Financing patterns around the world: are small firms different?

Abstract: Using a firm-level survey database covering 48 countries, we investigate how financial and institutional development affects financing of large and small firms. Our database is not limited to large firms, but includes small and medium firms and data on a broad spectrum of financing sources, including leasing, supplier, development and informal finance. Small firms and firms in countries with poor institutions use less external finance, especially bank finance. Protection of property rights increases external financing of small firms significantly more than of large firms, mainly due to its effect on bank finance. Small firms do not use disproportionately more leasing or trade finance compared to larger firms, so these financing sources do not compensate for lower access to bank financing of small firms. We also find that larger firms more easily expand external financing when they are constrained than small firms. Finally, we find suggestive evidence that the pecking order holds across countries.

1. Introduction

Recent papers studying financing patterns around the world emphasize the importance of institutional differences across countries on capital structure (Demirguc-Kunt and Maksimovic, 1999; Booth, Aivazian, Demirguc-Kunt, and Maksimovic, 2001; and Fan, Titman, and Twite, 2003). A related literature has also shown that access to external financing is shaped by the country's legal and financial environment (La Porta, Lopez-de-Silanes, Shleifer, and Vishny, 1997, 1998; Demirguc-Kunt and Maksimovic, 1998; and Rajan and Zingales, 1998).[1] A direct implication of these studies is that, in countries with weak legal systems, and consequently, weak financial systems, firms obtain less external financing which results in lower growth.

Due to data limitations, empirical results in the existing literature are based on analysis of the largest, and perhaps unrepresentative, firms across countries. Also, the definitions of external financing used in these studies focus on equity and external debt, and they do not take into account the possibility that in some countries firms could substitute other forms of financing, such as supplier credit or government financing.

In this paper we investigate whether the financing patterns of small firms differ from those of the large firms that have been the focus of the prior literature. We also explore the relation between firms' external financing and a country's financial and legal institutions and consider a broader spectrum of external financing sources that are likely to be more relevant for smaller firms. Finally, we assess whether the relation between

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[1] Carlin and Mayer (2003) argue that a relation exists between a country's financial system and the characteristics of industries that prosper in that country. The importance of institutional development for investment is demonstrated by Wurgler (2000) and Love (2003), who show that the flow of capital to good investment projects increases with financial development. At the macro level, King and Levine (1993), Levine and Zervos (1998), and Beck, Levine, and Loayza (2000) show that financial development promotes growth and that differences in legal origins explain differences in financial development.

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firms' financing patterns and firm size varies across different levels of financial and institutional development and if this varies with the level of financing constraints.

Better understanding the financing patterns of small firms and how they change with institutional development has important policy and resource implications. Many policymakers in governmental and international aid organizations believe that small firms have inadequate access to external finance in developing countries as a result of market imperfections. In response, significant resources are being channeled into the promotion and financing of small and medium-size enterprises (SMEs) in developing countries. For example, the World Bank Group lends more than $2 billion a year in SME support programs.[2] Significant renewed interest has also emerged in development banks, which seek to provide loans that promote development by lending to constrained borrowers in developing countries, particularly small firms. Understanding how financing patterns of small firms differ in different institutional environments is an important first step in assessing these costly policies.

We address these issues using a firm level data source, the World Business Environment Survey (WBES), a major cross-sectional firm survey conducted in developed and developing countries in 1999 and led by the World Bank. The survey has information on financing choices for close to three thousand firms in 48 countries.[3] One of the important strengths of the survey is its coverage of small and medium enterprises (80% of the observations are from small and medium firms). Another advantage of the

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[2] The World Bank provides direct and indirect support to SMEs (see World Bank Group Review of Small Business Activities, 2002). In terms of activities, 80% of World Bank programs involve direct financial assistance to SMEs, while the remaining 20% involve indirect support such as technical assistance for SMEs and for institutions that support SME development.

[3] A detailed discussion of the database is provided in Section 2. Clarke, Cull, and Martinez Peria (2006), Beck, Demirguc-Kunt, and Maksimovic (2004, 2005) and Beck, Demirguc-Kunt, Laeven, and Maksimovic

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WBES is that it includes information on sources of financing that are often associated with small-firm finance such as leasing, trade credit, and finance from government and informal sources. Finally, the survey includes an indicator of the extent to which firms consider themselves financially constrained. This allows us to identify constrained firms without having to rely on proxies based on accounting data.

Our results show that, even after we control for various firm characteristics and country and institutional variables, smaller firms finance a lower proportion of their investment externally, particularly because they make use of bank finance to a lesser extent. Further, small firms' financing constraints are not as strongly associated with external finance, suggesting that they are less likely and able to expand external financing as they become more financially constrained compared with large firms. Investigating the linkages between firm size and the impact of institutional development on financing patterns, we see that small firms benefit disproportionally from higher levels of property rights protection by using significantly more external finance, particularly from banks. These results underline the importance of improving the institutional environment for increasing the access of small firms to external finance.

We would expect that small firms, facing informational asymmetries in financial markets, would substitute subsidized financing from government and financing from sources that rely on personal or commercial relations, such as trade credit or informal finance. We would also expect that such sources would be more significant in countries with poorly functioning financial systems or weak property rights protection. [4]

(2006) also use this data set. See Graham and Harvey (2001) for a recent application of the survey methodology to corporate finance.
[4] Biais and Gollier (1997) and Frank and Maksimovic (2001) argue that trade credit relaxes the borrowing constraints caused by asymmetries of information and costly bankruptcy proceedings. As a result, we

Our findings only partially confirm the prior finding that small firms substitute bank finance with other sources of external finance, especially in countries with underdeveloped institutions and financial markets. We do find that small firms use significantly more informal finance than large firms. However, financing from such sources is limited. On average the proportion of investment financed using informal finance is less than 2%. Thus, the use of informal financing does little to relax financial constraints faced by small firms in developing economies. Moreover, we find that small firms do not use disproportionately more leasing or trade finance compared with larger firms. In particular, financing from leasing does not fill the financing gap of small firms in countries with underdeveloped institutions because the use of leasing finance is positively associated with the development of financial institutions and equity markets. Surprisingly, small firms also do not finance their investment significantly more from government sources or development banks despite the fact that such programs are often politically justified as increasing financing for small firms. On the contrary, the coefficient is often negative and significant in some specifications. Overall, these findings point out the limits to small firms' ability to compensate for the underdevelopment of their countries' financial and legal systems. In these countries, the alternative sources of finance either do not significantly fill the gap or, in the case of trade credit, are less prevalent.

While our data do not allow a rigorous testing of the pecking order theory, we also provide some insights into this debate. We find a negative relation between the proportion of firms in a country that report being financially constrained and the

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would expect trade credit to be a substitute for bank lending to small firms in countries with poor financial and legal systems.

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proportion of firms that issue equity. This finding is consistent with the pecking order theory of Myers and Majluf (1984) and suggests that the majority of firms become constrained before they issue equity.

2. Financing patterns across the world

A number of studies have focused on cross-country comparisons of financing patterns. Rajan and Zingales (1995) explore capital structure decisions of firms in seven developed countries and find that variables commonly used to explain financial structure in the US are also correlated with leverage in their sample of international firms. Booth, Aivazian, Demirguc-Kunt, and Maksimovic (2001) consider financing choices in a sample of ten developing countries and also show that financing decisions are affected by the same variables as in developed countries. However, they also note large fixed effects across countries, indicating that specific country factors are at work. Booth, Aivazian, Demirguc-Kunt, and Maksimovic (2001) conclude that much remains to be done to understand the impact of different institutional features on capital structure. Demirguc-Kunt and Maksimovic (1999) examine capital structure in 30 developed and developing countries and show that differences in financing patterns are mostly due to the differences in the development of stock markets and banks, as well as differences in the underlying legal infrastructure. Fan, Titman, and Twite (2003) study capital structure in 39 countries and confirm earlier findings that institutional differences between countries are much more important in determining capital structure choices of firms compared with other factors, such as industry affiliation.

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In a related literature, Rajan and Zingales (1998) and Demirguc-Kunt and Maksimovic (1998) both show a relation among the development of financial institutions, external financing, and firm performance. Taken together, the implication of these studies is that a country's institutions affect financing patterns, with direct implications on their performance and growth.

All these studies rely on databases of listed firms so that even the small firms in their samples are relatively large.[5] The studies also implicitly define external finance narrowly, focusing on equity finance or long-term debt. Theory suggests that firms in countries with strong legal systems, in which property rights and in particular the rights of investors are enforced, are likely to rely on these types of external finance. In countries with weaker property rights protection, we would expect substitute forms of external finance, such as informal and supplier credit or development bank financing, to be used. Thus, a narrow definition of external financing that does not take into account other forms of financing might overstate both the constraints on external financing available to firms in less developed countries and the importance of legal development for the financing of firms in these countries.[6] Also, while these sources are not normally included in the US studies of external financing, variations in leasing, supplier, and government financing could be important when assessing differences in countries'

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[5] Papers looking at industry-level growth rates, such as Rajan and Zingales (1998), include firms of all sizes but do not distinguish between large and small firms as they are aggregated into industry data.
[6] In some countries, these informal financial systems are prevalent and economically significant. For example the amount of foreign transfers through the [informal] hawala system in Pakistan, estimated by the minister of finance to be between $2 billion to $5 billion annually, exceeds the amount transferred through the country's banking system (New York Times, 2001). See also Schramm and Taube (2003).

financial systems.[7] Looking at all available sources of external finance is especially important when studying financing choices of small firms as we do in this paper.

We use firm-level survey data to investigate the proportion of investment firms finance externally, focusing on the differences between small and large firms. We investigate individual sources of finance, such as debt finance and equity, and other available sources such as leasing, supplier, government, and informal finance. The firm-level data are from the World Business Environment Survey (WBES). Information on financing patterns is available for nearly three thousand firms in 48 countries.[8]

An important strength of the survey is its wide coverage of small and medium firms. The survey covers three groups of firms. Small firms are defined as those with five to 50 employees, medium firms are those that employ 51 to five hundred employees, and large firms are those that employ more than five hundred employees. Forty percent of our observations are from small firms, another 40% are from medium firms, and the remaining 20% are from large firms. The sample is size-stratified for each country and an effort is made to focus on small and medium firms. Thus, the survey data have a selection bias because respondents are not necessarily a representative sample of firms from their countries. However, analysis of mostly smaller firms does represent a nice complement to earlier cross-country studies in the literature, which all inevitably include a similar, but opposite, selection bias by focusing on the largest firms in their samples of diverse countries. Table A1 in the Appendix reports the number of firms for each country and for each size group in the sample.

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[7] Frank and Maksimovic (2001) argue that the equilibrium amount of trade finance relative to bank and equity financing is influenced by a country's legal and financial system. See Demirguc-Kunt and Maksimovic (2001) for cross country evidence.

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The survey data have several shortcomings. While they provide information on complete financing patterns, financial information is limited.[9] Financing patterns are given in terms of proportions of investment, not as debt to asset ratios, as is common in the previous literature. Furthermore, we do not have a complete set of firm level variables to replicate the usual set of firm-level controls used in capital structure papers, particularly profitability of firms. However, we do have information on firm employment, sales, industry, growth, ownership, and whether the firm is an exporter or has been receiving subsidies from national or local authorities. In particular, we have information on how important firms consider financing obstacles to be in affecting the operation and growth of their business. Using this information to distinguish financially constrained from unconstrained firms, we hope to compensate for the paucity of firm-level financial information.

