with lower use of financial services by enterprises.[16] The share of bank assets in total financial assets enters negatively and significantly at the 10 percent level in the regression of *account* and *overdraft* and negatively and significantly at the 1 percent level in the regression of *loans*. Overall, the results thus suggest that specialized lenders are an important segment in the financial system when it comes to providing access to credit for firms.

[TABLE 3 HERE]

The relationship between the relative importance of banks and specialized NBFIs and firms' access to finance is not only statistically but also economically significant. Specifically, a one standard deviation in the share of specialized NBFI (7.6 percent) results in 5.3 percent higher

[15] The dependent variables in tables 3 and 5 allow for a balanced panel across countries by construction.
[16] As this result might be driven by the inclusion of an overall indicator of financial intermediary development (Private Credit to GDP), we also ran the regressions without this variable. While excluding Private Credit to GDP confirms our findings on the share of bank assets and the share of specialized NBFI, we now also find some evidence for a positive association of the share of low-end NBFI and access to finance by enterprises.

probability that a firm has an *overdraft* and a 3.0 percent higher likelihood of a *loan*. A one standard deviation in the share of banks (8.6 percent), on the other hand, results in 1.7 percent lower likelihood that firms have a bank *account*, a 3.4 percent lower likelihood of a *loan* and a 5.1 percent lower likelihood of an *overdraft*. This compares to 90 percent of firms in our sample having an *account*, 49 percent having an *overdraft* and 45 percent having a *loan*. The economically larger effects are thus clearly in access to credit rather than access to deposit accounts.

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*. In more financially developed countries firms are more likely to have an *account* and *loan*, however this holds only for the regressions controlling for the share of specialized lenders and banks. Firms that are subsidiaries are more likely to have an *account* and an *overdraft* facility, while there appears to be no significant relationship between a firm being publicly listed and its use of financial services. As the percentage of foreign ownership in a firm increases firms 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.

[TABLE 4 HERE]

The results of Table 4 show that our results from above largely hold once we interact the asset shares with level of economic development, level of external dependence, tangibility, and firm size even though there is some variation in significance across countries with different levels of GDP per capita and firms of different size. The interactions with GDP per capita show that the relationship between the importance of low-end financial institutions, specialized lenders and access to finance varies significantly across countries with different levels of economic development. While the asset share of low-end financial institutions enters positively and significantly in the regressions of *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 25th, 50th, and 75th percentile of GDP per capita (equivalent to the GDP per capita of Mongolia, Guatemala, and Brazil, respectively) in our sample we find that the relation between the share of low-end financial institutions and having an *account* or *loan* is significant and positive only at the 25th percentile of GDP per capita, 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. Thus only in low-income countries do firms benefit – in terms of better access to financial services – from a higher share of low-end financial institutions. Neither the level of the share of specialized financial institutions nor its interaction with GDP per capita enters significantly, although they are jointly significant in the *overdraft* regression. The interaction between banks' importance and GDP per capita also does not enter significantly.

When interacting the relative importance of different segments of the financial system with the external dependence across different sectors, none of the interaction term enters significantly. Similarly, we do not observe any variation across in the relationship between the relative size of different segments of the financial system and access to finance by firms across industries with different degrees of asset tangibility. While the interaction term enters significantly in two instances the partial effects calculations reveal this does not translate into meaningful differences.

When interacting the financial sector indicators with firm size dummies, we cannot find any significant relationship between the relative importance of low-end financial 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 percent level. In the case of specialized lenders, we find that a more prominent role is associated with a higher likelihood of obtaining an *overdraft* facility or *loan* for small and medium firms while the relationship is not significant for large firms. At the same time a more prominent role of banks is associated with the opposite effect, that is, a lower

likelihood of obtaining an *overdraft* facility or *loan* for small and medium-sized firms, and again an insignificant effect for large firms.

In summary, the shares of low-end financial institutions and banks among financial intermediaries catering to low-end customers have opposite relations with firms' access to financial services in low-income countries, while there are no significant relations in middle-income countries. These relations are especially strong for small and medium-sized firms and economically meaningful more on the credit than deposit side.

