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Document version:
Publisher's PDF, also known as Version of record

Publication date:
2018

[Link to publication](#)

Trade credit and access to finance of retailers in Ethiopia[1]

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Using data on 5,500 Ethiopian retailers, we document that there is lower use of trade credit in areas with more access to bank finance. Among firms within an area, however, receiving a bank loan increases the use of trade credit by informal firms, but has no association with trade credit of formal firms. This result suggests that relationship with banks acts as a signal of creditworthiness of informal firms which are usually more credit constrained due to agency problems. In contrast, formal firms, registered under state authorities, have more transparent operations preferred by formal lenders. As an additional empirical evidence, we also find that firms with a female owner are more willing to lend trade credit but less likely to obtain it.

Introduction

In spite of high economic growth rates documented across many African countries over the recent years, credit market imperfections are still persistent in these economies resulting in limited access to formal bank credit for many firms, especially small and micro enterprises. Trade credit is a form of 'in-kind' direct method of business financing method, which can be popular as an alternative to bank credit in locations with limited financial sector development. From this perspective, trade credit and bank credit can be considered substitutes, as already highlighted by Petersen and Rajan, 1997. On the other hand, the extension of trade credit by suppliers generates

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a credible signal to banks about the customers' creditworthiness (Biais and Gollier, 1997), which can make trade credit and bank credit complementary on the individual firm-level. In this paper, using firm-level data from Ethiopian retailers, we try to investigate the relationship between bank credit and trade credit in the context of a developing county. The specific questions that we are interested in are: Does usage of trade credit decrease with access to bank credit? Alternatively, are the use of trade credit and bank credit positively associated? In this paper we utilize the exogenous variation in local access to finance and highlight the role of formality of firms in addressing these policy relevant questions.

Most of the studies on trade credit are based on the data available from upper middle-income countries and focus on multinational firms. Our study focuses on Ethiopia, a country with a shallow financial market. Despite its high economic growth rates over the recent years (such as 10.3% in 2013-14), the financial sector of Ethiopia remains underdeveloped and isolated from the rest of the global economy, partly due to the official skepticism in the country towards financial liberalization (Kiyota et al. 2007). In comparison to its neighbor Kenya that provides 5.2 bank branches and 9.5 ATMs per 100,000 adults, Ethiopia offers only 2.0 branches and 0.3 ATMs (World Bank, 2013). This limited access to finance also extends to private businesses. According to the IMF (2013), in fiscal year 2012/13, 79 percent of lending and investment by the banking sector of Ethiopia was allocated to the public sector. In addition, the 2012 World Bank Enterprise Survey highlights that access to finance in Ethiopia is a major developmental constraint for 38 percent of small businesses, which compares to an average of 21 percent for other sub-Saharan African economies.

In order to study the link between access to bank finance and trade credit, we utilize two rounds of firm-level surveys on the trade sector of Ethiopia in 2009 and 2011 - covering more than 5,500 retailers all over the country. We also utilize two nation-wide welfare-monitoring surveys to measure the level of access to finance in different regions of Ethiopia. Our findings suggest that, from an aggregate point of view, bank finance and trade credit are substitutes in Ethiopia such that in locations with lesser access to formal bank finance the use of trade credit is higher. At the same time though, at the business-level, for informal retailers, bank credit acts as a counterpart of trade credit in the sense that higher bank loan exposure is associated with more access to trade credit. For formal firms, however, having more bank loan is not a significant explanatory factor of use of trade credit. These results could imply that, receiving bank credit increases the creditworthiness of the informal firms that have less transparent operations and motivates their suppliers to extend

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them with trade credit. Formal firms, on the other hand, are more transparent and the level of obtaining trade credit is mainly restricted by the availability of such source of external finance in the location.

To the best of our knowledge, the role of informality in understanding the association between trade credit and bank credit has not been previously studied. In developing countries, informality is largely present, going as high as 70 percent - as documented by Schneider (2012). Informal firms feature (opaque) nontransparent operations and rely on cash-based transactions partly to hide from tax authorities and partly due to the unavailability of bank accounts. Transparency of the operation, on the other hand, is a major element for accessing external finance, because without transparent (formal) accounting standards creditors cannot determine the quality of borrowers. In this context, Beck and Hoseini (2014) show that access to a bank branch can make the operations of informal firms observable and thereby help them to join the formal sector. In a similar fashion, having a relationship with a bank can act as a signal for the creditworthiness of the firms to their suppliers as well and reduce the agency problems associated with trade credit.

