

Capital Structures in developing countries around the world: Are small firms different?

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Abstract

This study uses firm level survey data to assess whether the capital structure theory is portable to small firms in developing countries and whether country characteristics play a role in their financing decisions. Using a sample of both small companies and large firms from 24 developing countries covering all regions of the world, our main results show (i) The size of the firm is an important factor in the level of leverage; (ii) Profitability has no bearing in the capital structure decisions of small firms in contrast to large firms, and thus do not follow the pecking order; (iii) The country of incorporation is an important determinant for the debt financing decisions of small firms; (iv) The financing decisions of small firms are sensitive to institutional characteristics, and the macroeconomic and financial environment variables of the country; and (v) The impact of these variables varies with the size of the firm.

Keywords

Leverage, capital structure, developing countries, small firms, large firms

JEL: G3,G32

1. Introduction

Leverage in small and medium size companies (SMEs) in developing countries is lower than leverage in large firms in the developed and developing countries. For example, on the basis of a sample of 24 developing countries in our study covering all the main geographical regions of the world, Africa, East Asia and Pacific, South Asia, Latin America and Caribbean, Middle East and North Africa, leverage as a percent of total assets of small and medium firms is 30.7% and 46% respectively, compared to 50.5% of large firms (see Table 1). That raises the question whether the capital structure choices of small firms in developing countries are affected by the same factors as that of large firms. Bearing in mind also that in most developing countries the major obstacle to external finance for small firms is the availability of credit, and that when institutional development is weak other forms of informal financing, such as short-term debt via supplier credits, or long-term debt via development banks, or trade credits are the available forms of external financing (Beck et al., 2008, Newman et al., 2012, Du et al., 2015). Economic growth and the stability of the economy become important factors for extending external finance to small firms. Thus, the paper is investigating the following two questions.

- Are the capital structure choices of small firms in developing countries affected by the same factors as those of large firms?
- Does the relationship between capital structure choices and firm size vary across different levels of development of the economic and financial environment, and institutional characteristics?

Previous research on cross-country comparisons of financing patterns around the world, focused mainly on large listed firms in both developed and developing countries (Titman

and Wessels, 1988; Rajan and Zingales, 1995; Demirguc-Kunt and Maksimovic, 1996, 1999; Booth et al., 2001; Antoniou et al., 2008; De Jong et al., 2008; Fan et al., 2012). These studies show that capital structure theories developed for the US firms are portable to other developed countries and to a small group of developing countries. The empirical results in this earlier literature are based on the analysis of listed companies and thus, the largest firms across the countries, which are not representative of firms in the developing world. According to Ayyagari et al. (2007) SMEs constitute 67% on average of the formal employment in the manufacturing sector, and contribute up to almost 50% on average to formal GDP in developing countries. Including informal enterprises, the estimates increase to 95% of employment and 70% of GDP (Keskin et al., 2008). SMEs play an important role in sustaining global and regional economic recovery by promoting economic growth, employment and poverty alleviation in a country.

In our study we focus on SMEs, which characterize the corporate sector in developing countries much more accurately. The size of small firms in developed countries are much larger than the average small firm in developing countries. For example, the average asset size of the listed firms in Fan et al. (2012) is \$381.6 m, while in our study the average asset size of all firms is \$15.7m and the average asset size of small firms is \$5.2m.

More recently, there have been a few studies on SMEs, which examine the impact of institutional development on the capital structure choices. The countries, however included in those studies are mainly European. For example, McNamara et al. (2017) analyse the effect of a country's institutional setting on the SMEs' capital structure decisions for a group of developed European countries.¹ Similarly Joeveer (2013b)

¹ Austria, Belgium, Finland, France, Germany, Greece, Italy, Portugal and the UK.

examines the relative importance of firm specific factors compared to country factors for a group of developed countries.² On the other hand, Joeveer (2013a) analyses the impact on leverage of firm-specific institutional and macroeconomic factors on a sample of stock market-listed and unlisted companies in nine Emerging Eastern European countries.³ Finally, Demirguc-Kunt et al. (2020) examine how the capital structure of firms, including SMEs, non-listed firms and listed companies, has changed during and after the global financial crisis in 75 countries but their sample of developing countries is not representative of developing countries around the world. Furthermore, the focus of that paper is on the impact of the global financial crisis on the capital structure decisions of firms.

We are contributing to the literature in the three ways: First, in order to arrive at conclusive results, we use data from 24 developing countries with diverse country characteristics covering all regions of the world. Secondly, we are focusing on the very small firms in developing countries, which have not been the emphasis of other studies. Small firms in our study employ less than 50 employees, while the analysis of other studies has concentrated on the larger firms, of SMEs. For example, in Mc Namara et al. (2017) SMEs have less than 250 employees; in Demirguc-Kunt et al. (2020) the average employment of SMEs is between 10 to 99 and in Joeveer (2013a) SMEs have less than 250 employees. Thirdly, by comparing the results of small, medium and large firms, we are able to assess whether the size of the firm relates to the impact of institutional characteristics, and the economic and financial environment of the country on the capital structure of firms.

² UK, France, Italy, Germany, Belgium. Finland, Portugal, Spain, Sweden, Switzerland.

³ Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, and Slovakia.

Our main results can be summarised as follows. First, our results for small firms in developing countries indicate that corporate financing decisions differ from those found for large companies. Profitability has no bearing in the capital structure decisions of small firms in contrast to large firms, and thus do not follow the pecking order. Secondly, asset tangibility, is significant but negative for all types of firms and thus the capital structure decisions do not follow either the trade-off, or pecking order theories. The negative impact of asset tangibility, could be due to either the maturity of the debt, or the general lack of availability of the asset-backed financing in developing countries. The firms in our sample, especially the small ones, are generally financed by short-term debt so they might not need collateral. We tested that conjecture by running the estimation for short-term debt and long-term-debt separately and indeed we find tangibility to be positively related to long-term debt but not to short debt. Furthermore, the general lack of accessibility of bank-based financing by the firms in developing countries could be due to the biased behaviour of the financial institutions, which might make firms to be less reliant on debt financing.

Thirdly, the country of incorporation is an important determinant for the debt financing decisions (Booth et al., 2001; Joeveer, 2013a). When we add the country fixed effects to the firm characteristics, there is a substantial increase in R^2 showing the importance of the country in which the firm is located. Looking at the country level characteristics in detail the institutional characteristics, and macroeconomic and financial environment variables impact the financing decisions of small firms much more than that of large firms.

Fourthly, the impact of macroeconomic and financial environment, as well as institutional characteristics although similar to that of the small firms, contributes less in

the medium size firms, confirming that their impact varies with the size of the firm. Furthermore, they are mostly insignificant in the case of large firms. The industry in which they operate plays a role in the financing decisions of small firms but less than the country effect.

Finally, we find that the size of the firm is an important factor in the level of leverage a firm holds. As firms become larger, they increase leverage in their capital structures. Larger companies are usually more diversified and their risk of failure is reduced. As a result, they can have higher leverage, whereas, small firms have lower leverage. Due to the information asymmetries and high inflation in the developing countries, small firms usually face higher interest rate costs. Also, they are financially riskier compared to large firms. As a result of that, debt financing becomes expensive for small companies and thus, they have lower leverage levels.

The remainder of paper is organized as follows. Section 2 develops the hypotheses relating to the main factors affecting the capital structure of the firms investigated in our study. Section 3 presents the data and methodology. Section 4 discusses the empirical results, while section 5 concludes the paper.

2. Development of hypotheses

We present the hypotheses related to capital structure decisions in four sections, those related to the firm, those related to economic development, those related to the country institutional characteristics and those related to the financial environment.

2.1 Capital Structure decisions and firm characteristics

We start with the hypotheses related to the firm, which are based on the three major theories of capital structure, The Agency Theory Framework, the Static Trade Off Theory

and the Pecking-Order Hypothesis, all of which aim explain the firm's choice between debt and equity. We develop our hypotheses regarding known firm characteristics that can explain capital structure decisions below:⁴

Asset tangibility. Bank financing requires some kind of collateral represented in physical assets to mitigate the risks of information asymmetries between lender and borrower and limit the costs of any detailed monitoring or extra risk tolerance by debt holders for unsecured positions (Storey, 1994; Berger and Udell, 1995). Collateral becomes vital to reassure lenders when information asymmetry exists. For example, when firms are opaque and managers have more information about the prospects of the company than investors, or debtors, collateral provides a guarantee (Stiglitz and Weiss, 1981; Chan and Kanatas, 1985; Hanley and Crook, 2005).