(b) Average size of financial institutions

The regressions reported in Table 5 suggest that smaller low-end financial institutions are associated with a higher probability of firms having an *account*. 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 is not associated with access to finance. The estimates are also economically significant. One standard deviation in the average size of low-end financial institutions is associated with a 3 percent lower probability of having an *account*, while one standard deviation in the average size of specialized institutions is associated with a 24 percent higher likelihood of having an *overdraft* and an 8 percent higher likelihood of getting a *loan*. The average size of banks is not associated with variation in firms' access to financial services.

[TABLE 5 HERE]

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, across different external financing needs, and across different levels of asset tangibility. Overall, the results suggest that larger low-end and smaller specialized financial institutions are better at providing especially small firms with access to financial services, though the effects are also significant though smaller for medium-sized and larger firms. We also find larger banks are more conducive to small firms' access to credit, with no significant effect for medium-sized and large enterprises.

In terms of access to credit, however, larger low-end financial institutions seem more appropriate in low- and middle-income countries (Panel B), while the relationship between size of specialized NBFI and firms' access to financial services does not vary across countries of different levels of GDP per capita. Larger banks are associated with higher use of bank *accounts* in low- and middle-income countries.

[TABLE 6 HERE]

Several of the interaction regressions with the external dependence and the tangibility variable are significant. Specifically, we find that the positive relationship between the size of low-end institutions and firms' use of *loans* is stronger for firms in industries more dependent on external finance, while the relationship the size between of low-end institutions and the use of *overdraft* decreases in the degree of asset tangibility, indicating that firms in industries with fewer tangible assets available for collateral benefit more in terms of access to *overdrafts* in countries with larger low-end financial institutions. We find a decreasing relationship between the size of specialized NBFI and use of *accounts* as industries' external dependence increases. Similarly, the positive relationship between the size of specialized lenders and the use of *overdrafts* and *loans* is stronger for industries that rely *less* on tangible assets. Finally, we find that larger banks are less associated with the use of financial services in industries with higher needs of external finance and higher asset tangibility.

In summary, larger financial institutions are not necessarily associated with lower use of financial services. The positive relationship between the average size of specialized lenders and banks is especially strong for smaller firms, while we also find a positive relationship between the average size of low-end financial institutions and firms' access to credit services in low-income countries.

(c) 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 test for the robustness of our results in Table 5 using a constant country sample of 29 to confirm that our results are not driven by varying country samples the across the three institutional categories.

5. CONCLUSION

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. Specifically, we combine two unique data sets to gauge 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.

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.

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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We see this paper as a first exploration of the relationship between financial structure and SME financing. The lack of consistent cross-country data on non-bank financial institutions has hampered the gauging of this relationship so far. As SME finance gains more importance in the policy debate, as evidenced by the recent focus of the G20 in this area, more consistent data collection will enable a more thorough exploration in the coming years.[17]

[17] See, for example, http://www.ifc.org/ifcext/g20ifcsmeconslultation.nsf and http://www.smefinanceforum.org/ .

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Table 1: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
A. Firm-level Characteristics					
Dummy==1 if firm has account	24531	0.9044	0.2940	0	1
Dummy==1 if firm has overdraft facility	23952	0.4891	0.4999	0	1
Dummy==1 if firm has loan	24336	0.4474	0.4972	0	1
Dummy==1 if firm size small	24659	0.4742	0.4993	0	1
Dummy==1 if firm size medium	24659	0.3426	0.4746	0	1
Dummy==1 if firm size large	24659	0.1831	0.3868	0	1
Dummy==1 if subsidiary	24659	0.1305	0.3368	0	1
Dummy==1 if publicly listed	24659	0.0575	0.2327	0	1
% of firm owned by foreign investor	24659	10.7282	29.1665	0	100
% of firm owned by government	24659	0.7362	6.9009	0	100
Firm age in years	24659	17.5148	16.0739	0	310
B. Industry-level Characteristics					
External dependence ratio	28	0.2871	0.3680	-0.45	1.14
Tangibility ratio	24	0.2986	0.1417	0.0745	0.6708
C. Country-level Characteristics					
GDP per capita (log)	54	6.9650	1.2173	4.8947	8.8859
Private Credit (% GDP)	54	25.6340	17.4473	2.0892	80.3032
Mean asset size, low-end NBFI (in constant 2000 bn USD)	36	0.0322	0.1357	0.0000	0.8175
Mean asset size, specialized NBFI (in constant 2000 bn USD)	33	0.0578	0.0903	0.0004	0.3555
Mean asset size, banks (in constant 2000 bn USD)	50	0.5419	0.7633	0.0099	3.4644
Asset share, low-end NBFI (%)	33	4.3890	5.2283	0.0564	21.7718
Asset share, specialized NBFI (%)	33	6.5246	7.5962	0.2727	38.0821
Asset share, banks (%)	33	89.0864	8.5655	61.1734	98.8938