Table 1 reports firm-level financing patterns averaged over all firms in each country. In the WBES, enterprise managers were asked: "Please identify the share of your firm's financing over the last year coming from each of the following sources." The sources are internal financial sources such as retained earnings or funds from family and friends and external financial sources such as equity, local commercial banks, foreign banks, supplier credit, leasing arrangements, development banks, and other government

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[8] The survey covers 80 economies, but the sample is reduced because of missing firm-level or country information.
[9] To check the credibility of the financial data, we compare the largest WBES firms in each country with the Worldscope firms. We find that on average Worldscope firms are six times larger than the largest firms in WBES, making comparisons difficult. However, we do see that, if our sample of WBES firms in a country uses more bank debt to finance investment, the Worldscope firms in the same country also use more short-term and long-term debt relative to capital expenditures, and these correlations are significant at the 7% level.

services or informal sources, such as moneylenders.[10] These proportions adds up to 100%.[11]

Insert Table 1 near here

We categorize the different sources of external financing into six groups. Bank Finance includes financing from local and foreign banks. Equity Finance is financing through issue of stock (in the case of corporations) or from personal wealth (in the case of non incorporated firms). Leasing Finance and Supplier Finance are funding through leasing arrangements and trade credit, respectively. Development Finance is funding from special development financing or other state services. Finally, finance from moneylenders and other traditional sources are classified as Informal Finance.[12]

We recognize that our financing pattern variables are different from those commonly used in the literature. For example, Demirguc-Kunt and Maksimovic (1999) focus on debt maturity and analyze long-term debt to total asset and long-term debt to total debt ratios. In our case, we do not have information on the amount of debt or total assets. We know only the proportion of investment financed from a particular source over the last year, in which the denominator (unavailable) is the total amount of internal and external resources used for firm financing. Firm financing refers to capital expenditures, working capital, and acquisitions. Unfortunately, the WBES data do not allow us to distinguish between financing of working capital versus investment.

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[10] We recognize that whether funds from family and friends qualify as internal or external sources might be controversial. We also have the problem that funds from friends and family might be debt or equity. However, this category is limited, because no more than 1% or 2% of investment is financed using sources from friends and family. Furthermore, we are more interested in sources rather than security types in this study.

[11] We omit firms for which the proportions do not add up to one hundred.

[12] There is a remainder category, which amounts on average to 2% and on which we do not have detailed information.

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As Fig. 1 and the first column of Table 1 show, in most countries including developed ones such as the US, UK and Germany, firms use internal resources to finance a significant portion of their investment. Firms in several developing countries, such as Colombia, Malaysia, Poland, and others, use more external finance than firms in the US, where financial and legal development is one of the highest rated. Not surprisingly, in some transitional countries with poorly developed institutions such as Armenia and Moldova, internal financing of investment can be as high as 90%. However, at the other extreme, countries such as Italy and Trinidad and Tobago have internal financing at about 30%.

Insert Fig. 1 near here

Looking at different financing sources is informative because countries with similar overall external financing proportions can have very different financing patterns. For example, firms in Nicaragua and Chile appear to have similar financing patterns if one looks at only the external financing proportion. However, Nicaraguan firms finance a large proportion of their investment using funds from development banks and supplier credit, whereas Chilean firms use much more bank finance. More broadly, an inspection of the table indicates that in countries in which bank and equity financing is more limited, firms rely more on other forms of external finance. Table 1 also shows that the most common source of external finance is bank finance followed by supplier credit.

3. Data and methodology

In our regression analysis, we relate firms' financing patterns with other firm and country characteristics. In Table 2 we summarize relevant facts about the level of economic and financial development in the sample countries. Detailed variable

definitions and sources are described in Appendix Table A2. Country-level variables are 1995-1999 averages. For each country, we present data on Gross Domestic Product (GDP) per capita, growth rate of GDP, and inflation. In addition, we present private credit, an indicator of financial intermediary development commonly used in the literature: the ratio of credit issued to the private sector by deposit money banks and other financial institutions to GDP (Beck, Demirguc-Kunt, and Levine, 2000). Countries with higher levels of private credit have been shown to grow faster (Beck, Levine, and Loayza, 2000).   Stock market development is captured by Value Traded, which is given by value of shares traded divided by GDP and is a good indicator of stock market liquidity. Levine and Zervos (1998) and Beck and Levine (2004) show a robust relation between stock market liquidity and GDP per capita growth. Finally, we also present an indicator of property rights protection, Property Rights, which is an indicator compiled by the Heritage Foundation. Its values vary between one and five, with greater values indicating a greater level of protection of private property rights. While not an indicator of financial development, Property Rights measures a key input into the efficient operation of financial contracts and thus financial development: the degree of protection of private property rights (Beck, Demirguc-Kunt, and Levine, 2003: Ayyagari, Demirguc-Kunt, and Maksimovic, 2008).

Insert Table 2 near here

Inspection of Table 2 reveals a great deal of economic and financial variation across the sample countries. Economic development ranges from Haiti, with an average GDP per capita of $369 to US and Germany, with per capita income of more than $30,000.   The countries also vary significantly in the rate of inflation, from a low of 0%

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n the cases of Sweden and Argentina, up to 62% in the case of Bulgaria. Both financial intermediary and stock market development, Private Credit and Value Traded, are higher in more developed countries although significant variation still exists at different levels of development. Property rights protection also increases with GDP per capita in general, but there are many exceptions. For example, China's income per capita is higher than that of Pakistan's, but property rights protection in Pakistan is rated highly at four, whereas China's rating is one of the lowest at two. We expect firms in countries with higher levels of financial development to have better access to external finance. However, it is not clear if different sources of external finance are affected by financial development to the same extent or if firms of all sizes benefit equally.

Table 3 shows that the indicators of financial development are significantly correlated with external financing and different sources of finance. Financial and institutional development, as measured by any of our three indicators, is positively correlated with the proportion of investment financed externally. Private Credit is highly correlated with use of bank finance and stock market development: Value Traded is correlated with the use of equity. Finally, better protection of property rights, Property Rights, is positively correlated with bank, equity, and leasing finance. However, we also note that many of the macroeconomic and financial indicators are correlated with each other.

Insert Table 3 near here

Financing patterns also vary with firm characteristics, as can be seen in Table 3, which also reports the sample statistics of the firm-level variables we consider and their correlations. All of the firm-level variables are dummy variables, unless otherwise noted.

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Small firms tend to rely on internal finance to a greater extent, with lower proportions of bank finance. However, the correlations indicate that small firms also use less supplier credit and receive less credit from development banks, while relying more on informal finance. Subsidized firms appear to receive some of these subsidies through bank loans and development financing. Similarly, government-owned firms seem to rely more on development financing. Differences also are evident among industries. Manufacturing firms are the greatest users of external finance, particularly bank finance. No significant differences seem to emerge in financing patterns between incorporated and non incorporated firms. Because these firm characteristics are also correlated with size, it is important to control for them when investigating small firm financing patterns.

Papers in the literature also commonly include indicators of firms' growth opportunities, such as firms' market-to-book ratio of equity (see Rajan and Zingales, 1995; and Booth, Aivazian, Demirguc-Kunt, and Maksimovic, 2001). Lacking such data we include firms' sales growth rate over the last three years as an indicator of future growth opportunities. Sales growth is positively and significantly correlated with external and equity finance.

Finally, capital structure studies cited above include indicators of firm profitability, such as return on assets, or dividend payments to total assets to capture financing constraints of firms. Higher dividend payout ratios are taken as indicators of cash surplus relative to investment needs, making the firm less likely to finance externally. While the proper interpretation of profitability ratios is much more controversial, again higher profits are negatively associated with external financing, potentially capturing lower levels of constraints. Because we do not have data on

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profitability, we use the survey responses to identify whether the firms are financially

constrained or not. Specifically, the WBES survey asked enterprise managers to rate the

extent to which financing problems presented obstacles to the operation and growth of

their business. A rating of one denotes no obstacle; two, a minor obstacle; three, a

moderate obstacle; and four, a major obstacle. In the regressions this variable allows us

to capture the extent to which a firm is financially constrained without relying on

accounting data such as profits, dividends, and the like.[13] The correlations in Table 3,

Panel B suggest that firms reporting higher financing obstacles use less equity finance but

substitute with external finance from other sources such as leasing, supplier,

development, and informal sources. The correlations also indicate that small firms report

facing higher financing obstacles. We expect those firms reporting higher financing

obstacles to have a greater need for external finance and thus use this variable as a proxy

for cash constraints of firms.

However, the level of the constraint is also likely to be endogenous, because the

firms become more and more constrained as they increase their external finance, making

it difficult to identify causality. We try to account for this effect both in our regressions

and our interpretation by excluding the financing obstacle variable and running the

regression across subsamples of firms with different reported financing constraints. Also,

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[13] Using survey data has problems because managers can blame financing obstacles for their own poor performance. However, this likelihood must be balanced by the likelihood that accounting data used in cross-country research are also subject to distortion. Although the auditing process provides some control, the quality of these audits tend to vary systematically across countries and firm size (Ball, Kothari, and Robin, 2000). While we cannot completely eliminate the possibility of bias due to unaudited self-reporting, we believe that it is unlikely to be a significant source of bias. First, Hellman, Jones, Kaufmann, and Schankerman (2000) show that, in a subsample of 20 countries, a close connection exists between responses and measurable outcomes. They find no systematic bias in the survey responses. Second, Beck, Demirguc-Kunt, and Maksimovic (2005) show that survey responses are significantly correlated with actual outcomes after controlling for many factors and using instrumental variables to control for possible endogeneity.

the relation between financing constraints and patterns might vary across different firm size groups, which we explore through interaction terms.

The firm-level variables do not correspond one-to-one to more conventional firm-level controls used by earlier papers. For example, papers in the literature generally include descriptors of firms' operating characteristics, or asset tangibility, such as net fixed assets to total assets and net sales to net fixed asset ratios as determinants of capital structure. Firms that operate with greater fixed assets are shown to have greater borrowing capacity, whereas those firms with a higher sales-to-asset ratio are more likely to need more short term financing to support sales (see Demirguc-Kunt and Maksimovic, 1999). We do not have these variables available. Instead, we use indicators of firms' industry and type of business to capture, at least partially, the differences in its operating characteristics.

Because Table 3 indicates a high degree of correlation between financing patterns and institutions, as well as other firm- and country-level variables, we use multivariate regression to clarify these relations. The dependent variables are the proportions of investment financed by external financing or through different sources of external finance.

As the observations are censored by zero and one hundred, we use Tobit regressions to estimate the financing patterns. We use two different models to assess the relation between firm and country characteristics and firms' financing patterns. In all cases, the dependent variable is the proportion of investment financed by firm i in country k through external finance or different external financing sources, respectively. Specifically, first, we use a regression model with country-level fixed effects to assess the

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relation between firms' financing patterns and other firm characteristics. Controlling for country fixed effects allows us to control not only for all kind of country-level factors but also for country-level biases in firms' responses to both financing patterns and obstacles. Second, we replace the country-level fixed effects with our indicators of financial and institutional development, as well as other country factors associated with financing patterns. This allows us to directly relate firms' financing patterns with countries' financial and institutional development.[14] In this specification, we relax the restriction that error terms across firms within a country are independent of each other to take into account possible unobserved country-level effects that might result in error correlations between firms in a given country; i.e., we allow for clustering on the country level. Finally, we return to the country-level fixed effects model to assess the differential impact of financial and institutional development on financing patterns of firms of different sizes.

The coefficients in the Tobit regressions cannot be interpreted as marginal effects of the explanatory variable on the observed dependent variables. Instead, they are the marginal effect of the underlying unobserved variables. In the text, we therefore also discuss unconditional marginal effects of the observed dependent variable. These marginal effects take into account not only the change in financing for firms with

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[14] While property rights protection is an exogenous variable, papers that study the relation between financial development and access to finance at the country level generally suffer from simultaneity issues in that it is not clear if it is the use of a particular type of financing (debt or equity) that leads to the development of debt or equity markets, or vice versa. See, for example, Demirguc-Kunt and Maksimovic (1998), Rajan and Zingales (1998), and others. However, because in this paper we analyze financing patterns of individual firms the causality is much more likely to go from country-level financial development to individual firm financing choices. Further, none of our dependent variables (proportion of external finance or the different sources) measures the actual quantity of financing as does Private Credit to GDP.

financing of a specific source between zero and one hundred but also changes in the probability that the financing proportion of a firm falls in this range (Maddala, 1986).

4.   Results

The Table 4 results show that small firms use significantly less external finance than large firms. Here we run a baseline fixed effects regression; i.e., we include only firm-level explanatory variables and control for country fixed effects. The lower use of external finance by small enterprises is explained by a lower use of bank finance. While medium-size enterprises do not use significantly less external finance than large firms, they use less bank finance. The relation between firm size and the use of bank finance is monotonic, increasing from small to medium and to large firms. Both small and medium-size enterprises use significantly more informal financing sources than large firms.   The relation is also economically significant. The marginal effects suggest that small firms finance on average 12 percentage points less of investment with external finance than large firms, which compares with a mean External Finance of 41% and a standard deviation of 38%. The relative economic effect is even stronger for Bank Finance, in which the difference between small and large firms is 11 percentage points, compared with a mean Bank Finance of 19% and a standard deviation of 28%. We do not find any significant difference in the use of equity, trade, lease, or development finance across firms of different sizes. Together, these results suggest that small firms cannot substitute other financing sources such as leasing, trade, or development finance for the lower access to bank finance. The significantly higher use of informal finance compared with large firms is not sufficiently large to offset the lower use of bank finance.