Previous studies on SMEs provide mixed results for the relationship between asset tangibility and leverage. Studies on SMEs in developed countries, such as Van der Wijst and Thurik (1993), Michaelas et al. (1999), Hall et al. (2004), Sogorb-Mira (2005), Degryse et al. (2012) find a positive relationship between asset tangibility and leverage; on the other hand, studies such as Chittenden et al. (1996), Cassar and Holmes (2003), Daskalakis and Psillaki (2008) and Daskalakis et al. (2017) posit an inverse relation.

The studies on developing countries also provide mixed results. Nguyen and Ramachandran (2006) find an inverse relation while Trinh et al. (2017) observe a positive relation between asset structure and leverage for SMEs in Vietnam. On the other hand, Klapper et al. (2006) observe positive relation for Poland. Newman et al. (2012) and Du et al. (2015) study the SMEs in China and find negative association but the relation is

⁴ The firm level variables included in this study are limited by the availability of data.

insignificant for Newman et al. (2012). Koksall and Orman (2015) analyse the SMEs in Turkey and observe positive relation.

The cross-country studies, such as Demirguc-Kunt et al. (2020) for various countries, including both developed and developing and McNamara et al. (2017) for European countries also find a positive relation between tangibility and leverage for SMEs. The empirical literature provides thus mixed result for the association.

Hypothesis 1: According to the trade-off and pecking order theories, we expect a positive relation between asset tangibility and leverage.

Profitability. The pecking order theory predicts a negative relation between profitability and leverage. Firms prefer first internal financing (retained earnings), then debt and they choose equity as a last resort (Myers, 1984). This suggests that the more profitable firms have higher retained earnings and less need for debt financing. Generally, the small firms' owners are also the managers of the company. They do not prefer external sources to finance their firms because they do not want to share the control of the firm with other shareholders (Holmes and Kent, 1991; Hamilton and Fox, 1998).

Most empirical literature findings are in accordance with the pecking order theory for SMEs in developed countries, such as Van der Wijst and Thurik (1993), Chittenden et al. (1996), Michaelas et al. (1999), Cassar and Holmes (2003), Sogorb-Mira (2005), Daskalakis and Psillaki (2008), Degryse et al. (2012), Mc Namara et al. (2017). Studies on developing countries find similar results (Klapper et al., 2006; Abor and Biekpe, 2007; Newman et al., 2012; Du et al., 2015; Koksall and Orman, 2015). However, Nguyen and Ramachandran (2006) find a negative but insignificant relation. Demirguc-Kunt et al. (2020) also find an inverse relation for both developed and developing countries.

Hypothesis 2: In accordance with the Pecking-Order theory, we expect a negative relation between profitability and leverage.

Size. According to both Static Trade Off Theory and the Pecking-Order theory size has a positive effect on leverage. Previous studies conclude firm size is related to the capital structure of firms due to the information asymmetries, transaction costs, market access and risk exposure. Due to opaqueness of small firms, it is rather costlier to resolve information asymmetries with potential lenders. Generally, small firms have limited access to debt financing, or the available funding options have higher cost compared to large firms so it is more efficient for small firms to use internal financing (Myers, 1984). Furthermore, firms also consider the transaction costs and interest charges for their financing decisions (Titman and Wessels, 1988; Cassar, 2004; Newman et al., 2012). Larger firms are able to provide economies of scale to lenders; therefore, their transaction and interest rate charges are lower than smaller firms. Third, ability to access certain markets is another factor. For instance, raising equity funds through capital markets is not an option for SMEs because majority of them are not publicly traded they are not able to provide required scale to issue equity funds publicly (Cassar, 2004). At last, Static Trade Off Theory proposes that firm size could be an inverse proxy for the probability of the bankruptcy costs. Larger firms are likely to be more diversified and fail less often than smaller firms that have a quite high risk of bankruptcy.

Previous studies for SMEs in developed economies support the theories (Cassar and Holmes, 2003; Cassar, 2004; Sogorb-Mira, 2005; Daskalakis and Psillaki, 2008; Degryse et al., 2012; Mc Namara et al., 2017). Also studies on developing countries find a positive relation between firm size and leverage (Nguyen and Ramachandran, 2006; Abor and

Biekpe, 2007; Newman et al., 2012; Du et al., 2015; Koksal and Orman, 2015). Demirguc-Kunt et al. (2020) support this positive relation for both developed and developing countries.

Hypothesis 3: We expect a positive relation between firm size and leverage.

2.2 Capital structure decisions and economic policy

The financing decision of a firm does not only depend on the firms' conditions but also on the economic environment in which the firms operate. This is especially true for small firms in developing countries where economic stability is important in determining the availability of external financing to them. The country in which a firm is located explains capital structure choices (Fan et al., 2012). Joeveer (2013a) concludes that the country-specific factors are the main factors that have an effect on leverage choices of small unlisted firms. We argue that the growth and stability of the economic environment is especially important for small firms in developing countries. As developing countries become richer they provide more funding opportunities to firms and external financing becomes available to small firms. External financing in developing countries is scarce compared to developed countries due to unstable macroeconomic policies. Therefore, government's decisions on the fiscal and monetary policies have a direct impact on the economic environment of the country in terms of providing external financing and stability and thus on the capital structure decisions of firms.

On the whole, the economic development of a country affects the capital structure decisions of firms (Rajan and Zingales, 1995; Booth et al., 2001; Demirguc-Kunt and Maksimovic, 1996, 1999; De Jong et al., 2008; Joeveer, 2013a; Mc Namara et al., 2017; Demirguc-Kunt et al., 2020). One common measure of the economic development level of

a country is per capita income. It is a broad indicator which describes the level of wealth in a country over time. Similarly, the growth rate of the economy is a measure of the growth opportunities available to firms in the economy. On an individual firm level, the growth rate is a proxy for the investment opportunity set faced by firms (Smith and Watts, 1992) and its effect on the optimal financing of projects (Myers, 1977). Therefore, we expect economic growth to be related positively with leverage. On the other hand, high growth in developing countries may encourage firms to list and issue equity (Glen and Pinto, 1994). Also finance theory proposes that for growth options, firms should not prefer debt financing but should prefer equity financing (Demirguc-Kunt and Maksimovic, 1996).

Hypothesis 4: We expect the income level and the economic growth rate in an economy to be more positively related to the leverage choices of small firms, which are not usually listed on the stock exchange and have limited access to external financing compared to large firms, which have better access to financial markets and institutions and might not be affected as much from government policy on economic development and growth.

In developing countries, governments use monetary policy to stabilize the economy and control the rate of inflation. However, governments in developing countries resort often to monetisation of their fiscal deficit due to the limited options at their disposal to fund their expenditures, which results in high inflation. Firms are inclined to use more debt financing in an inflationary environment because increases in inflation lead to a higher value of tax deductions on debt given the tax deductibility of nominal interest payments (Taggart, 1985; Frank and Goyal, 2008). Thus, the Trade-off theory supports a positive

relation between inflation and debt. An inflation-induced increase in nominal interest rates increases the tax advantage of debt financing.

Hypothesis 5: We expect a positive relation between both the rate of inflation and interest rates, and leverage.

2.3 Capital structure decisions and country institutional characteristics

We first look at the impact of corruption on the leverage decisions of firms. Better governed countries provide better investor protection and therefore, equity financing is expected to be used by the firms much more. However, corruption is a problem in less developed countries so equity financing is expected to be used less in these countries due to the threat of investor rights' expropriation by managers, or public officials (Fan et al., 2012). Therefore, debt financing is expected to be used more in less developed countries with lower levels of corruption. Better governance lowers the agency problems and transaction costs (Ciocchini et al., 2003) and therefore, the cost of borrowing decreases. Fan et al. (2012) and Joeveer (2013b) also support the positive relation between low levels of corruption and leverage.

Hypothesis 6: We expect a positive relation between better governance and leverage.

The legal system a country belongs to is another factor that has an impact on the external financing decisions of firms. We use La Porta et al. (1997) to determine the legal system of a country as being either common, or civil law. Countries with common law legal systems offer better protection to shareholders than the civil law legal system. Therefore, firms in common law countries can use more equity financing and less leverage (Demirguc-Kunt and Maksimovic, 1998; La Porta et al., 1999). By using common law as a dummy

variable, Fan et al. (2012) find a negative relation between leverage and legal system. But for developing economies they find a positive but insignificant relation. Demircuc-Kunt and Maksimovic (1999) find a negative relation between leverage and common law for both small and large firms. In our study, we use a dummy for civil law legal system, so we expect to find a positive relation between leverage and civil law.

Hypothesis 7: We expect a positive relation between countries with civil law legal system and leverage.

