

Impact of Financial Liberalization on SMEs' Financial Sources: Bank Debt and Trade Credit

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Abstract

This paper aims to investigate the impact of financial liberalizational parameters that influence SMEs' access to external financial sources: bank debt and trade credit. We used SMEs' firm level survey data and macroeconomic factors from seven less developed countries in South America. The empirical findings are consistent with the previous studies that financial liberalization improves the usage of bank debt. The results show that high interest rate, corruption and inflation rate discourage SMEs to utilize bank debt while growing GDP and firm size encourage firms to use bank debt. Large financial and credit constraints compel towards relatively more use of trade credit.

Field of research: Finance

1. Introduction

The capital needs of small and medium size enterprises (SMEs)ⁱ can be either satisfied by its own internal funds or by debt capital. Unlike larger firms, SMEs rarely have access to public equity markets in most countries. Therefore do not have access to the public debt (Demirguc-Kunt et al 2002). Instead, they turn to banks and the credit market (trade credit, money lenders, informal lending from family/friends, and rural finance) for both short and long term credit. As debt capital for SMEs for investment and working capital comes from mainly two sources: banks and trade creditors, so the primary issue is how firms make choice between

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these available debt sources, and what are the constraints that firm has to bring under consideration.

There is a lively literature that discusses bank credit in the context of informational asymmetries, financial distress and agency costs. Based on the lending relationship between banks and SMEs, it is considered that the inherent information asymmetries drive borrowed firms to harsh credit constraints. However, lending relationships are considered as an important mechanism for accessing information about SMEs and pulling away the firms from inevitability to credit rationing. Further, longer relationships of SMEs with banks lower interest rates and the need to pledge collateral (Boot, 2000). According to Peterson and Rajan (1994), extension of relationships with multiple lenders increases the price of loan (due to supervision cost) but offer more sources of credit. Berger and Udell (1995) suggest that due to a longer relationship banks somehow overcome the information asymmetry problem and offer lower interest rates to firm. All empirical studies coincide in determining that bank relationship facilitates firms', particularly SMEs' financing ability to acquire credit from banks and the reason of contrasting results of few studies is the existence of problems of information asymmetries in this relationship and consequently that lead to certainty to credit rationingⁱⁱ. Furthermore, volume of collateral and firm's debt ratio are important determinant of access to bank debt (Cardone, et al, 2005).

Trade credit is a major source of financing for small firms and has been discussed and investigated as short term financial source in various theoretical and empirical studies. Predominant research work can be classified into one of two broad categories: work based on operative motives and work based on financial motives (Frank and Maksomovic 2005, cited in). Work based on financial motives claim that capital market imperfectionⁱⁱⁱ is the driving force to use of trade credit. Borrowers might encounter capital market imperfections in form of asymmetric information and transaction cost, consequently that yield high interest rate and credit rationing, (Elliehausen and Wolken, 1993). In this market setting, trade credit might cause less transaction costs associated with the liquidation of each individual commercial exchange, compared to credit from other financial institutions, like banks therefore trade credit is a more efficient way to deal with market imperfections.

Macroeconomic stability is important to a capital market environment in which firms, particularly SMEs, can make efficient borrowing decisions to finance growth. Key indicators of macroeconomic stability are interest rates, growth GDP, exchange rate and FDI (foreign direct investment) level. Beside the importance of macroeconomic stability on the SMEs borrowing decision, it could receive relatively less attention in academic literature. González et al (2007, p. 4) suggest that in the period of financial expansion or growth firms use more trade credit in result of deficiency in availability of bank debt. High interest rates generate low consumption of short term debt.

Demirguc-Kunt and Maksimovic (2001, p: 29-30) have shown that country's legal system is directly related to usage of bank debt. In case of less established legal system (investor protections, legal rules and the quality of law enforcement), SMEs depend more on trade credit. Similarly, large banking system provide more opportunities to firms to borrow from banks but in case of restrictions on banks' ability to hold ownership stakes in their borrowers, trade credit is more utilized. According to Demirguc-Kunt et al (2002, p. 29-31) firm ownership is significant attribute of picking external financing source. For instance government owned firms receive more external financing mostly from development banks, moneylenders, public and other sources. Subsidized and foreign firm make greater use of debt mostly from banks. High growth is linked with the excessive use of equity source and less debt and operations financing (development banks, moneylenders). Therefore growing firms with higher financing needs, satisfy their investment needs with equity finance. It has been also observed that firms, particularly SMEs that utilize more equity report lower financial obstacles, on the other hand firm level financing obstacles are higher with usage of trade credit and moneylenders. Established legal system provide greater access to bank and equity finance, consequently firms also use a lower proportion of trade credit and credit from money lenders.