Table 2: Correlations

		1	2	3	4	5	6	7	8	9	10
1	Account	1.000									
2	Overdraft facility	0.344**	1.000								
3	Loan	0.345**	0.673***	1.000							
4	Dummy==1 if firm size small	-0.267*	-0.440***	-0.710***	1.000						
5	Dummy==1 if firm size medium	0.248*	0.437***	0.627***	-0.888***	1.000					
6	Dummy==1 if firm size large	0.234*	0.359***	0.652***	-0.913***	0.623***	1.000				
7	Dummy==1 if subsidiary	0.276**	0.160	-0.112	-0.118	0.059	0.150	1.000			
8	Dummy==1 if publicly listed	0.045	-0.027	0.205	-0.384***	0.382***	0.314**	-0.077	1.000		
9	% of firm owned by foreign investor	0.124	-0.139	-0.372***	0.089	-0.076	-0.085	0.644***	-0.131	1.000	
10	% of firm owned by government	0.030	-0.125	0.061	-0.131	-0.001	0.225	0.083	0.418***	-0.009	1.000
11	Firm age in years	0.302**	0.604***	0.628***	-0.516***	0.508***	0.426***	0.160	0.144	-0.116	-0.019
12	External dependence ratio	0.278**	0.407***	0.383***	-0.520***	0.408***	0.522***	0.198	0.097	0.024	0.022
13	Tangibility ratio	0.205	0.153	0.244*	-0.228*	0.186	0.223	-0.020	0.014	-0.083	-0.024
14	Private Credit	0.270**	0.326**	0.579***	-0.419***	0.277**	0.467***	0.099	-0.033	-0.201	-0.117
15	GDP per capita (log)	0.176	0.416***	0.649***	-0.496***	0.359***	0.525***	0.123	-0.004	-0.041	0.022
16	Asset share, low-end NBFI	0.158	0.032	-0.070	0.018	0.030	-0.056	0.038	-0.014	0.032	-0.009
17	Asset share, specialized NBFI	-0.035	0.186	0.109	0.200	-0.078	-0.265	-0.228	-0.274	-0.064	0.021
18	Asset share, banks	-0.065	-0.184	-0.054	-0.188	0.051	0.270	0.179	0.252	0.037	-0.013
19	Mean asset size, low-end NBFI	-0.020	0.227	0.195	-0.242	0.143	0.253	-0.091	-0.141	-0.183	-0.141
20	Mean asset size, specialized NBFI	0.198	0.536***	0.428**	-0.040	0.185	-0.078	0.066	-0.191	-0.178	-0.310*
21	Mean asset size, banks	0.056	0.467***	0.481***	-0.413***	0.288**	0.435***	0.121	-0.193	-0.183	-0.113
		11	12	13	14	15	16	17	18	19	20
12	External dependence ratio	0.348***	1.000								
13	Tangibility ratio	0.066	0.403***	1.000							
14	Private Credit	0.360***	0.392***	0.225	1.000						
15	GDP per capita (log)	0.409***	0.427***	0.033	0.658***	1.000					
16	Asset share, low-end NBFI	0.070	0.078	0.023	-0.101	-0.267	1.000				
17	Asset share, specialized NBFI	-0.124	-0.034	0.044	-0.134	0.158	-0.147	1.000			
18	Asset share, banks	0.068	-0.017	-0.053	0.181	0.023	-0.480***	-0.797***	1.000		
19	Mean asset size, low-end NBFI	0.085	0.130	-0.030	-0.026	0.232	-0.088	-0.051	0.105	1.000	
20	Mean asset size, specialized NBFI	0.352**	0.137	-0.077	0.401**	0.502***	-0.311	0.575***	-0.302	-0.035	1.000
21	Mean asset size, banks	0.354**	0.440***	-0.056	0.402***	0.634***	-0.196	0.070	0.070	0.592***	0.506***

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: Assets Shares and Access to Finance