Trade credit contracts have been studied in the literature from a variety of different angles. One branch of the theoretical literature on trade credit looks into the financial decisions by firms and considers trade credit as an alternative method of finance to substitute for bank credit. Two general cases are considered in this line of research: First, in the presence of credit constraints, trade credit can act as a trickle-down mechanism from firms with better access to credit markets to firms with limited access to credit markets (Petersen and Rajan 1997). Second, some theories argue that even without credit constraints, trade credit may be preferable to bank credit. Fabbri and Menichini (2010), for instance, discuss that even though banks have lower costs in raising funds, suppliers can be better creditors than banks because they have a liquidation advantage – knowing better the resale market value in case of default – and an information advantage – because of the capacity to directly observe transactions. In this context, the authors show that financially unconstrained firms take trade credit to exploit the supplier's liquidation advantage. In addition, if inputs purchased on account are sufficiently liquid, the reliance on trade credit does not depend on credit rationing.

An important issue for studying trade credit as a form of financing is its substitutability versus complementarity with respect to bank credit. Cross-country data shows a positive

correlation between trade credit and bank credit (Maksimovic and Demirguc-Kunt, 2001) that might mistakenly be interpreted as a complementarity between these two sources of financing. Both bank credit and trade credit, however, are positively correlated with institutional factors such as rule of law and contract enforceability. Wherever the enforcement is weak, firms cannot recover credit repayment, be it in the form of trade credit or bank credit. But there might still be some relative substitution happening; Fisman and Love (2003) find that firms in industries with higher dependence on trade credit exhibit higher rates of growth especially in countries with relatively weak financial institutions. Their results suggest substitutability of trade credit and bank credit based on the within-country variation of trade credit usage across industries.

A number of firm-level studies, however, suggest complementarity between trade credit and bank credit based on theories of signaling. Biais and Gollier (1997) argue that the extension of trade credit reveals favorable information to other lenders, thereby increasing their willingness to lend. Burkart and Ellingsen (2004) provide a model that shows that bank credit and trade credit are complements for firms whose overall debt capacity are constrained. By contrast, for firms with sufficient aggregate debt capacity, trade credit is a substitute for bank credit. Giannetti et al. (2011) find that in the U.S., firms that are offered trade credit have shorter relations with their banks, rely more on distant lenders, borrow from a larger number of banks, and pay lower fees when obtaining a bank loan. Based on this evidence they argue that trade credit can be seen as a complement to bank credit. In this paper, we find that trade credit usage is more prevalent in locations with lower access to finance, consistent with the substitutability hypothesis. We however also find that bank credit acts as a complement to trade credit for informal firms who lack transparency and suffer more from agency problem with their suppliers. Therefore, we jointly document interesting micro and macro level relations – highly relevant for financial development policy design.

Another part of the literature highlights non-financial factors affecting trade credit. Market power is one of the main rationales in this regard, because powerful traders impose their contract terms (Fisman and Raturi, 2004; Fabbri and Klapper, 2016). To control for this factor, we build an index of market power in each enumeration area, and consistent with the theory, we observe that in less competitive areas both supply and demand of trade credit are more prevalent. Finally, switching costs of customized inputs make buyers reluctant to break up relationships and default on the suppliers (Giannetti et al., 2011). By controlling for the type of the traded product, we, however, do not find any significant relationship between the nature of the traded commodity and

giving or receiving trade credit among Ethiopian retailers, which is at odds with the evidence from the developed world (Giannetti et al. 2011).

