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THE EFFECT OF ACCESS TO FINANCE ON FIRM PERFORMANCE: EVIDENCE FROM ETHIOPIA'S FIRMS

BY

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ACRONYMS

CCS- Credit Constrained Status

EAC- East African Community

EBIT- Earnings Before Interests and Taxes

EPS- Earnings Per Share

EVA- Economic Value Added

FCC- Full Credit Constrained

GMM- Generalized method of moments

GPM- Gross Profit Margin

MCC- Maybe Credit Constrained

MFIs- Micro Financial Institutions

MSEs- Micro and Small Enterprises

NBFIs- Non-Bank Financial Institutions

NCC- Non Credit Constrained

NFPMs- Non-Financial Performance Measurements

NOP- Net Operating Profitability

OLS- Ordinary Least Square

OPM- Operating Profit Margin

PCC- Partially Credit Constrained

PE- Public Equity

PPP- Poverty headcount Per Population

ROA-Return On Assets

ROE- Return On Equity

ROI-Returns On Investment

ROIC- Return On Invested Capital

ROTA- Return On Total Assets

SME- Small and Medium Enterprises

UCS- Underhill Corporate Solutions

UNIDO -United Nations Industrial Development Organization

VC- Venture Capital

Abstract

This paper aims to assess the effect of access to finance on firm performance measured by employment growth in Ethiopia. The study uses a firm-level data set from World Bank Enterprise surveys of Ethiopia in 2011 and 2015. The study used both subjective and objective measures of access to finance. The subjective measure is based on firm's ranking of access to finance constraint on their firm. The objective measure was obtained through different questions raised about firm's access to credit and loans. The study adopted both descriptive and econometric approaches. To address the potential endoginity bias between firm performance and access to finance, the study used instrumental variable (GMM) model. The results show that the constraint on access to finance has a significant negative effect on employment growth, and access to finance improves firm performance. The study also found that access to finance is affected by firm characteristics. Firms that are larger and older in age tend to have greater financial inclusion. These results show that the performance of firms can be greatly enhanced if firms had better access to finance. The study also recommends that policies and programs to improve access to finance for small and young business.

Key words: Firm capability, access to finance, firm performance, financial constraints; financial inclusion, employment growth Ethiopia Firm age, firm size

CHAPTER 1: INTRODUCTION

This section provides the background of the study followed by the statement of the problem, the objective, methodology, significance, scope, limitation and organization of the study.

1.1 Background of the study

The economic development history of mankind shows us that evolution from an agricultural to an industrial and finally to a service economy is an inevitable process for a specific country and even for the whole world. Economies tend to follow a developmental progression that takes them from a heavy reliance on agriculture and mining, toward the development of manufacturing and service sector. (Cheng 2013)

The dynamic role of manufacturing firms in developing countries, as engines through which the growth objectives of these countries can be achieved has long been recognized. Economic development cannot be achieved without the development of these firms. A developing country like Ethiopia should not ignore the role of manufacturing for the Economy. The industrial sector has a huge potential for creating job opportunities for the rapidly growing urban populations of developing countries. A well-developed industrial sector generates more foreign currency as compared to agricultural sector. So it has a huge role in solving the balance of payment problem. In addition to this Industrial sector has a positive forward and backward linkage. The sector creates backward linkage with agricultural sector by using local raw materials instead of using imported ones. The sector creates forward linkages with all sectors that assure markets for its products. That is why one of the major aim of developing nations, including Ethiopia, is industrial development at the center of which is manufacturing

Manufacturing firms are those that engage in the transformation of goods, materials or substances into new products. The transformation can be physical, chemical or mechanical. Manufacturing industry engages in the production of products for use or sale using labor and other machines and tools. As a country develops, the share manufacturing sector in its GDP increases as compared to the share of its agricultural sector. This is bound to happen in Ethiopia.

The service industry, also known as the tertiary sector, consists of companies or individuals who work to provide intangible products rather than tangible products. . Based on the United

nation's' International Standard Industrial Classification of All Economic Activities (ISIC Rev.4) service activities include wholesale and retail trade, hotels and restaurants, repairs, communications, social security, transport, storage, financial intermediation, real estate, social work , renting, and business activities, public administration and defense, education, health, and other community, social, and personal-service activities. Services can provide service directly to a consumer directly to another business to both.

The service sector has been identified has been identified as a sector with the ability to become a significant driver of sustained growth in Africa (O'Connell S 2014). The sector's contribution can be output, employment, and foreign exchange contributions. The fast growth of education, health, socio services, tourism, transport service, construction and related engineering services, wholesale and retail trade, hotel and restaurant sub-sectors is evident in Ethiopia. The sector employs an enormous number of people. Foreign exchange income is earned from service providers from various service sub-sectors such as communication, insurance, transportation, tourism and financial services.

Firms have become an important contributor to Ethiopia's economy. They contribute to the national objective by creating employment opportunities, output contribution and foreign exchange contribution. If proper emphasis is given to the manufacturing and service firms, they have a high potential to meet the objective they were meant to achieve. There are a number of constraining factors that affect firm's performance. These problems are generally related to finance, technology, market supply, input supply and other socio-economic factors. From these obstacles, the most serious obstacle is access to finance (Ayyagors, Demirguc-Kunt and Maksimovic, 2006)

1.2 Statement of the Problem

Improving the availability of financial services to firms is one of the incentives that have been proposed for stimulating firms 'growth. It is no doubt that firms' access to finance in developed countries is by far better than that in developing countries. With respects to financial development, many studies have shown that the African continent severely lags behind (Fowowe, 2017).

The literature on the links between access to finance and firm growth has produced a number of contrasting results. According to OCED, financing is important for firms because it helps in the expansion of operation, innovation and investing in production facilities and new staff. Most studies show that access to finance stimulates and fosters firm growth. However, some studies in developing countries have found no relationship between access to external funds and firm growth (Atandi and Wabwoba 2013). This study argues that access to credit or credit availability does not guarantee a bigger market share or better performance. Another researcher stated that this result might be due to misallocation of finance, i.e. in countries with weak regulation of financial institutions; external finance is allocated to politically well-connected firms with a low marginal return to capital (Fowowe, 2017). Some specific weaknesses of developing countries, such as poor institutions, insufficient financial competition due to political deadlock, and high inflation may result in a reverse relationship between finance and growth. (Lisa &Jacolin 2015)

These inconsistencies are at the center of a heated discussion on the causes and consequences of firm productivity. Thus, there is a growing interest in understanding how financial constraints affect firm productivity and performance. This paper's interest is studying the relationship of access to finance with firm's performance in Ethiopia.

Reviewed literature shows that to date, very little research has been conducted on the relationship between firm performance and access to finance in Ethiopia. Most of the existing literature on the relationship between finance and productivity focus on the role of financial development and are conducted at the macro level. Thus, there's a gap with respect to understanding the relationship between the indicated variables. The more research became specific the more we can identify specific components that better explain the role of access to finance and it's relation with firm performance. This study, therefore, seeks to bridge this gap by investigating the relationship between access to finance and firm performance in Ethiopia.

1.3 Objective of the study

The general objective of the study is to assess the relationship between access to finance and firm performance in Ethiopian manufacturing and service sectors. Specific objectives of the study are:

1- to identify factors that impedes or facilitate access to finance
2- to analyze whether access to finance affects firms in Ethiopia
3- *t*o evaluate how firm characters affect access to finance

1.4 significance of the study

The contributions of this study are: Firstly, it will solely focus on Ethiopian firms. It will provide new insights into understanding the behavior and performance of Ethiopian firms. This helps in addressing specific social, economic and political issues that affect access to finance in Ethiopia and it identifies its relationship with firm performance. Secondly, this study use objective measures of firms' access to finance. Thirdly, we use more direct ways to measure financial access like credit access, overdraft, saving account and loans. The significance of this study, therefore, lies on indicating the effect of access to finance on firm performance and the degree of their influence in order to inform firm owners, policy makers and Government officials.