	Account	Overdraft	Loan	Account	Overdraft	Loan	Account	Overdraft	Loan
	probit	probit	probit	probit	probit	probit	probit	probit	probit
	mfx/se	mfx/se	mfx/se	mfx/se	mfx/se	mfx/se	mfx/se	mfx/se	mfx/se
GDP per capita (log)	0.018	0.127***	0.109***	0.01	0.099***	0.086***	0.011	0.114***	0.093***
	(0.014)	(0.030)	(0.021)	(0.013)	(0.032)	(0.021)	(0.012)	(0.030)	(0.019)
Private Credit	0.001	0.000	0.001	0.001*	0.001	0.002**	0.001*	0.001	0.002**
	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)
Dummy==1 if firm size medium	0.067***	0.173***	0.172***	0.068***	0.178***	0.176***	0.068***	0.176***	0.175***
	(0.010)	(0.019)	(0.013)	(0.010)	(0.018)	(0.012)	(0.010)	(0.019)	(0.012)
Dummy==1 if firm size large	0.085***	0.246***	0.290***	0.087***	0.254***	0.296***	0.088***	0.252***	0.296***
	(0.017)	(0.033)	(0.020)	(0.016)	(0.032)	(0.019)	(0.016)	(0.033)	(0.019)
Dummy==1 if subsidiary	0.026	0.063***	0.006	0.028*	0.068***	0.01	0.028*	0.067***	0.01
	(0.016)	(0.023)	(0.015)	(0.016)	(0.021)	(0.015)	(0.016)	(0.022)	(0.015)
Dummy==1 if publicly listed	-0.006	-0.01	0.037	-0.005	0.000	0.043	-0.003	0.000	0.045*
	(0.015)	(0.030)	(0.026)	(0.014)	(0.030)	(0.027)	(0.014)	(0.030)	(0.025)
% of firm owned by foreign investor	0.000***	0.000	-0.001***	0.000***	0.000	-0.001***	0.000***	0.000	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
% of firm owned by government	0.000	-0.001	-0.002***	0.000	-0.001	-0.002***	0.000	-0.001	-0.002***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Firm age in years	0.001**	0.002***	0.000	0.001***	0.002***	0.000	0.001***	0.002***	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
NBFI, low-end	0.003	0.002	0.005*						
	(0.002)	(0.006)	(0.003)						
NBFI, specialized				0.001	0.007**	0.004**			
				(0.001)	(0.003)	(0.002)			
Banks							-0.002*	-0.006*	-0.004***
							(0.001)	(0.003)	(0.001)
N	17,879	17,542	17,686	17,879	17,542	17,686	17,879	17,542	17,686
# countries	33	33	33	33	33	33	33	33	33
Pseudo Adj. R-squared	0.085	0.131	0.126	0.081	0.140	0.127	0.085	0.140	0.129

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

Regressions include unreported industry dummies. Errors are clustered at the country level. Errors for marginal effects are calculated accordingly.

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

Table 4 Panel A: Assets Share and Access to Finance – Cross-Country and Cross-Firm Heterogeneity

	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	0.026**	0.003	0.002		0.096***	0.002	-0.011		0.029	0.008**	0.003	
	(0.010)	(0.003)	(0.003)		(0.037)	(0.007)	(0.009)		(0.023)	(0.003)	(0.004)	
x GDP per capita (log)	-0.003**				-0.014**				-0.004			
	(0.002)				(0.006)				(0.004)			
x External Dependence		-0.001				-0.012				-0.007		
		(0.002)				(0.010)				(0.005)		
x Tangibility			0.004				0.039***				0.012	
			(0.006)				(0.009)				(0.010)	
NBFI, low-end x small				0.004				0.002				0.005*
				(0.003)				(0.006)				(0.003)
NBFI, low-end x medium				0.004*				0.001				0.003
				(0.002)				(0.008)				(0.003)
NBFI, low-end x large				0.005**				0.006				0.005
				(0.002)				(0.009)				(0.004)
N	17,883	10,166	9,939	17,883	17,544	9,973	9,750	17,544	17,690	10,050	9,826	17,690
# countries	33	33	33	33	33	33	33	33	33	33	33	33
Adj. R-squared	0.050	0.039	0.037	0.048	0.182	0.174	0.177	0.169	0.162	0.156	0.157	0.161
NBFI, specialized	-0.016	0.001	0.002**		0.009	0.007***	0.009***		0.015	0.005***	0.006***	
	(0.011)	(0.001)	(0.001)		(0.026)	(0.002)	(0.002)		(0.019)	(0.001)	(0.001)	
x GDP per capita (log)	0.002				-0.000				-0.001			
	(0.001)				(0.003)				(0.002)			
x External Dependence		0.001				0.000				0.000		
		(0.002)				(0.004)				(0.002)		
x Tangibility			-0.004***				-0.009				-0.004	