Data and summary statistics

The main dataset utilized in this study comes from two rounds of firm-level surveys of the Ethiopian trade sector in 2008-09 and 2010-11, named as Distributive and Service Trade Enterprise Survey (DSTES). Each round of DSTES is a representative survey of wholesalers, retailers, and motor vehicle sale and repair shops in Ethiopia. We accessed the last two rounds of these surveys, which were carried out in 15 major urban centers and 106 other towns of Ethiopia in 2008-09 and 2010-11 by the Central Statistical Authority. In total, the surveys are stratified to cover 590 enumeration areas within urban Ethiopia and, 4,776 and 7,615 establishments were surveyed in 2008-09 and 2010-11, respectively. The survey data provide detailed information on ownership structure, employment, wages, input commodities, total expenses, sales, revenues, investment, fixed assets, value of stocks, and account payables and receivables of the interviewed businesses as well as their access to formal bank finance. Using this information, we construct the firm-level variables that we describe below. Overall, there are 913 wholesalers, 454 motor vehicle sale and repair shops, and 5,965 retailers in the sample that have non-missing information on bank loans and trade credit. In order to work with a homogenous group of businesses, we concentrate on regressions with the sample of retailers only.[5]

In addition to DSTES, we also use two rounds of the Welfare Monitoring Survey (WMS) conducted in 2004-05 and 2011-12, in order to measure the level of access to finance in each enumeration area of DSTES. The first round of WMS covers 2,016 enumeration areas and 24,192 households. The second round covers 1968 enumeration areas and 28,032 households. Because the years of WMS does not coincide with DSTES, we impute the demographic variables for 2008-09 and 2010-11 by a linear interpolation.

The firm-level variables used in this study include firm **age**, **gender** of owner, **major commodity** for sale, total **fixed assets**, number of **workers**, and total value of **sales,** which are all readily available in the datasets. We measure trade credit received by firms by **account payables**

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[5] As a robustness test, we repeat the estimations with the whole sample and obtain the same qualitative results with less significant coefficients than for the sample of only retailers.

over value of total sales, and trade credit extended by firms by **account receivables** over value of total sales. Using the information about the type of **input suppliers**, we construct the share of exporter, importer and wholesaler, and share of manufacturer in the input purchases of all firms. We also construct a dummy for **formality** status of the firm by checking if the firm lists tax payment as one of its expenditure items. In order to measure firm's use of **bank credit**, we divide its outstanding bank loans by the total value of sales in the respective year. In addition, we use two local variables to control for the retailer market structure and access to finance in each enumeration area. Market structure is gauged using Herfindahl index of **market power** ranging from 0 to 1, where zero represents perfect competition and one represents monopoly. Finally, to measure **access to finance** in a particular area, we compute the share of households using small scale loans from banks or microfinance institution in each zone using information available from the WMS dataset, with the assumption that a higher share of households with small scale loans proxies for better access to formal bank services, including for our sample of retailers.

Table 1 shows the summary statistics of the key empirical variables. The total number of firms in the sample is 5,965. Account payables to sales ratio is on average 14.2% and nearly twice the average ratio between account receivables and sales, which is 7.8%. Bank loan to sales ratio is 4.0% on average and its usage is around 10% less than that of trade credit. Looking into the detailed characteristics of the firms, the age of firms range from less than one year to 60 years averaging at 5.2 years. 32% of retailers in the sample have female owner and around 45% of them are taxpayers. On average 54% of inputs of retailers come from exporter, importer, or wholesaler suppliers and 6% is from manufacturers. There is a high variation in market power index of retailers in different areas of Ethiopia, with Herfindahl index ranging from 0.06 to 1. Finally, on average only 18% of the Ethiopian population use bank and micro-finance institutions for small-scale loans.

Empirical strategy and results

We first examine how bank credit usage of retailers is affected by the index of local access to finance. In this context, we estimate a regression specification in the following form

$$LOAN_{ist} = \alpha_0 + \alpha_1 FIN_{st} + \alpha_2 X_{ist} + C_i + S_s + Y_t + \varepsilon_{ist} \qquad (1)$$

where *LOAN* is bank loans to sales ration of a firm *i*, in region *s*, in year *t*; *FIN* is the index of access to finance in region *s* and in year *t*; *X* is a vector of control variables including female owner,

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formality, fixed assets, total sales, number of employees, market power index, and type of suppliers. *C, S*, and *Y* are vectors of fixed effects for first commodity for sale, region, and year. Since the literature has found formality of a firm as a crucial determinant of trade credit, we also test whether the impact is different for formal and informal firms or not.

