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Demand of External Finance by Manufacturing SMEs in Addis Ababa, Ethiopia

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ABSTRACT

Poverty can be reduced if more good jobs are created. Small- and medium-sized enterprises (SMEs) are good job creators, but there are few such firms in the countries that would need them most. Limited access to finance is frequently suggested as a reason why these firms fail to prosper, but recent evidence indicates that only expanding financial supply does not sufficiently improve the status for the SME sector. This paper contributes to the discussion with a demand-side perspective, by examining how SMEs finance themselves and what drives their demand for external finance. I use a panel dataset of Ethiopian manufacturing firms from 2012-2013 to investigate what type of firms use bank loans. Secondly, I also conduct interviews with managers to explore financial behaviour in the SME sector. The results show that standard capital structure theories to some extent can explain financial demand, but perceptions and attitudes among managers also matter. To improve financial status for SMEs, strengthening contract enforcement and lowering the perceived barriers to the banks should be policy implications for Ethiopia and developing countries in general.

Keywords: SME finance; Ethiopia; Capital structure; Pecking order theory; Trade-off theory

JEL classification: O16, G20, G21

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1. Introduction

You are probable well aware that poverty is still widespread in many countries. But what are the solutions to reduce poverty? The question does not have a simple or universal answer. But if you ask those who live in poverty, their first suggestion might well be to create more, and better, jobs. To get a job means to gain higher self-esteem and dignity, and to get higher independence through economic self-sufficiency. Though not being a holy grail for prosperity, job creation is one promising channel that can raise income levels in poor countries.

Small- and medium-sized enterprises (SMEs) can play an important role for sustainable job creation and economic growth.[2] In prosperous economies, these enterprises constitute the backbone of the economy, and are the main source for employment and GDP contribution. In the OECD countries for example, SMEs employ on average 65% of the labour force, but the picture is very different in poor countries (OECD, 2014). Most low-income countries suffer from a "missing middle" phenomenon, which means that they have many micro-sized businesses and a few large enterprises, but very few firms in the sizes in-between. Less than 10% of all enterprises in developing countries are SMEs. The informal enterprises and the micro-sized enterprises, that are not included in the SME segment, account for more than 90% (IFC and McKinsey & Company, 2010).

Why are the SMEs so few in developing countries then? One proposition with wide support is that they suffer from financial constraints. Access to finance is frequently reported as a main obstacle by SMEs, particularly in developing countries. The empirical evidence is somewhat inconsistent on what causes these constraints, but firm characteristics - such as size, age and profitability - seems to matter for the likelihood to have a loan. However, a somewhat contradicting strand of evidence suggests that SMEs have a limited demand of external

[2] SMEs are here defined as all formal enterprises with between ten to one hundred employees. There are multiple definitions on SME status that are used by researchers and practitioners. I follow the mainstream of literature in this regard. A thorough discussion about the definitions is provided in section 5.

financing, often depending on a perceived risk of diminished control of the business.

This paper aims to address if this contradiction can be better understood by exploring how SMEs in developing countries finance themselves. The question I ask is what drives demand of external financing among firms, which I approach using two different methods. First, I use quantitative data to look for patterns between firm characteristics and the use of external formal financing from banks. This gives a top-down perspective on the financial market, where both supply-side and demand-side factors influence what firms have a loan. Secondly, by conducting qualitative interviews with SME managers, I can better isolate the demand-side perceptions and attitudes towards external financing, and compare these findings with the theoretical background and the quantitative results.

The quantitative data I use stems from manufacturing firms in Ethiopia, having the typical features of a developing country with a dominant agricultural sector but is structurally shifting towards service and industry. The business sector consists of a few large enterprises, an overwhelming amount of micro enterprises and a limited number of firms of small and medium size, the target segment for this paper. For the analysis, I focus on working capital financing rather than investment financing. Working capital is necessary for day-to-day operations, and shortage of this is an immediate constraint for operations and productivity, and can even threat survival. Moreover, this distinction is seldom done in economic literature, and even less in Ethiopia.

The quantitative results show that fixed assets and firm size strongly matter for the probability of having a formal working capital loan in Ethiopia. Less can be said with certainty about profitability and firm age, but established, old and profitable firms seem to be less indebted than the average. The qualitative results provide answers that are complementary and consistent to these findings. Bank credit is only one of many financing channels, which is mostly used by large and capital-intensive firms. Small, labour-intensive and importing firms, that

experience working capital shortage to a high extent, instead use informal financing. Such channels are to take loans from family, friends, from "friendly" companies or to participate in savings associations.[3] For the importing enterprises, the primary concern is lack of foreign currency. It reduces productivity as the delay to get the desired amount can stretch out for months. The banking system is widely considered to have excessive requirements on collateral and being too conservative, which in many cases are mentioned as enough a reason to avoid starting negotiations if possible. In general, firms prefer internal funds to external financing, if possible.

The analysis comes with policy implications for Ethiopia. First, the importing enterprises in Ethiopia would benefit from better flows of foreign currency. Some firms today have to wait several months to get the amounts they need from the banks, which can set a limit for how many projects they can engage into. Secondly, better contract enforcement would improve working capital status for many enterprises. Effective contract enforcement means that there are better possibilities for firms to collect their claims if their customers default or do not pay for other reasons, and this can encourage them to allow credits instead of working on cash basis. Third, better contract enforcement would also decrease the lending risk for banks and hence make it less collateral-based, which could enable credits to some firms that are credit-rationed today. All together, these measures would improve the status of existent small- and medium-sized enterprises in Ethiopia today and encourage creation of new such firms, which would help to fill out the missing middle.

Generally, the analysis also implies that credit expansion policies for SMEs should aim to lower the perceived barriers to the financial markets. The qualitative analysis shows that such perceptions cause firms to avoid taking loans if possible, even if they necessarily not would be denied a loan if applying.

[3] "Friendly" companies here refer to an informal but close cooperation some business owners have. Family ties or common membership in a religious congregation can be the reason to establish the cooperation. It is described further in section 8.

The rest of this paper is organized as follows. Section 2.1 introduces the theoretical framework and section 2.2 discusses empirical findings from previous studies. Section 3 provides an overview of the Ethiopian context. Section 4 provides the hypotheses. The data is described in section 5. The methodology for the quantitative and qualitative approaches is discussed in section 6.1 and 6.2. The econometric results are provided in section 7 and the qualitative findings in section 8. Section 9 concludes.

2. Literature Review

2.1. Theory

In the best of capital markets, there is perfect information symmetry between lenders and creditors and demands of funds are met by supply through interest rates that are set by the market. In imperfect capital markets, there are several channels through which firms are rationed credit. Some of these channels originate from the supply-side, while other are caused by demand-side factors. Most important from a supply-side view are fixed costs, imperfect contract enforcement, bankruptcy costs and asymmetric information (Inter-American Development Bank, 2004).