			(0.002)				(0.006)				(0.003)	
NBFI, specialized x small				0.001				0.007***				0.004*
				(0.002)				(0.003)				(0.002)
NBFI, specialized x medium				0.001				0.007**				0.005***
				(0.001)				(0.003)				(0.002)
NBFI, specialized x large				0.001*				0.002				0.002
				(0.001)				(0.004)				(0.002)
N	17,883	10,166	9,939	17,883	17,544	9,973	9,750	17,544	17,690	10,050	9,826	17,690
# countries	33	33	33	33	33	33	33	33	33	33	33	33
Adj. R-squared	0.046	0.039	0.037	0.044	0.179	0.187	0.189	0.180	0.164	0.159	0.160	0.164
Banks	-0.004	-0.002*	-0.003**		-0.024	-0.007***	-0.006		-0.017	-0.006***	-0.006***	
	(0.010)	(0.001)	(0.001)		(0.019)	(0.002)	(0.004)		(0.012)	(0.001)	(0.002)	
x GDP per capita (log)	0.000				0.002				0.002			
	(0.001)				(0.003)				(0.002)			
x External Dependence		-0.001				0.006				0.003		
		(0.001)				(0.005)				(0.002)		
x Tangibility			0.003				-0.001				0.000	
			(0.003)				(0.005)				(0.005)	
Banks x small				-0.002				-0.007**				-0.005***
				(0.001)				(0.003)				(0.002)
Banks x medium				-0.002**				-0.006**				-0.005***
				(0.001)				(0.003)				(0.002)
Banks x large				-0.002**				-0.003				-0.003
				(0.001)				(0.004)				(0.002)
N	17,883	10,166	9,939	17,883	17,544	9,973	9,750	17,544	17,690	10,050	9,826	17,690
# countries	33	33	33	33	33	33	33	33	33	33	33	33
Adj. R-squared	0.046	0.041	0.039	0.046	0.181	0.185	0.187	0.179	0.166	0.163	0.164	0.166

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

Regressions control for the unreported variables log of GDP per capita, private credit, 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. 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

	Account			Overdraft			Loan		
GDP per capita (log) at:	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
NBFI, low-end	0.005**	0.002	-0.002	0.006	-0.008	-0.024	0.005*	0.001	-0.003
	(0.002)	(0.003)	(0.004)	(0.004)	(0.009)	(0.016)	(0.003)	(0.005)	(0.008)
GDP per capita (log)	0.019	0.019	0.019	0.113***	0.113***	0.113***	0.106***	0.106***	0.106***
	(0.015)	(0.015)	(0.015)	(0.037)	(0.037)	(0.037)	(0.024)	(0.024)	(0.024)
NBFI, specialized	-0.002	0	0.002**	0.007	0.007**	0.006	0.006	0.005**	0.003
	(0.002)	(0.001)	(0.001)	(0.005)	(0.003)	(0.004)	(0.004)	(0.002)	(0.003)
GDP per capita (log)	0.014	0.014	0.014	0.107***	0.107***	0.107***	0.090***	0.090***	0.090***
	(0.014)	(0.014)	(0.014)	(0.034)	(0.034)	(0.034)	(0.022)	(0.022)	(0.022)
Banks	-0.002	-0.002*	-0.001	-0.008**	-0.006*	-0.004	-0.006***	-0.005***	-0.003
	(0.002)	(0.001)	(0.001)	(0.003)	(0.003)	(0.005)	(0.002)	(0.002)	(0.003)
GDP per capita (log)	0.014	0.014	0.014	0.124***	0.124***	0.124***	0.099***	0.099***	0.099***
	(0.013)	(0.013)	(0.013)	(0.031)	(0.031)	(0.031)	(0.020)	(0.020)	(0.020)