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Insert table 4 near here

The incorporation dummy is positive and significant in the external finance equation, but only at 10%. The difference is again due to greater financing from banks, which is also significant at 10%. Although corporations rely on equity financing to a greater extent, this effect is not significant. This suggests that private equity plays as much a role in unincorporated firms as public equity plays in corporations. In unreported regressions, we also look at differences between incorporated and unincorporated firms in the use of equity finance but could not find any difference across size groups within the two subsamples.

The results also indicate that firms reporting greater financing obstacles use more external finance. This finding, however, is also consistent with the interpretation that, as firms use more external finance, they tend to face greater financing constraints. Looking at different financing sources, we see that this relation holds for all sources except equity finance. Splitting the sample into incorporated and unincorporated firms does not yield a significant coefficient on Financing Obstacle in the Equity Finance regression.[15] This suggests a pecking order of financial sources, in which constrained firms are not able to issue equity to meet their financing needs.

Table 4 also identifies several other firm characteristics associated with the use of different financing sources. Not surprisingly, government-owned firms have easier access to resources from development institutions. Foreign-owned firms finance a large share of investment with equity finance, but a lower share with lease and trade finance. Exporters use more external finance, especially bank, lease, and trade finance. Subsidized enterprises receive more external resources for investment, especially from development

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institutions. No significant differences exist in financing patterns across firms in different sectors, and faster growing firms do not receive more external financing after accounting for other firm characteristics.

In the remaining panels of Table 4, we explore the robustness of our findings to the potential endogeneity of the financing obstacle variable. Panel B shows that our findings on the relation between firm patterns and other firm characteristics is confirmed when excluding the financing obstacle variable. Specifically, the relation between firm size and the use of external and bank finance is confirmed. Panels C and D show that our results are also confirmed when we split the sample according to the financing obstacle in firms that report financing as no or minor obstacle (Panel C) and firms that report financing as moderate or major obstacle (Panel D). However, these results also suggest that the relation between size and financing patterns is stronger for firms that are more financially constrained.

Having established the importance of size for financing patterns, especially for the use of bank finance, we now assess the importance of financial and institutional development for financing patterns by replacing the fixed country effects with country-level indicators of financial intermediary and stock market development as well as property right protection.

Table 5 shows the importance of financial and institutional development for firms' use of different financing sources. Table 5, Panel A shows that firms in countries with higher levels of financial intermediary development, as measured by Private Credit, use more external finance and, specifically, use more lease and development finance. Firms in countries with higher levels of stock market development, as measured by Value

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[15] Results available on request.

Traded, use more equity and lease finance, although overall stock market development is not significantly associated with more extensive use of external financing sources (Table 5, Panel B). Firms in countries with better property right protection use more external finance, especially bank and equity finance (Table 5, Panel C). These results are confirmed when we include all three measures of financial and institutional development together (Table 5, Panel D). Further, we find a significant effect of Private Credit, Value Traded and Property Rights on equity finance only for incorporated, but not for unincorporated enterprises.[16] Even controlling for the level of institutional and financial development, however, we still find the same significant association of firm size with financing patterns as in Table 4.

Insert Table 5 near here

The effect of Private Credit and Property Rights on External Finance varies between these two indicators. The average firm in Chile (75th percentile of Private Credit) uses 2 percentage points more external finance than the average firm in Costa Rica (25th percentile of Private Credit). The average firm in Uruguay (75th percentile of Property Rights) uses 6 percentage points more external finance than the average firm in Venezuela (25th percentile of Property Rights).[17]

Turning to the country-level control variables, we do not find a robust association of the level of economic development, as measured by GDP per capita, with financing patterns. Similarly, firms in faster growing economies do not experience different financing patterns from firms in countries that grow more slowly. Higher levels of

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[16] Results available on request.
[17] Note that Private Credit variable is defined as the logarithm of the ratio of the private credit to GDP.

inflation have a negative effect on the overall reliance on external finance and are associated with lesser use of bank and supplier finance.

Together, these results suggest a strong impact of financial and institutional development, especially of property rights protection on the use of external finance by firms. But does this effect vary across different firm size groups?

Table 6 explores the variation of the relation between financial and institutional development with financing patterns across different size group of firms. Specifically, we return to the fixed effects specification of Table 4 and introduce interaction terms of Private Credit, Value Traded, and Property Rights with dummies for large, medium-size and small firms. Similarly, we explore whether the significant relation between financing obstacles and financing patterns varies across firms of different sizes.

Insert Table 6 near here

We find evidence that private credit increases the use of external financing sources by large firms, especially bank and development finance. Small firms seem to benefit somewhat from financial intermediary development by a larger use of lease and development finance and lower use of informal finance. No differential effect exists of financial intermediary development on medium-size firms. Small and large firms in countries with higher levels of stock market development use more lease finance, perhaps because leasing firms have fewer problems funding their loans. Finally, better property right protection is conducive to higher use of external, especially bank finance. The positive effect of Property Rights on Bank Finance decreases in firm size: Small firms benefit relatively more from better property right protection than medium-size firms that in turn benefit more than large firms.

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The effect of property rights protection on closing the external financing gap between small and large firms is relatively large. Small firms in Uruguay (75th percentile of Property Rights) finance 9 percentage points more investment with external finance than small firms in Venezuela (25th percentile of Property Rights), while the difference is only 5 percentage points for large firms.

Table 6 also indicates that for large firms higher financing constraints are associated with greater levels of external finance than medium-size enterprises. And similarly for medium-size enterprises, higher constraints are associated with greater levels of external finance than small enterprises. Given the endogenous nature of this variable, it is difficult to assess causality, but these results are consistent with larger firms more easily being able to meet their financing needs and being constrained at higher levels of external finance. When we look at financing sources, we see that this finding is mostly due to a monotonic increase in the relation between financing obstacles and bank finance. Constrained large firms also use more lease, supplier, and, surprisingly, informal finance.

The Table 6 results thus show that better property right protection can level the playing field between small and large firms in terms of the use of external and especially bank finance. However, financially constrained firms still have an easier time expanding their use of external finance if they are large instead of small.

The estimates so far can be interpreted to show that firms with greater financing needs are more likely to rely on different sources of external finance. However, thus far, we have not imposed any a priori ordering of sources of external financing. The pecking order theory of Myers and Majluf (1984) posits that adverse selection in the market for

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external finance makes it efficient for the firm to access equity last after all other sources of external finance are exhausted.[18]

Traditional pecking order theory does not consider the incentives of investors to acquire costly proprietary information about the issues. Fughlieri and Lukin (2001) predict that, when the cost of acquiring proprietary information is not too high, a reverse pecking order could occur. In this reverse pecking order, firms are more likely to issue equity securities before incurring additional debt because equity provides more incentives for information gathering by private investors. Consistent with this prediction, Gomes and Phillips (2006) find that a reverse pecking order for private placements coexists with a traditional pecking order for public issues.

While our data do not allow us a sophisticated test of the pecking order, we can assess the relation between financing constraints and the use of equity finance. The simple correlation coefficient from Table 3 suggests a negative relation. However, this refers to the proportion of investment financed with equity, while the pecking order theory predicts that firms do not use any equity before they exhaust their capacity to finance investment with other external financing sources. If the traditional pecking order is correct, we would expect to see a low proportion of firms financing investment with equity finance in countries in which a large proportion of firms report that they are financially constrained.   We therefore consider the empirical relation between the share of firms that report to be financially constrained in a country and the share that uses equity finance for investment. Fig. 2 shows a negative relation between the proportion of firms in a country that report financing to be a major constraint and the proportion of

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[18] The empirical tests of pecking order theories in the United States have not produced unanimity. Thus, for example, Shyam-Sunder and Myers (1999) find support for the traditional pecking order, whereas studies

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firms that use any equity finance for investment. This relation is robust to the exclusion

of outliers and holds both for incorporated and unincorporated enterprises.

Insert Fig 2 near here

Fig. 2 suggests that the traditional pecking order theory indeed holds: The more

firms in a country are financially constrained, the less likely is an extensive use of equity

as a source of investment finance, be it through issue of shares or private equity. This

last result is of interest given the Fughlieri and Lukin (2001) theoretical prediction that,

when costs of private information gathering are relatively low, firms that issue securities

through private placements adopt a reverse pecking order. We find no evidence of such a

reversal of the pecking order. This finding suggests that the costs of private information

acquisition are high or that the rights of minority equityholders are insufficiently strong

to provide adequate incentives to overcome the adverse selection effects in the market for

equity.

5.   **Conclusions**

We investigate how firm financing patterns differ around the world for large

versus small firms. Using a unique firm-level survey database in 48 countries, we find

that firm size, financial development, and property rights protection are important factors

in explaining the observed variation in financing patterns. In contrast to earlier literature,

80% of our sample is composed of small and medium size firms. We examine a broader

spectrum of external financing sources, which includes not only debt and equity finance,

but also leasing and supplier finance, development bank, and informal finance.

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by Frank and Goyal (2003) and Leary and Roberts (2005) do not.

Our results indicate that firm size plays an important role in understanding financing patterns. Small firms use less external finance, especially bank finance. But small firms also benefit the most from better protection of property rights in terms of accessing formal sources of external finance, particularly bank finance. Finance from development banks and other government sources are used to a greater extent by larger firms. Similarly, leasing and supplier finance does not fill in the financing gap of small firms. Thus, the most effective way of improving small firms' access to external finance appears to be through institutional reforms addressing the weaknesses in legal and financial systems.

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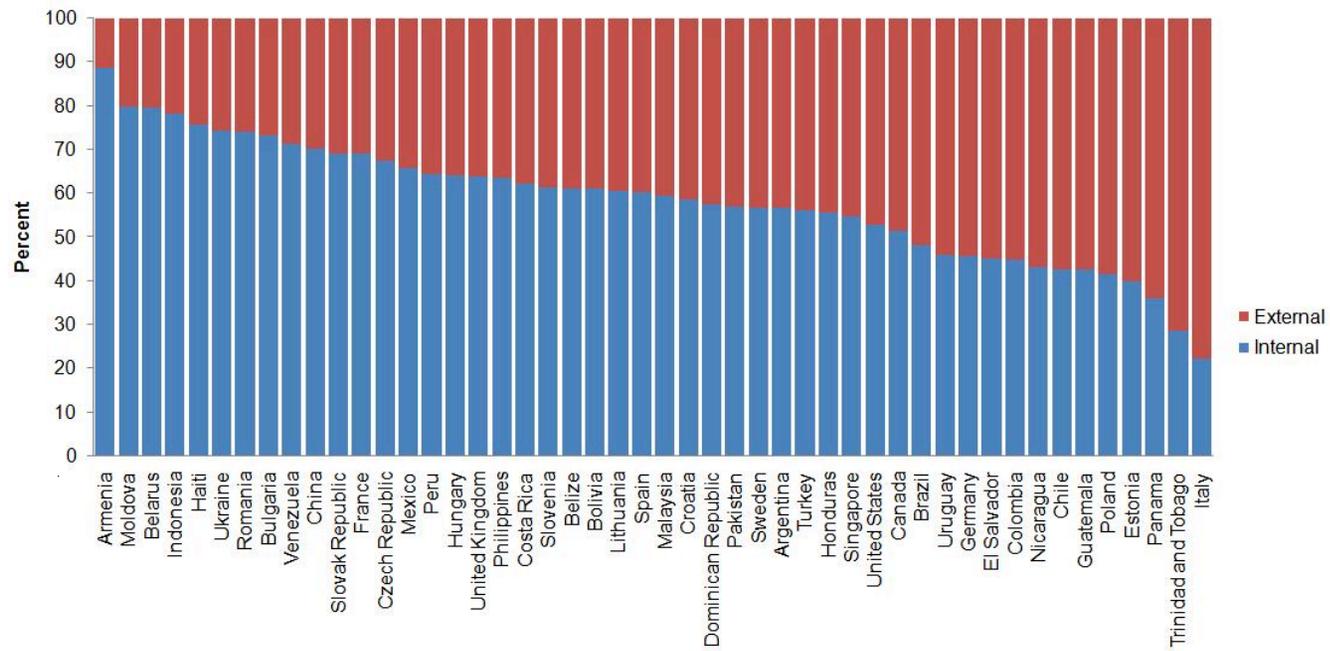
Figure 1. Financing Patterns Around the World. Internal finance is the proportion of investment financed by retained earnings and from family and friends. All other financing are considered external. Values reported are firm averages by country. Countries are ranked in descending order according to internal financing.