In the next step, we investigate the substitutability of trade credit and bank credit by testing the effect of local access to finance and firm's own use of bank loans on the use trade credit by running the following regression equation

$$TCRD_{ist} = \beta_0 + \beta_1 FIN_{st} + \beta_2 LOAN_{ist} + \beta_3 X_{ist} + C_i + S_s + Y_t + \varepsilon_{irt} \qquad (2)$$

where *TCRD* is trade credit demand or supply defined by account payables to sales or account receivables to sales ratios; and all other variables are defined as in specification (1).

Table 2 shows that access to bank finance in a geographic area is positively and significantly associated with higher formal bank loan usage by formal but not informal firms. Here, we present the results from estimating equation (1) for the sample of all firms, including both formal and informal enterprises. Column (1) shows that when we consider formal and informal firms together, the index of local access to finance is positively and significantly associated with the use of bank credit of retailers. One percent increase in the share of households with a bank loan increases the bank credit provided to a retailer by 0.257 percent of their sales. Thus, we are confident that our index of local access to finance captures this demographic feature of the enumeration areas to a large extent. Among other control variables, formal status increases the share of bank loans to sales ratios. Being formal increases the use of bank loans by 4.6 percent of sales, consistent with the theoretical foundation that formality - by increasing transparency – could reduce the agency problems between firms and the creditors. Having a female owner, however, decreases bank loans by 2.6 percent of total sales. The coefficients of fixed assets is positive and significant, whereas market power and the type of the supplier (exporter/importer/wholesaler) has a negative coefficient estimate. We do not find a significant association of age, number of workers, total sales, share of manufacturer suppliers, and commodities fixed effects with the use of bank loans.

Since we have found the formality of a firm to be a crucial explanatory factor of bank loan usage, in columns (2) and (3) of Table 2, we split the sample based on the formality status of the firms. In fact, we want to examine whether the relationship of local access to finance with bank credit differs among formal and informal firms. Column (2) suggest no significant relationship of

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local access to finance with bank loan usage of informal firms. In comparison, column (3) shows that one percent increase in local access to finance increases bank credit that are given to formal firms by 1.28 percent of their sales value - suggesting that higher access to formal finance is mainly effective for formal and not on informal retailers.

Table 3 shows that while the use of trade credit is lower in areas with better access to bank finance, firms with trade credit are more likely to gain access to formal bank finance. Here we estimate equation (2). Column (1) shows that a one percent increase in the local access to finance reduces trade credit demand by 2.48 percent of total sales. This result suggests the substitutability of trade credit and bank credit in the sense that less local access to finance motivates firms to use more trade credit. This is consistent with the finding of Fisman and Love (2003) who suggest that the use of trade credit is more prevalent where the formal finance is less accessible. At the same time, we find that firms who are able to obtain more bank credit are more successful in receiving trade credit, consistent with Giannetti et al. (2011) who argue that obtaining credit reveals favorable information to other lenders. This finding can also be indicative of potential firm-level factors that increases the creditworthiness for both types of credit. Column (2) shows that if a firm is able to increase its bank loan by one unit, its trade credit increases by 0.06 units. Importantly, the results do not change when we include both access to finance and bank loan in the same regression as in column (3) of Table 2. Concerning our control variables, column (3) of Table 3 shows that formal status increases trade credit by 18 percent of sales, which is a substantial effect, considering the fact that the average account receivable is 14 percent. Female ownership, however, reduces trade credit by 7 percent of sales. The other key determinant of trade credit is market power index which suggests in locations that are less competitive, firms are able to obtain more trade credit consistent with market power theories of trade credit (Fisman and Raturi, 2004; Fabbri and Klapper, 2016). Moving from perfect competition to monopoly increases the use of trade credit by almost 60 percent of sales. In addition, firms receive more trade credit if their suppliers are importers, exporters, wholesalers, or manufacturers. This result can be explained by the fact that these suppliers are normally big and have larger enforcement capacity compared to small scale suppliers. Thus, they have less default risk and are more willing to give trade credit to their customers as highlighted by Fabbri and Menichini (2010). Finally, we do not find a significant coefficient for any of the commodity fixed effects.