Providing loans to enterprises are to a certain extent associated with fixed costs. Banks have overhead costs for rents, personnel and equipment, and these costs should be covered by the income they get from the loans. Small loans are therefore more costly per unit for the bank than larger loans, and small enterprises are less profitable for the bank than large enterprises. Credit constraints can also arise from the institutional context. Lenders are risk-averse and are concerned about the possibility that the borrower may default. With perfect contract enforcement, the debtor is not allowed to capture any assets when going into bankruptcy, and the lenders are guaranteed their claims. Such a context, though, is rarely the case, and contract enforcement may be very limited

in some countries with weak economic institutions.[4] Imperfect contract enforcement therefore comes with an incentive to default, as the borrower can divert some funds from the lender without consequences. The temptation increases with leverage.[5]

Even if a country is able to establish perfect contract enforcement, a default will still be expensive for a lender. This cost exists since there is a time delay between the borrower default and when the bank can obtain its claims. The lender has therefore still an incentive to minimize the risk of default, usually done by avoiding lending to projects with high risk.

Credit constraints can also arise from information asymmetry between the debtor and the lender. To maximize the possibility of getting paid for the loan, the lender prefers a borrower that is fully dedicated to the project. Tirole (2006) develops a model where borrowers belong to two groups, working or shirking. If the character for the individual borrower were known, a lender would rather choose a borrower from the working group, according to Tirole. In practice, the bank only knows the existence of the two groups, but is unable to determine the effort level of the individual borrower. Providing a credit rating, to show experience and give references can help the "working" debtors to make credible their type, solving the problem for the bank. However, particularly in developing countries, SMEs have little such information to provide the lenders. Credit rating bureaus are few, accounting practices of poor quality and the firms are often young, with managers of limited experience. They are likely to be credit-rationed.

Beside these supply-side factors, credit market dynamics are also determined by what happens on the demand side. The determinants on financial demand by firms have been subject for a theoretical expansion since an initial work by

[4] Ethiopia provides an illustrating example. There does not exist an authority dedicated for contract enforcement, as the Swedish Kronofogdemyndigheten, except for tax collection. Companies may submit their claims to a judge, with is a costly and complicated process.
[5] Albuquerque and Hopenhayn (2004) proposed that imperfect contract enforcement forces banks to limit working capital availability when increasing long-term debt allowance to a firm, to limit these incentives.

Modigliani and Miller (1958). Modigliani and Miller formed the *capital-structure irrelevance proposition* by claiming that capital structure does not impact firm value, under a set of fairly strong assumptions. The theory assumes efficient markets and perfect information symmetry along with absence from taxes, bankruptcy and transaction costs.[6] Several theories on the determinants of firms' capital structures have emerged from the foundation laid down by Modigliani and Miller. Influent for later research and in many aspects diverging are the trade-off theory and the pecking order theory. The *static trade-off theory* postulates that firms decide their capital structure by balancing the benefits and costs of taking debt. The tax deductions of interest payments are balanced against the consequences of financial distress increasing with leverage. Firms therefore strive towards an optimal leverage ratio. The pecking order theory has another starting point. Its first proponents, Donaldson (1961) and later Myers and Majluf (1984), claimed that the capital structure of firms is rather determined by the costs of financing, which increases with asymmetric information. Outside investors will claim a risk premium on debt, and an even higher premium on equity. This makes firms prefer internal funds to external debt, and external debt to equity. In practice, can the pecking order and the trade-off theories help to understand why some firms may have higher demand for external financing than others? There is a body of literature that addresses this question, with diverging conclusions. Below follows a summary of what role profitability, fixed assets, firm size and firm age play in these theories.

Profitability

Profitable firms have a possibility to accumulate earnings, which they can use to finance their business. The pecking order theory therefore predicts a negative relationship between profitability and use of external debt financing. Trade-off theory instead predicts a positive relationship, since profitable firms face less risks of financial distress, which would drive them to use more debt.

[6] In their later additional work, Modigliani and Miller incorporated taxes in their model and could point on the tax advantages for using debt (1963).

Fixed assets

Fixed assets can be used to secure a loan, which mitigates the problem of asymmetric information. The pecking order theory suggests that there should be a positive relationship between the availability of fixed assets and the use of external debt. The trade-off theory implies the same relationship, since the cost of debt decreases with more security.

Firm size

Bhaird and Lucey (2009) propose on the basis of pecking order theory, that as firms grow, they accumulate earnings and can use these to finance themselves instead of using external sources. Large firms, on the other hand, have less volatile cash flows and are generally less risky, which makes them more attractive for a lender (Abor and Biekpe, 2009). The trade-off theory therefore predicts firm size to be positively related to external debt use.

Firm age

Hyytinen and Pajarinen (2008) suggest that firm age can be considered as a proxy of economic credibility. Old firm have had the possibility to gain reputation and to develop trustful relationships with lenders. Since trust decreases the cost of debt, the trade-off theory proposes that firm age should be correlated with increased leverage. The prediction by the pecking order theory is less clear. Since improved information symmetry decreases adverse selection costs, the theory suggests a higher use of external funds. On the other hand, old firms have had time to accumulate earnings and should therefore use less external debt (Bell and Vos, 2009).

Variable	Pecking order theory	Trade-off theory
Firm age	- / +	+
Firm size	-	+
Fixed assets	+	+
Profitability	-	+

Table 1. Predicted relationship between use of external debt and firm characteristics, according to the pecking order and trade-off theories.

2.2. Empirical results from previous studies

The genesis of capital-structure theory can be traced back to the initial work by Modigliani and Miller (1958). The pecking order theory, by Donaldson (1961) and Myers and Majluf (1984), and the trade-off theory, first developed by Kraus and Litzenberger (1973) were two comprehensive theories that built on the propositions of this paper. The validity of the pecking order and trade-off theories was tested the following decades, primarily with studies on the US markets. Harris and Raviv (1991) provide a good overview for these initial works.

Beginning in the 1990s, there was a growing interest for how well these theories applied to international contexts. The specific institutional context in United States may be one reason for them not to be. Rajan and Zingales (1995) use accounting data from 1987 to 1991 on about 3,500 publicly listed companies from all G-7 countries to study if the relationships found between firm characteristics and leverage ratios in United States also hold for other high-income countries. They conclude that leverage ratios are very similar across the countries, indicating that pecking order and trade-off theories may hold outside the American markets also.

Other studies have extended the empirical body to also include low-income countries. In an influent paper, Booth et al. (2001) find that capital decisions among firms in developing countries are essentially determined by the same variables as for firms in high-income countries. However, they also find that

there are significant differences between countries, for which differences between economic institutions can be important.

Geography is one factor among many others that are likely to influence capital decisions by firms. Firm size is one of them. One of the underpinnings of the pecking order and trade-off theories is that firms are value maximizing, but it is a premise that may be more reasonable for large, publicly listed firms than for SMEs. LeCornu et al. (1996) find that personal motivations rather than wealth maximization often is the objective for the start-up and operation of such firms. Twenty-five years earlier, Bolton (1971) was on the same track by reporting managerial independence and financial freedom as strong drivers for making business among small firms in the UK. In line with these findings, Holmes and Kent (1991) and later Howorth (2001) formulated a "constrained" pecking order behaviour for small firms. This only includes a choice between internal funds and external debt, as these firms very rarely spread business control by issuing equity.

SMEs in developing countries may have capital structure behaviour even further from the standard pecking order and trade-off theory models, since they often operate under weak economic institutions and in undeveloped financial markets. The recent years has seen a rise of country-specific studies on this fact. Among them are Abor and Biekpe (2007), using financial data from 160 SMEs in Ghana. They find support for pecking order behaviour, most significantly that profitable firms avoid using debt.