Figure 2: Relationship between the share of financially constrained firms and share of firms using equity finance
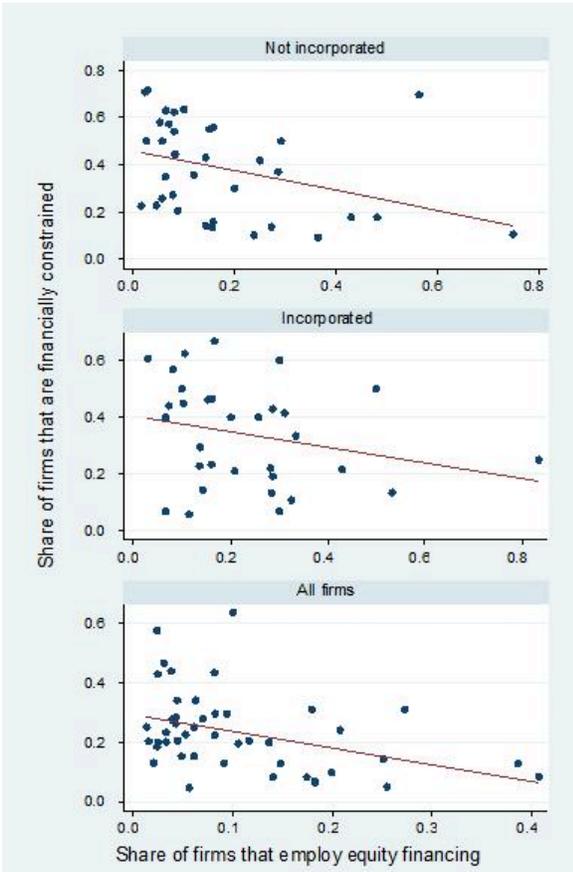
Table 1

Financing patterns around the world. Figures given are firm averages for each country, and they are the proportion of investment financed by each source. External finance is the sum of bank, equity, leasing, supplier credit, development bank and informal finance. Bank finance includes financing from domestic as well as foreign banks. Development bank includes funding from both development and public sector banks. Informal includes funding from money lenders and traditional or informal sources.

Country	External Finance	Bank	Equity	Leasing	Supplier Credit	Development Bank	Informal
Argentina	43.45	29.99	2.81	0.75	7.48	1.60	0.82
Armenia	11.42	4.53	0.00	1.08	0.88	3.58	0.68
Belarus	20.36	5.73	1.09	0.90	3.13	9.40	0.12
Belize	38.93	20.36	13.57	0.00	3.21	1.79	0.00
Bolivia	38.97	27.02	0.00	0.00	8.26	0.29	0.74
Brazil	51.80	23.06	6.88	4.65	11.37	4.20	0.40
Bulgaria	26.78	6.03	1.38	3.45	6.47	3.82	2.87
Canada	48.55	23.45	8.39	2.39	3.39	5.93	5.00
Chile	57.34	41.34	0.26	2.57	7.71	0.48	1.00
China	29.93	10.17	2.41	1.63	2.41	4.63	5.93
Colombia	55.22	29.18	0.37	1.97	12.45	4.78	0.00
Costa Rica	37.92	21.13	0.19	0.15	7.54	2.08	1.35
Croatia	41.31	19.79	3.02	0.31	8.19	6.23	2.47
Czech Republic	32.50	13.90	0.66	3.90	3.75	6.84	3.46
Dominican Republic	42.58	25.32	0.56	0.08	10.40	0.95	1.77
El Salvador	55.00	32.03	4.59	0.54	9.19	3.92	0.14
Estonia	60.14	20.81	14.71	9.46	6.96	3.07	3.35
France	30.91	6.76	5.76	4.30	7.36	1.42	1.67
Germany	54.29	16.84	23.13	0.74	0.94	8.52	4.13
Guatemala	57.34	28.38	1.09	2.78	18.72	2.63	0.63
Haiti	24.17	10.83	0.24	0.24	2.38	10.24	0.24
Honduras	44.33	29.17	1.00	0.00	9.00	2.67	2.50
Hungary	35.86	13.99	6.96	2.41	5.06	6.05	1.39
Indonesia	21.83	17.17	0.00	1.67	0.67	1.67	0.00
Italy	77.71	49.67	6.88	1.67	5.83	1.17	4.17
Lithuania	39.60	12.42	11.74	4.08	5.24	1.32	4.79
Malaysia	40.62	13.81	4.76	3.48	13.81	4.05	0.71
Mexico	34.33	6.83	7.00	0.33	11.17	5.33	3.50
Moldova	20.07	10.11	0.49	2.01	4.40	2.22	0.83
Nicaragua	56.70	19.32	1.36	0.91	15.23	7.61	3.18
Pakistan	43.13	29.96	5.63	1.50	2.92	1.04	2.08
Panama	64.02	47.15	2.07	1.22	5.00	1.17	0.24
Peru	35.53	20.90	0.50	0.50	9.08	1.68	0.88
Philippines	36.55	17.49	1.96	1.41	10.84	4.49	0.36
Poland	58.60	15.44	27.58	4.50	4.60	4.33	1.72
Romania	25.91	11.53	3.01	2.44	4.09	2.67	2.16
Singapore	45.17	28.06	7.67	1.16	6.14	0.58	0.00
Slovak Republic	30.84	9.26	1.17	10.23	4.00	3.45	2.60
Slovenia	38.55	16.99	3.51	2.88	8.27	4.61	1.04
Spain	39.78	23.00	0.67	8.04	4.22	2.62	1.22
Sweden	43.42	19.70	8.33	1.22	6.16	3.43	1.12
Trinidad and Tobago	71.35	40.00	12.73	0.85	15.18	1.85	0.00
Turkey	43.98	20.41	9.68	4.85	1.42	6.21	1.17
Ukraine	25.80	7.21	2.53	1.01	7.84	4.45	2.71
United Kingdom	36.12	13.14	11.56	2.91	7.47	0.58	0.47
United States	47.12	21.47	3.24	6.09	6.62	6.76	2.94
Uruguay	54.04	39.79	1.38	0.74	8.30	2.77	0.00
Venezuela	28.73	14.80	3.05	0.50	5.88	1.75	0.25

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Table 2

Economic, financial and institutional indicators. Gross domestic product (GDP) per capita is real GDP per capita in US dollars. Inflation is the log difference of the Consumer Price Index. Growth is the growth rate of GDP in US dollars. Private credit is financial sector credit to private sector divided by GDP. Value Traded is the value of shares traded to GDP. Property Rights is rating from one to five of the degree to which property rights are protected in a nation. All country variables are 1995-1999 averages. Detailed variable definitions and sources are given in the Appendix.

Country	GDP/capita	Inflation	Growth	Private Credit	Value Traded	Property Rights
Argentina	8000.15	0.00	0.02	0.21	0.04	4.00
Armenia	844.11	0.09	0.04	0.06	0.00	3.00
Bulgaria	1414.61	0.62	-0.02	0.14	0.00	3.00
Belarus	2234.91	0.54	0.07	0.06	0.00	3.00
Belize	2737.70	0.01	0.00	0.43	0.00	4.00
Bolivia	938.55	0.06	0.01	0.51	0.00	3.00
Brazil	4491.67	0.07	0.00	0.32	0.17	3.00
Canada	20548.97	0.01	0.02	0.83	0.49	5.00
Chile	5002.70	0.05	0.03	0.68	0.11	5.00
China	676.76	0.02	0.07	0.85	0.27	2.00
Colombia	2381.19	0.15	-0.01	0.36	0.02	3.00
Costa Rica	3692.47	0.12	0.04	0.15	0.00	3.00
Czech Republic	5158.04	0.07	0.00	0.58	0.11	4.00
Germany	30794.03	0.01	0.01	1.06	0.43	5.00
Dominican Republic	1712.31	0.06	0.06	0.24	0.00	2.00
Spain	15858.03	0.02	0.03	0.79	0.66	4.00
Estonia	3663.49	0.10	0.05	0.16	0.12	4.00
France	27719.92	0.01	0.02	0.84	0.28	4.00
United Kingdom	20186.56	0.03	0.02	1.16	0.73	5.00
Guatemala	1503.25	0.07	0.01	0.18	0.00	3.00
Honduras	707.52	0.15	0.00	0.26	0.03	3.00
Croatia	3845.27	0.04	0.05	0.00	0.00	2.00
Haiti	368.73	0.13	0.00	0.12	0.00	1.00
Hungary	4705.65	0.14	0.04	0.22	0.02	4.00
Indonesia	1045.04	0.18	-0.02	0.52	0.13	3.00
Italy	19645.96	0.02	0.01	0.57	0.19	4.00
Lithuania	1907.93	0.09	0.03	0.11	0.01	3.00
Moldova	667.74	0.16	-0.03	0.06	0.06	3.00
Mexico	3394.75	0.18	0.04	0.22	0.12	3.00
Malaysia	4536.23	0.03	0.01	1.30	1.14	4.00
Nicaragua	434.69	0.10	0.03	0.31	0.00	2.00
Pakistan	505.59	0.07	0.00	0.23	0.13	4.00
Panama	3123.95	0.01	0.02	0.78	0.00	3.00
Peru	2334.94	0.07	0.01	0.18	0.06	3.00
Philippines	1125.81	0.07	0.01	0.50	0.23	4.00
Poland	3216.04	0.12	0.05	0.12	0.04	4.00
Romania	1372.02	0.42	-0.02	0.09	0.01	2.00
Singapore	24948.09	0.01	0.02	1.11	0.61	5.00
El Salvador	1705.79	0.04	0.01	0.36	0.00	3.00
Slovakia	3805.41	0.07	0.04	0.30	0.08	3.00
Slovenia	10232.73	0.08	0.04	0.26	0.02	3.00
Sweden	28258.28	0.00	0.02	0.82	0.66	4.00
Trinidad and Tobago	4526.28	0.04	0.04	0.40	0.02	5.00
Turkey	2993.89	0.46	0.01	0.16	0.28	4.00
Ukraine	866.52	0.23	-0.03	0.02	0.00	3.00
Uruguay	6113.60	0.14	0.02	0.27	0.00	4.00
United States	29250.32	0.02	0.03	1.84	1.12	5.00
Venezuela	3482.51	0.34	-0.02	0.10	0.02	3.00

Table 3

Summary statistics and correlations. N refers to firm level observations for 48 countries. Bank finance, Equity, Leasing, Supplier credit, Development bank, and Informal are financing proportions that stand for the proportion of investment financed externally, by bank debt, equity, leasing, supplier credit, development, and public sector banks and money lenders, respectively. Firm size-small takes the value one if the firm is a small firm and zero otherwise. Firm size–medium takes the value one if the firm is a medium firm and zero otherwise. Manufacturing takes the value one for firms in manufacturing and zero otherwise. Similarly, Services takes the value one for firms in the services sector and zero otherwise. Firm growth is given by percent change in sales. Government and Foreign are dummy variables that take the value one if the firm has government or foreign ownership and zero if not. Exporter is a dummy variable that indicates if the firm is an exporting firm. Subsidized is also a dummy variable that indicates if the firm receives subsidies from the national or local authorities. Corporation is a dummy that indicates whether a firm is incorporated. GDP/ capita is real Gross domestic product (GDP) per capita in US dollars. Inflation is the log difference of the Consumer Price Index. Growth is the growth rate of GDP in US dollars. Financing Obstacle is an index that measures how problematic financing is to the operation and growth of a business. Private Credit is the financial sector credit to the private sector divided by GDP. Value Traded is the value of shares traded to GDP. Property Rights is a rating from one to five of the degree to which property rights are protected in a nation. All country variables are 1995-1999 averages. Detailed variable definitions and sources are given in the Appendix. * indicates a significance level of 5%.