1.5 Scope of the study

The study focuses on small, medium and large manufacturing and service firms in Ethiopia. The research uses data from enterprise survey of the World Bank in year 2011 and 2015. Even though there is no universally accepted definition for size of firms, this study delineates small, medium and large manufacturing firms by number of permanent employees. In this study, firms with 1-19 employees will be considered as small enterprises and firms with 20-100 employees and over 100 employees are called medium and large enterprises, respectively. Firm age in this study is delineated by firm age is to by number of years of formation. Young firms are all firms aged less than 6 years. Mature firms are firms whose age is between 6 and 15 years while older comprises of firms aged 16 years and above.

1.6 Limitation of the Study

An ideal measurement for firm performance combines both financial and non-financial measures. However, since we are constrained by data, this study will measure firm performance using firm growth, which is subsequently measured by employment growth. The use of employment growth as a proxy for firm growth is justified by data availability and lessons from

most studies that use output growth to measure productivity and employment growth to measure performance.

1.7 Organization of the Paper

The paper is organized in four parts. The first part focuses on introductory issues that includes background, problem statement, objectives, scope and limitation of the study. The second part discusses empirical and theoretical literature review. Chapter three discusses the data and methodology of the study. Chapter Four is where the data analysis and estimation part of the study will be discussed. Finally, in chapter five, the conclusion and policy implication part will

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This chapter examines theoretical and empirical studies that have been done in the area of access to finance and firm performance. Section 2.2 and Section 2.3 reviews the definition and measures of firm performance and access to finance, respectively. Section 2.4 deals with the theoretical literature, followed by section 2.5 and Section 2.6, which deals with sources and barriers of access to finance. Next, the role of institution with regard to access to finance is discussed. Finally, existing empirical literature from developed countries, developing countries and Ethiopia on the area of study that is discussed.

2.2 Definition and measures of firm performance

There are several conceptual and empirical challenges in the study of firm performance; it is difficult to choose how to quantify organizational performance given the multidimensionality issue of organizational performance. Different scholars define performance in so many different ways. Harash*etal*(2014) define it as the accomplishment of stated business objectives measured against known standards, completeness and cost. West and Fair (1996) defined performance as a function of an organization's ability to meet its objectives by exploiting the available resources in an efficient and effective way.

As Marimuthu states, performance refers to how well a firm can utilize its assets to generate profits (Marimuthu et al., 2009). Stoner (1996) also stated that profitability has been the most widely used measure of financial performance. Profitability can be expressed by ratios of gross profit margin, net profit and return on equity. He also stated that performance entails effectiveness which refers to the firm's ability to serve and produce what the market requires at a particular time and efficiency. According to Brown (1996), performance measures must focus attention on what makes, identifies and communicates the drivers of success, organizational learning and bases for assessment and rewards. Richard et al (2009) indicate that the performance of businesses involves three aspects of firm outcomes: financial performance, market performance and shareholder return.

In the previous literature, both financial and non-financial measures were used to describe firm performance. Currently managers have understood both financial and non-financial elements of performance(Weldeghiorgis2004),

Financial performance is an indicator of how profitable a company is relative to its total cost of assets. It can be calculated by its size of earnings or its economic outcome. As Erasmus(2008) puts financial performance is the process of measuring the results of a firm's policies and operations in monetary terms. Since financial measures focus mainly on number they may not fully indicate the whole story about firm's performance. However these measures are commonly used to evaluate performance. It identifies the financial strengths and weakness of a firm by establishing relationships between the items of the financial position and income statement, profitability, returns on equity and liquidity ratios(Erasmus 2008). According to Haber and Reichel (2005), financial measures are the simplest ways to measure performance.

Some examples of financial measures are profit, revenue, earnings per share (EPS), returns on investment (ROI), return on equity (ROE) and gross profit margin (GPM), net operating profitability (NOP), return on total assets (ROTA), return on invested capital (ROIC), earnings before interests and taxes (EBIT),return on assets (ROA), economic value added (EVA) and operating profit margin (OPM).

In recent years non-financial performance measures have been receiving growing attention among modern organizations. The restrictions of conventional financial performance calculations have brought the need of using non-financial performance calculations to provide additional information for managers (Al-Enizi et al. 2006).Using non-financial measures of firm performance can be helpful in the current volatile market. Financial measures fail to respond to developments in the technological and competitive environment(Drury et al., 1993). So non-financial measures will help in alleviating these kinds of shortcomings in measuring firm performance. Non-financial measures include the number of employees, market share, customers' referral rates, revenue per employee, employee's satisfaction, customers' satisfaction and social and environmental performance.

The ideal measure of firm performance would be a combination of both financial and non-financial measure (Fowowe, 2017).

2.3 Measures of access to finance

Access to finance is the ability of individuals or firms to obtain payment, insurance, credit, deposit, and other risk management services. Access to finance is also referred as the availability of supply of quality financial services at reasonable costs. This makes defining access to finance hard because, depending on what one considers 'quality' services and 'reasonable' costs, the measurement of access to finance needs to be altered accordingly. Since access to finance has many dimensions it is difficult to provide exact definition for this term. There is no unified conceptual framework to define and measure financial access. Even though plenty of studies have been conducted in this area, theoretical models and empirical evidence on the topic of access to finance has not yet resulted in a commonly accepted framework for data collection. This makes the data not comparable across countries and does not necessarily yield appropriate variables for model testing.

Firms can access finance by formal or informal financial intermediaries. Formal financial institutions are legally registered and licensed as financial institution by the central bank. We can state banks and specialized non-bank financial institutions (NBFIs) as an example of formal financial institution. Informal institutions are not legally registered at the national level.

As a report of World Bank (2012) indicates, access to finance can generally be defined as financial inclusion, or broad access to financial services. Access to finance can also be defined as an absence of price or non-price barriers in the use of financial services. It can be defined as the effective use of formal financial services by individuals and firms. There are customers who have access to finance but voluntarily avoid using it. That is why it is essential to differentiate between the use of and access to finance.

The best indicators of financial access in a perfect world would be the numbers of people, households, and firms saving, receiving credit, making payments, and using other financial products from various sources(Cull, Robert, and Xavier Giné 2004). But financial markets are affected by principal-agent problems. Adverse selection occurs because borrowers who are less likely to repay a loan seek out external finance more than those with more intention of repaying. In addition to this there is moral hazard; the borrowers may use finances in ways that are not consistent with the lenders interest (Stiglitz and Weiss 1981).

Financial market imperfections create financing gaps, and these financing gaps could limit firm growth when feasible projects could not be funded. The financing gap is the difference between the amount of funds firms require and the amount of funds that they receive(Predkiewicz 2012). The financing gap for firms is more serious in developing countries like Ethiopia.

2.4 Theoretical basis for financing and access for finance

2.4.1 The pecking order theory

The pecking order theory was developed on the assumption that there is asymmetry of information between internal stakeholders (owners and managers) and external funds providers of the firm, such as financial institutions (Myers &Majluf, 1984).

According to López-Gracia and Sogorb-Mira (2008), firms tend to meet their financing needs in the following pecking order: firstly, they utilize their available net profits; secondly, short-term financing; thirdly, long-term financing; and finally the attraction of new equity investors. Myers (1984) also stated firms will meet financing needs of the firm in a hierarchical fashion, preferring internal funds first, external debt next and external equity as a last resort. Even though firms prefer internal sources of funding over external sources, there is a limit to which internally generated funds can contribute to the growth of the firms.