The results in Table 4 show that the relationships between local access to finance, bank credit usage and trade credit usage do not hold for the supply of trade credit by retailers. Here we show the results from estimating equation (2) with account receivables to sales ratio as the dependent variable. Unlike account payables, we do not find a significant relationship of local access to finance and firms' use of bank loan with trade credit. This can be explained with the fact that our sample of firms are downstream in the retail sector and they do not have many business customers, to give trade credit to. In addition, having a female owner has an opposite impact on receivables compared to payables. This suggests that even though women are less successful in obtaining trade credit than men, they are more willing to give trade credit to their customers. Age, formal status, market power, having exporter/importer/wholesaler and manufacturer suppliers increase account receivables, similar to account payables. All of these factors can be associated with the liquidation advantage of the firm and may motivate firms to lend more trade credit. We do not find any significant coefficients of the commodities fixed effects.

Since we have found formality and female ownership of a firm to be crucial determinants of trade credit, in Table 5, we test whether the impact is different for each category or not. In particular, we separately estimate the regression (2) for four sub-samples of firms based on formality and the gender of the firms' owner. Columns (1) and (2) of Table 5 show the result of estimating account payables for the sample of informal and formal firms. While in the sample of informal firms both local access to finance and bank loan are significant, in the sample of formal firms only the index of local access to finance appears with a significant sign. The negative relationship of local access to finance with receiving trade credit is more than three times larger in the sample of formal firms. In fact, formal firms have easier access to formal finance and thus the substitution of trade credit with bank credit is stronger for such businesses. In addition, column (1) suggests that one unit increase in bank loans of an informal firm increases the trade credit it receives by 0.103 units. This implies that obtaining bank credit can increase the creditworthiness an informal firm to obtain trade credit, but it is not a determinant factor for formal firms' use of trade credit. The results in columns (3) and (4) show that male and female retailers equally use more trade credit in areas with lower access to formal bank finance, while the signaling effect seems to be much stronger for male than female retailers, implying that male entrepreneurs are more than seven times as likely to get trade credit if they have bank loans than female entrepreneurs.

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The results in columns (5) and (6) show that formal firms are more likely to provide trade credit in areas with higher access to bank loans, while informal firms are less likely to do so. The results in columns (7) and (8) shows that only male entrepreneurs provide lower trade credit in areas with higher access to bank finance, while there is no significant relationship for female entrepreneurs. The opposing results for formal and informal retailer and male and female entrepreneurs explains the insignificant results in Table 4. The difference between formal and informal retailers can be explained with the fact that formal enterprises might be able to pass their bank credit on to their customers (trickle-down effect), while credit constraints and competitive pressures from formal firms with access to bank loans might explain why informal retailers are less likely to provide trade credit to their customers. In terms of the relationship between bank loan usage and trade credit provided to their customers, the only significant coefficient we find is for male entrepreneurs for whom bank loan usage is related to more trade credit provided to their customers.

Conclusion

Using two representative surveys of Ethiopian retailers, this paper looks into the substitutability versus complementarity of bank credit and trade credit as two types of financing. Our empirical results highlight the significant role of firms' formality on the relationship between bank finance and trade credit. While we document that obtaining bank loan is positively associated with receiving trade credit for informal firms, we do not find a significant link for the sample of formal firms. In fact, receiving a bank loan creates a signal for creditworthiness of the informal firms and increases the chance of obtaining trade credit from suppliers. This channel is however weaker for formal firms potentially because they have more transparent operations

Although the link between trade credit and bank credit has been studied in the literature, our contribution is investigating this relationship in the context of a developing country with a low level of access to finance. Financial inclusion has been centerpiece of policy debates in many underdeveloped countries, but most research in this field addresses the direct effect of credit constraints. The channel we uncover is an indirect impact of access to finance to increase transparency. Our findings suggest that expanding financial inclusion by increasing the transparency of the operation might alleviate the agency problems of informal firms vis-à-vis

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suppliers and enable them to obtain not only formal finance from banks but also informal finance in the form of trade credit.