Panel A. Summary statistics

Variable	N	Mean	Standard Deviation	Minimum	Maximum
External Finance	2,754	40.59	37.97	0.00	100.00
Bank Finance	2,754	19.41	28.30	0.00	100.00
Equity Finance	2,754	5.68	17.40	0.00	100.00
Leasing	2,754	2.55	10.06	0.00	100.00
Supplier Credit	2,754	6.72	15.86	0.00	100.00
Development Bank	2,754	2.95	11.94	0.00	100.00
Informal	2,754	1.76	8.89	0.00	100.00
Firm Size - small	2,754	0.42	0.49	0.00	1.00
Firm Size - medium	2,754	0.40	0.49	0.00	1.00
Manufacturing	2,754	0.39	0.49	0.00	1.00
Services	2,754	0.48	0.50	0.00	1.00
Firm Growth	2,754	0.14	0.56	-1.00	8.00
Subsidized	2,754	0.10	0.31	0.00	1.00
Government	2,754	0.06	0.24	0.00	1.00
Foreign	2,754	0.20	0.40	0.00	1.00
Exporter	2,754	0.40	0.49	0.00	1.00
Financing Obstacle	2,734	2.80	1.13	1.00	4.00
Corporation	2,754	0.38	0.49	0.00	1.00
GDP/capita	48	6,052	7,906	369	30,794
Inflation	48	0.13	0.15	0.00	0.62
Growth	48	0.02	0.03	-0.03	0.07
Private Credit	48	0.37	0.35	0.00	1.84
Value Traded	48	0.15	0.24	0.00	1.14
Property Rights	48	3.43	0.90	1.00	5.00

Panel B. Correlation matrix of dependent and independent variables

Variable	External Finance	Bank Finance	Equity Finance	Leasing	Supplier Credit	Development Bank	Informal	Firm size-small	Firm size-medium	Manufacturing	Services	Firm Growth
External Finance	1											
Bank Finance	0.6282*	1										
Equity Finance	0.3517*	-0.0902*	1									
Leasing	0.2158*	-0.0471*	-0.0083	1								
Supplier Credit	0.3727*	-0.0145	-0.0432*	-0.0013	1							
Development Bank	0.2255*	-0.0809*	-0.0238	-0.0042	-0.0185	1						
Informal	0.1591*	-0.0792*	-0.0107	0.0003	0.0001	-0.0114	1					
Firm size-small	-0.1846*	-0.2160*	0.0163	0.0098	-0.0393*	-0.0616*	0.0539*	1				
Firm size-medium	0.0807*	0.0681*	0.0058	0.0118	0.0498*	0.0505*	-0.0055	-0.6900*	1			
Manufacturing	0.0649*	0.1261*	-0.0589*	-0.0332	0.0228	0.0201	-0.0172	-0.2242*	0.1094*	1		
Services	-0.0441*	-0.0901*	0.0265	0.0429*	-0.0037	-0.0377*	0.0127	0.2055*	-0.1201*	-0.7700*	1	
Firm Growth	0.0572*	0.0049	0.0754*	0.0306	-0.0047	0.0306	-0.0267	-0.0223	0.0249	-0.0211	0.0199	1
Subsidized	0.0868*	0.0581*	-0.0059	0.0301	-0.0267	0.1207*	-0.0211	-0.1347*	0.0479*	0.0374*	-0.0742*	0.0171
Government	0.0566*	0.0313	0.0148	-0.0115	-0.016	0.0649*	0.0034	-0.1563*	0.0755*	0.1145*	-0.0786*	-0.0293
Foreign	0.0736*	0.0813*	0.0284	-0.0497*	-0.0136	0.0192	-0.0301	-0.2342*	0.0238	0.1194*	-0.0426*	0.0398*
Exporter	0.1440*	0.1523*	0.03	0.0471*	0.0228	0.0124	-0.0194	-0.2489*	0.0899*	0.3683*	-0.2960*	0.0911*
GDP/capita	0.0814*	0.0572*	0.0815*	0.0195	-0.0247	0.0171	0.0048	-0.0487*	0.0427*	-0.0772*	0.0658*	0.0614*
Inflation	-0.1574*	-0.1558*	-0.0422*	0.0062	-0.0645*	0.0335	0.0022	0.1028*	-0.0266	0.0456*	-0.1142*	-0.0430*
Growth	0.1107*	0.0414*	0.1395*	0.0518*	-0.0173	0.0153	0.0205	-0.0054	0.0214	-0.0073	0.0246	0.1330*
Financing Obstacle	0.0237	-0.0034	-0.0422*	0.0408*	0.0359	0.0373	0.0675*	0.0832*	0.0186	0.0524*	-0.1144*	-0.0967*
Private Credit	0.0955*	0.1008*	0.0002	0.0207	0.0057	0.0167	0.0005	-0.0493*	-0.0161	-0.0263	0.0576*	0.0121
Value Traded	0.0441*	0.0157	0.0487*	0.0584*	-0.0161	0.0246	0.0044	-0.0108	0.0217	-0.0627*	0.0525*	0.0217
Property Rights	0.1683*	0.1243*	0.1722*	0.0593*	-0.0006	-0.0113	-0.0179	-0.0062	0.0371	-0.1034*	0.0708*	0.0848*
Corporation	0.0154	0.0299	0.0071	0.02	0.0016	-0.0024	-0.0171	-0.1397*	0.1114*	0.0361	-0.0389*	0.028

	Subsidized	Government	Foreign	Exporter	GDP/capita	Inflation	Growth	Financing Obstacle	Private Credit	Value Traded	Property Rights	Corporation
Subsidized	1											
Government	0.1186*	1										
Foreign	0.0441*	0.0706*	1									
Exporter	0.1111*	0.1187*	0.2186*	1								
GDP/capita	0.1011*	-0.0093	0.0958*	0.0934*	1							
Inflation	-0.0407*	0.0327	-0.1004*	-0.0831*	-0.3787*	1						
Growth	0.0385*	0.0793*	0.0224	0.1352*	0.1297*	-0.3494*	1					
Financing Obstacle	-0.0275	0.0208	-0.1423*	-0.0327	-0.2306*	0.1642*	-0.1258*	1				
Private Credit	0.0904*	-0.0485*	0.1239*	0.0566*	0.7408*	-0.4703*	0.1242*	-0.1940*	1			
Value Traded	0.0887*	-0.0550*	0.0637*	0.0445*	0.7559*	-0.2920*	0.0840*	-0.1812*	0.8437*	1		
Property Rights	0.0717*	-0.0850*	0.0455*	0.0847*	0.5850*	-0.2624*	0.1444*	-0.2024*	0.5343*	0.5358*	1	
Corporation	0.0171	0.0981*	0.1065*	0.1044*	0.2302*	-0.1193*	0.0263	-0.0749*	0.1172*	0.1988*	0.1639*	1

Table 4

Determinants of financing patterns; the role of firm size. The estimated fixed effects interval regression model is FINANCING SOURCE = α_0 + α_1 GOVERNMENT + α_2 FOREIGN + α_3 EXPORTER + α_4 SUBSIDIZED + α_5 MANUFACTURING + α_6 SERVICES + α_7 FIRM GROWTH + α_8 SMALL + α_9 MEDIUM + α_{10} CORPORATION + α_{11} FINANCING OBSTACLE + α_{12} COUNTRY DUMMIES + ε. FINANCING SOURCE is the proportion of investment financed by external sources, bank debt, equity, leasing, supplier credit, development banks, or informal sources. External finance is the sum of bank, equity, leasing, supplier credit, development bank and informal finance. Bank finance includes financing from domestic as well as foreign banks. Development bank includes funding from both development and public sector banks. Informal includes funding from money lenders and traditional or informal sources. GOVERNMENT and FOREIGN are dummy variables indicating whether a firm has government or foreign ownership, respectively; EXPORTER is a dummy variable that indicates whether a firm is an exporting firm; SUBSIDIZED is a dummy variable that indicates if the firm receives subsidies from the national or local authorities; MANUFACTURING is a dummy variable that indicates whether a firm is in the manufacturing sector; SERVICES is a dummy variable that indicates whether a firm is in the services sector; FIRM GROWTH is firm sales growth; SMALL is a dummy variable that indicates whether firm size is small; MEDIUM is a dummy variable that indicates whether firm size is medium; CORPORATION is a dummy variable that indicates whether a firm is incorporated; and FINANCING OBSTACLE is an index that measures how problematic financing is to the operation and growth of a business, and ranges from no obstacle (1), to minor obstacle (2), to moderate obstacle (3), to major obstacle (4). Variable definitions and sources are detailed in the Appendix. All regressions are run as tobit regressions and include country fixed effects. Panel A uses the full sample and estimates the full model, Panel B uses the full sample but omits the financing obstacle variable, Panel C restricts the sample to firms that report no or minor financing obstacles, and Panel D restricts the sample to firms with moderate or major financing obstacles. Robust standard errors are in brackets. *= significant at 5%; **= significant at 1%.

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Variable	External Finance	Bank	Equity	Lease	Supplier Credit	Development Bank	Informal
Panel A. Full Sample							
GOVERNMENT	5.539	-1.375	9.997	-6.198	0.918	18.157	1.211
	[5.373]	[4.863]	[6.669]	[5.489]	[4.646]	[7.868]*	[8.626]
FOREIGN	-0.902	-3.28	18.077	-9.882	-6.056	6.41	-5.267
	[3.261]	[2.921]	[4.886]**	[3.614]**	[2.975]*	[5.091]	[5.671]
EXPORTER	7.073	6.677	-0.51	6.707	5.956	-3.336	-2.091
	[2.795]*	[2.549]**	[4.278]	[2.778]*	[2.582]*	[4.668]	[4.769]
SUBSIDIZED	9.239	2.45	1.865	8.481	-0.994	33.122	-2.174
	[3.983]*	[3.784]	[5.770]	[4.073]*	[3.414]	[5.002]**	[6.752]
MANUFACTURING	0.938	6.888	-10.994	-0.81	6.214	-3.085	-5.952
	[3.856]	[3.673]	[6.191]	[3.942]	[3.857]	[5.941]	[6.718]
SERVICES	-0.771	-0.379	-3.833	8.017	5.479	-8.376	-1.605
	[3.730]	[3.624]	[5.858]	[3.764]*	[3.857]	[5.724]	[6.391]
FIRM GROWTH	1.062	0.085	0.973	-0.024	-0.382	5.871	-3.001
	[2.384]	[2.109]	[2.925]	[1.987]	[2.134]	[3.723]	[3.471]
SMALL	-20.757	-24.476	-8.156	-6.235	-1.024	-10.708	17.24
	[3.873]**	[3.433]**	[5.930]	[4.378]	[3.577]	[6.436]	[7.702]*
MEDIUM	-6.599	-9.221	-8.5	-0.308	5.976	2.081	16.857
	[3.455]	[3.061]**	[5.205]	[3.895]	[3.101]	[5.197]	[7.221]*
CORPORATION	7.062	7.262	8.818	3.808	-1.319	-0.484	-2.621
	[3.105]*	[2.864]*	[4.746]	[2.876]	[2.785]	[4.969]	[4.808]
FINANCING OBSTACLE	6.363	4.762	3.241	2.471	2.333	3.776	7.982
	[1.211]**	[1.113]**	[1.819]	[1.214]*	[1.088]*	[1.911]*	[2.134]**
Constant	19.765	9.444	-97.79	-74.248	-35.418	-92.108	-128.708
	[8.830]*	[7.992]	[16.138]**	[12.312]**	[8.005]**	[15.676]**	[20.483]**
Number of observations	2,734	2,734	2,734	2,734	2,734	2,734	2734

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Panel B. FINANCING OBSTACLE omitted