In general, pecking order theory suggests that it is expected that firms with more internally generated funds and high liquidity tend to use less debt because they are willing to use internal funds when these are available (Al-Tally 2014). Pecking order theory postulates that there exists a negative or inverse correlation between profitability and leverage of firms, because the more profitable a firm gets, the less it requires borrowing or external equity. Hence the theory implies that only profitable firms can afford using less debt because they generate sufficient internal capital.

2.4.2 Finance growth theory

Finance growth theory states that as firms grow their financial needs and financial options change. The growth cycle model predicts that as a firm grows, it will gain access to venture capital (VC) as stage of the growth paradigm. This theory indicates that as firms age and become more experienced they will have less problem in assessing finance. So, problem related to access

to finance is more severe with small firms. This is because most small and young firms have no collateral and no track record. This theory states that the financial patterns of firms are a function of their age, size, and information. (Beger and Udell1998).

2.4.3 The trade-off theory

The trade-off theory states that the optimal debt financing level is established by a trade-off between the costs and advantages of borrowing, holding the company's assets and investment plans constant. Unlike pecking order theory, this theory assumes that there is an optimum capital structure that balances equity and debt (Myers, 1984).

Firms compare the optimal level of debt financing by balancing the tax advantage of additional debt financing and its bankruptcy costs. Myers' trade-off theory was useful and therefore widely accepted because it justifies why companies do not use excessive debt. (Myers 2001).

2.4.4 Financial Liberalization Theory

Financial liberalization theory was first brought to attention with the seminal work of McKinnon and Shaw (1973). Their hypothesis assumed that liberalization would be associated with higher real interest rates, stimulate savings which would lead to higher levels of investments and economic growth. Hence they suggested that liberalization of financial markets allows penetration of financial services among the poor population.

However, Allen & Santomero (1997) criticized financial liberalization theory. They stated that financial intermediaries are necessary because they are the facilitators of risk transfer and deal with an increasingly complex maze of financial instruments and markets. Since there is information asymmetry in the financial market, these intermediaries play a huge role on risk management. In addition to this, financial intermediaries reduce participation costs and the costs of learning about effectively using markets as well as participating in them on a day-to-day basis and this plays an important role in understanding the changes that have taken place.

2.4.5 Adverse Selection Theory

Under perfect financial markets, access to internal and external finance would be perfect substitutes. This implies that internal fund availability would not affect the firm's decision.

Informational asymmetry between lenders and borrowers is the main reason for the existence of financial market imperfections. These informational asymmetries occur because of unobserved misbehavior of borrowers (moral hazard) or adverse selection. Information asymmetry makes the cost of external financing higher than internal funding.

The adverse selection theory of financial institutions originates from the work of Stilglitz and Weiss (1981). Adverse selection occurs because lenders would like to identify the less risky borrowers who are most likely to repay their loans. In order to identify borrowers with high probability of repayment, banks are likely to use the interest rates that an individual is willing to pay to screen. However, borrowers willing to pay high-interest rates may on average be with worse risks; thus as the interest rate increases, the riskiness of those who also borrow increases, reducing the bank's profitability. Adverse selection arises because in the absence of perfect information about the borrower, an increase in interest rates encourages borrowers with the riskiest projects. That is the reason why interest rates do not necessarily clear the market.

2.4.6 Moral hazard theory

Stiglitz and Weiss (1981) show that higher interest rates induce firms to undertake projects with a lower probability of success but higher payoffs when they succeed, leading to the problem of moral hazard. Moral hazard occurs due to asymmetric information i.e. when one party has greater knowledge about a transaction than the other party. When there is asymmetric information in a transaction a change in the actions or behaviour of one party after the agreement moral hazard occurs. Since bank is not able to control all actions of borrowers, they create the loan contract to attract low risk borrowers. In general moral hazard occurs because projects have different degrees of risk, and lenders are unable to discern the borrowers' actions (Stiglitz and Weiss, 1981).

2.5 Sources of finance for firms

Finance is essential while implementing a new business or expanding a business. Every firm needs financial resources for product development, the company's formation, sales, promotion and other activities before it sells its first product or service. In any business, financial capital structure is a key component to success of the business if it is adequately used or managed.

Retained earnings are among the most important sources to finance new projects in emerging economies where capital markets are not well developed. However, firms in the start-up period, when initial investments have not matured yet or with investment projects substantially larger than their current earnings will not have enough financial means from retained earnings. So firms in this situation may look for other external financing sources.

In addition, internally generated finances have the highest opportunity cost (Lewellen and Lewellen, 2004) for the firm because detainment of profits can affect share holder trust, since it would otherwise have been distributed as dividend. The costs associated with external financing include legal, administrative and underwriting costs. External financing might also create conflict between creditors and shareholders as discussed by Jensen and Meckling (1976). Large cash reserves benefit managers as they provide solid internal financing which is cheaper than external sources. (Williamson, 1988)

While financial resources come in countless forms, types, and structures, two main basic types of financial resources informal and formal sources of finance. Informal source of finance refers to credit received from family savings, personal savings, friends, relatives and informal money lenders. Informal finance might be defined to embrace all financial transactions that take place beyond the functional scope of various countries' banking and other financial sector regulations (World Bank 2007). Formal form of finance is credit from commercial banks and other financial institutions which are termed as external sources. A formal financial institution is a registered business whose primary activity is provision of financial services. Formal financial institutions can be further classified as regulated or non-regulated. A financial institution is considered regulated when it is subject to regulation or supervision by a state regulator. As indicated by Cook and Nixson (2000), some of the types of formal financial institutions include, Commercial banks, Cooperatives, Specialized state financial institutions and Microfinance institutions

The informal finance from Family, friends, moneylenders, employees, the entrepreneur or business owner and close business associates have been the primary capital sources to launch new business. They are main sources of finance in Ethiopia and other developing countries. Even though this type of capital raising option generates smaller amount of loans as compared to the formal ones, small firms use them. This is because micro and small firms usually have no collateral and they present higher risks in terms of generating cash flow. In addition too poor or

incomplete business plans, if at all presented, make the task of assessing of the financial situation of such firms and their prospects for success difficult. Informal financial services still do represent a significant part of the financial dealings of poor people in general, not only in developing countries (Gebrehiwot and Wolday2006).

Micro finance- institutions are finance sources used by micro and small firms. They are used to finance companies that cannot be reached by formal banking sectors. Most micro credit movement and literature has focused on production credit movement and has focused on production credit for household enterprise or microenterprises. This industry has proved to be a reliable delivery vehicle for financial services to small and medium enterprises (SME's).

As indicated by Tracy and Tracy (2009) in the business world, a large number of private capital sources are available and include such sources as venture capitalists, investment bankers and similar types of private investment groups. A firm can also utilize creative forms of unsecured financing from vendors, partners, customers, and so on to provide a real source of capital

Another common source of finance is formal debt capital sources including banks, leasing companies, government-backed programs, asset-based lenders, factoring companies. Since these groups are profit seekers they usually require collateral for lending security, to ensure that the borrowed amount and its interest will be repaid.

Governments, universities, and non-profit organizations have resources available in the form of grants, low interest rate loans (with limited downside risk), incentive credits, and so on, which are intended to be used for special interests or purposes. These finances are provided for orgznizations that will use it for best interest of the general public (Tracy and Tracy, 2009)

Equity finance is a form of financing in which shares are issued for investors. In this form of financing investors acquire an ownership in the company. Equity can be raised from a variety of sources, which generally differ according to the size of the individual investments.

Venture capital investment is by a personnel who is not the owner of the company. Unlike other forms of debts, venture capitalists provide equity capital and sharing risks. Venture Capital investors share risks, hence, unlike banks, get actively involved in the functioning of the firm, from management to operations. Given their knowledge gained from investing in other

companies with similar growth challenges, venture capitalists can help their investees in overcoming the specific bottlenecks that hamper their performance (Abdulsaleh& Worthington 2013).