2.4 Capital structure decisions and the financial environment

For the development of the financial system, we use three proxies: deposit money bank assets to central bank assets, stock market dummy and stock market turnover. The ratio of deposit bank assets to central bank assets indicates the size of the commercial banks compared to that of the central bank in the country. A country can be said to be financially developed when the commercial banks play a larger role than central banks in the banking system and as a result more funds are available to the private sector (Beck et al., 2009). Joeveer (2013a) find a positive relation for unlisted firms. Mc Namara et al. (2017) use the deposits per GDP⁵ as a proxy to analyse the effect and find a positive relation for European SMEs.

Hypothesis 8: We expect positive relation between the ratio of deposit money bank assets to central banks assets and leverage.

Stock market is another type of financial institution which supplies funds to firms, and helps raise the amount of investment available in a country. Not all of the countries in

⁵ Deposits per GDP is defined as the ratio of the total value of demand, time and saving deposits at domestic banks to GDP.

our sample have a stock market, or a stock market, which is active. Therefore, we use a dummy variable to proxy the presence of a stock market in a country. Since the existence of an active stock market supplies more funds into the financial system, we expect a positive relation between the stock market dummy and leverage.

Hypothesis 9: We expect positive relation between the existence of a stock market and leverage.

Stock market turnover shows how liquid, or active a stock market in relation to its size is (Beck et al., 2009). In a liquid stock market, trading is easier and liquidity lowers risk. More information is available for investors in the stock markets with high turnover due to the easier external monitoring of firms. Firms use more equity financing and less bank lending to raise capital when stock market turnover is high (Demirguc-Kunt and Levine, 1996). Demirguc-Kunt et al. (2020) find a positive but insignificant relation between stock market turnover and SMEs leverage during the financial crisis.

Hypothesis 10: We expect a negative relation between stock market turnover and leverage.

3. Data and methodology

3.1 Data

Our main dataset is a firm-level survey data for 10,839 firms from the World Bank Enterprise Survey-Investment Climate Survey conducted for 24 developing countries from 5 regions, which provides information over the period 1999-2002.⁶ Appendix 1 gives the list of firm observation by country. World Bank Enterprise Survey is a major cross-sectional survey conducted for developed and developing countries in various years. It is a

⁶ For some of the countries the span of years goes beyond 2002 due to delays in the collection of data.

firm level survey data which provides a sample of an economy's private sector. The survey is performed by private contractors on behalf of the World Bank. In the survey business owners and top managers are surveyed. Sometimes for the questions related to sales and labour section of the survey, company accounts and human resource managers respond to the questions. The sectors included in the survey are from key manufacturing and service sectors from each region of the world. In each country, companies in the cities or regions of major economic activity are interviewed. Formal (registered) firms with 5 or more employees are aimed for interview. The interviewed firms in the sample are selected based on the list of eligible firms which is obtained from the country's statistical office.

The Investment Climate Survey provides information about the balance sheet and income statement items such as fixed assets, current assets, total liabilities including short-term and long-term debt and equity-share capital, sales and expenses up to three years. This provides us information on the amount of debt and assets which enables us to estimate our firm level variables as used in the previous literature (see e.g. Rajan and Zingales, 1995; Booth et al., 2001). Demirguc-Kunt et al. (2020) use the ratio of total financial debt to total assets to proxy the leverage. Rajan and Zingales (1995) and Booth et al. (2001) use total liabilities to total assets as we do. We could not include only financial debt as in Demirguc-Kunt et al. (2020) due to the unavailability of the data. The other versions of the survey do not include such accounting information. The data for macroeconomic variables is collected from World Development Indicators and financial environment variables are gathered from the Worldwide Governance Indicators from World Bank and the Financial

Development and Structure database (Beck et al., 2009). Legal origin of the countries is from La Porta et al. (1998, 1999).⁷

We have 27,738 observations of which 48(41) % of them is small (medium) firms and 11% are large companies. Firms are defined as small if they have less than 50 employees. Medium firms employ 51 to 500 employees; large firms are defined as those with more than 500 employees. Only 9.5% of the firms in the sample are publicly listed while 90.5% are private companies. 51(39) % of private companies are small (medium) firms while 10% of them are large firms.

Distinguishing feature of the database is its coverage for small and medium enterprises, which has not been used before extensively for the examination of the determinants of capital structure. For example, Rajan and Zingales (1995) use Global Vantage database which contains accounting data for the largest listed companies in the G-7 countries and Booth et al. (2001) use International Financial Corporation (IFC) database, which includes abbreviated balance sheets and income statements for the largest companies in 10 developing countries. As we see from our sample, large companies are not a common feature of developing countries. For example, the average size of the firm in our sample is lower compared to the size of the firms in the study of Booth et al. (2001) and Demirguc-Kunt et al. (2020). We first compare the average sizes of firms in India and Pakistan in the same way as in Booth et al. (2001)⁸. The average size of the firms in India and Pakistan in the sample of Booth et al. (2001) is US\$98m and 27m, respectively, while in our sample it is US\$10m and 1m. On the other hand, the average total assets and sales of SMEs for both developed and developing countries together. in Demirguc-Kunt et al. (2020) and are \$60m

⁷ For definitions of variables and sources of data look at Appendix 2.

⁸These two countries are included in both studies.

and \$120m, respectively, while in our sample they are approximately \$10m and \$4m for the SMEs in developing countries only. We see that the firms in our sample are smaller. On the other hand, Beck et al. (2008) focus on the small firms and use World Business Environment Survey (WBES) 1999, which had limited firm level financial information. They investigate flows of external finance as a proportion of investment expenditures. They use the total amount of internal and external resources in a particular year rather than the ratio of external financing to total assets. In contrast, our rich database allows us to investigate whether their capital structure decisions are affected by the same theoretical determinants of capital structures used in developed countries. McNamara et al. (2017) and Demirguc-Kunt et al. (2020) use the Amadeus and Orbis databases by Bureau Van Dijk, respectively. Our study differs from those studies because it is based on a more representative group of less developed countries around the world, with diverse country characteristics which will help us arrive at more conclusive results regarding the capital structure decisions of SMEs in developing countries.

3.2 Methodology

The basic empirical model is a cross-sectional regression of the firm's leverage against the firm's tangibility of assets, profitability, and size. We have 10,839 companies with data over two, or three-year time periods. Since the time period for each firm is different, we have an unbalanced panel. We estimate our model by using panel least squares with period fixed effects and clustered standard errors. We apply the panel data analysis because this gives us the opportunity to analyse our firm level across country and time. We analyse whether country and industry have an effect on the capital structure decisions of

firms. For that we use country and industry dummies,⁹ first individually and then both of them together. It should be noted that it is important to consider whether a firm is in the manufacturing sector, or the services sector because external financing of the firms is highly influenced by their asset composition (Myers, 1984). Manufacturing firms with tangible assets have a greater chance of obtaining external finance from creditors as compared to SMEs in the service sector with intangible assets. Cressy and Olofson (1997) also confirm that SMEs in the service sector face higher credit constraints as compared to the manufacturing sector. Thus, the level of information asymmetry of SMEs and lenders has different relative importance for SMEs in the manufacturing and service sectors. (Serrasqueiro, 2011). Finally, we include economic and financial environment variables for each country to investigate their impact.

The functional form of our models is as follows:

$$\frac{D_{i,j,t}}{V_{i,j,t}} = \alpha_t + \sum_{k=1}^n \beta_k F_{i,j,k,t} + \sum_{l=1}^n \gamma_l E_{i,j,l,t} + \sum_m \varphi_m Ins_{i,j,m,t} + \sum_{p=1}^n \delta_p Fin_{i,j,p,t} + \varepsilon_{i,t} \quad (1)$$

$D_{i,j,t}/V_{i,j,t}$ represents the leverage for the i^{th} firm in country j at time t . $F_{i,j,k,t}$ shows the firm level variables, such as asset tangibility, profitability and size; while $E_{i,j,l,t}$ represents the economic environment variables, such as GDP per capita, economic growth, the inflation rate and the interest rate for the l^{th} macroeconomic variable at time t for country j . $Ins_{i,j,m,t}$ shows the m^{th} institutional variables at time t , such as corruption and civil law legal system for firm i in country j . $Fin_{i,j,p,t}$ shows the financial environment variables, such as, deposit money bank assets to central bank assets, stock market dummy and stock market turnover for the p^{th} financial environment variable at time t , for firm i in country j .

⁹ We have used the World Bank classification. Details of proportion of firms in each industry are given in Appendix 3.