With this evidence, there is reason to believe that SMEs in developing countries would have a limited demand on external financing. But the reality is that limited access to finance is frequently reported as a key obstacle by small and medium-sized businesses, particularly in developing countries.[7] There is a

[7] For example in the World Bank Enterprise Surveys. A combination of these calls and the status of financial markets in developing countries have caused several policy recommendations on financial inclusion for SMEs to be released in the last ten years, for example by World Bank in 2007 (Malhotra, 2007).

growing body of quantitative studies that try to explain the limited access to finance by using firm characteristics as explanatory variables. A recent example is Beck and Cull (2014). They use the World Bank Enterprise Survey data for SMEs from more than 100 countries to examine the impact of age, size, ownership structure and other variables on the likelihood of having a loan. They find that small- and medium-sized firms are less likely than large, and young firms less likely than old to have a loan. They also find that firms with simple organizational forms, such as sole proprietorships, are less likely to have a loan than firms with more advanced organization structures. Other studies indicate that women are likely to be discriminated on the financial markets. Demirgüc-Kunt and Klapper (2013) use data from 98 developing countries to analyze if there are any gender differences in the use of financial services. After controlling for an array of socio-economic variables, they find that there are considerable differences in the usage of such services that can be related to gender, and that women are discriminated legally in many countries. Even if their study is focused on the individual level, the pattern may also hold for women as business-owners.

One concern with these results is that it might not only reflect supply-side constraints but rather be caused by differences in demand among firms with different features. Some studies have approached the issue by examining what determines the perception of financial constraints among firms rather than having a loan. Interesting for the Ethiopian context is Kira (2013) who uses a sample of more than 1900 firms from five East African countries (Burundi, Kenya, Rwanda, Tanzania and Uganda) to focus on this relation. He finds that small- and medium-sized firms, firms in manufacturing and service sectors and firms operating as sole proprietorships or in partnerships report higher financial constraints than the average in these countries. These results are in line with the findings by Beck and Cull (2014), and imply that the financing gap for the SME sector is driven by excessive demand.

To summarize, empirical evidence supports that classical capital structure theories, especially the pecking order theory, to some extent can explain financial

behaviour among SMEs in developing countries. Firms prefer internal over external financing. But there is also evidence that the demand of external finance is excessive in developing countries. This paper aims to investigate what can explain this dynamic.

3. Ethiopian Context

With the Asian miracle in mind, Ethiopia has been referred to as one of the new "African tigers", as the country has taken a lead position in the economic rise on the continent. For over a decade, the country has experience two-digit annual growth (World Bank, 2015c). Still being a low-income country, the agricultural sector dominates the economy, both as a source for employment and for generating the most exports, but the country is structurally shifting towards the service sector. The industrial sector is growing as well, but has still only a minor contribution to GDP, about 14%. Considering only the manufacturing firms, the figure was 4% in 2013/14 (National Bank of Ethiopia, 2014).

The trends in the Ethiopian economy have for a long time had a clear political dimension. The current Ethiopian government came to power in 1991 after the fall of the communist Derg regime, which had led the country since 1974. The guiding policy during those years was to lead the country as a command economy, and many enterprises were brought into government ownership (Gebreeyesus, 2013). The new government announced when taking seat in 1991 their intention to shift from a state-led to a market-led economy. In the years following the power transition, Ethiopia adopted broad structural adjustment programs, which allowed for wide deregulation and privatization of enterprises. Nevertheless, the government has, since they seized power, kept a strong intervening role in the economy, and releases every fifth year a Growth and Transformation Plan (GTP), which outlines broad economic policies for the country in the next five years (Gebreeyesus, 2013). At the centre of the most recent plan released in 2010 was encouraging a shift from agriculture towards industry, and to facilitate development of micro- and small enterprises (EDRI, 2010). The political agenda in Ethiopia is thus different from many other

developing countries that rather focus on the support of small- and medium-sized enterprises.

The financial markets in Ethiopia are highly regulated and subject for political influence. The markets consist mainly of banking and insurance, and are dominated by the two state-owned banks, Commercial Bank of Ethiopia (CBE) and Development Bank of Ethiopia. The CBE has 644 branches in the country, more branches than all other banks together (National Bank of Ethiopia, 2015). About twenty smaller banks, all domestically owned, also operate on the market. At the moment, no foreign banks are allowed to open office in the country, which is a deliberate decision from the government to steer the pace of financial liberalization (Hagos and Asfaw, 2014). Along the banks, about twenty insurance companies are also present in the country.

Besides the banks and insurance companies, micro-finance institutions (MFIs) and the informal financial market are central parts in the economy of Ethiopia. About thirty MFIs, that particularly facilitate the needs of micro-sized firms and households, are operating in the country. So-called rotating savings and credit associations (ROSCAs) are as well used by households and small companies, of both financial and social reasons. In the large Islamic community, about a third of the Ethiopian population, these associations provide a solution for interest-free saving and lending.

Ethiopia keeps a strict foreign exchange control regime, and most imports, exports and trans-national payments are subject for approval. The national currency, birr, is officially floating, but the exchange rate is in practice determined by weekly auctions of foreign exchange that the central bank holds with the commercial banks. The exchange rate has been stable for many years, but is steadily falling against major currencies, which is supported by the government in an effort to boost exports. World Bank did in 2013 compare the foreign exchange policies across 98 countries, and found Ethiopia along with

Angola, Nepal, Solomon Islands and Venezuela to have the heaviest restrictions (World Bank, 2013).

There is no authority with a dedicated responsibility for contract enforcement in Ethiopia, except for tax collection. Companies are obliged to submit their cases to the court in such instances, which can be a time-consuming and struggling process. Commercial banks balance their lending risk by imposing high requirements on security. The collateral required to obtain a loan in Ethiopia was in average 234% of the loan value in 2011, while the world average was 194% (World Bank, 2015b).

The statistics in table 2 shows to what extent firms in Ethiopia use bank financing for working capital purposes. The number of firms having a loan is considerably less than both regional and world averages.

Concept	Ethiopia	SSA	World
Percent of firms using bank loans to finance working capital	13.6	23.5	30.9
Percent of firms using bank loans to finance new investments	16.6	18.4	25.4
Percent of firms identifying access to finance as a major constraint	31.1	41.6	28.6

Table 2. Use of bank loans and experience of financial constraints by firms in Ethiopia, Sub-Saharan Africa and the world. Source: World Bank Enterprise Surveys, 2015.

The World Bank did in 2015 ask thirteen banks of Ethiopia what challenges and possibilities they associated with SME lending. The banks agreed that the sector has a growth potential with high expected returns, but also put forward some sector-specific obstacles that reduces their involvement in SME lending. These obstacles included poor quality of financial statements, lack of knowledge about business management and inability to manage risk, lack of adequate collateral and informal practices (World Bank, 2015a).

The SME financing challenges has been recognized by the Ethiopian government, which has adopted several policies to broaden the financial supply. Through the Development Bank of Ethiopia, manufacturing and export-oriented SMEs are supported financially by loans with eased requirements. The support is channelled through export credit guarantees and investment credits, allowing for both working capital financing and investments in fixed assets.

4. Hypotheses

H_1: Amount of fixed assets is positively related to the use of external financing.

Following the findings by Booth et al. (2001) and in line with both the pecking order and the trade-off theories, I expect to see fixed assets to be positively correlated to external financing. This expectation is also supported by the strong emphasis on collateral in lending policies among banks in Ethiopia.