Many studies provide state that banks are the major providers of funds to small and medium enterprises in developed countries (Badulescu 2010). But this is not the case in developing countries. Demirguc-Kunt&Peria (2008) showed that small and medium enterprises in developing countries do not have access to credit from banks. Even when they do, due to high interest rates and provision of collateral as requirements and other transaction costs discourage these firms from accessing finance from banks.

Trade credit is the most popular alternative source of finance in countries with weak legal environments (Klapper2006). A large fraction of firms in the developing economies rely on informal financing such as trade credit (McMillan and Woodruff 1999; Cull, Xu, and Zhu 2009). Trade credit financing is when firms buy goods instead of paying immediately the firms pay the suppliers after some period of time. (Bakker, Klapper, &Udell, 2004). Even in developed countries, trade credit firms with suppliers' trade credit are less prone to input shortages(Emery 1987). Thi, Malitz, and Ravid (1993) argue that trade credit can help guarantee input quality, thereby enhancing product quality.

Leasing is an agreement whereby one party provides the right on an asset in return for payment or series of payments, for an agreed-upon period of time(Idrissa, 2016).

Well-developed non-bank financial institutions can provide external financing and help improve the risk and maturity profile of corporations' external financing. Non-bank finance capital markets, insurance, contractual savings, mortgage finance, financial leasing, and factoring can serve as an important source of finance for the real sector. However, to date, these forms of external financing are relatively non-existent and underdeveloped in Ethiopia(Firewoini 2016).

Recent technologies have made finance more accessible by helping with information asymmetry. Capital markets or stock markets are the most sophisticated phase in the evolution of any financial sector. The primary market is where companies sell shares to the general public in an initial public offering to raise capital. Once new securities have been sold in the primary market, they are traded in the secondary market. The secondary market or the stock exchanges are

regulated by the regulatory authority. Capital markets ensure fair pricing practices and transparency in transactions.

2.6 Barriers of accessing finance

Lack of access to financial services is one of the main constraints to firm's growth and a number of factors have been identified to explain this problem. World Bank's report [1](2008) indicates that in what form, from whom, how successfully and at what cost firms are financed thus depends on both internal and external factors of the firm.

Firm-specific factors that influence access to financing are mainly size, age and location of an enterprise. Smaller businesses have less access to debt financing than bigger ones because smaller firms are considered as the riskiest. In addition to that, smaller businesses most likely cannot afford collateral requirements. It is also stated that smaller enterprises struggle to maintain a reliable book keeping and they do not have audited financial statements (Schiffer&Weder, 2002).

The simplest way to look at the firm age is to count the number of years of formation (Ezeoha& Botha, 2012). Older firm may have more experiences of acquiring loans and so they are likely to get more loans than new and younger firms. That is why younger firms struggle in getting loans as compared to older ones. In addition, younger firms lack experience and have higher mortality rates.So, financial institutions consider small firms as riskier than larger firms (Le, 2012).

Location is another firm's factor that can influence access to finance. Kira and He (2012) concluded that the closer the firm to the lender, the higher the debt ratio. This is because location has influence on both the cost and availability of finance.

Financial factors that influence performance in accessing finance are, collateral and quality of financial reporting. Since collateral acts as a signal enabling the lender to mitigate or eliminate the adverse selection problem caused by the existence of information asymmetries between the bank and the borrower at the time of the loan decision, lenders prefer to lend to firms with large collateral properties. Moreover, empirical evidences suggest that there is a relationship between a

[1](Finance for all, policies and pitfalls in extending access)

firm's performance and its access to credit (Lourenço& Oliveira 2017). Audited financial statements and quality financial reports reduce risk for lenders (Claude, and Mang'oka2016).

Manager/Owner factors that influence access to finance are manager/owner education, skills, and awareness of financing opportunities. According to the Underhill Corporate Solutions (UCS, 2011), manager's competencies highly affect owners success in debt financing. Manager's gender has also been mentioned as a factor that can influence the capital structure of a firm (Barno, 2017).Access to finance depends on the firm entrepreneurs' own ability and other external factors. The owner's capability to project a credible financial proposal, their willingness to share control, the nature of their business plan and the uncertainty and risks involved in implementing it matters in accessing finance. Literatures have studied gender, age and education level as main owner/manager characteristics that affect credit access. (Abdulsaleh& Worthington, 2013,Nguyen &Luu, 2013; Moritz, Block, & Heinz, 2016).

In addition to firm, financial and owner related factors in most developing countries there is some high supply side problems to accessing finance. Commercial banks require the following in securing loans: application fees, processing fees, monitoring fees, insurance and compulsory savings which has contributed to high and multiple transaction costs. The banks also give loans at a very high interest rate. This shows that the cost of accessing credit in most developing countries is high (Dondo A. 2003).In South Africa Eeden (2004) stated that the problem related to finance includes lack of information on where to source for finance, restrictive lending offered by commercial banks, lack of access to finance, insufficient financing, lack of track record required by the banks and limited access to collateral.

Ngobo (2006), makes a detailed analysis of finance as a constraining factor and includes collateral, interest rates, extra bank charges, inability to evaluate financial proposals and lack of financial management skills as hindrances to small enterprise growth. Berger and Udell (2004) argued that the differences in the financial institution structure and lending infrastructure may significantly affect the availability of funds. In addition, segmented and incomplete nature of financial markets, which increases transaction costs, is one of the barriers to access to finance. Most studies point to finance as one of the key constraints to firm growth. This is worsened by the underdevelopment of financial markets in the developing countries.

2.7 Role of institutions in access to finance

World Bank in its report (2008) pointed out that given the evidence, financial access varies widely around the world and the expanding access remains an important challenge even in advanced economies. Government has an extensive role in supporting, regulating and sometimes directly intervening in the provision of financial services to address these market failures and information gaps. But it is known that by regulation government can impose either negative or positive effects. Since the economic environment is complex, even well intentioned policies might end up having negative consequences. Policy success depends on institutional quality (Borth, Coprio, and Levine 2006). Financial institutions connect surplus spenders to those in deficit within an economical space (Ndebbio 2014). Since financial institutions are able to monitor borrowers', investors will consider purchasing the secondary investment financial assets from these intermediaries and are willing to pay for the service fees charged rather than just lend their money directly to the deficit units (Diamond , 1984). Financial intermediation plays a vital role in economic development through enabling private sector to invest in productive capacity. This intermediaries or financial institutions contribute to overall economic growth by allocating funds efficiently within an economy. Shen et al (2009) have stated that the level of law enforcement affects this financial institution's willingness to lend.

In Ethiopia where access to credit is rated to be very low, the government has got role of creating credit registries, or private sector can play a greater role in forming credit registries. Even where the operation and ownership registry is left to the private sector, government actions strongly influence the ability of registries to function. There may be some advantages in having some banks under state ownership; for example, the lending behaviour of state-owned banks may be less sensitive to business-cycle effects (Bertay, 2015). However, the international survey by Megginson (2005) indicates that state-owned banks are relatively inefficient because they have greater default. Tehulu and Olana (2014) stated that default rate in state owned financial institutions are higher in Ethiopia.

Petra (2005) stated that good corporate governance aims at increasing efficiency and effectiveness of organizations and their enhanced ability to create wealth for shareholders, increase employment opportunities with better terms for workers and benefits to stakeholders.

The macroeconomic literature clearly shows us the importance of institutions in explaining longer run growth patterns. In order to support financial institutions to operate in their maximum capability, it is important to build long term effective institution. Altunbas, &Bazzana (2014) stated that firms may prefer to use informal sources of finance to avoid the complexities involved in using formal sources. Informal credit is higher in countries where legal procedures are long or complicated. So adjusting institution in direction that clearly helps improve the functioning of finance is likely to be a highly effective pro-growth strategy.