We apply the Hausman specification test to decide on the use of fixed effects.¹⁰ We use period fixed effects rather than firm-specific fixed effects based on the work by Lemmon et al. (2008). Lemmon et al. (2008) propose that “the majority of variation in leverage in a panel of firms is time invariant” suggesting that variation in capital structures is primarily determined by factors that remain stable over time. As suggested, by controlling the time-series variation (or time variant factors), we capture cross-sectional variation of the determinants. Therefore, we are able to identify the factors that affect the capital structure decisions of firms. We estimate the model using OLS estimators with period fixed effects.

We first estimate the equation by using only firm-level variables, then add country and industry dummies individually and then together into the model to examine the impact of country and industry on the leverage decisions of firms. Finally, we add the institutional characteristics and the economic and financial environment variables into the regression. We do the estimation for the overall sample and then repeat them for small and large firms separately.

4. Empirical results

4.1 Descriptive Statistics

Table 1, Panel A presents descriptive statistics. We first look at the dependent variables. We follow Rajan and Zingales (1995), Demirguc-Kunt and Maksimovic (1996)

¹⁰ Hausman test is a specification test which is based on the correlations between the regressors and the unobserved or individual effect. This test is important to test the assumption of whether unobserved and observed explanatory variables are correlated. Fixed effect estimator is consistent even when the estimators are correlated with the individual effect. If they are correlated, fixed effect is consistent, but random effect is not. Therefore, we actually test in the null hypothesis that random effects are consistent and efficient, versus alternative hypothesis that random effects are inconsistent (as the fixed effects will be always consistent).

and Booth et al. (2001) and define leverage as total liabilities divided by total assets.¹¹ The mean(median) leverage is 39.10% (37.70%). Leverage is low in our sample compared to developed countries. For example, in the US (UK), the mean leverage is around 58% (54%) (see Rajan and Zingales, 1995). Firms in developed countries are highly leveraged compared to firms in developing markets. The reason for this might be the limited availability of funds in developing countries to finance companies. The available funds are generally allocated to large (listed) firms. Table 1, panel B presents comparative means for different size and types of firms. The leverage for small firms is 30.70%, compared to large(medium) firm, which is, 50.50% (45.60%).

Tangibility is defined as the total assets minus current assets (fixed assets) divided by total assets. On average (median) 45.2% (44.10%) of the firms' assets are fixed assets which can be used as collateral. So, firms with high asset tangibility should have greater borrowing capacity. The mean of asset tangibility for small(medium) and large companies is 48.20%(42.80) and 41.40%, respectively. The mean of asset tangibility for listed companies in the US(UK) is 39.5% (35.6%) (see Antoniou et al., 2008).

Profitability is calculated as earnings before interest and tax¹² divided by total assets. The mean(median) of profitability in the sample is 37.06% (22.00%). The mean of profitability for small(medium) and large firms is 30.60(35.40%) and 44.60% respectively. Profitability in the US(UK) is 16%(11.6%) (see Antoniou et al., 2008). The firms in developing countries have higher profitability than firms in the US(UK).

¹¹ In other studies, such as Demirguc-Kunt et al. (2020), they use total debt instead of total liabilities. We do not have total debt in our dataset.

¹² Earnings is calculated as total sales minus the sum of direct raw material costs, consumption of energy, manpower costs, interest charges and financial fees, other costs.

As a proxy for size, we use size dummy variable for small and large firms based on the firms' number of employees. Firm is classified as small if it has less than 50 employees; medium size if it has between 51 and 500 employees and large if more than 500 employees (see Beck et al., 2008). According to this classification, 48.10% (41.01%) of the firms in our sample are small (medium) firms while only 10.89% of them are large firms

Looking now at the macroeconomic indicators: GDP per capita shows the income per capita level of countries (Beck et al., 2008) and average (median) GDP per capita for our sample is US\$1,698(996). The richest country in the sample is Oman with US\$8,962 and while the poorest country is Ethiopia with US\$121. In the same period, the GDP per capita in the US(UK) is US\$34,852(25,359). As can be seen from the figures, there is a great difference in wealth between even the richest country in our sample and the developed countries. The countries in our sample grow faster compared to the developed markets. The average (median) GDP growth rate of a country in our sample is 3.26% (3.07%), while in the US(UK) is 1.75% (2.40%). The fastest growing country in our sample is Cambodia with 8.04% growth rate, while the slowest growing country is Indonesia with 0.15% growth rate.

The inflation rate shows the inflation rate of a country and is measured by the GDP deflator, which is the ratio of GDP in local currency to GDP in constant local currency. Average (median) inflation rate in our sample is 6.95% (6.20%); whereas, the rate is 2.13% (2.41%) in the US(UK). The highest inflation is 30.82% for Honduras and the lowest is -7.04% for Ecuador. Interest rates similar to the inflation rates, are also higher for the countries in our sample as one would expect. The interest rate is depicted by the lending rate of a country. The average (median) interest rate is 21.27% (13.69%), while for the

US(UK) the interest rate is 6.21% (4.75%) during our sample period. The highest interest rate in our sample is 62.88% for Brazil while the lowest interest rate is 6.18% for Chile. The higher inflation and interest rates cause borrowing to be costly in developing countries and might be one of the reasons for lower leverage ratios in general.

We have also looked at a group of institutional variables. Corruption is scaled from -2.5 to 2.5. Higher values mean better governance. The mean (median) of corruption is -0.30 (-0.42) in our sample. The value of corruption in the U.S. (UK) is 1.75 (2.06). Corruption seems to be a problem for the countries in our sample. None of them are close to the U.S. This corrupt environment increases the costs of external financing. High corruption may be another reason for the low leverage levels of firms in our sample. The most corrupt country in the sample is Indonesia (-1.13), while the least corrupt country is Chile (1.51). The majority of the countries in the sample (60%) embrace a civil law legal system, while 40% are common law countries.

Looking now at the financial variables the mean (median) of deposit money bank assets to central bank assets is 62.15% (75%). For the U.S. (UK), this ratio is 91.21% (98.35%). The most financially developed country is Oman (99.84%) and the least financially developed country is Brazil (0.36%). If the deposit money banks in a country have a larger role in the banking system than central bank, it indicates that the country has higher levels of financial development (Beck et al., 2009). Our sample includes financially developed countries, but if we look at the average, it seems that most of the countries in the sample are not financially developed.

Not all countries in the sample have a stock market. Based on the sample, four of the countries out of the 24 countries in our sample do not have a stock market. Those are

Cambodia, Ethiopia, Guyana¹³ and Syria. Two countries, Honduras and Nicaragua, in the sample do not have an active stock market. In total 6 out of 24 countries either do not have a stock market or an active one. This corresponds to 11%¹⁴ of the observations in the sample.

The mean (median) of stock market turnover is 0.97 (0.16). The country with the highest turnover is Pakistan (5.01), while the country with lowest turnover is Guyana (0.0001). In the U.S. (UK), stock market turnover is 1.65 (0.88). Guatemala, India, and Pakistan have higher stock market turnover when compared to the U.S. High turnover is an indicator of low transaction costs (Levine and Zervos, 1998). Therefore, the higher the turnover, the more active and liquid the stock market is. It seems that some of the stock markets in the sample are illiquid.

4.2 Determinants of capital structure

In Table 2 Models 1-6 present results for leverage for the overall sample of our companies.¹⁵ Looking first at model 1, which includes only the firm level variables we observe that the coefficient for tangibility is statistically significant but negative indicating that as collateral increases, firms borrow less. According to the trade-off and pecking order theories, as tangibility increases, collateral increases and firms should be able to obtain more debt (see Rajan and Zingales, 1995; Titman and Wessels, 1988). Our findings contradict the theory. This could be because we do not distinguish between short-term and long-term leverage. In the short-term firms use source of financing, which does not require fixed assets as collateral, such as trade credit, and bank overdrafts, whereas in the long-

¹³ The stock market in Guyana opened in 2003.

¹⁴ Total number of observations from those six countries is 3,179 and total number of observations in the sample is 27,738. (3,179/27,738 = 11%)

¹⁵ See [Appendix 2](#) for definitions and abbreviations of our variables.

term financing is secured against fixed assets (Newman et al., 2013). In other words, we are capturing more the short-term impact relationship. We will explore that possibility in the next section. Another explanation could be that firms, especially SMEs, in developing countries have less reliance on bank-based financing due to the inaccessibility since institutions providing asset-backed financing are biased towards private sector for the asset-based financing due to higher levels of information asymmetry which might be the result of the lax accounting standards (Du et al., 2015).