Beside the literature describing advantages and disadvantages of bank over trade credit financing, the traditional financial theories of bank debt and trade credit state the microeconomic level attributes that determine the access to that specific external financial source. In vein of access to bank credit, bank relationship, tangible assets and firm's debt ratio are predominant factors^{iv}. The sale volume, net profit, total liabilities, ownership type and firm size are notable attributes for getting trade credit^v. The review of existing literature in the domain of financial and legal development primarily concentrates on the legal system development and its relation with external financing intermediaries^{vi}. Impact of financial liberalization on the bank and trade credit is ignored.

Our focus in this paper is to investigate the effect of financial liberalization on bank debt and trade credit. By using firm level data of 7 South American countries, including Argentina, Bolivia, Brazil, Chili, Colombia, Peru, and Venezuela (90% are unlisted SMEs), we investigate the micro-level, cross-national evidence on the role of financial liberalization in SMEs choice between bank debt and trade credit.

The rest of the paper is structured as follows: Section II describes the methodology and data sources. Our results and discussion are reported in section III. Section IV offers conclusions.

2. Empirical model and sample description

To assess the effects of financial liberalization on access to credit from banks and trade creditors, we follow Demirguc-Kunt et al (2002), who analyze the micro-macro economic factors driving financing patterns around the world. We use one

measure for accessing the effects of financial liberalization on bank debt and trade credit. Further, two regression equations are used in this study, one is concerned with bank debt and second relates to trade credit.

The first regression equation aims to investigate the access to bank credit. As standard in the literature, the Ordinary Least Squares (OLS) regression equation contains one dependent variable, in our case “bank credit” is dependent variable. A set of control variables are used as independent variables, we classified them in three sets: firm’s level variables (size, internal funds, and dummy-unlisted), country-specific characteristics are controlled by a set of macroeconomic variables (GDP and inflation rate), and financial liberalizational factors are bunched as liberalizational variables (financial constraints, credit constraints, interest rate, and corruption level). We have used a dummy variable “dummy-unlisted” for knowing that either firm is listed on the stock market or not. It variable takes value 1 if firm is register at stock market otherwise 0.

The regression equation for estimation of “bank credit access” is of the form:

$$\text{Bank credit access} = \alpha + \beta_1 \text{ Size} + \beta_2 \text{Internal funds} + \beta_3 \text{Dummy-unlisted} + \beta_4 \text{GDP} + \beta_5 \text{Inflation rate} + \beta_6 \text{Financial constraints} + \beta_7 \text{Credit constraints} + \beta_8 \text{Interest rate} + \beta_9 \text{Corruption level} + \varepsilon \quad (1)$$

The second regression equation explores “trade credit access” by small and medium size firm is as follows:

$$\text{Trade credit access} = \alpha + \beta_1 \text{ Size} + \beta_2 \text{Internal funds} + \beta_3 \text{Dummy-unlisted} + \beta_4 \text{GDP} + \beta_5 \text{Inflation rate} + \beta_6 \text{Financial constraints} + \beta_7 \text{Credit constraints} + \beta_8 \text{Interest rate} + \beta_9 \text{Corruption level} + \varepsilon \quad (2)$$

We rely on two sources of data for our analysis: micro-economic survey dataset called World Business Environment Survey (WBES) containing economic and financial features from 48 countries and data from the IMF, World Economic Outlook Database, September 2000. The World Business Environment Survey (WBES) contains detailed information on firms’ characteristics, including number of employees, age, industry, and sales. Inclusion of small and medium-size firms makes WBES database unique: small firms (between 5 and 50 employees) represent 40% of the sample, medium-sized (between 51 and 500 employees) firms are 40% of the sample, and the remaining 20% are large firms (more than 500 employees). While the survey is very extensive, in this paper we focus on specific questions in the survey in which respondents are asked to measure the role of financial liberalization in accessing to bank debt and trade credit.

As our analysis is concerned with 7 countries (Argentina, Bolivia, Brazil, Chili, Colombia, Peru, and Venezuela) from South America we included only the data of these countries. For observing the variable “financial constraints”, managers were asked to rank the level of financial hindrance towards firm’s growth. Measurement scale is described as: no obstacle =1, minor obstacle =2, moderate obstacle =3,

and major obstacle =4. For measuring the trouble to get credit, managers were asked to rank the obstacles level for getting credit as external finance in the same manner as for “financial constraints”. Firm’s size is defined as small if it has between 5 and 50 employees, medium-sized if it has employees between 51 and 500, firm having employees more then 500 are considered as large firm. Retained earnings as a source of finance is assessing the amount of investment that firms carry out by internal resources. Corruption indicates that to what extent firms experience corruption among bank officials when accessing to bank debt.