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Table 1 – Summary statistics. The sample includes retailers in Ethiopia. The observations are weighted by the sample multiplier.

	observations	mean	SD	min	Max
Account payable / sales	5,965	0.142	0.973	0	35.11
Account receivable / sales	4,423	0.0784	0.698	0	14.60
Bank loans / sales	5,965	0.0395	0.487	0	14.63
Age	5,965	5.182	5.240	0	60
Female owner	5,965	0.324	0.468	0	1
Formal	5,965	0.455	0.498	0	1
Fixed assets (log)	5,965	6.974	2.605	-0.693	18.05
Employees (log)	5,931	0.979	0.354	0	8.189
Sales value (log)	5,965	10.13	1.566	5.323	20.80
Share of input suppliers:					
exporter/importer/wholesaler	5,939	0.543	0.478	0	1
manufacturer	5,939	0.0648	0.224	0	1
Market power (Herfindahl index)	5,965	0.398	0.285	0.0618	1
Share of population using bank loan	5,590	0.181	0.0986	0	0.544

Table 2 – Access to finance and trade credit and use of bank loan. Region, year, and first commodity dummies are included in the regression. Standard deviations are in the parenthesis. The observations are weighted by sample multiplier.

	Bank loans / Sales					
Sample	all firms		informal firms		formal firms	
	(1)		(2)		(3)	
Share of population using bank loan	0.257**	(0.125)	-0.066	(0.087)	1.285***	(0.267)
Formal	0.046***	(0.015)				
Female owner	-0.026*	(0.015)	-0.019*	(0.010)	-0.035	(0.030)
Age	0.001	(0.001)	-0.002*	(0.001)	0.004**	(0.002)
Fixed assets (log)	0.019***	(0.003)	0.003	(0.002)	0.033***	(0.005)
Employees (log)	0.010	(0.020)	-0.001	(0.014)	0.056	(0.038)
Sales value (log)	-0.005	(0.005)	-0.003	(0.003)	-0.025**	(0.011)
Market power (Herfindahl index)	-0.052**	(0.026)	-0.057***	(0.018)	0.007	(0.053)
Exporter/importer/wholesaler suppliers	-0.037**	(0.016)	0.044***	(0.010)	-0.150***	(0.033)
Manufacturer suppliers	0.017	(0.032)	0.032	(0.026)	-0.066	(0.056)
Constant	-0.001	(0.518)	0.252	(0.429)	-0.202	(0.861)
Observations	5,530		2,917		2,613	
R-squared	0.053		0.059		0.104	

Table 3 – Trade credit demand and access to finance. Region and year fixed effects are included in all regressions. Standard deviations are in parenthesis.