H_2: Export-oriented firms use external financing in a higher extent than firms that are not export-oriented.

Since the Ethiopian government prioritizes export-oriented sectors by providing them loan with eased requirements, I expect that firms in those sectors utilize this possibility for working capital funding.

H_3: Profitability is negatively related to the use of external financing.

The relation between profitability and external financing is, as the theory suggests, debatable. Given the evidence of pecking order behaviour across firms in developing countries (e.g. Abor and Biekpe, 2007), it is reason to believe that profitable firms accumulate their earnings to fund their business.

H_4: Firm size is positively related to the use of external financing.

From a supply-side perspective, large firms are more profitable for banks than small firms, given that there are fixed costs of lending. The trade-off theory also suggests a positive relationship between firm size and external financing, since large firms have less volatile cash flows than small firms and are less risky for a lender. The pecking order theory instead suggests that large firms avoid external financing since they can use their accumulated earnings to fund their business. Following the empirical evidence by Beck and Cull (2014), that rather supports the trade-off theory in this regard, I expect a positive correlation between firm size and external financing.

H_5: Firms experiencing working capital shortage finance themselves with more debt than firms not experiencing shortage.

It is probable that firms reporting financing obstacles in a higher extent try to finance their business externally than firms not reporting any obstacles. Following Beck, Demirgüc-Kunt and Maksimovic (2008), I therefore expect to see a positive correlation between working capital shortage experience and the use of external debt for working capital financing.

5. Data and Descriptive Statistics

I use an unbalanced panel data set of the surveys on Large and Medium-scaled Manufacturing Enterprises provided by the Ethiopian Central Statistical Agency (CSA). This survey has been conducted each year in Ethiopia since 1974 on a census basis, and includes enterprises employing more than 10 people and using power-driven machinery.[8] The panel is constructed on the two surveys of 2012 and 2013.[9]

[8] Even if I found some enterprises with less than 10 employees.

[9] Data was available for a longer time, but the firm identification was completely changed between the 2011 and 2012 surveys by CSA, so a proper panel could not be made overlapping these years. I therefore decided to use the most recent data.

There is no universal definition of SME status that has reached wide consensus, even if some attempts have been made (e.g. Tom Gibson and van der Vaart, 2008). SME definitions differ across countries, depending on country income levels, legal context and other factors. For example, the European Union defines SMEs to be enterprises having between 10 and 250 employees and an annual turnover no more than 50 million euro and a balance sheet total of no more than 43 million euro (European Commission, 2005). This definition would capture enterprises that in developing countries can be considered to be very large.

Even inside Ethiopia, there are multiple definitions for what is a small- or medium-sized enterprise. The Ethiopian Central Statistical Agency defines small manufacturing enterprises as firms that "engage less than ten persons and using power-driven machinery" (EDRI, 2010) while the official Ethiopian definition states that for industries, small firms are employing between 6 and 30 people (Ibid). Aware of the divergence from the definitions by Ethiopian authorities, I define SME status as enterprises employing between 10 and 100 people. My rationale for this is as follows. As mentioned, the survey by CSA that is used for the quantitative analysis is constrained to firms engaging more than ten employees, which prevents me to stick to the definition by the Ethiopian authorities. Secondly, there is to my knowledge no definition by Ethiopian authorities that defines the upper bound of what is a medium-sized firm. Therefore, I decide to follow the international mainstream in the literature (Ayyegari et al., 2011, and others). To calculate number of employees for each enterprise and limit the dataset to enterprises fulfilling the SME definition, I use the average value of reported employees in September, December, March and June.

Table 3 show what fields the enterprises in the panel dataset 2012-2013 are operating in. There are 3,029 enterprises in the survey. 1,645 are left, when I limit the dataset to enterprises fulfilling the SME condition and removing some

cases with extreme values or missing data.[10] Some adjustments have been done to simplify the aggregation. Enterprises in the tobacco and beverage industries are included in the food category. The leather category also includes enterprises manufacturing footwear.

Sector	Frequency	Percent
Food	444	27.0
Textiles and garments	47	2.9
Leather	99	6.0
Wood and paper	144	8.8
Chemicals	61	3.7
Pharmaceuticals	7	0.4
Plastics and rubber	88	5.3
Glass	10	0.6
Non-metallic mineral products n. e. c.	149	9.1
Cement, clay and concrete	182	11.1
Steel, engineering and assembling	155	9.4
Other manufacturing	259	15.7
Total	1,645	100.00

Table 3. Firms in the dataset, by sector.

The high fraction of food enterprises reflects that Ethiopia has a large agricultural sector that influences what industrial activities are dominant. Note also that there are few enterprises of this size that manufacture advanced products. A few pharmaceuticals enterprises are the exception. While there is diversity regarding industry sectors, there is more concentration regarding type of ownership, as table 4 shows. Sole proprietorships and private limited companies make up about three quarters of all firms. Furthermore, only a minority of the firms are publicly owned. About half of these publicly owned firms are operating in the wood and paper sector. Some enterprises have reported different structures between the years and therefore the number of observations in the table is higher than the total number of enterprises.

[10] I have translated the ISIC codes for each enterprise to correspond with John Sutton's *An Enterprise Map of Ethiopia* (2010), but added the categories wood and paper, other non-metallic mineral products and other manufacturing.

Type of ownership	Frequency	Percent
Public	28	1.6
Sole proprietorship	795	45.4
Partnership	139	7.9
Share company	66	3.8
Private limited company	430	24.6
Cooperative	184	10.5
Other forms	16	0.9
Undefined	93	5.3
Total	1,751	100.00

Table 4. Ownership structure for the firms in the dataset.

Table 5 shows in what degree the firms experience working capital shortage. The survey asks the firms if it is a problem at present, if it hampers them to produce at their full capacity, or if it restrains the production from running full year.

Constraint	2012	2013
Full year operation	4.7	5.8
Full capacity operation	17.1	17.2
Present problem	18.9	22.6

Table 5. Firms in the dataset experiencing working capital shortage as a constraining factor, in percent.

As can be concluded from the table, shortage of working capital is not a problem for the majority of firms, but every fifth firm is constrained by it in some regard. The figures do as well indicate a small upward trend from 2012 to 2013. Table 6 shows how many of all enterprises in the sample that used bank loans to cover their investments or working capital expenses. There is a small downward trend both for fixed assets investments and working capital funding from 2012 to 2013.

Variable	2012	2013
Investments in fixed assets by bank loans	4.7	4.4
Working capital expenses by bank loans	12.1	11.1

Table 6. Use of bank loans for investments and working capital expenses by the firms in the dataset, in percent.

Do bank loans enable the firms to increase the level of investments? Or does a bank loan for working capital allow the firms to make more revenue? Table 7 shows that investments change while working capital effectiveness is indifferent for firms with and without loans. Specifically, the ratio of new investments to total assets indicates that firms with loans make considerably larger investments than those firms making investments without loans. Secondly, the working capital turnover, measured as total sales to total working capital expenses, is similar for firms with and without loans.

Variable	Loan	No loan
New investments in fixed assets / Total assets	2.29 (100)	0.66 (2205)
Total sales / Total working capital expenses	1.64 (268)	1.65 (2009)

Table 7. New investments ratio and working capital ratio, mean values. Number of observations in brackets.