**Table1:
Summary Statistics**

Variables	Mean	Median	St. dev.	Minimum	Maximum
General financial constraints	2.783	3	1.149	1	4
Size	1.885	2	0.827	1	5
Internal funds	44.454	40	40.171	0	100
Corruption	2.692	3	1.186	0	4
Interest rate	3.581	4	0.815	0	4
GDP	3.770	4	0.979	2.5	6
Inflation rate	6.466	6.97	5.312	0.58	18.59
Credit constraints	2.255	2	1.068	1	4

The table 1 presents summary statistics for the firms in our panel. Maximum size of firm in sample is scaled 5 and minimum is scaled to 1. As one, mean of firm size is 1.885, median is 2 and 0.827 is standard deviation. 100 % usage of internal funds for satisfying the capital needs is maximum, and 0 is minimum usage, while 44.454 is mean of internal funds usage. That reflects that more half (55.60 %) of SME’s capital need is satisfied by external funding. Corruption and interest rate hurdle is scaled 0 to 4. Mean of corruption is 2.692 and interest rate 3.581. Maximum absolute GDP is 3.770, minimum 2.5 and mean is 3.770. Maximum observed inflation rate is 18.59 and minimum is 0.58. Credit constraints are scaled from 1 for minimum to 4 for maximum and reported minimum is 2.255.

Table 2 shows the correlation between the internal funds and general financial constraints is negative, which illustrate that firms experience general financial constraints when firms are set free for utilization of external financial sources. Interest rate has a positive relation with general financial constraints, internal funds and corruption while negative association with size.

**Table 2:
Correlation matrix**

	Gf_const	Size	Inter. funds	Corruption	Interest rate	GDP	Inflation rate	Credit const
Gf_const	1							
Size	-0.007	1						
Inter. funds	-0.068	-0.019	1					
Corruption	0.193	-0.041	0.118	1				
Interest rate	0.295	-0.023	0.058	0.165	1			
GDP	-0.107	-0.001	-0.100	-0.347	-0.198	1		
Inflation rate	-0.111	0.045	0.041	0.054	0.042	-0.220	1	
Credit const	-284	-0.076	0.007	0.276	0.193	-0.192	-0.048	1

3. Results and discussion

We use firm-level regressions of the firm characteristics, country-specific variables and liberalizational variables. The dependent variables are bank debt access and trade credit access in two separate regression equations.

Table 3:
Financial liberalization, access to bank debt and trade credit

This table provides evidence on the access to bank debt and trade credit by SMEs of South American firms. SMEs access to bank and trade credit is validated by firm level attributes (size, internal funds and dummy_unlisted), country level factors (GDP and inflation rate) and financial liberalizational variables (general financial constraints, corruption, interest rate, and credit constraints). In this linear regression analysis access to financial resources (bank debt and trade credit) is dependent variable and independent variables are firm level attributes, country specific variables and financial liberalizational factors. Standard errors are given in parentheses.

Control variables	Bank debt	Trade credit
General financial constraints	0.014 (0.942)	-0.138 (0.618)
Size	0.316** (1.196)	-0.307 (0.784)
Internal funds	-0.090*** (0.024)	-0.133*** (0.016)
Corruption	-0.046 (0.921)	-0.488 (0.604)
Interest rate	-1.489** (1.296)	0.935** (0.850)
GDP	1.895** (1.119)	-0.168* (0.734)
Inflation rate	-0.669*** (0.192)	0.167** (0.126)
Credit constraints	0.691* (1.002)	-1.373 (0.657)
Dummy unlisted	3.149 (3.810)	-1.300 (2.498)
Number of observations	776	776
R squared	0.048	0.091

* denotes 10% level of significance,
 ** denotes 5% level of significance,
 *** denotes 1% level of significance.