GOVERNMENT	6.643	-0.584	11.067	-6.284	0.911	19.402	2.219
	[5.464]	[4.830]	[6.665]	[5.534]	[4.644]	[7.780]*	[8.595]
FOREIGN	-3.049	-4.682	16.551	-10.548	-6.755	5.018	-7.633
	[3.274]	[2.900]	[4.854]**	[3.585]**	[2.977]*	[5.055]	[5.696]
EXPORTER	8.054	7.392	0.643	6.853	6.231	-3.043	-1.423
	[2.819]**	[2.560]**	[4.253]	[2.785]*	[2.587]*	[4.650]	[4.769]
SUBSIDIZED	9.589	2.622	1.554	8.522	-0.747	33.294	-1.686
	[4.012]*	[3.766]	[5.748]	[4.076]*	[3.423]	[4.983]**	[6.792]
MANUFACTURING	-0.39	6.102	-11.118	-0.835	5.795	-4.925	-6.061
	[3.883]	[3.674]	[6.149]	[3.938]	[3.862]	[5.861]	[6.777]
SERVICES	-3.42	-1.999	-4.558	7.202	4.711	-11.097	-3.148
	[3.741]	[3.608]	[5.794]	[3.738]	[3.842]	[5.614]*	[6.375]
FIRM GROWTH	0.822	-0.373	1.643	-0.078	-0.71	5.034	-3.847
	[2.408]	[2.105]	[2.979]	[1.968]	[2.128]	[3.741]	[3.554]
SMALL	-18.456	-22.821	-6.689	-5.769	-0.28	-8.935	18.933
	[3.893]**	[3.430]**	[5.876]	[4.343]	[3.547]	[6.345]	[7.770]*
MEDIUM	-4.598	-7.819	-7.395	0.485	6.564	3.558	18.574
	[3.479]	[3.058]*	[5.168]	[3.863]	[3.073]*	[5.177]	[7.284]*
CORPORATION	6.477	6.826	8.378	3.744	-1.426	-1.155	-3.519
	[3.124]*	[2.870]*	[4.739]	[2.863]	[2.784]	[5.001]	[4.822]
Constant	40.917	25.058	-87.348	-66.552	-27.735	-77.89	-101.715
	[7.839]**	[6.945]**	[15.274]**	[11.249]**	[7.422]**	[14.647]**	[19.177]**
Number of observations	2,754	2,754	2,754	2,754	2,754	2754	2,754

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Panel C. FINANCING OBSTACLE = 1 or 2

GOVERNMENT	-6.676	1.653	0.66	-9.451	5.439	8.786	23.932
	[9.488]	[8.016]	[10.183]	[7.383]	[6.897]	[11.906]	[16.096]
FOREIGN	-4.785	-2.351	16.685	-14.386	-4.026	9.175	-5.806
	[5.469]	[4.591]	[7.100]*	[4.778]**	[4.236]	[8.136]	[10.682]
EXPORTER	11.975	7.531	3.481	8.116	7.831	6.186	-8.516
	[4.998]*	[4.347]	[6.568]	[3.901]*	[4.135]	[0.000]	[8.654]
SUBSIDIZED	0.837	4.446	0.895	2.534	-1.588	24.68	-0.094
	[7.489]	[6.352]	[8.960]	[5.971]	[5.551]	[8.726]**	[14.502]
MANUFACTURING	-0.978	13.653	-20.117	-3.327	-1.487	6.804	7.248
	[8.141]	[7.448]	[10.623]	[5.863]	[6.828]	[12.374]	[15.336]
SERVICES	3.693	3.123	-3.108	5.628	2.266	7.659	8.493
	[7.742]	[7.149]	[9.794]	[5.484]	[6.682]	[12.384]	[13.738]
FIRM GROWTH	-1.718	-3.218	0.191	-3.989	1.066	5.82	-0.076
	[4.528]	[3.711]	[4.751]	[2.840]	[3.219]	[6.074]	[4.153]
SMALL	-13.77	-15.142	-6.815	5.232	6.532	-0.844	28.48
	[6.660]*	[5.711]**	[9.450]	[6.114]	[5.535]	[10.693]	[14.370]*
MEDIUM	-5.1	-5.276	-11.03	2.831	13.54	-4.807	19.953
	[5.834]	[4.939]	[7.744]	[5.114]	[4.698]**	[8.684]	[14.069]
CORPORATION	18.966	10.385	23.69	1.143	-5.094	-1.618	4.633
	[5.794]**	[5.051]*	[8.053]**	[4.014]	[4.655]	[8.119]	[10.089]
Constant	15.417	8.29	-108.915	-40.056	-40.419	-348.125	-324.199
	[19.507]	[16.663]	[35.435]**	[16.563]*	[14.524]**	[46.299]**	[0.000]
Number of observations	1,005	1,005	1,005	1,005	1,005	1,005	1,005

Panel D. FINANCING OBSTACLE = 3 or 4

GOVERNMENT	9.246	-4.295	19.954	-5.511	-4.985	21.341	-3.793
	[6.409]	[6.236]	[8.713]*	[7.730]	[6.081]	[9.542]*	[9.857]
FOREIGN	0.227	-4.316	13.851	-3.695	-7.263	2.847	-6.374
	[4.035]	[3.837]	[6.447]*	[5.168]	[4.118]	[6.342]	[6.535]
EXPORTER	4.701	6.199	-2.262	6.377	5.234	-4.888	0.383
	[3.376]	[3.126]*	[5.561]	[3.826]	[3.261]	[5.665]	[5.509]
SUBSIDIZED	13.204	1.128	0.7	12.196	-1.781	36.441	-3.476
	[4.627]**	[4.696]	[7.739]	[5.497]*	[4.382]	[5.971]**	[7.875]
MANUFACTURING	3.06	4.341	-1.872	0.732	10.322	-3.54	-5.026
	[4.298]	[4.137]	[7.342]	[5.145]	[4.598]*	[6.516]	[7.338]
SERVICES	-2.273	-0.021	-3.53	9.778	6.903	-13.817	-1.56
	[4.197]	[4.121]	[7.076]	[4.957]*	[4.641]	[6.444]*	[7.242]
FIRM GROWTH	3.092	2.081	2.244	3.148	-0.802	5.023	-4.219
	[2.780]	[2.541]	[3.571]	[2.835]	[2.838]	[4.431]	[4.628]
SMALL	-25.63	-30.877	-9.733	-13.191	-4.925	-11.934	9.876
	[4.811]**	[4.467]**	[7.642]	[6.119]*	[4.663]	[7.564]	[8.698]
MEDIUM	-9.798	-13.225	-7.811	-3.245	1.639	6.099	13.099
	[4.285]*	[3.971]**	[6.834]	[5.566]	[4.130]	[6.457]	[8.253]
CORPORATION	0.764	4.923	1.507	3.966	0.721	1.276	-3.911
	[3.671]	[3.515]	[5.966]	[3.833]	[3.463]	[5.893]	[5.381]
Constant	50.804	33.065	-78.238	-77.615	-23.263	-64.692	-89.685
	[8.387]**	[7.589]**	[16.525]**	[14.438]**	[8.488]**	[14.710]**	[19.621]**
Number of observations	1,729	1,729	1,729	1,729	1,729	1,729	1,729

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Table 5

Determinants of financing patterns; the role of institutions. The estimated interval regression model is FINANCING SOURCE = α_0 + α_1 GOVERNMENT + α_2 FOREIGN + α_3 EXPORTER + α_4 SUBSIDIZED + α_5 MANUFACTURING + α_6 SERVICES + α_7 FIRM GROWTH + α_8 SMALL + α_9 MEDIUM + α_{10} CORPORATION + α_{11} FINANCING OBSTACLE + α_{12} INFLATION + α_{13} GROWTH + α_{14} GDP PER CAPITA + α_{15} PRIVATE CREDIT / VALUE TRADED / PROPERTY RIGHTS + ε (clustered by country). FINANCING SOURCE is the proportion of investment financed by external sources, bank debt, equity, leasing, supplier credit, development banks, or informal sources. External finance is the sum of bank, equity, leasing, supplier credit, development bank, and informal finance. Bank finance includes financing from domestic as well as foreign banks. Development bank includes funding from both development and public sector banks. Informal includes funding from money lenders and traditional or informal sources. GOVERNMENT and FOREIGN are dummy variables indicating whether a firm has government or foreign ownership, respectively; EXPORTER is a dummy variable that indicates whether a firm is an exporting firm; SUBSIDIZED is a dummy variable that indicates if the firm receives subsidies from the national or local authorities; MANUFACTURING is a dummy variable that indicates whether a firm is in the manufacturing sector; SERVICES is a dummy variable that indicates whether a firm is in the services sector; FIRM GROWTH is firm sales growth; SMALL is a dummy variable that indicates whether firm size is small; MEDIUM is a dummy variable that indicates whether firm size is medium; CORPORATION is a dummy variable that indicates whether a firm is incorporated; and FINANCING OBSTACLE is an index that measures how problematic financing is to the operation and growth of a business and ranges from no obstacle (1), to minor obstacle (2), to moderate obstacle (3), to major obstacle (4). Country-level control variables GDP PER CAPITA is real gross domestic product (GDP) per capita in US dollars; INFLATION is the log difference of the Consumer Price Index (CPI); GROWTH is the average annual growth rate of GDP in US dollars; PRIVATE CREDIT is the financial institutions' credit to the private sector divided by GDP; VALUE TRADED is the value of shares traded on the stock exchange to GDP; and PROPERTY RIGHTS is a rating from one to five of the degree to which property rights are protected in a nation. Variable definitions and sources are detailed in the Appendix. All regressions are run as tobit regressions with error terms clustered at the country level. Robust standard errors are in brackets. *= significant at 5%; **= significant at 1%.

Variable	External Finance	Bank	Equity	Lease	Supplier Credit	Development Bank	Informal
Panel A. Private Credit							
GOVERNMENT	3.999	-2.752	13.938	-4.236	-2.283	14.844	11.541
	[6.720]	[4.897]	[8.792]	[6.229]	[4.822]	[9.252]	[6.369]
FOREIGN	-1.009	-2.568	15.01	-11.53	-5.524	5.765	-1.893
	[4.060]	[3.693]	[5.330]**	[4.077]**	[3.259]	[5.609]	[9.224]
EXPORTER	9.483	8.008	5.619	10.448	5.738	-3.709	-0.779
	[3.143]**	[2.685]**	[5.191]	[3.197]**	[2.658]*	[4.254]	[5.418]
SUBSIDIZED	7.95	1.345	-1.462	6.687	-2.078	34.823	-1.455
	[4.510]	[4.713]	[7.306]	[4.421]	[3.403]	[5.412]**	[7.447]
MANUFACTURING	3.19	10.398	-18.741	-1.572	6.755	-6.149	-3.226
	[5.463]	[5.083]*	[9.664]	[3.811]	[4.485]	[7.867]	[6.031]
SERVICES	2.225	1.809	-6.6	10.324	4.604	-8.901	-0.011
	[5.020]	[5.440]	[6.362]	[4.226]*	[4.715]	[7.202]	[6.470]
FIRM GROWTH	4.756	0.353	9.227	3.437	1.456	5.694	0.689
	[3.023]	[2.650]	[3.360]**	[2.068]	[1.640]	[2.733]*	[2.563]
SMALL	-29.2	-35.079	2.602	3.03	-5.796	-13.425	26.687
	[5.012]**	[4.784]**	[7.580]	[4.870]	[4.177]	[7.210]	[8.891]**
MEDIUM	-9.711	-14.915	1.26	6.876	2.712	2.76	19.242
	[3.661]**	[3.352]**	[6.963]	[3.549]	[2.866]	[5.346]	[8.017]*
CORPORATION	-5.665	-2.994	2.621	3.425	-0.59	1.852	-1.531
	[4.318]	[3.683]	[8.969]	[3.306]	[3.045]	[4.492]	[4.097]
FINANCING OBSTACLE	5.207	4.016	0.979	2.325	2.571	4.823	8.71
	[1.663]**	[1.693]*	[2.752]	[1.484]	[1.143]*	[1.872]**	[2.026]**
INFLATION	-39.386	-52.784	26.123	29.221	-37.946	41.914	-9.078
	[20.531]	[18.909]**	[45.534]	[21.749]	[15.617]*	[16.703]*	[30.984]
GROWTH	123.933	-31.285	448.666	224.575	-74.687	111.301	168.238
	[146.610]	[102.590]	[344.334]	[129.133]	[91.115]	[85.205]	[155.595]
GDP PER CAPITA	4.643	4.645	14.44	4.155	-0.186	-1.322	-0.275
	[3.153]	[2.387]	[4.324]**	[1.940]*	[2.142]	[3.027]	[3.619]
PRIVATE CREDIT	3.014	2.467	-1.348	3.865	1.24	7.622	0.335
	[1.501]*	[1.958]	[3.829]	[1.924]*	[1.081]	[1.863]**	[1.592]
Constant	-1.749	-27.29	-209.293	-103.944	-33.254	-75.254	-128.933
	[29.044]	[23.129]	[40.623]**	[22.992]**	[20.130]	[25.930]**	[35.791]**
Number of observations	2,734	2,734	2,734	2,734	2,734	2,734	2,734
Number of countries	48	48	48	48	48	48	48