	Account			Overdraft			Loan		
External dependence at:	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
NBFI, low-end	0.003	0.003	0.003	0.001	0.000	-0.001	0.007**	0.007**	0.006
	(0.002)	(0.002)	(0.002)	(0.008)	(0.008)	(0.009)	(0.003)	(0.003)	(0.004)
External dependence	0.041***	0.041***	0.041***	0.064*	0.064*	0.064*	0.060**	0.060**	0.060**
	(0.012)	(0.012)	(0.012)	(0.035)	(0.035)	(0.035)	(0.024)	(0.024)	(0.024)
NBFI, specialized	0.001	0.001	0.001	0.007***	0.007***	0.007***	0.005***	0.005***	0.005***
	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)
External dependence	0.045***	0.045***	0.045***	0.058	0.058	0.058	0.063**	0.063**	0.063**
	(0.011)	(0.011)	(0.011)	(0.048)	(0.048)	(0.048)	(0.026)	(0.026)	(0.026)
Banks	-0.002*	-0.002**	-0.002**	-0.007**	-0.006**	-0.005	-0.006***	-0.006***	-0.005***
	(0.001)	(0.001)	(0.001)	(0.003)	(0.003)	(0.003)	(0.001)	(0.001)	(0.001)

External dependence	0.043***	0.043***	0.043***	0.049	0.049	0.049	0.058*	0.058*	0.058*
	(0.011)	(0.011)	(0.011)	(0.055)	(0.055)	(0.055)	(0.030)	(0.030)	(0.030)

	Account			**Overdraft**			**Loan**		
Tangibility at:	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
NBFI, low-end	0.002	0.003	0.003	-0.004	0.000	0.004	0.005*	0.007*	0.008**
	(0.002)	(0.002)	(0.002)	(0.008)	(0.008)	(0.008)	(0.003)	(0.003)	(0.004)
Tangibility	-0.001	-0.001	-0.001	0.195***	0.195***	0.195***	0.163***	0.163***	0.163***
	(0.035)	(0.035)	(0.035)	(0.067)	(0.067)	(0.067)	(0.059)	(0.059)	(0.059)
NBFI, specialized	0.002	0.001	0.001	0.008***	0.007***	0.006**	0.005***	0.005***	0.004***
	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.003)	(0.001)	(0.001)	(0.002)
Tangibility	-0.004	-0.004	-0.004	0.189***	0.189***	0.189***	0.153***	0.153***	0.153***
	(0.033)	(0.033)	(0.033)	(0.067)	(0.067)	(0.067)	(0.059)	(0.059)	(0.059)
Banks	-0.002**	-0.002**	-0.001*	-0.006*	-0.006**	-0.006**	-0.006***	-0.006***	-0.006***
	(0.001)	(0.001)	(0.001)	(0.003)	(0.003)	(0.003)	(0.001)	(0.001)	(0.001)
Tangibility	-0.003	-0.003	-0.003	0.197***	0.197***	0.197***	0.157***	0.157***	0.157***
	(0.034)	(0.034)	(0.034)	(0.071)	(0.071)	(0.071)	(0.058)	(0.058)	(0.058)

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, private credit, 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 and tangibility interaction term also include unreported level effects. Errors are clustered at the country level. Errors for partial effects are calculated accordingly.

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

	Account	Overdraft	Loan
	probit	**probit**	**probit**
	mfx/se	**mfx/se**	**mfx/se**
NBFI, low-end	-0.076***	-0.004	-0.031
	(0.025)	(0.096)	(0.054)
N	18,642	18,238	18,445
# countries	36	36	36
Pseudo Adj. R-squared	0.076	0.110	0.108
NBFI, specialized	0.122	1.076***	0.370*
	(0.117)	(0.252)	(0.189)
N	17,998	17,566	17,799
# countries	33	33	33
Pseudo Adj. R-squared	0.063	0.135	0.107
Banks	0.001	0.051	0.009
	(0.011)	(0.036)	(0.016)
N	22,554	21,983	22,354
# countries	50	50	50
Pseudo Adj. R-squared	0.058	0.104	0.108

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

Regressions control for the unreported variables log of GDP per capita, private credit, 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. Errors are clustered at the country level. Errors for marginal effects are calculated accordingly.