Table 8 provide the descriptive statistics for the variables included in the regressions, described in the methodology section.[11] The dataset contains some cases with questionable values of the variables used. For firm size as example, measured as total sales, there are some cases where cost of goods sold exceeds total sales. In these few instances, the value of sales is exchanged to total value of production. I have as well excluded the 1% highest and the 1% lowest values for return on equity, fixed assets, firm size and total equity. As a third action, any cases with missing variables for the regressions are excluded. The distribution statistics for the variables before and after these adjustments are shown in the appendix A.

[11] The continuous variables have been recalculated to USD, with the mid-market exchange rate as of 31 December 2012 (xe.com, May, 1st, 2015).

Variable	Obs.	Mean	Median	Std. Dev.	Min	Max
Fixed assets	2 330	173 207	45 277	303 204	0	2 109 545
Total sales	2 330	636 240	169 115	1 167 557	5 908	9 228 616
Firm age	2 330	11	7	11	1	83
Profitability (ROE)	2 330	0.38	0.23	0.58	-1.79	3.68
Total equity	2 330	502 532	171 418	852 077	1 642	7 966 954
Variable	Obs.	Yes (%)				
Bank loan for working capital	2 330	11.6				
Export-orientation	2 330	2.9				
Working capital shortage experience	2 330	26.4				
Female-owned enterprise	2 330	10.9				
Location in Addis Ababa	2 330	32.7				

Table 8. Descriptive statistics for the variables in the regressions. Fixed assets, firm size and total equity values converted from ETB to USD.

The statistics gives a picture of the manufacturing industry in Ethiopia. About a third of the enterprises are located in the capital city. They are mostly owned by men, as for other developing countries in general. Most of the firms are very young, about ten years in average. When looking more closely on the distribution statistics of the firm age variable, we can observe that 90 percent of the firms started after the fall of the Derg regime and the Ethiopian civil war in 1990. Furthermore, the figures indicate that only a small minority of the firms are exporting any goods abroad directly. However, many firms may sell their goods to an Ethiopian distributor or retailer, who sells the goods abroad in a second step. The extent of this trade is cumbersome to measure, but the World Bank Enterprise Surveys (WBES) indicate that it may increase the figure by one half (World Bank, 2015b). [12] The statistics also indicate that formal financing is less used by SMEs in Ethiopia than in other developing countries. About 12 percent of the firms have covered their working capital expenses with a formal bank loan. This is about half of the average for Sub-Saharan Africa, and only a third of the

[12] According to WBES, 7 percent of manufacturing firms in Ethiopia export directly, while the figure is 11 percent if the indirect exports are included as well.

average for all developing countries, comparing the figures with the WBES. The working capital shortage experience is a constructed variable that is positive if the firms have answered yes to any of the three questions listed in table 5. There are no international benchmarks available, but the WBES contain data on how many firms reporting access to finance as a major constraint. For manufacturing firms in Ethiopia, 31 percent affirmed it was the case, to compare with 41 percent for all firms in Sub-Saharan Africa and 12 percent for firms in the OECD countries (World Bank, 2015b).

The continuous variables then give some indications on company performance. It is questionable whether it is possible for a functioning manufacturing firm to have no fixed assets at all, as the minimum value of this statistic reveals. A few of these firms may lease all of their equipment, but the main explanation seems to be more straightforward. The reported value are as of beginning-of-year, and a closer look on the data reveals that the majority of these firms are recently established, and likely to acquire assets as they continue their start-up process.
We can also combine the sales figures with number of employees on average to compute labour productivity. If we consider how much revenue each employee contributes, the figure is 5,637 USD/employee using the median of total sales, and 21,208 USD/employee using the average value.[13]

Finally, the sales and profitability variables may be downward biased. It is likely that some firms avoid reporting all their income to avoid paying extra taxes. Also notable, considering that the Ethiopian inflation was 23% in 2012 and 8% in 2013, the real rates of return are much more modest than figures reveal.[14]

[13] The average value of employees is 30.
[14] Inflation rates for Ethiopia, from World Bank (data.worldbank.org as of May, 4th, 2015).

6. Methodology

6.1. Quantitative Methodology

The survey data contain information about the working capital expenses for each enterprise and each year, along with what financing sources these expenses have been covered with. The interesting question is to what extent the factors that are described in the hypotheses section are related to the probability of having a working capital loan. One alternative is to use a linear probability model, but it may predict a probability exceeding 1 or less than 0, and will as well not allow for diminishing marginal impacts of the independent variables on the outcome. I therefore use a probit model with a dependent binary variable indicating if a firm *i* has used bank loans to cover working capital expenses in year *t*, with a set of related explanatory variables:[15]

$$\Pr(Loan_{i,t} = 1) = \Phi(\alpha + \beta_1 fix_{i,t} + \beta_2 exp_{i,t} + \beta_3 wcshort_{i,t} + \beta_4 size_{i,t} + \beta_5 ROE_{i,t} + \beta_6 age_{i,t} + \beta_7 equity_{i,t} + \beta_8 female_{i,t} + \beta_9 location_{i,t} + ownership_i + \delta_t + \gamma_j)$$

In the specification above, $\Phi(\cdot)$ is the cumulative density function for the standard normal distribution. We want to know what effect a one-unit change in a variable has on the probability of having a loan, keeping all else variables constant. For the *fix* coefficient as example, this marginal effect, $\frac{\delta \Pr(Loan_{i,t}=1)}{\delta fix}$, is equal to $\frac{\delta \Phi}{\delta z} * \frac{\delta z}{\delta fix}$ by to the chain rule, where $z = \alpha + \beta_1 fix_{i,t} + \beta_2 exp_{i,t} + \ldots + \delta_t + \gamma_j$. The average marginal effect is computed as the sum of all marginal effects (*ME*) divided by the number of observations, $\frac{\sum ME_i}{n}$. The coefficients that are reported on page 29 represent these average marginal effects.

In the equation, *fix* is the logarithm value of total fixed assets for the firm, reported at the start of the year. I expect that the sign will be positive, as the theory suggests. *Exp* is a binary variable indicating if the firm has reported any

[15] I also repeat the regression using a logit model, for which the results are provided in the appendix B. The two models are built on previous work by Bell and Vos (2009) and Köksal and Orman (2014).

exported sales for the year. Here, again, I expect a positive relationship, since such firms have benefits on the credit markets in Ethiopia. *Wcshort* is a binary variable with positive value if the firm has reported working capital shortage as a major problem. If such firms have tried to use the bank-financing channel, the sign should be positive. *Size* is the logarithm value of total sales, following Köksal and Orman (2014). There is reason to believe that this sign should also be positive, since the empirical evidence supports the trade-off theory in this regard. I also include *equity*, which is in the survey reported as current paid-up capital. For profitability, ROE, I use return on equity, calculated as operating income divided by current paid-up capital. Operating income is measured as total revenues minus cost of goods sold, labour expenses and other expenses. As discussed, the pecking order and trade-off theories have opposite interpretations on how profitable firms use external financing. Given that the empirical evidence mostly supports pecking order behaviour among firms in developing countries, there is reason to expect a negative sign. *Age* is the logarithm value of year of the survey minus the year of firm commencement. The dummy variable *female* indicates if the firm is owned by only women, following the evidence by Demirgüc-Kunt et al. (2013) that women are regularly discriminated on credit markets in developing countries. I also include a dummy indicating if the firm is close to a major city, *location,* which for this sample means that the firm is located inside the Addis Ababa region. Finally, I take into consideration organization form, $ownership$, include dummies for annual fixed effects, δ_t, and industry sector dummies, γ_j . Most of the variables described above have frequently been used in the previous literature for similar models (e.g. by Köksal and Orman, 2014, Bell and Vos, 2009, and Beck and Cull, 2014). Some variables that are not included here are worth a comment. First, growth rate may influence what firms have a loan or not, but can only be included with a sufficiently long panel. Secondly, it is common to measure firm size as the amount of total assets, but since current assets are not reported in the survey, I use fixed assets. For the same reason, return on equity is used to measure profitability instead of return on assets, which is common in the literature, for example by Köksal and Orman (2014)-