The coefficient for profitability is negative, indicating that as profitability increases, leverage decreases. This provides support for the pecking order theory (Myers and Majluf, 1984). Firms use retained earnings first and then move to external sources of financing. This negative relation also supports the existence of asymmetric information. In accordance with Booth et al. (2001) and Demircuc-Kunt et al. (2020), this result proposes that external financing is costly and as a result firms avoid it.

The size dummy for small firms has a negative coefficient and the dummy for large firms has a positive coefficient. Leverage is higher for large firms and lower for small firms. As firms' size increases, they become more diversified and have more stable cash flows. They are less often bankrupt compared to small firms (Pettit and Singer, 1985; Newman et al., 2012) so that they can afford higher levels of leverage. Booth et al. (2001) and Demircuc-Kunt et al. (2020) also support this positive relation between leverage and firm size.

Insert Table 2 about here

The results remain the same when country and industry effects are added individually in model 2 and model 3 respectively and both of them together in model 4.

However, we observe that the adjusted R^2 jumps from 0.130 to 0.229 with country fixed effects while there is only a slight increase when including industry fixed effects from 0.130 to 0.142, suggesting that the country of incorporation is an important determinant for the debt financing decisions of firms (Booth et al., 2001; Joeveer, 2013a; Demirguc-Kunt et al., 2020). Surprisingly industry has a small effect on the financing decisions for the firms in developing countries. The jump in the adjusted R^2 is much higher than the regression result with country characteristics in Demirguc-Kunt et al. (2020) for their overall sample. In order to investigate whether the country's institutional characteristics, and the economic and financial environment factors have a major effect on the capital structure decisions of firms we add the representing indicators in models 5 and 6, the latter includes industry dummies.

We show that economic environment is important in firms' capital structure choices in developing countries. The coefficient for GDP per capita is negative and that is in contrast to our expectations. As the income per capita increases, more financing options become available and leverage is expected to increase. In fact, we find that firms prefer equity financing instead. That could be because GDP per capita is a broad indicator for economic development, further development of the countries might encourage firms to prefer equity financing over debt financing. On the other hand, GDP growth rate has a positive coefficient. Debt is usually the preferred financing option for investment opportunities due to the scarcity of equity financing in developing countries; therefore, increases in the growth opportunities available to firms in a country increases the leverage. In countries with relatively higher rate of economic growth, firms are eager to take higher levels of debt to finance new investment (Joeveer, 2013a).

The coefficient for the inflation rate is positive implying that firms borrow more as inflation increases, confirming our expectations. (Booth et al., 2001). The impact of interest rate on leverage is positive suggesting that firms continue to borrow despite the increases in the cost of interest. This might be due to the fact that in most developing countries interest rates increase when ceilings are abolished as a result of financial liberalisation and funds become available (Bekaert et al., 2003). Generally, inflation rates are higher for developing countries; therefore, if the managers are able to borrow at the right time, they can lower their cost of borrowing when the current interest rates are lower than the rate of inflation (Frank and Goyal, 2008).

We move on to discuss the impact of country institutional characteristics on firm leverage. We note the coefficient for corruption is positive, confirming our hypothesis that firms increase their debt financing in better-governed countries. Since the countries in our sample are relatively poor compared to European countries, corruption is one of the biggest obstacles, making investment and borrowing costly. Therefore, the lower the corruption, the higher the funding firms are able to find. Additionally, we examine the effect of the legal system on firm leverage. The coefficient for the civil law dummy is positive implying that firms in the countries with civil law legal systems can borrow more, since countries with civil law legal systems have weaker property and investor rights, firms in those countries prefer debt financing. (Demirguc- Kunt and Maksimovic, 1999).

Moving on to the financial development variables, we note that the coefficient for deposit money bank assets to central bank assets is positive for leverage in accordance with our expectations. When the deposit money banks play a larger role than the central bank in the banking system, that is an indication of financial development (Beck et al., 2009). The

developed banking system provides more funds; therefore, the debt financing of firms increases. The coefficient for the stock market dummy is positive, which confirms our hypothesis that in countries, which have a stock market, firms have access to more external financing. The stock market is another option for firms to raise funds. Stock markets signify the use of equity markets in raising capital. The existence of a stock market offers better diversification and increased liquidity; therefore, the amount of investments available in a country is expected to increase (Greenwood and Jovanovic, 1990; Obstfeld, 1994). With stock markets, bank loans rise. As Demirguc-Kunt and Levine (1996) conclude that the development level of stock market is highly related with the development of banks. Demirguc-Kunt and Maksimovic (1996) support the view that countries with developing financial systems, stock markets and banks are complements to each other. In that way bank loans can rise in the countries with developing stock markets since further development of the stock market provides opportunities for risk sharing and information collection that enables firms to increase their borrowing. As a result, firms have access to more external funding. The coefficient for stock market turnover is negative for leverage suggesting that as turnover increases, firms prefer equity financing. Since high turnover decreases the transaction costs and raises the liquidity of the market, funding in the stock market becomes cheaper (Levine and Zervos, 1998). Therefore, firms may prefer to borrow less debt and shift their financing choices from debt financing to equity financing. Financial institutions play an important role in supplying available funds to firms. Financially developed countries create more external financing opportunities, while an active and more liquid stock market allows firms to select equity financing over debt financing. A more liquid and active stock market increases the available funding in the financial system and

therefore, firms prefer equity financing over the debt financing and firms borrow less.

4.3 Are the determinants of capital structure different for small firms compared to large firms?

In this section, we analyse whether the determinants of capital structure theories are portable to small firms in developing countries. In order to do that we compare the estimation results for small and large firms, which are presented in Tables 3 and 4 respectively. Looking first at the firm level characteristics, we note a negative relation, for tangibility with leverage which is statistically significant at the one percent for both small and large firms as in Table 2 for the overall sample. It has been noted in the previous section that this could be due to the maturity of the debt for short-term debt firms use finance, which does not require collateral, while long-term debt financing is secured against financial assets.^{16,17}

Looking at profitability, we do not find a significant relation with leverage for small firms, while the relation is negative and significant for large firms. The impact of small firms' profitability on leverage is almost zero although large firms follow the pecking order for their leverage decisions. When we repeat the estimations with country and industry fixed effects for both small and large firms, we observe that country characteristics are at work. Comparing now the results of model 2 in Table 3, which includes the country effects, with those of model 5, which includes instead the macro, institutional and financial variables, we observe that the adjusted R^2 is less in the latter model implying that there are still country effects, that we have not accounted for. Adding the industry effects in model

¹⁶ Short-term debt in small firms is 20.8%, while long-term debt is 9.6%.

¹⁷ In order to test that conjecture, we repeated Table 3 for short-term and long-term debt for small firms. The results are presented in Appendix 5 and 6. As expected the tangibility for long-term debt is positive.

6 does not change that conclusion, although it raises the R^2 confirming the importance of industry effects. According to the results presented in Tables 3 and 4 the economic, institutional and financial environment of a country has the main impact on the leverage decisions of small firms.¹⁸ Most of the economic, institutional and financial environment variables are insignificant for large firms, except for the interest rate, the stock market and turnover. For small firms the results are the same as those presented in Table 2.

In summary, we note two differences between the capital structure decisions of small and large firms. First, profitability has no bearing in the capital structure decisions of small firms. Secondly, the macroeconomic, institutional and financial environment variables impact the financing decisions of small firms much more than large firms.

Insert Table 3 and 4 about here

Large firms have better access to the capital markets so they can shape their capital structure decisions based on firm level needs as represented by capital structure theories. However small firms are more exposed to shocks, and changes in the local economy and the governments' monetary policies that determine the level of financing available via development banks, or suppliers.

We confirm that we can apply the capital structure theories to the firms in developing countries in the overall sample. But when we consider the size effect the story becomes different. The results suggest that small firms do not follow the pecking order compared to large firms as suggested by previous studies, such as Hall et al. (2004), Nguyen and Ramachandran (2006). It should be noted that our analysis has focused on the small firms of SMEs, which employ less than 50 employees, while the analysis of other

¹⁸ Joveers (2013b) arrived at a similar conclusion when examining the capital structure for various sizes of firms based on the amount of their assets for 10 developed European countries.

studies has concentrated on the larger firms of SMEs. For example, in Mc Namara et al. (2017) SMEs have less than 250 employees; in Demirguc-Kunt et al. (2020) the average employment of SMEs is between 10 to 99 and in Joeveer (2013a) SMEs have less than 250 employees. In order to emphasize that we are investigating the capital structure decisions of small firms we repeated the estimation of all the models for our medium size firms, which employ 51 to 500 people. The results are presented in Table 5. The main difference between the results of medium and small firms is that now profitability is negative and statistically significant while the results for the macroeconomic, institutional and financial factors are similar to those of small firms. However, the R^2 is lower in the medium firms implying that the macroeconomic, institutional and financial environment contribute less in these slightly bigger firms, confirming that the impact of country characteristics varies with the size of the firm.