2.8 Empirical Literatures on Access to Finance and firm performance

2.8.1 Empirical Literatures in developed countries

Firm's ability to generate finance internally and secure external finance are one of the main factors that determine firm's performance (Aminu & Shariff 2014). Studies showed that since internal funds are not sufficient to the growth of a firm, firms need external finance. These studies argue that access to formal finance is important for firm's survival and operation. It also enhances firms' performance while low access to finance reduces the growth of firms. Most studies agree that better developed financial systems foster the growth of firms (Hsieh &Klenow, 2014; Kalemli-Ozcan& Sorensen, 2012; Midrigan& Xu, 2014; Moll, 2014; Atsede, Mwita, &Saidimu, 2012, Rahaman, 2011)

There have also been many microeconomic studies which showed that finance exerts a positive effect on the growth of firms. Schiantarelli and Sembenelli (1999) used data on firms in the UK and Italy to show that the performance of firms improves with a long-term loans.

Accessing to financial resources is seen as one of the important factors in improving firm performance and inadequate finance limits firm performance (Malhotra et al., 2005). Chen and Guariglia (2013) found that the performance of these firms is positively affected by access to finance using data from industrial firms in China over the period 2001-2007,

Ferrando and Ruggieri (2015) found that lack of access to external finance negatively affects labour productivity and hence firm performance. Financing constraints cause distortions and major productivity loss in firms.

Midrigan and Xu (2014) showed that performance would rise two fold if poor countries were to improve access to credit to the level of USA. Ayyagari et al. (2007) showed that firm's productivity and growth increases at a faster rate if they have access to external financing. In a study, Radulescu (2010) for 28 Eastern European and the former Soviet Union countries, and in other studies, Bruhn (2009) for Latin America and Aterido et al (2007) for 107 countries generally argue that access to formal credit enhances firms' performance

Buera, Kaboski, and Shin (2009), observed large productivity differences arising from financial frictions that distort allocation of capital across heterogeneous firms causing misallocation. Gopinath, Kalemli-Ozcan, Moll (2014) studied the effect of collateral constraint on capital allocation across heterogeneous firms. They find large productivity losses associated with financial frictions. Firms with poor or no access to financial capital are constrained to execute their task and achieve the planned firm performance.

Even though most studies agree that access to finance induces firm productivity and performance, there are still other studies that contradict these findings. Alvarez &Busenitz(2007) stated that even though finance is a prominent element that increases performance, the entrepreneurial ability to exploit available financial resources is really important. Moreno-Badia and Slootmaekers (2009) showed that financial constraint does not affect performance in most of the sectors except in research and development.

Nunes et al., (2007) showed that access to finance affects labour productivity negatively in a study of Portuguese firms. Using data on Italian firms, Nucci et al., (2005) found that the firm performance is negatively affected by external funding using data on Italian firms.

In some research it was shown that the relationship between firm growth and access to funds was negatively limited by the levels of internal funds (Carpenter & Petersen, 2002 and Chen &Guariglia, 2013; Foster et al., 2008;Bartelsman&Doms, 2000, Jovanovic, 1982, Hopenhayn, 1992, and Melitz, 2003). They argue thatit's the reallocation of output or market shares from low productivity firms to more productive ones through entry or exit that is driving aggregate productivity. These studies stress the productive and allocative efficiency as the main sources of firm performance differences rather than credit constraints.

Other studies show that there was no association existing between access to external funds and firm growth (Allen et al., 2012 and Beck, Lu, & Yang, 2015). These differences stem from a number of factors including the ways in which financial access of firms are measured.

2.8.2 Empirical Literatures in developing countries

Firms identify financing as their top most obstacles to growth and investment. High budget deficits and unstable exchange rates, and legal, regulatory and administrative environment pose major obstacles to access to financing (Kinyanjui, 2006).

The literatures differ in their views of the links between firm performance and access to finance. In 2008, the World Bank report acknowledged that fewer than half the population in developing countries has access to finance. This absence of adequate access to credit is not only experienced by individuals but firms as well. According to OCED, financing is important for firms because it helps in investing in production facilities and employees. Some studies show that access to finance stimulates and fosters firm growth (Girma and Vencappa 2015). McKenzie and Woodruff (2008), Moll (2014), Midrigan and Xu (2014), Buera and Shin (2013),Buera et al (2011), De Mel et al. (2008),and Udry & Anagol (2006), have observed large productivity differences across firms suggesting misallocation due to financial market imperfections.

The binding constraints for many large formal firms in Africa are access to finance and to electricity (World Bank 2010). Credit constraint is a larger problem for African countries than for countries in other developing regions. This is because African countries lag behind in financial development (Allen, 2011). Evans and Jovanovic (1989) have shown that liquidity constraints and capital market imperfections tend to perpetuate inequality among individuals, firms and across countries through selection and entry in production. Slow growth of firms in Africa has been explained as being the result of lack of access to financial resources (McCormick et al. 1997)

Using World Bank survey data from Bulgaria, Gatti and Love (2008) estimated the effect of access to finance on firm performance. The results obtained indicate that access to credit affects performance positively.

Harelimana (2017) reports that access to finance by businesses improves their profitability and efficiency, prevents liquidity problems, improves solvency as well as increasing asset quality. This indicates that firms which access finance, especially bank loan, are likely to perform better than other businesses that have limited financial access.

Micro-level evidence shows that relative to developed countries, borrowing and interest rate spreads faced by firms in underdeveloped countries are large and dispersed. In addition, the collateral requirement in developing countries is comparatively higher. (Beck, 2007; Beck & Demirguc-Kunt, 2006).

Inadequate access to finance was the main reasons for poor performance of firms in Nigeria (SMEDAN, 2012). Obembe (2011) studied the effect of financial constraints on firm performance in 76 listed firms. The results obtained showed that access to finance have a significant positive effect on the productivity of firms. As Ishengoma & Kappel (2008) revealed, the factors hindering the potential growth of firms in sub Saharan countries are limited access to credit and market.

Fowowe (2017) has shown that firms grow faster when they have adequate financial access using 10,888 firms in 30 African nations. Using data from 105 countries in all regions, Hallward-Driemeier and Aterido (2009) found that managers of small firms are more likely to say that access to finance is a serious constraint than managers of large firms. Studies that showed access to finance is necessary for improving firm performance(Beck, Demirgüç Kunt, and Maksimovic (2005).

Buyinza and Bbaale (2013) studied the effect of credit constraints on firms' productivity in the East African countries using the World Bank (2006) enterprise survey. Their study showed that access to loan increases firms' performance, while an increase in the annual interest rate reduces firms' productivity using simple probit, simple OLS, Tobit, and a two-step probit model. Rotich et al. (2015)showed that increasing access to credit results in the increased productivity of small and micro enterprises in Kenya.

On the other hand , some studies in developing countries have found no relationship between access to finance and firm growth. Atandi and Wabwoba (2013) showed that financial access does not guarantee a bigger market share or better performance. One possible reason for this

finding is that under weak regulation of financial institutions, finance is allocated to politically well-connected firms with a low marginal return to capital (Fowowe, 2017).

Obembe (2011) found that increase in access to finance makes firms incompetent by using World Bank Enterprise Survey for firms in Ghana. Ferdinand and Dasmani (2010) used 2007 data from the World Bank Enterprise Survey to calculate firm level efficiency scores for 270 firms in Ghana. The study concluded that access to finance decreases firm performance.

This result might be due to the fact that financial markets, in many low income economies are characterized by frictions and under development (Wurgler 2000)

2.8.3 Empirical Literatures in Ethiopia

Ethiopia is one of the developing countries with highest poverty rates in the world. However between 2000 and 2011, Ethiopian households have experienced a remarkable progress and the country has seen a 33 percent reduction in the share of the population living in poverty. Although the economic conditions are improving, similar to most developing countries the financial sector of the country is not fully developed yet.