Table 3 presents the regression results for bank debt and trade credit. The results indicate that firm's size facilitate firms to borrow from bank. Consistent with previous studies (Ghosh Saibal, 2007, Claessens Stijn, 2006, Zhao H et al, 2006, and Demirguc-Kunt et al, 2002) firm size is significant factor to affect SMEs' ability to borrow from bank. It can be interpreted that larger-sized SMEs possess more tangible assets than bank require that enhance the firm's capability of borrowing. But firm size has a negative relationship with its availability of getting trade credit. That means smaller SMEs rely on trade credit, intention behind might be obstruction in accessing bank debt that drive them towards trade credit. Utilization level of internal funds determines the demand of external finance for firms. High ratio of internal funds usage (retained earnings) establishes a negative effect on access to bank debt and trade credit. In our analysis, internal funds utilization level plays a significant role in accessing bank loan and trade credit.

Macroeconomic factors such as GDP and inflation rate are found significant with bank debt and trade credit. Firms utilize more bank debt when the country has a

high GDP and low inflation rate. Unexpectedly, we have observed the opposite relation between access to trade credit and GDP and inflation rate. We have found that in the period of high GDP SMEs utilize less trade credit and a lower inflation rate limits the access to trade credit. The explanation for this is quite intuitive: as the GDP can fluctuate up and down, it might be possible that high GDP is perceived a right occasion to borrow from bank by SMEs and SMEs prefer to use more bank debt when they have easy access to it and reluctant towards trade credit. Low inflation rates widen the SMEs access to credit and facilitate the issuance of longer-term contracts. Consistent with Hernández-Cánovas and Koëter-Kant (2006) and Demirguc-Kunt et al. (2002) we find a positive relation between access to bank debts and GDP and negative relation with inflation rate.

Among the main benefits of financial liberalization is the riddance of high interest rates, reduction of financial and credit constraints. To assess the impact of financial liberalization on access to major financial resources of SMEs, we regress four financial liberalization indicators financial constraints level, credit constraints level, interest rate and corruption. The results show that bank debt dependent firms face more general financial and credit constraints, whereas firms that use trade credit report lower general financial and credit obstacles. Basic rationale for this is the degree of financial and legal systems development that create higher obstacles level in less developed countries. Interest rate has inverse relation with access to bank debt and positive relation with access to trade credit, while corruption has an inverse relation with both access to bank and trade loans.

4. Conclusion

This paper studies the impact of financial liberalization on the access to bank debt and trade credit of small and medium size firms, using data from seven developing countries from South America. In our analysis we have also utilized macro and microeconomic data to investigate firm level survey data. Our results suggest that firm level variable “size” is found to have direct relation with bank debt, which means larger firms with greater financial needs are more dependent on bank debts rather than trade credit. Internal funds maintain inverse relation with both bank debt and trade credit. Small and medium size firms rely more on bank debt in responses to an increase in macroeconomic stability. Conversely, when the inflation rate is high or GDP is low, firms prefer trade credit.

We find that bank debt dependent firms face substantial higher general financial and credit constraints, while firms that utilize more trade credit do not experience that much obstacles for accessing external finance. In case of high interest rate and corruption, firms behave reluctantly towards bank debts. Whereas, high interest rate encourages firms to utilize trade credit.

This research work provide us insight for many interesting further research questions that might include the determinants of choice between formal and informal financial sources, associated cost of debt from them, capital structure and optimal capital structure.

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Appendix

Definitions and data sources for variables used in the regressions model

Variables	Definitions	Source
General financial constraints	Indexed range 1 to 4	World Business Environment Survey
Size	Indexed range 1 to 5	World Business Environment Survey
Internal funds	Ratio of total investment to retained earning	World Business Environment Survey
Corruption	Indexed range 0 to 4	World Business Environment Survey
Interest rate	Indexed range 0 to 4	World Business Environment Survey
GDP	Absolute real GDP	World Economic Outlook, IMF
Inflation rate	Rate of change of GDP deflator	World Economic Outlook, IMF
Credit constraints	Indexed range 1 to 4	World Business Environment Survey
Dummy unlisted	0 or 1	

ⁱ Firms with fewer than 50 employees are "small", and fewer than 250 are "medium".

ⁱⁱ Bank limits the loans offer although borrower demands more. Increasing the interest rate at certain level not only unfeasible for borrowers and also reduces the bank's profitability.

ⁱⁱⁱ In perfect capital market firms are indifferent to use trade credit or institutional credit because both sources would charge the same price for credit (Elliehausen and Wolken, 1993).

^{iv} See Peterson and Rajan (1994), Berger and Udell (1995), and Cardone, et al. (2005).

^v See work of Uesugi and Yamashiro (2004), and Elliehausen and Wolken (1993).

^{vi} Except Demirguc-Kunt et al 2002, include financial development factors in their investigation, i.e. Privo (ratio of issued credit by banks and other financial institutions to the private sector to the GDP), and Law order index.