5. Conclusion

The paper has examined the determinants of capital structure decisions of small firms in developing countries. Previous research has mainly focused on large listed firms of the US, other developed countries and a small number developing countries. The studies on SMEs are mostly limited to European countries, where the institutional characteristics are similar. In contrast to the earlier studies, our main focus has been on the small firms in developing countries, which are more representative of the corporate sector in those countries. We use survey data from Enterprise Survey-Investment Climate Survey which covers a broad sample of countries around the world, and provides detailed firm financial information, which enables us to test for the capital structure theories as it has been done for the developed countries.

Our results can be summarised as follows. First, our results for small firms in developing countries indicate that corporate financing decisions differ from those found for large companies. Profitability has no bearing in the capital structure decisions of small firms in contrast to large firms, and thus do not follow the pecking order. Secondly, asset tangibility, is significant but negative and thus the capital structure decisions do not follow either the trade-off, or pecking order theories. The negative impact of asset tangibility, could be due to either the maturity of the debt as the small firms in our sample are generally financed by short-term debt so they might not need collateral, as opposed to the long-term debt, which requires collateral and we found some evidence for to support that, or the general lack of availability of the asset-backed financing in developing countries. Thirdly, we find that the size of the firm is an important factor in the level of leverage a firm holds. As firms become larger, they increase leverage in their capital structures. Larger companies are usually more diversified and their risk of failure is reduced. As a result, they can have higher leverage, whereas, small firms have lower leverage. Due to the information asymmetries and high inflation in the developing countries, small firms usually face higher interest rate costs. Also, they are financially riskier compared to large firms. As a result of that, debt financing becomes expensive for small companies.

Fourthly, the country of incorporation is an important determinant for the debt financing decisions of small firms. Looking at the country level characteristics in detail the institutional characteristics together with the macroeconomic and financial environment variables impact the financing decisions of small firms much more than those of large firms.

Finally, the impact of country characteristics, although similar to that of small firms, contributes less in the medium size firms, confirming that their impact varies with the size of the firm. Furthermore, they are mostly insignificant in the case of large firms.

On the whole, our results confirm that capital structure theory is portable to developing countries in the case of large firms, otherwise country characteristics are at work for the external financing decisions of small firms in developing countries. Since SMEs are the backbone of the economy in developing countries, constituting 67% on average of the formal employment in the manufacturing sector, and up to almost 50% on average to formal GDP in developing countries, rising to 95% of employment and 70% of GDP, when including informal enterprises, (Ayyagari et al. (2007); Keskin et al., 2008), governments should be trying to create the right economic and financial environment to help SMEs with their external financing.

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Table 1. Descriptive Statistics

The tables present descriptive statistics for firm specific, economic, institutional and financial environment variables. Panel A reports descriptive statistics for all firms included in the sample. Panel B shows the comparative descriptive statistics for all firms, small, medium, large, private and listed. Small is small firms which has less than 50 employees. Medium is medium size firms which employs 51 to 500 people while Large is for large firms which have more than 500 employees. The firm specific variables are as follows: Leverage is the ratio of total liabilities to total assets. Tangibility is measured as fixed assets to total assets. Profitability is the ratio of earnings before interest and tax divided by total assets. Small and Large are included as dummy variables to proxy for size. If the firm employs less than 50 employees, small takes the value of 1, otherwise 0. Large takes the value of 1 if the firm has more than 500 employees, otherwise 0. Economic environment variables are as follows: GDP/Cap is GDP per capita in US dollars. Growth rate is the GDP growth rate of the country. Inflation rate is the ratio of GDP in local current to GDP in constant local currency. Interest is the lending interest rate of the country. Institutional variables are as follows: Corruption is an index of control of corruption. Civil law legal system is a dummy variable which equals to 1 if the country has civil law legal system; otherwise 0. Financial environment variables are as follows: Dbacba is measured as the ratio of deposit money bank assets to deposit money bank assets plus central bank assets. Stockmarket is a dummy variable which equals to 1 if the country has a stock market; otherwise 0. Turnover is the ratio of the value of total shares traded to market capitalization.

Panel A: Descriptive Statistics for all firms

	Mean	Median	Maximum	Minimum	Std. Dev.	Observations
Leverage	0.391	0.377	1.000	0.000	0.297	27738
Tangibility	0.452	0.441	1.000	0.000	0.272	27065
Profitability	0.370	0.220	7.393	-4.042	0.711	27041
Small	0.481	0.000	1.000	0.000	0.500	27738
Large	0.109	0.000	1.000	0.000	0.312	27738
GDP/Cap	1698.38	996.06	8961.50	120.84	1569.91	27738
Growth rate	0.033	0.031	0.080	0.001	0.015	27738
Inflation rate	0.069	0.062	0.308	-0.070	0.063	27738
Interest rate	0.213	0.137	0.629	0.062	0.171	27738
Corruption	-0.303	-0.418	1.507	-1.127	0.588	27738
Civil law legal system	0.604	1.000	1.000	0.000	0.489	27738
Dbacba	0.621	0.750	0.998	0.004	0.356	27738
Stockmarket	0.890	1.000	1.000	0.000	0.312	27738
Turnover	0.868	0.118	5.010	0.000	1.326	27738

Panel B: Comparative means for different types and size of firms

	All	Small	Medium	Large	Private	Listed
Leverage	0.391	0.307	0.460	0.505	0.367	0.463
Tangibility	0.452	0.482	0.428	0.414	0.467	0.434
Profitability	0.370	0.306	0.354	0.446	0.357	0.334
Small	0.481	NA	NA	NA	0.507	0.260
Large	0.109	NA	NA	NA	0.096	0.275
Observations	27738	13343	11373	3022	23594	2135

Table 2 Leverage: Overall sample

The table presents regression results for the overall sample. Model 1-4 present the results only with firm specific variables. Model 2 shows the results with country dummies while Model 3 is with industry dummies. Model 4 reports the results with both country and industry dummies. Model 5-6 present the regression results with firm specific, economic, institutional and financial environment variables. Model 6 reports the results with industry dummies. The firm specific variables are as follows: Leverage is the ratio of total liabilities to total assets. Tangibility is measured as fixed assets to total assets. Profitability is the ratio of earnings before interest and tax divided by total assets. Small and Large are included as dummy variables to proxy for size. If the firm employs less than 50 employees, small takes the value of 1, otherwise 0. Large takes the value of 1 if the firm has more than 500 employees, otherwise 0. Economic environment variables are as follows: GDP/Cap is GDP per capita in US dollars. Growth rate is the GDP growth rate of the country. Inflation rate is the ratio of GDP in local current to GDP in constant local currency. Interest is the lending interest rate of the country. Institutional variables are as follows: Corruption is an index of control of corruption. Civil law legal system is a dummy variable which equals to 1 if the country has civil law legal system; otherwise 0. Financial environment variables are as follows: Dbacba is measured as the ratio of deposit money bank assets to deposit money bank assets plus central bank assets. Stockmarket is a dummy variable which equals to 1 if the country has a stock market; otherwise 0. Turnover is the ratio of the value of total shares traded to market capitalization. Standard errors are in the second row. ***, ** and * indicate level of significance at 1%, 5% and 10%, respectively.