There is a shortage of loan funds in Ethiopia. This used to be, to a certain extent, the result of Government regulations that obliged private commercial banks to buy government bonds equivalent to 27% of each loan made (IFC Getting Credit indicator, 2014)[2]. The second constraint to access to finance is high collateral requirements (120%) (World Economic Forum, 2014). The third hampering element is the fact that international supplier credit is rarely allowed (Firewoini 2016).

Access to finance is a top obstacle in Ethiopia as compared to global comparators. Ethiopia ranks 165 out of 189 in the ease of getting credit compared to the Sub Saharan countries average ranking of 122 and well-performing peers such as Rwanda which ranks 4 of 189 economies.

Fafchamps (2000) found that firms in China and Vietnam have better access to credit than firms in Ethiopia, Tanzania, and Zambia. Firms in the East Asian countries were more likely to purchase inputs on credit and were more likely to finance investment with bank loans.

[2] This regulation was lifted recently in(November, 2019)

In Ethiopia, Formal financing, whether from banks or non-bank financial institutions, plays a limited role in financing enterprises. The dependence on internal finance indicates that firms in Ethiopia are unable to take advantage of growth opportunities, with negative ramifications for overall economic and employment growth. Despite a growing number of financial institutions in Ethiopia, access to credit is still below the country's investment needs. To meet the objective for which these private enterprises are established, mainly this challenge should be alleviated (Firewoini 2016).

Rijkers and others (2010) find that better access to finance improves firm performance in Ethiopian manufacturing firms. There are many other studies that have shown that firms that have overcome their financial constraints are able to improve their firm performance (Sleuwaegen & Goedhuys, 2002, Masakure et al., 2008; Beck et al., 2006).

Eshetu and Zeleke (2008) conducted a longitudinal study (1996-2001) to assess the impact of influential factors that affect the long term survival and viability of small enterprises by using a random sample of 500 micro and small enterprises in Ethiopia. According to this research, one of the factors that affects the long term survival of these Ethiopian firms was adequacy of finance.

Gebreeyesus (2007) argues that firm growth is positively correlated with external source of finance. A study by Haile et al. (2014) revealed that access to credit, infrastructures and working premises are significant factors affecting the growth of micro and small enterprise (MSEs). In spite of the importance of the micro and small enterprise (MSE) sector to the national economy in Ethiopia, the sector is facing financial challenges, which impeded its role in the economy. (Gebrehiwot and Wolday, 2006).

There is only a small set of studies that shows the effect of access to finance on firms' performance in Ethiopia. Most of the existing literature on the relationship between finance and productivity focus on the role of financial development. In addition these most of these studies are conducted at the macro level. The more research became specific the more we can identify specific components that better explain the role of access to finance and it's relation with firm performance.

CHAPTER 3: DATA AND METHODOLOGY

3.1 Introduction

This chapter outlines the data, research design and methodology that were followed in conducting this study. It provides an in-depth breakdown of the empirical steps that are adapted from existing research around access to finance and firm performance. Section 3.2 covers data types and sources. The dependant, independent, and control variables are covered on the next three sections. In the final section, the model to be used for this study is explained.

3.2 Data

The data used for this study come from the World Bank Enterprise Surveys containing more than130, 000 firms in 125 countries from 2006–2015. From the enterprise survey, for this study we used a data of 644firms in 2011 and848 firms in 2015 in Ethiopia. The large, randomly selected samples of firms allow for results to be compared across different types of firms. The Enterprise Surveys focus on the factors that shape the business environment including corruption, crime, finance, firm characteristics, gender, informality, infrastructure, performance, regulation and taxes, trade, workforce innovation and technology.

The survey comprises a sample of firms stratified by industry i.e. rubber, chemicals, textiles, garments, information technology services, leather goods, wholesale trade, retail trade, wood, paper, plastics and, furniture, electronics, chemicals, hotel and restaurant services, transport services, and motor vehicle services, size (1-19 employees, 20-100 employees and over 100 employees), and region. The regions are Addis Ababa, Amhara, Dire-Dawa, Oromia, the Southern Nations, Nationalities and Peoples' Region, and Tigray.

The enterprise survey contains very detailed information on firm performance and disaggregated objective indictors of a wide variety of business environment indicators. The data of the survey used both subjective and objective information in the questionnaire. These questionnaires are answered by business owners and top managers of non-agricultural formal private economy. The subjective evaluations show the obstacles that firms face. In the questionnaire the firms rank 16 components of the business environment based on their impact on their performance. The

objective measure of access to finance measures firms access to credit through questions about credits, overdraft and saving accounts.

This study looks at the effect of access to finance on firm performance of firms in Ethiopia. The study compares how severe the impact gets as firm size and age increases.Some of the techniques that are applied in this research are tables, graphs and percentages. In addition to the descriptive technique, econometric analysis will be adopted for the empirical analysis of data.

3.3 Data description and Summary Statics

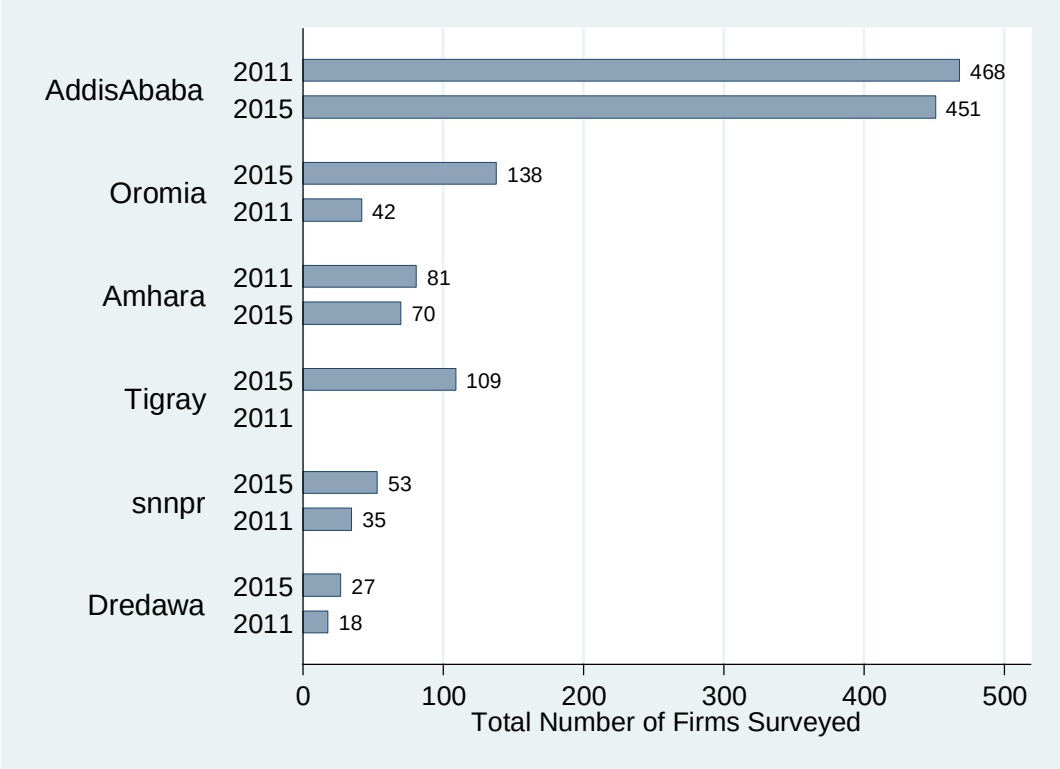
This section provides summary statistics for the data used in this study, including the measures for local financial development and growth opportunities.