	Accounts payables / Sales					
	(1)		(2)		(3)	
Share of population using bank loan	-2.484***	(0.237)			-2.501***	(0.237)
Bank loans / sales			0.059**	(0.025)	0.066***	(0.026)
Formal	0.187***	(0.028)	0.209***	(0.026)	0.184***	(0.028)
Female owner	-0.071**	(0.028)	-0.046*	(0.027)	-0.069**	(0.028)
Age	0.004*	(0.002)	0.005**	(0.002)	0.004*	(0.002)
Fixed assets (log)	-0.006	(0.005)	-0.006	(0.005)	-0.007	(0.005)
Employees (log)	0.292***	(0.038)	0.274***	(0.036)	0.292***	(0.038)
Sales value (log)	-0.163***	(0.010)	-0.167***	(0.009)	-0.162***	(0.010)
Market power (Herfindahl index)	0.595***	(0.049)	0.516***	(0.047)	0.598***	(0.049)
Exporter/importer/wholesaler suppliers	0.207***	(0.030)	0.181***	(0.028)	0.210***	(0.030)
Manufacturer suppliers	0.256***	(0.061)	0.225***	(0.058)	0.255***	(0.061)
First major commodity for sale:						
Food	-0.220	(0.978)	-0.253	(0.824)	-0.215	(0.977)
Beverages	-0.104	(0.978)	-0.112	(0.825)	-0.101	(0.978)
Tobacco	-0.297	(0.980)	-0.302	(0.826)	-0.307	(0.979)
Chat Retail	-0.055	(0.985)	-0.073	(0.833)	-0.054	(0.985)
Automotive fuel	-0.019	(0.983)	-0.064	(0.829)	-0.016	(0.982)
Computer, software, telecommunication	0.037	(0.984)	0.014	(0.831)	0.043	(0.984)
Audio and video	-0.170	(1.019)	-0.170	(0.871)	-0.164	(1.019)
Textile	-0.040	(0.986)	-0.110	(0.833)	-0.036	(0.985)
Hardware; paints; and glass	-0.195	(0.985)	-0.213	(0.832)	-0.191	(0.984)
Carpets; Rugs; wall; and floor coverings	-0.072	(1.043)	-0.084	(0.892)	-0.069	(1.043)
household appliances; furniture; lighting	-0.304	(0.990)	-0.317	(0.838)	-0.301	(0.989)
Books; newspapers; and stationery	0.009	(0.989)	-0.053	(0.836)	0.014	(0.988)
Music and video recordings	-0.326	(1.078)	-0.306	(0.921)	-0.320	(1.077)
Clothing; footwear; and leather articles	-0.138	(0.979)	-0.189	(0.825)	-0.133	(0.978)
medical goods; cosmetic and toilet article	-0.024	(0.978)	-0.122	(0.824)	-0.020	(0.978)
Others not included in the above two	-0.230	(0.984)	-0.275	(0.831)	-0.226	(0.983)
Second hand goods	-0.201	(1.051)	-0.214	(0.907)	-0.196	(1.051)
Other Retail	-0.288	(0.980)	-0.368	(0.826)	-0.316	(0.979)
Constant	2.288**	(0.987)	1.663**	(0.832)	2.288**	(0.986)
Observations	5,530		5,905		5,530	
R-squared	0.140		0.121		0.141	

Table 4 – Trade credit supply and access to finance. Region and year fixed effects are included in all regressions. Standard deviations are in parenthesis.

	Accounts receivables / Sales					
	(1)		(2)		(3)	
Share of population using bank loan	-0.023	(0.199)			-0.025	(0.199)
Bank loans / sales			0.019	(0.019)	0.019	(0.020)
Formal	0.135***	(0.024)	0.132***	(0.022)	0.135***	(0.024)
Female owner	0.057**	(0.024)	0.057**	(0.023)	0.057**	(0.024)
Age	0.009***	(0.002)	0.009***	(0.002)	0.009***	(0.002)
Fixed assets (log)	0.005	(0.004)	0.005	(0.004)	0.005	(0.004)
Employees (log)	0.040	(0.033)	0.036	(0.031)	0.039	(0.033)
Sales value (log)	-0.087***	(0.008)	-0.085***	(0.008)	-0.087***	(0.008)
Market power (Herfindahl index)	0.199***	(0.045)	0.196***	(0.042)	0.200***	(0.045)
Exporter/importer/wholesaler suppliers	0.086***	(0.026)	0.080***	(0.024)	0.086***	(0.026)
Manufacturer suppliers	0.293***	(0.054)	0.279***	(0.051)	0.292***	(0.054)
First major commodity for sale:						
Food	-0.153	(0.379)	-0.146	(0.366)	-0.153	(0.379)
Beverages	0.296	(0.380)	0.288	(0.368)	0.296	(0.380)
Tobacco	-0.190	(0.383)	-0.176	(0.370)	-0.190	(0.383)
Chat Retail	-0.074	(0.392)	-0.070	(0.379)	-0.075	(0.392)
Automotive fuel	0.024	(0.391)	0.024	(0.376)	0.023	(0.391)
Computer, software, telecommunication	-0.129	(0.393)	-0.124	(0.380)	-0.128	(0.393)
Audio and video	-0.005	(0.437)	-0.003	(0.422)	-0.004	(0.437)
Textile	-0.138	(0.394)	-0.134	(0.381)	-0.138	(0.394)
Hardware; paints; and glass	-0.103	(0.395)	-0.094	(0.381)	-0.103	(0.395)
Carpets; Rugs; wall; and floor coverings	-0.054	(0.481)	-0.046	(0.456)	-0.054	(0.481)
household appliances; furniture; lighting	-0.075	(0.403)	-0.070	(0.389)	-0.075	(0.403)
Books; newspapers; and stationery	-0.015	(0.397)	-0.017	(0.383)	-0.015	(0.397)
Music and video recordings	-0.091	(0.534)	-0.083	(0.516)	-0.089	(0.534)
Sporting equipment, Games and toys	0.005	(0.831)	-0.013	(0.732)	0.005	(0.831)
Clothing; footwear; and leather articles	-0.078	(0.381)	-0.070	(0.368)	-0.077	(0.381)
medical goods; cosmetic and toilet article	-0.177	(0.380)	-0.172	(0.367)	-0.177	(0.380)
Others not included in the above two	-0.160	(0.392)	-0.157	(0.379)	-0.160	(0.392)
Other Retail	-0.173	(0.382)	-0.183	(0.370)	-0.186	(0.383)
Constant	0.530	(0.391)	0.510	(0.375)	0.533	(0.391)
Observations	4,095		4,392		4,095	
R-squared	0.096		0.094		0.096	