	Model1	Model2	Model3	Model4	Model5	Model6
Tangibility	-0.219***	-0.166***	-0.215***	-0.166***	-0.175***	-0.172***
	0.01	0.01	0.01	0.01	0.01	0.01
Profitability	-0.020***	-0.016***	-0.018***	-0.015***	-0.017***	-0.015***
	0.00	0.00	0.00	0.00	0.00	0.00
Small	-0.144***	-0.092***	-0.134***	-0.091***	-0.104***	-0.100***
	0.01	0.01	0.01	0.01	0.01	0.01
Large	0.051***	0.053***	0.050***	0.053***	0.052***	0.051***
	0.01	0.01	0.01	0.01	0.01	0.01
GDP/Cap					-0.050***	-0.049***
					0.01	0.01
Growth rate					2.992***	2.950***
					0.25	0.25
Inflation rate					0.171***	0.150***
					0.03	0.03
Interest rate					0.310***	0.343***
					0.03	0.03
Corruption					0.092***	0.098***
					0.01	0.01
Civil law legal system					0.079***	0.089***
					0.01	0.01
Dbacba					0.162***	0.182***
					0.01	0.01
Stockmarket					0.203***	0.181***
					0.01	0.01
Turnover					-0.026***	-0.024***
					0.00	0.00
Country dummies	-	Yes	-	Yes	-	-
Industry dummies	-	-	Yes	Yes	-	Yes
Obs	26419	26419	26385	26385	26419	26385
Adj. R ²	0.130	0.229	0.142	0.231	0.191	0.200

Table 3 Leverage for Small Firms

The table presents regression results for the small firms. Model 1-4 present the results only with firm specific variables. Model 2 shows the results with country dummies while Model 3 is with industry dummies. Model 4 reports the results with both country and industry dummies. Model 5-6 present the regression results with firm specific, economic, institutional and financial environment variables. Model 6 reports the results with industry dummies. The firm specific variables are as follows: Leverage is the ratio of total liabilities to total assets. Tangibility is measured as fixed assets to total assets. Profitability is the ratio of earnings before interest and tax divided by total assets. Economic environment variables are as follows: GDP/Cap is GDP per capita in US dollars. Growth rate is the GDP growth rate of the country. Inflation rate is the ratio of GDP in local current to GDP in constant local currency. Interest is the lending interest rate of the country. Institutional variables are as follows: Corruption is an index of control of corruption. Civil law legal system is a dummy variable which equals to 1 if the country has civil law legal system; otherwise 0. Financial environment variables are as follows: Dbacba is measured as the ratio of deposit money bank assets to deposit money bank assets plus central bank assets. Stockmarket is a dummy variable which equals to 1 if the country has a stock market; otherwise 0. Turnover is the ratio of the value of total shares traded to market capitalization. Standard errors are in the second row. ***, ** and * indicate level of significance at 1%, 5% and 10%, respectively.

Small	Model1	Model2	Model3	Model4	Model5	Model6
Tangibility	-0.247***	-0.153***	-0.233***	-0.148***	-0.183***	-0.173***
	0.01	0.01	0.01	0.01	0.01	0.01
Profitability	-0.005	0.001	-0.002	0.002	-0.002	0.000
	0.00	0.00	0.00	0.00	0.00	0.00
GDP/Cap					-0.023***	-0.030***
					0.01	0.01
Growth rate					1.932***	1.956***
					0.35	0.37
Inflation rate					0.227***	0.199***
					0.05	0.05
Interest rate					0.244***	0.292***
					0.04	0.04
Corruption					0.105***	0.113***
					0.01	0.01
Civil law legal system					0.057***	0.072***
					0.01	0.01
Dbacba					0.208***	0.221***
					0.02	0.02
Stockmarket					0.188***	0.175***
					0.01	0.01
Turnover					-0.033***	-0.029***
					0.00	0.00
Country dummies	-	Yes	-	Yes	-	-
Industry dummies	-	-	Yes	Yes	-	Yes
Obs	12626	12626	12611	12611	12626	12611
Adj. R ²	0.086	0.247	0.108	0.251	0.184	0.198

Table 4 Leverage for Large Firms

The table presents regression results for the large firms. Model 1-4 present the results only with firm specific variables. Model 2 shows the results with country dummies while Model 3 is with industry dummies. Model 4 reports the results with both country and industry dummies. Model 5-6 present the regression results with firm specific, economic, institutional and financial environment variables. Model 6 reports the results with industry dummies. The firm specific variables are as follows: Leverage is the ratio of total liabilities to total assets. Tangibility is measured as fixed assets to total assets. Profitability is the ratio of earnings before interest and tax divided by total assets. Economic environment variables are as follows: GDP/Cap is GDP per capita in US dollars. Growth rate is the GDP growth rate of the country. Inflation rate is the ratio of GDP in local current to GDP in constant local currency. Interest is the lending interest rate of the country. Institutional variables are as follows: Corruption is an index of control of corruption. Civil law legal system is a dummy variable which equals to 1 if the country has civil law legal system; otherwise 0. Financial environment variables are as follows: Dbacba is measured as the ratio of deposit money bank assets to deposit money bank assets plus central bank assets. Stockmarket is a dummy variable which equals to 1 if the country has a stock market; otherwise 0. Turnover is the ratio of the value of total shares traded to market capitalization. Standard errors are in the second row. ***, ** and * indicate level of significance at 1%, 5% and 10%, respectively.

Large	Model1	Model2	Model3	Model4	Model5	Model6
Tangibility	-0.097***	-0.115***	-0.108***	-0.120***	-0.109***	-0.114***
	0.03	0.03	0.03	0.03	0.03	0.03
Profitability	-0.020*	-0.022**	-0.020*	-0.022**	-0.022**	-0.021*
	0.01	0.01	0.01	0.01	0.01	0.01
GDP/Cap					-0.039	-0.037
					0.02	0.02
Growth rate					0.608	0.780
					0.84	0.86
Inflation rate					0.057	0.059
					0.12	0.12
Interest rate					0.275***	0.285***
					0.11	0.11
Corruption					0.004	0.010
					0.04	0.04
Civil law legal system					-0.019	-0.011
					0.03	0.03
Dbacba					0.060	0.087
					0.05	0.06
Stockmarket					0.168***	0.161***
					0.05	0.05
Turnover					-0.020**	-0.020**
					0.01	0.01
Country dummies	-	Yes	-	Yes	-	-
Industry dummies	-	-	Yes	Yes	-	Yes
Obs	2866	2866	2866	2866	2866	2866
Adj. R ²	0.010	0.052	0.020	0.058	0.032	0.039

Table 5 Leverage for Medium Firms

The table presents regression results for the medium size firms. Model 1-4 present the results only with firm specific variables. Model 2 shows the results with country dummies while Model 3 is with industry dummies. Model 4 reports the results with both country and industry dummies. Model 5-6 present the regression results with firm specific, economic, institutional and financial environment variables. Model 6 reports the results with industry dummies. The firm specific variables are as follows: Leverage is the ratio of total liabilities to total assets. Tangibility is measured as fixed assets to total assets. Profitability is the ratio of earnings before interest and tax divided by total assets. Economic environment variables are as follows: GDP/Cap is GDP per capita in US dollars. Growth rate is the GDP growth rate of the country. Inflation rate is the ratio of GDP in local current to GDP in constant local currency. Interest is the lending interest rate of the country. Institutional variables are as follows: Corruption is an index of control of corruption. Civil law legal system is a dummy variable which equals to 1 if the country has civil law legal system; otherwise 0. Financial environment variables are as follows: Dbacba is measured as the ratio of deposit money bank assets to deposit money bank assets plus central bank assets. Stockmarket is a dummy variable which equals to 1 if the country has a stock market; otherwise 0. Turnover is the ratio of the value of total shares traded to market capitalization. Standard errors are in the second row. ***, ** and * indicate level of significance at 1%, 5% and 10%, respectively.

Medium	Model1	Model2	Model3	Model4	Model5	Model6
Tangibility	-0.204***	-0.178***	-0.213***	-0.181***	-0.179***	-0.183***
	0.02	0.02	0.02	0.02	0.02	0.02
Profitability	-0.038***	-0.036***	-0.038***	-0.035***	-0.038***	-0.036***
	0.01	0.01	0.01	0.01	0.01	0.01
GDP/Cap					-0.093***	-0.086***
					0.01	0.01
Growth rate					4.291***	4.126***
					0.40	0.41
Inflation rate					0.202***	0.171***
					0.05	0.05
Interest rate					0.444***	0.464***
					0.04	0.05
Corruption					0.126***	0.131***
					0.02	0.02
Civil law legal system					0.122***	0.126***
					0.01	0.01
Dbacba					0.162***	0.183***
					0.02	0.02
Stockmarket					0.131***	0.111***
					0.02	0.02
Turnover					-0.019***	-0.017***
					0.00	0.00
Country dummies	-	Yes	-	Yes	-	-
Industry dummies	-	-	Yes	Yes	-	Yes
Obs	10927	10927	10908	10908	10927	10908
R ²	0.044	0.144	0.059	0.150	0.109	0.117

Appendix 1. Firm Observation by Country and Region

This table presents the composition of firm observations for each country and region in the sample. Small reports firms less than 50 employees. Medium employs 51 to 500 employees, while large firms have more than 500 employees. Private are privately held companies and listed are publicly held firms. AFR stands for the African Region. EAP symbolizes the East Asia and Pacific region, while LCR is for the Latin America and Caribbean region. MNA stands for the Middle East and North Africa region and SAR is for the South Asian region.