Breakdown of firms in the sample across regions indicates that there is a variation in the samples taken from each region. The mean number of sample firms in each region was 248, while actual figures vary by regions. Addis Ababa has the largest number of firms (468 &451) representing 72.67% and 53.89% in the sample. Some regions have a lower representation than others; Dire-Dawa constitutes only 3.18% of the total sample in 2015. The remaining regions i.e., Amhara, Oromia, SNNPR and Tigray constitute the remaining 27.32 &42.93% in 2011 and 2015, respectively.

Table 1: Summary of firms in the sample (No of firms and percentage)

Region	No. of firms	Percent
Addis Ababa	925	62.00
Amhara	150	10.05
Dredawa	45	3.02
Oromia	175	11.73
Snnpr	88	5.90
Tigray	109	7.31
Total	1,492	100.00

Figure 1 Summary of sample taken by region



The surveyed firms consisted of both manufacturing and service sector. The manufacturing sector constituted 42.85% and 78.4% of the total sample in 2011 and 2015.The remaining samples were of service firms. The majority of the sampled firms were from Addis Ababa constituting of 62% of the total. The lowest sample was taken from Diredawa.

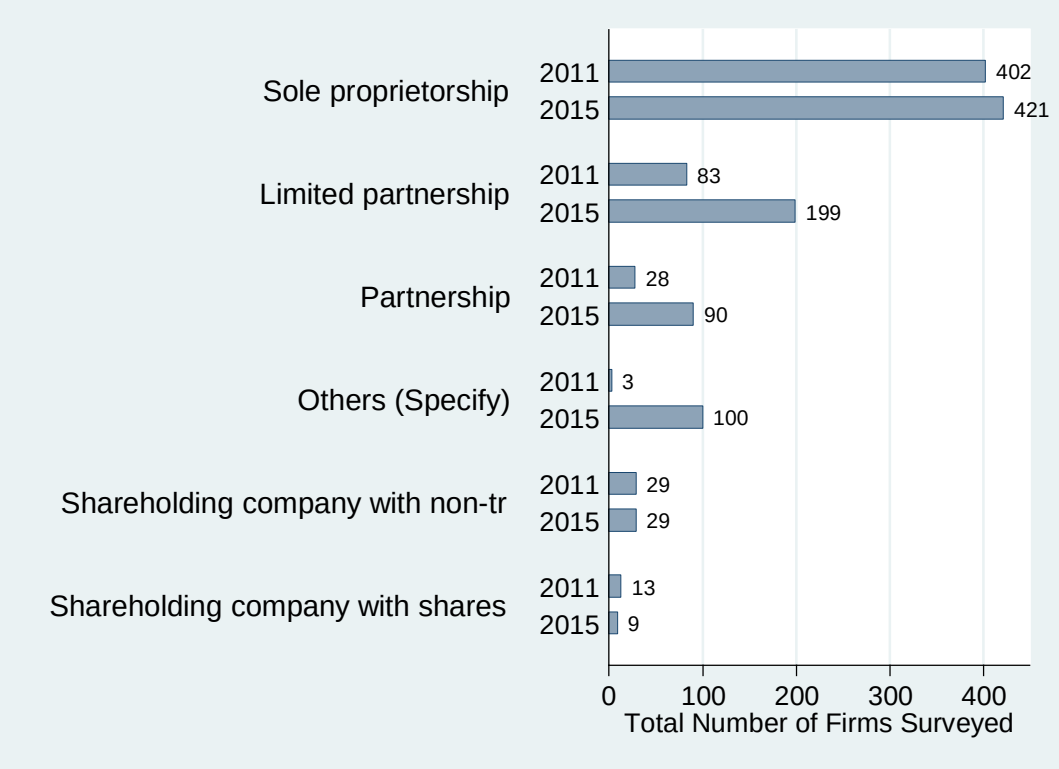
The largest sample taken from the 2011 survey was of the retail subsector constituting of 25% of the total sample. Wholesale and retail trade make up most of the sample firms taken in 2015 making up 28.4%, totaling 214 firms. IT services, wood, paper, electronics, precision, recycling and tobacco constituted only 5.5% of the total sample in 2015. From the service sector the largest number firms taken was from hotel and restaurant services.

Table 2 Summary of sample taken by Product/Service type

Product/Service type	Total number of firms surveyed (2011)	Total number of firms surveyed (2015)	Percentage from the Total Sample
Wholesale trade	44	124	11.26%
Retail trade	161	117	18.63%
Transport services	31	96	8.51%
Non metal	13	77	6.03%
Food	58	76	8.98%
Hotel and restaurant services	29	50	5.29%
Garments	12	45	3.82%
Textiles	12	42	3.62%
Construction	20	35	3.69%
Publishing	0	29	1.94%
Services	17	26	2.88%
Basic merchandize	27	23	3.35%
Plastics	32	21	3.55%
Chemical	29	17	3.08%
Furniture	13	12	1.68%
Fabrication	15	11	1.74%
Machinery	17	11	1.88%
IT services	12	9	1.41%
Wood	13	9	1.47%
Paper	13	8	1.41%
Electronics	6	5	0.74%
Precision	1	2	0.20%
Recycling	1	2	0.20%
Tobacco	1	1	0.13%
Leather	26	0	1.74%
Recorder	41	0	2.75%

From our total sample 48.13% & 16.98 % of firms in our sample were micro and small firms (1 to 19 employees), 32.47% &70.14 % were medium (20 to 100 employees) and only 19.4% &12.85 % were large firms (more than 100 employees) in 2011 and 2015 respectively. In both surveys, ten percent of these firms were outward-looking, exporting either directly or indirectly. Main market for establishment's main product for 38.97% and 41.5 % of these firms was the local and national markets in 2011 and 2015. In terms of ownership 45% was partly or fully foreign owned in 2011 while only 10% were foreign owned in the 2015 survey. Thirty six percent of these firms were owned by female and the top managers for eight percent of these firms were women in 2015. As can be seen from the graph below the majority of these firms were owned by individuals (sole proprietorship).

Figure 2 Summary of sample taken by Legal Status (ownership) of the Firm

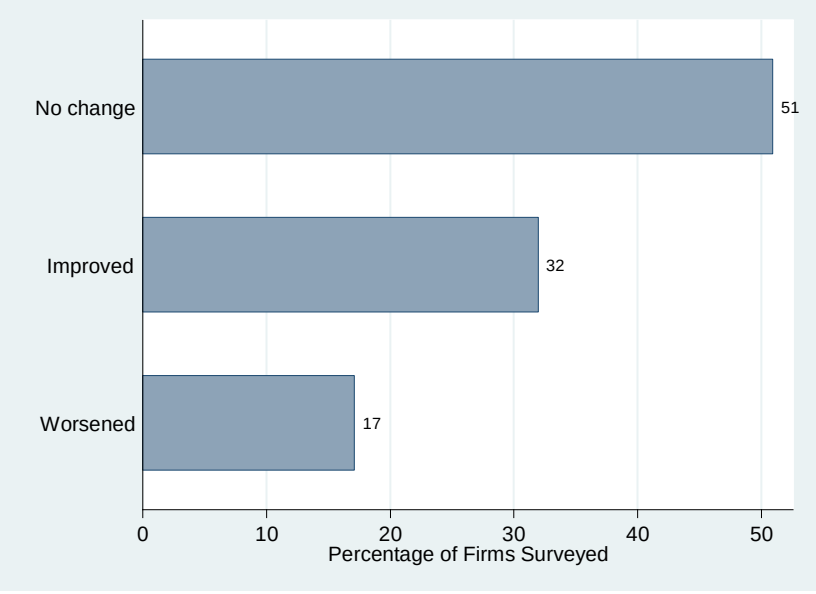


Approximately 74% of firms in our sample did not have overdraft facilities. Moreover, 83% and 58% did not have a line of credit or loan from a financial institution in 2011 and 2015 respectively. Approximately 7% of the total surveyed firms did not have checking/savings accounts. Most firms finance their working capital (94% &96%) from Internal Funds/Retained

Earnings. On the contrary, only 34% and 36% of these firms finance fixed assets by Internal Funds/Retained Earnings. Most of these firms finance fixed capital mainly through Owners' Contributions or Issued New Equity and Borrowing from private banks and state-owned banks. From the total sample taken 44% and 34% of the establishments stated that the main reason why they did not apply for new loans or new lines of credit was that they were requested a collateral worth from 200,000 to 777,000,000 for their most recent Credit/Loan. Among the surveyed firms 32% percent in 2015 believed that their access to external finance has improved over the last three years but 17% believed that it has become worse, while the majority (51%) reported no change (see Figure 3).