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Panel B. Value Traded

GOVERNMENT	1.719	-4.975	16.327	-5.576	-3.454	11.363	11.638
	[6.181]	[4.765]	[8.669]	[5.942]	[4.843]	[9.483]	[6.818]
FOREIGN	-0.276	-1.811	14.115	-11.618	-4.876	7.216	-2.746
	[4.168]	[3.716]	[5.984]*	[3.879]**	[3.148]	[5.581]	[8.766]
EXPORTER	8.888	7.649	5.345	9.785	5.583	-4.883	-0.829
	[3.124]**	[2.554]**	[5.018]	[3.043]**	[2.557]*	[4.361]	[5.396]
SUBSIDIZED	8.221	2.221	-3.352	6.197	-1.116	35.658	-2.109
	[4.476]	[4.696]	[7.162]	[4.513]	[3.413]	[5.519]**	[7.561]
MANUFACTURING	3.683	10.58	-19.162	-1.199	6.774	-4.689	-3.108
	[5.689]	[5.047]*	[9.440]*	[3.923]	[4.392]	[7.999]	[6.109]
SERVICES	2.15	1.854	-7.619	9.511	4.805	-8.178	-0.193
	[5.224]	[5.406]	[6.287]	[4.458]*	[4.647]	[7.252]	[6.550]
FIRM GROWTH	4.714	0.354	8.325	3.173	1.417	5.305	0.675
	[3.022]	[2.667]	[3.068]**	[2.161]	[1.703]	[2.644]*	[2.586]
SMALL	-30.555	-35.026	-0.647	-0.89	-4.882	-15.399	25.373
	[4.908]**	[4.703]**	[7.454]	[4.398]	[3.993]	[7.091]*	[9.349]**
MEDIUM	-11.009	-15.135	-0.871	3.494	3.247	0.324	18.302
	[3.405]**	[3.274]**	[6.980]	[3.380]	[2.735]	[5.065]	[8.254]*
CORPORATION	-7.099	-3.558	1.528	1.384	-0.479	-0.739	-1.947
	[4.278]	[4.097]	[8.652]	[2.816]	[3.068]	[4.290]	[4.363]
FINANCING OBST.	5.056	3.82	1.094	2.321	2.409	4.494	8.651
	[1.669]**	[1.715]*	[2.706]	[1.387]	[1.103]*	[1.858]*	[1.941]**
INFLATION	-42.612	-60.769	48.358	40.521	-46.445	29.584	-0.068
	[20.641]*	[22.443]**	[32.741]	[16.536]*	[12.966]**	[17.808]	[32.069]
GROWTH	129.24	-52.057	514.998	256.508	-100.88	119.554	179.565
	[147.876]	[115.425]	[344.525]	[92.810]**	[80.581]	[79.700]	[142.583]
GDP PER CAPITA	4.782	6.823	6.219	-0.114	2.46	0.494	-2.849
	[3.390]	[2.530]**	[5.728]	[2.153]	[2.345]	[2.944]	[3.998]
VALUE TRADED	0.897	-0.779	5.85	5.125	-1.485	0.99	2.214
	[1.302]	[1.113]	[2.330]*	[0.973]**	[0.873]	[0.967]	[1.379]
Constant	-1.563	-49.61	-118.309	-53.506	-61.242	-92.852	-99.744
	[32.482]	[24.104]*	[55.061]*	[25.224]*	[23.254]**	[25.519]**	[41.004]*
Number of observations	2,734	2,734	2,734	2,734	2,734	2,734	2,734
Number of countries	48	48	48	48	48	48	48

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Panel C. Property Rights

GOVERNMENT	4.784	-2.575	20.769	-5.694	-2.444	11.95	10.452
	[5.826]	[5.292]	[8.208]*	[6.588]	[5.214]	[9.289]	[6.525]
FOREIGN	0.116	-1.925	15.41	-10.71	-5.029	7.363	-1.971
	[4.015]	[3.831]	[5.323]**	[3.967]**	[3.148]	[5.528]	[9.510]
EXPORTER	8.6	7.28	5.343	9.779	5.354	-4.849	-0.835
	[3.075]***	[2.698]**	[4.619]	[3.341]**	[2.555]*	[4.372]	[5.396]
SUBSIDIZED	7.692	1.215	-3.128	6.994	-2.032	35.732	-1.09
	[4.523]	[4.768]	[7.177]	[4.432]	[3.376]	[5.416]**	[7.456]
MANUFACTURING	5.091	11.697	-15.797	-0.63	7.288	-4.264	-3.497
	[5.446]	[5.174]*	[9.085]	[3.906]	[4.525]	[7.991]	[6.004]
SERVICES	3.127	2.382	-4.468	10.642	4.828	-7.841	-0.2
	[5.219]	[5.582]	[5.995]	[4.224]*	[4.758]	[7.204]	[6.509]
FIRM GROWTH	4.504	0.106	8.013	3.297	1.361	5.222	0.734
	[2.982]	[2.616]	[3.139]*	[2.100]	[1.637]	[2.656]*	[2.532]
SMALL	-31.266	-36.722	0.919	2.011	-6.582	-15.164	26.848
	[4.915]***	[4.881]**	[7.246]	[4.681]	[4.113]	[7.107]*	[9.048]**
MEDIUM	-11.268	-16.101	1.099	5.842	2.151	0.543	19.227
	[3.617]***	[3.341]**	[6.705]	[3.495]	[2.802]	[5.168]	[8.132]*
CORPORATION	-7.702	-4.515	1.987	2.334	-1.378	-0.851	-1.49
	[3.960]	[3.860]	[8.297]	[3.274]	[2.892]	[4.432]	[4.112]
FINANCING OBSTACLE	5.412	4.115	1.627	2.435	2.571	4.606	8.57
	[1.629]***	[1.684]*	[2.207]	[1.449]	[1.148]*	[1.802]*	[2.066]**
INFLATION	-43.24	-56.832	32.211	21.067	-39.871	25.54	-10.307
	[18.857]***	[15.988]**	[38.517]	[21.637]	[16.453]*	[15.942]	[30.550]
GROWTH	137.941	-24.544	459.823	207.452	-71.207	111.693	161.361
	[138.361]	[110.738]	[310.342]	[130.425]	[92.530]	[81.921]	[156.654]
GDP PER CAPITA	0.211	1.608	1.719	4.447	-1.194	-0.169	1.208
	[3.638]	[2.862]	[5.842]	[3.100]	[2.659]	[3.081]	[3.715]
PROPERTY RIGHTS	11.018	7.861	23.123	3.114	3.035	3.618	-2.49
	[3.226]***	[3.262]*	[8.483]**	[4.181]	[3.465]	[4.398]	[4.255]
Constant	-7.642	-32.363	-187.957	-120.977	-36.755	-104.105	-131.962
	[28.867]	[22.528]	[34.739]**	[24.618]**	[19.115]	[28.769]**	[33.757]**
Number of observations	2,734	2,734	2,734	2,734	2,734	2,734	2,734
Number of countries	48	48	48	48	48	48	48

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Panel D. Private credit, value traded and property rights

GOVERNMENT	5.734	-1.000	17.034	-5.942	-1.162	14.961	9.658
	[6.266]	[4.709]	[7.638]*	[5.934]	[4.685]	[9.308]	[6.889]
FOREIGN	-0.247	-2.111	17.259	-11.956	-4.978	5.813	-3.317
	[3.803]	[3.562]	[5.357]**	[4.026]**	[3.112]	[5.525]	[8.497]
EXPORTER	8.885	7.678	3.534	10.039	5.806	-3.732	-0.815
	[3.074]**	[2.619]**	[4.496]	[3.049]**	[2.544]*	[4.304]	[5.343]
SUBSIDIZED	7.571	1.699	-2.655	6.202	-1.467	34.811	-1.67
	[4.444]	[4.713]	[6.760]	[4.517]	[3.376]	[5.453]**	[7.540]
MANUFACTURING	4.808	11.354	-15.409	-1.768	7.057	-6.06	-3.726
	[5.205]	[5.005]*	[8.831]	[3.921]	[4.283]	[7.908]	[6.314]
SERVICES	3.117	2.627	-5.692	9.214	5.218	-8.867	-0.611
	[5.130]	[5.363]	[5.912]	[4.343]*	[4.544]	[7.195]	[6.502]
FIRM GROWTH	4.531	0.163	7.06	3.289	1.387	5.671	0.767
	[2.972]	[2.612]	[2.988]*	[2.197]	[1.740]	[2.700]*	[2.538]
SMALL	-30.633	-34.917	-3.292	-0.569	-4.714	-13.471	25.502
	[5.024]**	[4.764]**	[6.961]	[4.342]	[4.008]	[7.282]	[9.150]**
MEDIUM	-10.671	-14.602	-2.907	3.755	3.714	2.723	18.194
	[3.596]**	[3.177]**	[6.763]	[3.511]	[2.848]	[5.344]	[8.281]*
CORPORATION	-7.02	-3.079	-1.17	1.836	-0.205	1.765	-1.709
	[4.262]	[3.613]	[8.026]	[2.910]	[3.157]	[4.641]	[3.883]
FINANCING OBSTACLE	5.469	4.216	1.447	2.146	2.656	4.841	8.341
	[1.609]**	[1.656]*	[2.245]	[1.268]	[1.148]*	[1.854]**	[2.000]**
INFLATION	-41.576	-58.34	32.008	43.323	-43.928	41.637	0.518
	[19.780]*	[22.068]**	[31.715]	[16.772]**	[11.975]**	[17.094]*	[32.533]
GROWTH	135.581	-45.273	451.195	262.617	-98.633	111.652	169.584
	[138.443]	[114.610]	[254.513]	[95.628]**	[80.500]	[84.081]	[141.384]
GDP PER CAPITA	0.276	2.879	0.068	0.812	0.391	-1.598	-0.594
	[3.457]	[2.764]	[5.628]	[2.669]	[2.675]	[2.539]	[3.808]
PRIVATE CREDIT	1.408	1.823	-8.478	0.999	1.502	7.568	-0.385
	[2.001]	[2.431]	[4.228]*	[2.550]	[1.054]	[2.112]**	[1.695]
VALUE TRADED	-0.346	-1.919	4.9	5.277	-2.127	-0.054	2.767
	[1.301]	[0.990]	[2.086]*	[1.156]**	[0.904]*	[0.982]	[1.442]
PROPERTY RIGHTS	10.578	8.888	23.12	-3.187	4.451	0.676	-5.214
	[4.278]*	[3.723]*	[8.924]**	[3.581]	[3.521]	[3.889]	[4.776]
Constant	-6.906	-52.787	-161.862	-47.953	-62.073	-75.682	-96.866
	[28.474]	[22.070]*	[42.152]**	[25.310]	[21.851]**	[23.132]**	[39.232]*
Number of observations	2,734	2,734	2,734	2,734	2,734	2,734	2,734
Number of countries	48	48	48	48	48	48	48

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Table 6

Determinants of financing patterns, interaction effects. The estimated fixed-effects interval regression model is FINANCING SOURCE = α_0 + α_1 GOVERNMENT + α_2 FOREIGN + α_3 EXPORTER + α_4 SUBSIDIZED + α_5 MANUFACTURING + α_6 SERVICES + α_7 FIRM GROWTH + α_8 SMALL + α_9 MEDIUM + α_{10} CORPORATION + α_{11} FINANCING OBSTACLE + α_{12} INTERACTION TERMS ε. FINANCING SOURCE is the proportion of investment financed by external sources, bank debt, equity, leasing, supplier credit, development banks, or informal sources. Bank finance includes financing from domestic as well as foreign banks. Development bank includes funding from both development and public sector banks. Informal includes funding from money lenders and traditional or informal sources. GOVERNMENT and FOREIGN are dummy variables indicating whether a firm has government or foreign ownership, respectively; EXPORTER is a dummy variable that indicates whether a firm is an exporting firm; SUBSIDIZED is a dummy variable that indicates if the firm receives subsidies from the national or local authorities; MANUFACTURING is a dummy variable that indicates whether a firm is in the manufacturing sector; SERVICES is a dummy variable that indicates whether a firm is in the services sector; FIRM GROWTH is firm sales growth; SMALL is a dummy variable that indicates whether firm size is small; MEDIUM is a dummy variable that indicates whether firm size is medium; CORPORATION is a dummy variable that indicates whether a firm is incorporated; and FINANCING OBSTACLE is an index that measures how problematic financing is to the operation and growth of a business and ranges from no obstacle (1), to minor obstacle (2), to moderate obstacle (3), to major obstacle (4). PRIVATE CREDIT is the financial institutions' credit to the private sector divided by gross domestic product (GDP); VALUE TRADED is the value of shares traded on the stock exchange to GDP; and PROPERTY RIGHTS is a rating from one to five of the degree to which property rights are protected in a nation. Country-level variables are averaged over 1995-1999. Variable definitions and sources are detailed in the Appendix. All regressions are run as tobit regressions and include country fixed effects. Robust standard errors are in brackets;*= significant at 5%; **= significant at 1%.