	Years	Total	Small	Medium	Large	Private	Listed
<i>AFR</i>		<i>3,444</i>	<i>1,636</i>	<i>1,490</i>	<i>318</i>	<i>3,344</i>	<i>100</i>
Ethiopia	1999-2001	1,091	831	195	65	1,091	0
Malawi	2003-2004	233	98	111	24	217	16
South Africa	2000-2002	1,370	373	820	177	1,320	50
Tanzania	2000-2002	355	211	131	13	344	11
Zambia	1999-2001	395	123	233	39	372	23
<i>EAP</i>		<i>3487</i>	<i>1097</i>	<i>1588</i>	<i>802</i>	<i>2928</i>	<i>559</i>
Cambodia	2001-2002	181	164	11	6	181	0
Indonesia	2000-2002	1,442	431	568	443	1,286	156
Philippines	2000-2002	1,864	502	1,009	353	1,461	403
<i>LCR</i>		<i>10,148</i>	<i>6,065</i>	<i>3,594</i>	<i>489</i>	<i>9,363</i>	<i>785</i>
Brazil	2000-2002	4,232	2,244	1,795	193	4,056	176
Chile	2002-2003	1,793	1,000	663	130	1,641	152
Ecuador	2000-2002	756	437	301	18	348	408
El Salvador	2000-2002	676	418	222	36	676	0
Guatemala	2000-2002	751	495	218	38	751	0
Guyana	2002-2003	273	229	42	2	245	28
Honduras	2000-2002	717	497	173	47	717	0
Nicaragua	2000-2002	757	618	121	18	757	0
Peru	1999-2001	193	127	59	7	172	21
<i>MNA</i>		<i>2,309</i>	<i>1,158</i>	<i>1,048</i>	<i>103</i>	<i>303</i>	<i>0</i>
Morocco	2001-2003	2,006	901	1,002	103	NA	NA
Oman	2000-2002	143	100	43	0	143	0
Syria	2000-2002	160	157	3	0	160	0
<i>SAR</i>		<i>8350</i>	<i>3387</i>	<i>3653</i>	<i>1310</i>	<i>7656</i>	<i>691</i>
Bangladesh	1999-2001	780	246	426	108	730	50
India	1999-2001	3,868	767	2,206	895	3,396	472
Pakistan	1999-2001	2,764	2,094	625	45	2,674	90
Sri Lanka	2001-2003	938	280	396	262	856	79
Total		27,738	13,343	11,373	3,022	23,594	2,135

Appendix 2. Variable Definitions

Variables	Definition	Data source
Firm level variables		
Leverage	Ratio of total liabilities to total assets	Investment Climate Survey, World Bank
Tangibility	Ratio of fixed assets to total assets	Investment Climate Survey, World Bank
Profitability	Ratio of earnings before interest and tax divided by total assets	Investment Climate Survey, World Bank
Small	Dummy variable = 1 if the employees are less than 50	Investment Climate Survey, World Bank
Large	Dummy variable = 1 if the employees are more than 500	Investment Climate Survey, World Bank
Economic environment variables		
GDP/Cap	Log of real gross domestic product per capita of the country	World Development Indicators, World Bank
Growth rate	GDP growth rate of the country	World Development Indicators, World Bank
Inflation rate	The ratio of GDP in local currency to GDP in constant local currency.	World Development Indicators, World Bank
Interest rate	The lending interest rate of the country	World Development Indicators, World Bank
Financial environment variables		
Corruption	Index of control of corruption, scale -2.5 to 2.5. Higher values mean better governance.	Worldwide Governance Indicators, World Bank
Civil law legal system	Dummy variable = 1 if the legal origin of a country is based on the civil law.	La Porta et al. (1998)
Dbacba	Ratio of deposit money bank assets to deposit money bank assets plus central bank assets	Financial Development and Structure Dataset, World Bank
Stockmarket	Dummy variable = 1 if a country has a stock market or an active stock market.	Financial Development and Structure Dataset, World Bank
Turnover	Ratio of the value of total shares traded to market capitalization	Financial Development and Structure Dataset, World Bank

Appendix 3. Industry Classification

Industry	Number of Firms
Agroindustry	503
Auto and auto components	986
Beverages	266
Chemicals and pharmaceuticals	2646
Construction	63
Electronics	1613
Food	4299
Garments	5445
Hotels and restaurants	19
IT services	526
Leather	1170
Metals and machinery	2182
Mining and quarrying	41
Non-metallic and plastic materials	1037
Other manufacturing	378
Other services	48
Other transport equipment	34
Other unclassified	27
Paper	290
Retail and wholesale trade	14
Sport goods	132
Textiles	3344
Transport	12
Wood and furniture	2626
Total	27701

Appendix 4. Correlation Coefficient

Correlation	Leverage	Tangibility	Profitability	Small	Large	GDP/Cap	Growth rate	Inflation rate	Interest rate	Corruption	Civil law legal system	Dbacba	Stockmarket	Turnover
Leverage	1.000													
Tangibility	-0.232	1.000												
Profitability	-0.035	-0.019	1.000											
Small	-0.273	0.104	-0.056	1.000										
Large	0.134	-0.049	0.056	-0.337	1.000									
GDP/Cap	0.088	-0.122	0.006	0.022	-0.084	1.000								
Growth rate	0.071	-0.019	-0.020	-0.107	0.067	-0.516	1.000							
Inflation rate	-0.074	0.047	0.035	0.025	-0.004	0.038	-0.367	1.000						
Interest rate	0.001	0.016	0.082	0.042	-0.083	0.416	-0.449	0.238	1.000					
Corruption	0.135	-0.182	-0.028	-0.018	-0.049	0.693	-0.094	-0.187	0.060	1.000				
Civil law legal system	0.010	-0.053	-0.036	0.127	-0.087	0.490	-0.449	-0.153	0.279	0.211	1.000			
Dbacba	0.072	0.002	-0.049	-0.139	0.118	-0.501	0.431	-0.169	-0.692	-0.446	-0.397	1.000		
Stockmarket	0.209	-0.126	0.051	-0.212	0.072	0.327	-0.131	0.157	0.105	0.187	-0.252	0.029	1.000	
Turnover	-0.082	0.032	0.035	-0.011	0.037	-0.395	0.396	0.217	-0.259	-0.269	-0.632	0.256	0.230	1.000

Appendix 5. Short-term debt for small firms
See notes to Table 3.

Small	Model1	Model2	Model3	Model4	Model5	Model6
Tangibility	-0.266***	-0.178***	-0.255***	-0.175***	-0.216***	-0.206***
	0.01	0.01	0.01	0.01	0.01	0.01
Profitability	0.001	0.006	0.003	0.006	0.001	0.002
	0.00	0.00	0.00	0.00	0.00	0.00
GDP/Cap					-0.030***	-0.035***
					0.01	0.01
Growth rate					0.789***	0.812***
					0.26	0.28
Inflation rate					0.172***	0.146***
					0.04	0.04
Interest rate					0.348***	0.381***
					0.03	0.03
Corruption					0.079***	0.086***
					0.01	0.01
Civil law legal system					0.090***	0.100***
					0.01	0.01
Dbacba					0.194***	0.203***
					0.02	0.02
Stockmarket					0.159***	0.148***
					0.01	0.01
Turnover					-0.016***	-0.014***
					0.00	0.00
Country dummies		Yes		Yes		
Industry dummies			Yes	Yes		Yes
Obs	12330	12330	12315	12315	12330	12315
Adj. R ²	0.125	0.319	0.141	0.321	0.223	0.232

Appendix 6. Long-term debt for small firms

See notes to Table 3.

Small	Model1	Model2	Model3	Model4	Model5	Model6
Tangibility	0.007	0.015	0.013	0.017*	0.022***	0.024***
	0.01	0.01	0.01	0.01	0.01	0.01
Profitability	-0.006*	-0.004	-0.004	-0.003	-0.003	-0.002
	0.00	0.00	0.00	0.00	0.00	0.00
GDP/Cap					0.029***	0.027***
					0.00	0.01
Growth rate					1.570***	1.528***
					0.24	0.25
Inflation rate					0.074**	0.067**
					0.03	0.03
Interest rate					-0.131***	-0.115***
					0.02	0.03
Corruption					0.003	0.005
					0.01	0.01
Civil law legal system					-0.053***	-0.048***
					0.01	0.01
Dbacba					0.002	0.007
					0.01	0.01
Stockmarket					0.036***	0.033***
					0.01	0.01
Turnover					-0.018***	-0.016***
					0.00	0.00
Country dummies		Yes		Yes		
Industry dummies			Yes	Yes		Yes
Obs	12330	12330	12315	12315	12330	12315
Adj. R ²	0.003	0.096	0.022	0.100	0.046	0.057