Is there a risk for reverse causality in the regression? Yes, for some variables the causality is likely to go off in both directions. For fixed assets, it is not likely since the reported value is at the beginning of the year. For export-orientation, it may be the case that getting a working capital loan early in the year enables the firm to deal with long delivery and payment itinerary and to start trade with foreign customers later in the year. The coefficient therefore represents to what extent export-oriented firms use formal working capital financing rather than showing if such firms have benefits on the credit market. For firm size and profitability, the causality might well go off in both directions, theoretically. For example, a firm that has been allowed a working capital loan may be able to employ a new sales person and thereby increase sales and profits. However, lenders weigh that scenario against the risk that the firm will not succeed with its plan. The low risk appetite among Ethiopian banks for SME lending suggests that the causality mainly goes in the other direction.

Finally, a comment on the standard errors that are clustered on firm level. The conventional formula for computing standard errors relies on the assumption that each observation is identically and independently drawn from the distribution, i.e. that each observation carries an equal amount of information. It does not hold for this panel data set, since some firms are observed twice, and the second observation for the firm does not carry the same amount of information a completely new firm would do. The clustered standard errors account for the fact that observations for each firm observed twice might have some degree of similarity.

Here is another look at enterprises that have used bank loans to cover working capital expenditures. Some of the variables outlined above may be correlated to what degree the firms are indebted. I use the same firm characteristics as specified in the previous regression, but use an ordinary least squares regression of the following specification:

$$Loanfraction_{i,t} = \alpha + \beta FIRM_{i,t} + \delta_t + \gamma_j + \varepsilon_{i,t}$$

Where *loanfraction* represents the fraction of bank loan used by firm i in year t for total working capital expenses, *FIRM* represents the firm characteristics as specified above, while δ_t and γ_j are year and industry sector dummies. The standard errors, $\varepsilon_{i,t}$, are like before clustered on firm level.

6.2. Qualitative Methodology

I also conducted qualitative interviews with SME managers. These interviews could help understand if the theoretical framework used for the quantitative analysis was sufficient to explain financial demand by SMEs, or if new perspectives would appear and inform the analysis. Rather than gaining a top-down picture, the focus was to assess the managerial context wherein financial decisions are made. The questions during these sessions addressed topics as: What are your preferences on funding sources? What opinion do you have about the banking system? How have you financed your business? The firms were selected with the aim to get a representative sample of the manufacturing sectors in Ethiopia. All enterprises were operating in the Addis Ababa area and came from a variety of fields. All the twenty interviews were conducted in March 2015.

I consulted Suter (2012), Humprey and Lee (2004), Kaczynski et al. (2014), and Merriam (2009) to design a framework for interview scheduling. The schedule was semi-structured and consisted of both closed and open-ended questions, grouped into categories, but the interviews were not constrained to these questions. We avoided leading questions and to "hunt for answers" (Kaczynski et al., 2014, and Patton, 2002). The interviews were conducted with a translator, who enabled a discussion in the local language Amharic. Notes were taken by the interviewer in English and the translator in Amharic, which allowed for a consistency check. This dual recording also helped to minimize the impact of cultural barriers that could confuse the interpretation.

To analyze the qualitative data, I used an approach based on Taylor-Powell and Renner (2003) with additional consultation from Suter (2012). The interview data

was entered into an Excel spreadsheet were the answers were categorized, and subject for a content analysis. I identified themes and patterns and also looked for the frequency each category tended to appear and if any categories appeared relatedly. The initial analysis was usually conducted shortly after transcribing the interview. This setting of a continuous analysis allowed assessing new questions and themes that emerged in the process, which could be addressed in the following interviews.

Someone might question the external validity of this study as the sample is constrained to small- and medium manufacturing firms in Addis Ababa. The trade-off made was to get an in-depth perspective on the context wherein financial decisions are made, rather than a general but stylized picture. In this way, the results may provide perspectives contributing in other contexts, even if I do not make any statistical claims about the general suitability.

7. Econometric Results

Table 9 on page 29 shows the regression results. For the probit model, the reported values represent the average marginal effects. According to the first hypothesis, fixed assets should positively correlate with the probability of having a working capital loan. Fixed assets are useful as security, and both theoretical and empirical literature support a positive relationship. Not surprisingly, the results are in line with this literature. An increase of fixed assets with two standard deviations means that the likelihood of having a loan increases with 4.7 percentage points. In the second hypothesis, I suggested that export-oriented firms would be more leveraged than other firms in average, since they benefit from governmental support. It is not possible to establish any correlation between being export-oriented and the likeliness of having a loan based on the results. Since it is a dichotomous variable and there are only a few export-oriented enterprises in the dataset, it is not very surprising. What about profitability? According to the third hypothesis, the more profitable the firm is, the less will its demand for external finance be. There is a significant negative

relationship between being profitable and having a working capital loan, but the economic magnitude is small. Even a company that raises their return on equity with 10% is only 3 percentage points less likely to have a working capital loan. The results reflect that the theory is, as discussed, not clear on the role of profitability. In the fourth hypothesis, I claimed that the larger the firm becomes, the more will it demand external funds. Indeed, an increase of total sales with two standard deviations means that a firm is 6.0 percentage points more likely to have a bank loan according to the results.[16]

The fifth hypotheses presented was that firms that experience working capital shortage are likely to use formal loans in a try to release their constraints. A negative or only a small positive relationship would imply that these firms not turn to banks to solve their liquidity need, or they are denied loans if they apply. The results show that firms experiencing they are working capital constrained are 6% more likely to have a loan than firms not experiencing any constraint. It indicates that firms seek financing from banks when in need, but the demand is not fully met.

Three explanatory variables are significant for debt ratio. First, young firms are more indebted than old firms. In fact, a one-year increase in age will decrease the debt ratio by 4%. It supports the pecking order theory, as old firms are likely to have accumulated earnings over time and therefore prefer internal to external funding. Secondly, equity is positively correlated with debt ratio. Consistent with Tirole (2006), as borrowers increase their own investments, the lenders observe their commitment to the firm, which decreases the risk for the bank. As a consequence, the lenders will allow higher debt ratios. Third, firms that report they are working capital constrained are more indebted than firms not reporting any constraint.

[16] The standard deviation for ln(fixed assets) = 2.30. 2.30 * 2 * 0.0102 = 0.0469 (4.7%). The standard deviation for ln(total sales) is 1.69. 1.69 * 2 * 0.0178 = 0.060. (6.0%).