Variable	External Finance	Bank	Equity	Lease	Supplier Credit	Development Bank	Informal
Panel A. Private Credit							
SMALL	-7.057	-9.331	5.831	15.825	6.526	9.107	55.471
	[9.663]	[8.458]	[13.053]	[9.842]	[8.608]	[14.991]	[22.036]*
MEDIUM	-4.262	-4.445	-14.098	6.09	18.801	-13.084	43.98
	[8.912]	[7.824]	[12.432]	[9.439]	[7.947]*	[13.304]	[22.046]*
PRIVATE CREDIT * SMALL	2.535	3.451	-3.641	7.722	3.348	11.727	-7.222
	[2.266]	[1.796]	[3.798]	[3.608]*	[2.004]	[5.482]*	[3.194]*
PRIVATE CREDIT * MEDIUM	0.907	1.728	-2.654	2.728	2.26	6.741	-1.951
	[1.678]	[1.602]	[2.900]	[2.845]	[1.637]	[4.344]	[3.759]
PRIVATE CREDIT * LARGE	5.046	6.15	1.62	4.326	3.919	13.163	5.52
	[2.490]*	[2.132]**	[5.802]	[3.458]	[2.415]	[5.774]*	[7.424]
FINANCING OBSTACLE * SMALL	3.856	2.128	-1.335	-0.1	2.757	-2.14	4.029
	[1.913]*	[1.760]	[2.840]	[1.706]	[1.775]	[3.287]	[2.830]
FINANCING OBSTACLE * MEDIUM	6.863	4.758	6.229	3.06	0.315	7.3	10.472
	[1.772]**	[1.613]**	[2.835]*	[1.733]	[1.609]	[2.779]**	[3.134]**
FINANCING OBSTACLE * LARGE	10.125	8.996	6.294	6.562	5.981	5.032	21.831
	[2.503]**	[2.263]**	[3.689]	[3.193]*	[2.260]**	[3.501]	[5.909]**
Constant	17.17	7.448	-104.856	-78.403	-38.842	-77.059	-166.771
	[11.924]	[10.595]	[20.313]**	[16.690]**	[10.671]**	[20.156]**	[30.106]**
Number of observations	2,734	2,734	2,734	2,734	2,734	2,734	2,734

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Panel B. Value Traded

SMALL	-2.925	-6.84	7.014	16.009	8.481	10.778	48.825
	[9.873]	[8.707]	[13.352]	[9.849]	[8.901]	[15.240]	[20.486]*
MEDIUM	-4.262	-4.149	-16.892	3.481	18.696	-9.063	36.52
	[9.226]	[8.118]	[12.891]	[9.589]	[8.517]*	[13.733]	[20.952]
VALUE TRADED * SMALL	0.487	1.082	-9.337	27.404	3.06	2.299	33.262
	[2.820]	[2.017]	[4.073]*	[2.640]**	[2.678]	[5.256]	[0.000]
VALUE TRADED * MEDIUM	-1.745	-0.411	-10.796	23.482	1.868	1.463	35.341
	[2.832]	[2.026]	[3.976]**	[0.000]	[2.656]	[5.334]	[0.000]
VALUE TRADED * LARGE	-0.593	0.607	-8.061	25.52	2.344	1.558	38.694
	[2.917]	[2.111]	[4.301]	[2.625]**	[2.755]	[5.392]	[4.431]**
FINANCING OBSTACLE * SMALL	4.297	2.403	-1.014	0.302	2.985	-2.099	3.84
	[1.930]*	[1.779]	[2.882]	[1.729]	[1.828]	[3.343]	[2.848]
FINANCING OBSTACLE * MEDIUM	6.679	4.779	5.782	2.711	0.215	7.907	10.354
	[1.764]**	[1.608]**	[2.804]*	[1.679]	[1.597]	[2.809]**	[3.084]**
FINANCING OBSTACLE * LARGE	9.449	8.378	6.231	6.75	5.684	4.22	20.78
	[2.513]**	[2.254]**	[3.544]	[3.164]*	[2.210]*	[3.423]	[6.343]**
Constant	9.505	2	-131.271	-5.689	-36.811	-89.817	-45.85
	[15.629]	[12.924]	[25.884]**	[17.135]	[14.104]**	[26.912]**	[28.651]
Number of observations	2,734	2,734	2,734	2,734	2,734	2,734	2,734

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Panel C. Property Rights

SMALL	-37.507	-35.95	-2.732	25.142	-20.308	4.729	70.015
	[17.162]*	[15.069]*	[28.142]	[23.190]	[16.769]	[26.885]	[33.810]*
MEDIUM	7.98	-5.352	22.654	34.417	18.355	-1.506	56.67
	[16.307]	[14.559]	[27.473]	[22.362]	[14.609]	[24.628]	[33.745]
PROPERTY RIGHTS * SMALL	17.368	17.06	15.881	5.679	13.779	-12.722	6.296
	[4.466]**	[3.916]**	[9.867]	[6.156]	[4.659]**	[7.248]	[8.881]
PROPERTY RIGHTS * MEDIUM	7.057	11.067	4.712	2.326	7.378	-15.592	5.167
	[4.102]	[3.573]**	[9.800]	[6.195]	[4.082]	[6.366]*	[9.314]
PROPERTY RIGHTS * LARGE	9.292	9.936	12.975	8.774	6.879	-13.748	7.945
	[4.226]*	[3.598]**	[9.714]	[6.468]	[4.229]	[7.227]	[9.984]
FINANCING OBSTACLE * SMALL	4.72	2.723	-0.683	-0.155	3.188	-2.114	4.338
	[1.937]*	[1.772]	[2.893]	[1.729]	[1.832]	[3.283]	[2.926]
FINANCING OBSTACLE * MEDIUM	6.382	4.791	5.167	2.962	0.043	7.774	9.802
	[1.778]**	[1.628]**	[2.798]	[1.730]	[1.599]	[2.804]**	[3.019]**
FINANCING OBSTACLE * LARGE	8.998	7.77	5.683	7.42	5.192	4.366	19.851
	[2.509]**	[2.229]**	[3.493]	[3.325]*	[2.202]*	[3.401]	[5.789]**
Constant	-25.699	-39.869	-155.191	-120.924	-71.588	-39.655	-196.866
	[16.766]	[14.530]**	[37.962]**	[28.053]**	[16.705]**	[26.093]	[43.178]**
Number of observations	2,734	2,734	2,734	2,734	2734	2734	2734

Table A1 Appendix

Number of firms in each country and size group. The data source is the World Business Environment Survey. A firm is defined as small if it has between five and 50 employees, medium size if it has between 51 and five hundred employees, and large if it has more than five hundred employees.

Country	Total number of firms	Number of small firms	Number of medium firms	Number of large firms
Argentina	73	23	32	18
Armenia	74	49	21	4
Belarus	78	22	48	8
Belize	14	7	6	1
Bolivia	62	21	21	20
Brazil	112	14	79	19
Bulgaria	87	49	31	7
Canada	56	14	30	12
Chile	65	23	20	22
China	54	26	16	12
Colombia	76	13	24	39
Costa Rica	48	13	18	17
Croatia	81	18	45	18
Czech Republic	68	43	18	7
Dominican Republic	62	11	23	28
El Salvador	37	11	12	14
Estonia	98	44	44	10
France	33	8	18	7
Germany	31	9	18	4
Guatemala	32	10	12	10
Haiti	42	14	15	13
Honduras	30	15	8	7
Hungary	79	46	25	8
Indonesia	30	12	12	6
Italy	24	4	11	9
Lithuania	62	49	11	2
Malaysia	21	10	6	5
Mexico	30	10	13	7
Moldova	72	24	40	8
Nicaragua	44	22	11	11
Pakistan	24	8	13	3
Panama	41	5	13	23
Peru	40	12	13	15
Philippines	69	20	37	12
Poland	163	65	81	17
Romania	88	53	28	7
Singapore	64	28	17	19
Slovak Republic	77	46	28	3
Slovenia	96	26	61	9
Spain	45	15	26	4
Sweden	67	29	27	11
Trinidad and Tobago	55	21	24	10
Turkey	103	40	50	13
Ukraine	164	75	72	17
United Kingdom	43	24	17	2
United States	34	17	9	8
Uruguay	47	7	25	15
Venezuela	40	15	8	17

Variables and sources. Table A2

Variable	Definition	Original source
Growth	Growth of gross domestic product (GDP) in current US dollars, average 1995-1999	World Development Indicators
GDP per capita	Real per capita GDP, average 1995-99	World Development Indicators
Inflation rate	Log difference of Consumer Price Index, average 1995-1999	International Financial Statistics, line 64
Private Credit	$\{(0.5)*[F(t)/P\_e(t) + F(t-1)/P\_e(t-1)]\}/[GDP(t)/P\_a(t)]$, where F is credit by deposit money banks and other financial institutions to the private sector (lines 22d + 42d), GDP is line 99b, P_e is end of period CPI (line 64), and P_a is the average CPI for the year	Beck, Demirguc-Kunt, and Levine (2000)
Value Traded	The value of shares traded divided by GDP, average 1995-1999	Beck, Demirguc-Kunt, and Levine (2000)
Property Rights	An index from 1 (less) to 5 (more) measuring the degree to which property rights are protected in an economy, averaged over 1995-1999	Heritage Foundation
Firm Growth	Estimate of the firm's sales growth over the past three years	World Business Environment Survey (WBES)
Government	Dummy variable that takes on the value one if any government agency or state body has a financial stake in the ownership of the firm, and zero otherwise	WBES
Foreign	Dummy variable that takes on the value one if any foreign company or individual has a financial stake in the ownership of the firm, and zero otherwise	WBES
Exporter	Dummy variable that takes on the value one if firm exports, and zero otherwise	WBES
Subsidized	Dummy variable that takes on the value one if firm receives subsidies (including tolerance of tax arrears) from local or national government and zero otherwise	WBES
Manufacturing	Dummy variable that takes on the value one if firm is in the manufacturing industry, and zero otherwise	WBES
Services	Dummy variable that takes on the value one if firm is in the service industry, and zero otherwise	WBES

Firm size	A firm is defined as small if it has between five and 50 employees, medium size if it has between 51 and five hundred employees and large if it has more than five hundred employees. Size is a vector of dummy variables, small, medium and large, that indicate firm size. Small (or medium or large) takes the value one if a firm is small (or medium or large) and zero otherwise	WBES
Financing Obstacle	How problematic is financing for the operation and growth of your business: no obstacle (1), a minor obstacle (2), a moderate obstacle (3), or a major obstacle (4)?	WBES
Equity finance	Share (percentage) of firm's financing over the last year coming from equity, sale of stocks	WBES
Bank finance	Share (percentage) of firm's financing over the last year coming from local and foreign commercial banks	WBES
Leasing finance	Share (percentage) of firm's financing over the last year coming from leasing arrangements	WBES
Supplier finance	Share (percentage) of firm's financing over the last year coming from supplier credit arrangements	WBES
Development finance	Share (percentage) of firm's financing over the last year coming from development and public sector banks	WBES
Informal finance	Share (percentage) of firm's financing over the last year coming from informal money lenders	WBES
External finance	Bank finance + equity finance + leasing finance + supplier finance + development finance + informal finance	WBES