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

	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	3.129	-0.097***	-0.092***		16.680*	-0.088	-0.047		14.036*	-0.112*	-0.091	
	(4.582)	(0.029)	(0.031)		(9.489)	(0.101)	(0.111)		(7.416)	(0.062)	(0.072)	
x GDP per capita (log)	-0.379				-1.975*				-1.665*			
	(0.542)				(1.128)				(0.880)			
x External Dependence		-0.013				-0.080				0.096***		
		(0.014)				(0.072)				(0.035)		
x Tangibility			-0.033				-0.234**				-0.017	
			(0.043)				(0.101)				(0.092)	
NBFI, low-end x small				-0.081***				0.076				0.041
				(0.028)				(0.102)				(0.058)
NBFI, low-end x medium				-0.078***				-0.045				-0.034
				(0.024)				(0.101)				(0.061)
NBFI, low-end x large				-0.065***				-0.039				-0.095*
				(0.022)				(0.097)				(0.056)
N	18,646	10,398	10,157	18,646	18,240	10,173	9,938	18,240	18,449	10,282	10,045	18,449
# countries	36	36	36.000	36	36	36	36.000	36	36	36	36.000	36
Adj. R-squared	0.038	0.040	0.038	0.037	0.147	0.151	0.152	0.143	0.143	0.141	0.142	0.140
NBFI, specialized	1.537	0.140	0.145		0.970	0.952***	1.257***		4.372	0.409**	0.665***	
	(1.996)	(0.122)	(0.164)		(4.240)	(0.213)	(0.230)		(2.797)	(0.206)	(0.159)	
x GDP per capita (log)	-0.179				0.006				-0.489			
	(0.240)				(0.520)				(0.338)			
x External Dependence		-0.149**				0.023				-0.124		
		(0.064)				(0.258)				(0.157)		
x Tangibility			-0.171				-1.117***				-1.039***	
			(0.258)				(0.406)				(0.372)	

NBFI, specialized x small				0.114				1.125***				0.494***
				(0.120)				(0.264)				(0.191)
NBFI, specialized x medium				0.063				1.065***				0.394*
				(0.095)				(0.248)				(0.216)
NBFI, specialized x large				0.034				0.695***				0.123
				(0.091)				(0.263)				(0.167)
N	18,002	10,235	10,005	18,002	17,568	10,005	9,779	17,568	17,803	10,119	9,891	17,803
# countries	33	33	33.000	33	33	33	33.000	33	33	33	33.000	33
Adj. R-squared	0.031	0.033	0.031	0.030	0.170	0.179	0.182	0.171	0.141	0.141	0.143	0.139
Banks	0.553**	0.000	0.011		-0.508	0.028	0.050		0.175	-0.001	0.025	
	(0.242)	(0.015)	(0.018)		(0.681)	(0.039)	(0.044)		(0.405)	(0.021)	(0.028)	
x GDP per capita (log)	-0.066**				0.067				-0.020			
	(0.029)				(0.081)				(0.048)			
x External Dependence		-0.023***				-0.052***				-0.025		
		(0.009)				(0.019)				(0.023)		
x Tangibility			-0.061*				-0.123***				-0.108**	
			(0.033)				(0.033)				(0.053)	
Banks x small				0.013				0.086**				0.037**
				(0.014)				(0.038)				(0.018)
Banks x medium				-0.007				0.046				0.010
				(0.010)				(0.037)				(0.018)
Banks x large				-0.010				0.007				-0.020
				(0.009)				(0.032)				(0.017)
N	22,563	11,869	11,612	22,563	21,985	11,587	11,336	21,985	22,359	11,751	11,497	22,359
# countries	50	50	50.000	50	50	50	50.000	50	50	50	50.000	50
Adj. R-squared	0.043	0.040	0.038	0.033	0.139	0.150	0.152	0.139	0.140	0.149	0.151	0.142

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

Regressions control for the unreported variables log of GDP per capita, private credit, 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 and tangibility interaction and term also include unreported level effect. 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