	(1) Bank loan for working capital (Yes/No)	(2) Bank loan fraction of working capital
Model	Probit	OLS
Fixed assets	0.0102*	-0.0101
	(0.00580)	(0.00986)
Total sales	0.0178**	0.00740
	(0.00828)	(0.0225)
Equity	0.0105	0.0352**
	(0.00920)	(0.0172)
Firm age	-0.00373	-0.0424*
	(0.00947)	(0.0237)
ROE	-0.0315*	0.0313
	(0.0173)	(0.0414)
Export orientation	0.0126	-0.0637
	(0.0432)	(0.0439)
Experience of working capital shortage	0.0604***	0.154**
	(0.0165)	(0.0669)
Female-owned	-0.0224	-0.0235
	(0.0265)	(0.0565)
Location in Addis Ababa	-0.0266	0.0497
	(0.0178)	(0.0363)
Constant		-0.223
		(0.256)
Year fixed effects	Yes	Yes
Industry sector controls	Yes	Yes
Organization structure controls	Yes	Yes
Observations	2,288	269
Number of enterprises	1,609	215

Table 9. Regression results. Standard errors clustered on firm level in parentheses. Significance levels are indicated as *** p<0.01, ** p<0.05, * p<0.1. For the probit model, the reported values are the average marginal effects.

8. Qualitative Findings

Table 10 gives a summary of the interview cases.

No	Sector	Type of ownership	Employees	Years
1	Textile	Sole proprietor	40	9
2	Textile	Private limited company	82	7
3	Textile	Private limited company	60	11
4	Leather	Private limited company	97	39
5	Agro-processing	Private limited company	72	20
6	Agro-processing	Private limited company	105	11
7	Agro-processing	Private limited company	100	12
8	Metal	Private limited company	50	15
9	Metal	Private limited company	100	26
10	Metal	Private limited company	40	16
11	Metal	Private limited company	70	11
12	Mineral products	Cooperative	12	11
13	Mineral products	Private limited company	30	11
14	Mineral products	Private limited company	19	7
15	Mineral products	Private limited company	20	11
16	Plastics	Private limited company	107	11
17	Plastics	Private limited company	70	10
18	Pharmaceuticals	Private limited company	95	2
19	Chemicals	Private limited company	41	7
20	Other manufacturing	Sole proprietor	10	14

Table 10. Interview cases with industry sector, organization form, number of employees, and firm age.

Two objections may be raised when looking at the sample. First, we reached companies from most manufacturing sectors, but had trouble to get diversity regarding ownership structure. We put effort into making a diverse sample, but the industrial areas in Addis Ababa we could reach within reasonable time, were dominated by private limited companies. Secondly, in a few cases, the number of employees slightly exceeds the formal SME definition of maximum 100 employees. Since the results were not used for a quantitative analysis, they were considered still of interest.

All enterprises, with two exceptions, had started after the fall of the Derg regime. Most companies were between five and eleven years old. A few enterprises in the

minerals sector had started as micro enterprises and at the time benefited from governmental support with access to land and security guarantees to take loans during the start-up.[17] Besides these few exceptions, the common story was that financing of start-up and fixed investments were fully covered by own funds, for example with family savings, retirement money or proceedings from old successful companies in ownership.

The stories from the managers also accentuated the current economic growth of Ethiopia. Practically all companies, across sectors, ownership structures and historical background reported they had concrete plans to expand their businesses, with new facilities, production lines or increasing labour force. Despite coming from many contexts, they also answered similarly about main challenges at present. Operational issues, in particular frequent power interruptions and unstable water supply, as well as high labour turnover, were brought up by most managers as challenges. Seven of the twenty companies mentioned working capital shortage and financial problems as present challenges for the business.[18]

When explicitly asking in what degree the enterprises experienced shortage of working capital, there were many divergent answers. The most accentuated came from the textile and leather enterprises, where working capital was "always on the border", "never enough" or "always in shortage". In other sectors the answers were mixed, from "occasionally" and "regularly" to "not at all".

It became clear from the interview with the importing enterprises that lack of foreign currency is their main concern regarding working capital. One manager for a furniture manufacturing business reported they had to wait four or five months to get the desired amount. Another manager in the chemicals industry was on the same line. He found it particularly challenging as their products were

[17] One company reported that the government took as much as a 98% share of the initial capital through such supportive schemes.
[18] This is roughly proximate to how many enterprises that answers working capital shortage to be constraining in the survey by CSA.

highly customized, and they could therefore not engage in all projects they would have capacity for. The state-owned commercial bank that dominate the market have government directive to prioritize certain sectors with supply of foreign currency. Nevertheless, one pharmaceuticals manufacturer benefiting from this treatment reported that they get amounts less than applied for.

The sectors also reported varying degrees of formality for working capital management. The two plastic industries reported they had working capital loans and overdraft available when in lack of internal funds, and credits were granted to customers as well as received from suppliers. In other industries, there were limited occurrence of credits, with textiles and leather companies again reporting the lowest use. These findings are consistent with the World Bank Enterprise Surveys, reporting only 0.7% of firms financing working capital with supplier credit in Ethiopia (World Bank, 2015b). In comparison, the figure is 8% for all surveyed firms in the Sub-Saharan region (Ibid). Also, no companies used more advanced services, as factoring or leasing.

Some companies reported they could ask customers for advance payments, reduce production, sell out inventory or speeding up collection to solve working capital shortage. But besides these stories, there were many reports of more informal methods to solve liquidity problems. Borrowing from the family or from friends for a few days or weeks was a common narrative. Some enterprises also reported they had "friendly" companies, often between five and ten, and they did between themselves share funds and raw materials when in scarcity. Thirdly, some companies participated in informal Islamic saving and lending associations for working capital purposes.[19] Probably, the possibility to form friendly relations between enterprises or turn to informal saving associations are better in the Addis Ababa region than in the minor cities and in the rural areas.

[19] Noteworthy, these enterprises were all small in size. The context and informality of these associations are probably not suitable for the needs of larger enterprises.

As the empirical evidence indicate, collateral in form of fixed assets can be important to get a loan in developing countries. The World Bank Enterprise Surveys reveal that the average collateral requirement in Ethiopia of about 230% is higher than both regional and world averages (World Bank, 2015b). The interviews revealed what these figures means from a demand-side perspective. On asking about general opinions about the banking system in Ethiopia, there was wide consensus that the system is heavily security-based, and requirements very high to get a loan. We heard from two large enterprises in the plastics and pharmaceuticals sectors, that notable had more extensive use of banking services than the other companies in the survey, that the amounts they get are often less than they have applied for.

We also asked how the enterprises would prefer to finance new investments. There was dominantly a preference to use internal funds first hand, and bank loans only if necessary. The collateral requirements were suggested by some enterprises as a reason for this order. Notably, one manager of a textile company had good experience of banks, considered them flexible and supportive, but would prefer own funds for investing based on the high requirements. Other companies associated applying for bank loans with timely struggles, and therefore avoided it, "to save a headache" as one manager expressed it. For an Islam-oriented company, the preference had religious underpinnings, since they avoided all contracts with interest payments. The opposite story came again from the plastics and chemicals companies, which would prefer to finance investments preferentially with bank loans.

In summary, the key results from the interviews can be concluded as follows. Working capital shortage is experienced especially by small, labour-intensive and importing enterprises and the main problem for the latter group is to get foreign currency. Another problem is a very limited use of credits on both supply and customer side among most enterprises. The use of bank services, as overdraft facilities, to solve working capital shortage is mainly concentrated to large and capital-intensive enterprises, and instead the use of informal methods is

widespread. These methods include borrowing from families and friends, from friendly enterprises or from the Islamic community through savings associations. The pecking order preference of financing seems to be applicable especially for small SMEs, and less for more formalized, larger and capital-intensive enterprises.