Table 5- Sample split for trade credit. Region and year fixed effects are included in all regressions. Standard deviations are in parenthesis.

	Accounts payables/sales				Accounts receivables/sales			
	informal	formal	male	female	informal	formal	male	female
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Share of population using bank loan	-1.179***	-3.721***	-2.446***	-2.183***	-0.284***	1.039**	-0.090*	-0.219
	(0.111)	(0.524)	(0.276)	(0.451)	(0.064)	(0.424)	(0.053)	(0.579)
Bank loans / sales	0.103***	0.047	0.057**	0.379***	-0.024*	-0.001	0.025***	-0.058
	(0.024)	(0.038)	(0.025)	(0.134)	(0.013)	(0.031)	(0.004)	(0.165)
Formal			0.154***	0.365***			-0.028***	0.638***
			(0.031)	(0.056)			(0.006)	(0.071)
Female owner	-0.016	-0.083			-0.040***	0.253***		
	(0.013)	(0.058)			(0.008)	(0.050)		
Age	0.001	0.009**	0.002	0.012**	0.001**	0.019***	0.001***	0.022***
	(0.001)	(0.004)	(0.003)	(0.005)	(0.001)	(0.004)	(0.001)	(0.007)
Fixed assets (log)	0.001	-0.012	-0.009	-0.013	0.005***	-0.001	0.007***	-0.003
	(0.002)	(0.011)	(0.006)	(0.011)	(0.001)	(0.009)	(0.001)	(0.013)
Employees (log)	0.035**	0.578***	0.449***	-0.055	0.031***	0.121*	0.032***	0.106
	(0.018)	(0.075)	(0.042)	(0.076)	(0.010)	(0.066)	(0.008)	(0.097)
Sales value (log)	-0.061***	-0.310***	-0.128***	-0.251***	-0.016***	-0.204***	-0.017***	-0.268***
	(0.004)	(0.021)	(0.011)	(0.019)	(0.003)	(0.019)	(0.002)	(0.024)
Market power (Herfindahl index)	0.227***	0.995***	0.543***	0.573***	-0.017	0.492***	-0.010	0.154
	(0.023)	(0.103)	(0.060)	(0.087)	(0.015)	(0.093)	(0.013)	(0.117)
Exporter/importer/wholesaler suppliers	0.113***	0.224***	0.183***	0.250***	0.041***	0.052	0.028***	0.199***
	(0.013)	(0.064)	(0.034)	(0.058)	(0.008)	(0.055)	(0.007)	(0.074)
Manufacturer suppliers	0.082**	0.531***	0.295***	0.098	0.129***	0.396***	0.082***	0.741***
	(0.033)	(0.109)	(0.065)	(0.140)	(0.018)	(0.103)	(0.013)	(0.190)
Constant	0.967*	4.603***	1.459***	2.383	0.123	0.882	0.083	2.099
	(0.550)	(1.681)	(0.530)	(2.701)	(0.272)	(0.704)	(0.104)	(1.319)
Observations	2,917	2,613	3,644	1,886	2,185	1,910	2,719	1,376
R-squared	0.239	0.200	0.171	0.205	0.149	0.191	0.123	0.221