	Account			Overdraft			Loan		
GDP per capita (log) at:	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
NBFI, low-end	0.768	0.333	-0.044	4.387*	2.121*	0.162	3.675*	1.765*	0.114
	(1.209)	(0.588)	(0.054)	(2.470)	(1.178)	(0.101)	(1.941)	(0.932)	(0.076)
GDP per capita (log)	0.004	0.004	0.004	0.016	0.016	0.016	0.009	0.009	0.009
	(0.036)	(0.036)	(0.036)	(0.109)	(0.109)	(0.109)	(0.090)	(0.090)	(0.090)
NBFI, specialized	0.31	0.22	0.057	1.012	1.015**	1.020***	1.017**	0.720**	0.323**
	(0.355)	(0.238)	(0.080)	(0.703)	(0.467)	(0.259)	(0.494)	(0.304)	(0.146)
GDP per capita (log)	-0.002	-0.002	-0.002	0.081	0.081	0.081	0.054	0.054	0.054
	(0.024)	(0.024)	(0.024)	(0.053)	(0.053)	(0.053)	(0.035)	(0.035)	(0.035)
Banks	0.152**	0.064**	0.003	-0.105	-0.016	0.045	0.057	0.031	0.013
	(0.069)	(0.031)	(0.010)	(0.194)	(0.091)	(0.036)	(0.116)	(0.054)	(0.018)
GDP per capita (log)	-0.036	-0.036	-0.036	0.123*	0.123*	0.123*	0.074*	0.074*	0.074*
	(0.034)	(0.034)	(0.034)	(0.066)	(0.066)	(0.066)	(0.039)	(0.039)	(0.039)

	Account			Overdraft			Loan		
External dependence at:	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
NBFI, low-end	-0.098***	-0.099***	-0.101***	-0.094	-0.099	-0.11	-0.104*	-0.098	-0.085
	(0.028)	(0.028)	(0.028)	(0.102)	(0.102)	(0.104)	(0.061)	(0.061)	(0.060)
External dependence	0.039***	0.039***	0.039***	0.046	0.046	0.046	0.052*	0.052*	0.052*
	(0.010)	(0.010)	(0.010)	(0.051)	(0.051)	(0.051)	(0.027)	(0.027)	(0.027)
NBFI, specialized	0.128	0.113	0.098	0.954***	0.956***	0.958***	0.399*	0.387*	0.374*
	(0.119)	(0.116)	(0.113)	(0.220)	(0.232)	(0.245)	(0.204)	(0.203)	(0.202)
External dependence	0.041***	0.041***	0.041***	0.06	0.06	0.06	0.056**	0.056**	0.056**
	(0.011)	(0.011)	(0.011)	(0.044)	(0.044)	(0.044)	(0.026)	(0.026)	(0.026)
Banks	-0.002	-0.003	-0.006	0.024	0.021	0.014	-0.003	-0.005	-0.008
	(0.014)	(0.014)	(0.013)	(0.039)	(0.039)	(0.039)	(0.020)	(0.019)	(0.018)

External dependence	0.053***	0.053***	0.053***	0.062	0.062	0.062	0.061**	0.061**	0.061**
	(0.012)	(0.012)	(0.012)	(0.046)	(0.046)	(0.046)	(0.026)	(0.026)	(0.026)

	Account			**Overdraft**			**Loan**		
Tangibility at:	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
NBFI, low-end	-0.098***	-0.101***	-0.104***	-0.09	-0.113	-0.136	-0.094	-0.095	-0.097
	(0.028)	(0.028)	(0.028)	(0.107)	(0.106)	(0.105)	(0.065)	(0.062)	(0.061)
Tangibility	-0.008	-0.008	-0.008	0.182***	0.182***	0.182***	0.179***	0.179***	0.179***
	(0.030)	(0.030)	(0.030)	(0.069)	(0.069)	(0.069)	(0.062)	(0.062)	(0.062)
NBFI, specialized	0.114	0.098	0.081	1.054***	0.945***	0.836***	0.475***	0.374*	0.272
	(0.129)	(0.115)	(0.104)	(0.231)	(0.241)	(0.257)	(0.184)	(0.205)	(0.230)
Tangibility	-0.027	-0.027	-0.027	0.197***	0.197***	0.197***	0.158***	0.158***	0.158***
	(0.027)	(0.027)	(0.027)	(0.062)	(0.062)	(0.062)	(0.058)	(0.058)	(0.058)
Banks	0	-0.006	-0.012	0.028	0.016	0.004	0.006	-0.005	-0.016
	(0.015)	(0.013)	(0.013)	(0.040)	(0.039)	(0.038)	(0.021)	(0.019)	(0.017)
Tangibility	0.03	0.03	0.03	0.180***	0.180***	0.180***	0.176***	0.176***	0.176***
	(0.043)	(0.043)	(0.043)	(0.055)	(0.055)	(0.055)	(0.057)	(0.057)	(0.057)

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, private credit, 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 and tangibility interaction term also include unreported level effects. Errors are clustered at the country level. Errors for partial effects are calculated accordingly.

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

Appendix 1: Asset Share and Asset Size by Country

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.