9. Conclusions

In this paper, I have addressed if the reason why SMEs fail to prosper in developing countries in some extent can be explained by mismatch between supply and demand of external finance. The focus has been put on working capital financing for manufacturing firms in Ethiopia, and I have questioned what drives the demand for external financing by these firms. While the drivers are difficult to isolate, the results give some clear indications on what holds back the demand.

First, I used quantitative data to see what type of firms use bank loans, more to show correlations than to claim causality. The results have shown that Ethiopian SMEs are less likely to have a working capital loan than firms in other Sub-Saharan countries and developing countries in general. Increasing fixed assets or total revenues means to increase the likelihood to have a loan granted, while profitability seems to not matter in any significant extent. Old firms are less indebted than the average firm, while equity increases debt ratio. As for previous studies, neither the pecking order nor the trade-off theory fully embrace these results with consistency, which implies the need of an theoretical expansion to understand capital structure for SMEs in developing countries.

Secondly, I used qualitative interviews to more closely capture the demand from a managerial perspective. Large and capital-intensive enterprises, as plastics industries, usually have credit in the banks, and working capital shortage is instead experienced by small, labour-intensive and importing enterprises. For the last group, it is the need for foreign currency that is urgent and causes distortions in the production. Some firms avoid approaching the banks for

financing, and tend to use informal channels instead to solve their shortage. Religious underpinnings, a preference for internal funding and disbelief that the firm meets the hard security requirements to get a loan are three reasons that hold back demand of formal financing.

Some policy implications for Ethiopia can be drawn to better meet demand for formal financing among SMEs. First of all, more firms would apply and get formal loans if they required less collateral. The high collateral requirements cause some firms to avoid approaching the banks, even if they necessarily would not be denied loans if applying. Increased competition in the banking sector might help to bring down the requirements. Improving the public contract enforcement capability could also be an effective measure. It would assist banks with their claims when borrowers default or fail to pay, and thus reduce the perceived risk with SME lending that they mitigate with security requirements. Effective assistance for claims would also encourage firms to allow their customers credits, which can improve general trust in the credit markets.

As a second policy implication, easing the control and improve flows of foreign currency would effectively meet the working capital demand by importing enterprises. Particularly firms that are not prioritized by the government today suffer from long delays to get the amounts they need. Thirdly and more generally, the results of this paper indicate that credit expansion programs for SMEs should not only focus on expanding supply but also to lower the perceived barriers to the formal bank system.

At last, this paper has focused on the demand to external finance by existent SMEs in Ethiopia. Further research need to also capture defaulted SMEs and if a better understanding of financial demand can improve firm survival rates. As well, we need to know if more micro-sized firms can grow into the SME segment if the match between supply and demand improves. Properly addressed, the improvements of these issues could in the end help to create more jobs and, eventually, reduce poverty.

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Appendix A

These tables show the distributions of the continuous variables included in the regressions, before any treatment, and also after after the cut of the extremes, cases without necessary data and misreported values.

Percentile	1%	5%	25%	50%	75%	95%	99%
Value	-1.75	-0.21	-0.07	0.24	0.54	2.25	10.59
Obs	2 630		Variance	125.92			
Sum of Wgt.	2 630		Skewness	3.09			
			Kurtosis	514.44			
Mean	0.53						
Std. Dev.	11.22						

Table 1. Profitability, ROE, before treatment.

Percentile	1%	5%	25%	50%	75%	95%	99%
Value	-0.69	-0.17	0.08	0.23	0.52	1.51	2.75
Obs	2 330		Variance	0.34			
Sum of Wgt.	2 330		Skewness	1.85			
			Kurtosis	9.24			
Mean	0.38						
Std. Dev.	0.58						

Table 2. Profitability, ROE, after treatment.

Percentile	1%	5%	25%	50%	75%	95%	99%
Value	0	494	1 251	41 801	213 305	895 699	2 045 224
Obs	2693		Variance	$3.71*10^{12}$			
Sum of Wgt.	2693		Skewness	47.43			
			Kurtosis	2380.54			
Mean	234211						
Std. Dev.	1927652						

Table 3. Fixed assets in USD, before treatment.

Percentile	1%	5%	25%	50%	75%	95%	99%
Value	218	837	5 224	45 277	210 700	792 870	1 620 817
Obs	2 330		Variance	$9.19*10^{10}$			
Sum of Wgt.	2 330		Skewness	3.10			
			Kurtosis	14.27			
Mean	173 207						
Std. Dev.	303 204						

Table 4. Fixed assets in USD, after treatment.

Percentile	1%	5%	25%	50%	75%	95%	99%
Value	5 908	11 369	45 622	168 338	691 304	3 626 230	9 228 616
Obs	2 692		Variance	$4.48*10^{12}$			
Sum of Wgt.	2 692		Skewness	9.65			
			Kurtosis	157.81			
Mean	791 722						
Std. Dev.	2 116 707						

Table 5. Firm size, total sales in USD, before treatment.

Percentile	1%	5%	25%	50%	75%	95%	99%
Value	7 652	12 361	44 902	169 115	683 726	2 795 964	6 212 271
Obs	2 330		Variance	$1.36*10^{12}$			
Sum of Wgt.	2 330		Skewness	3.47			
			Kurtosis	17.56			
Mean	636 240						
Std. Dev.	1 167 557						

Table 6. Firm size, total sales in USD, after treatment.

Percentile	1%	5%	25%	50%	75%	95%	99%
Value	0	4 542	27 360	155 495	591 113	2 325 613	7 966 954
Obs	2 759		Variance	$1.12*10^{14}$			
Sum of Wgt.	2 759		Skewness	32.09			
			Kurtosis	1079.30			
Mean	942 915						
Std. Dev.	$1.06*10^{7}$						

Table 7. Total equity in USD, before treatment.

Percentile	1%	5%	25%	50%	75%	95%	99%
Value	3 368	7 503	32 832	171 418	582 980	2 029 945	4 398 233
Obs	2 330		Variance	$7.26*10^{11}$			
Sum of Wgt.	2 330		Skewness	3.62			
			Kurtosis	20.74			
Mean	502 531						
Std. Dev.	852 077						

Table 8. Total equity in USD, after treatment.

Appendix B

This table shows the logit equivalent results of the probit regression described in the methodology section.

	Bank loan for working capital (Yes/No)
Model	Logit
Fixed assets	0.0104*
	(0.00624)
Total sales	0.0189**
	(0.00841)
Equity	0.00923
	(0.00953)
Firm age	-0.00367
	(0.00967)
ROE	-0.0339*
	(0.0188)
Export orientation	0.00871
	(0.0442)
Experience of working capital shortage	0.0597***
	(0.0166)
Female-owned	-0.0233
	(0.0283)
Location in Addis Ababa	-0.0293
	(0.0179)
Constant	
Year fixed effects	Yes
Industry sector controls	Yes
Organization structure controls	Yes
Observations	2,288
Number of enterprises	1,609

Standard errors clustered on firm level in parentheses. Significance levels are indicated as *** p<0.01, ** p<0.05, * p<0.1. The reported values are average marginal effects.