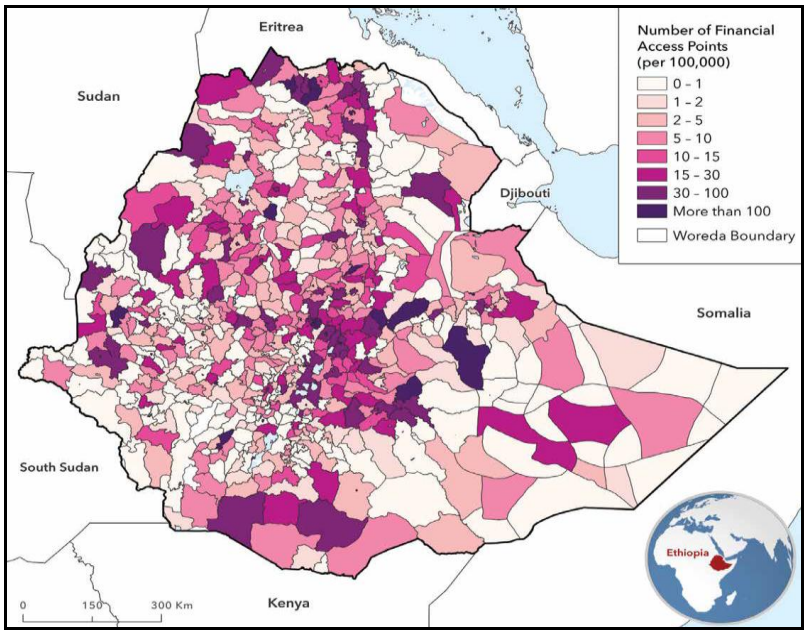
However, access to finance in Ethiopia greatly differs geographically – i.e., across administrative regions and woredas (see Figure 4). World Bank (2020) defines a financial access as a contact point that offers access to a formal financial service. These include but are not limited to bank branches, bank agents, microfinance institution branches, microfinance institution agents, automated-teller machines, mobile money agents, and point-of-sale terminals. Generally, firms in urban areas such as Addis Ababa and Dire Dawa have much better access to finance than those located elsewhere (World Bank, 2020). For this reason, the empirical/regression analysis (see Section 4.3) controls for regions.

Figure 3 Change in access to external finance



Note: this reflects change in access to external finance over three years, as of 2015.

Figure 4 Access to Finance (Number of "Financial Access Points" by Region/Woreda)



Source: World Bank (2020)

3.4 Methodology

3.4.1 Research design

The study uses firm survey collected by World Bank in 2011 and 2015 to establish the effect of access to finance on firm performance in Ethiopia. The study population involved 644 and 848 businesses in 2011 and 2015 in Ethiopia. The study comprises all small, medium and large enterprises.

To figure out whether the firms had access to finance or not, the questioner asks questions indicating the most popular source of finance these businesses have been using, whether these firms had access to finance and the problems they faced regarding access to finance. The firms were asked the percentage of working capital and fixed capital financed through internal funds (retained earnings), borrowed from banks and non-financial institutions, advanced from suppliers or customers, issuing new equity and other ways through which they have financed their working capital (i.e. Money Lenders, Friends, Relatives, Etc)

The paper seeks to identify the impact of access to finance on performance of firms in Ethiopia. In the model employment growth is the dependent variable and the explanatory variables are variables measuring participation in financial markets and access to finance constraints. Additional variables measuring regulation, ownership, experience, competition, corruption and firm characteristics are included as control variables.

3.4.2 Data analysis

With simultaneous control of other variables such as: regulation, corruption, ownership, experience, competition, business size and age, this study tests the effect of access to finance on performance of firms and also the effects of firm characteristics i.e. firm age and size affects access to finance.

The data is extracted from enterprise survey of World Bank (2011 &2015).The analysis of data will be performed using STATA in order to summarize the data and to allow quick interpretation of results. This software was chosen because it provided comprehensive statistical capabilities as well as features that make easier to access and manage data, select and perform analysis.

Regression analysis will be conducted to determine the joint effect of the independent variables on the predicted variable. The Ordinary Least Square (OLS) estimation technique was used to determine the link between access to credit and business performance. Finally, from the premises indicated in the analysis and discussion the research derives finding and conclusion which in turn helps to recommend the possible action to be taken.

3.5. Dependent variable: performance of firms

In this study we measure firm performance using employment growth. Employment growth is calculated as the log difference between the current number of permanent employees and the number of permanent employees three years before the survey year, divided by the difference between the survey years.

This is given as: $FGit= (lnN_{it}–lnN_{i,t-3})/3$

Where: FG_{it} is firm growth measured by employment growth,

- N_{it} firm size, represented by permanent employment.

3.6. Independent variable: Access to finance variables

This paper's aim is to find out how access to finance affects the performance of Ethiopian firms. In order to achieve this, this paper determines a means to measure access to finance among firms taking a cue from existing research. Our measure of access to finance constraints is a composition of both subjective and objective measure. The subjective measure is obtained from the respondents' ranking of the business environment constraints. The subjective measured is ranked from 1-5, 1= No obstacle, 2= Minor obstacle 3= Moderate obstacle 4= Major obstacle and 5= Severe obstacle

Our objective measure of firm performance uses the definition used by Fowowe (2017). In this definition four groups that measure the extent to which firms were credit constrained were Full Credit Constrained (FCC), Partially Credit Constrained (PCC), Maybe Credit Constrained (MCC), and Non Credit Constrained (NCC).

Full Credit Constrained (FCC) groups were a group of firms who applied for loan and were rejected that was they did not use external sources of finance for both working capital and investments during the previous year.

Partially Credit Constrained (PCC) groups meet the following conditions; First, These groups of firms have loan outstanding at the time of the survey and/or used external form of financing, In addition, these firms either did not apply for loan in the previous year for reasons other than having enough capital or firms who applied for loan but were rejected.

Firms in the Maybe Credit Constrained (MCC) group have had access to external finance and there was evidence of having bank finance. These firms include firms that have a loan outstanding at the time of the survey and firms that applied for a loan during the previous fiscal year.

The Non-Credit Constrained (NCC) group consists of firms that did not apply for loan in the previous loan because they have enough capital.

Credit Constrained Status (CCS) is created based on the above description for which: 1 = FCC, 2 = PCC, 3 = MCC, 4 = NCC. Hence the higher values of CCS denote lower constraint or higher access to finance.

The objective data is measured by two variables of access to finance. The first variable,

- **Credit**, is a dummy variable with value of 1 if the firm has a loan or credit line, and 0 otherwise. Credit looks if the firms have an arrangement with a bank or financial institution establishing a maximum limit that the firms can borrow in their course of work.
- **Overdraft** is a dummy variable which with value of 1 if the firm has an overdraft facility and 0 otherwise. The overdraft facilities will identify if firms are allowed to draw more than their current account holds.

Credit line and overdraft are directly associated with firm performance, i.e. firm with higher Credit line and overdraft have better access to finance.

3.7. Control variables

Firms operate within a business environment and are thus affected by it. There are variables which are the control variable under business environment are characteristics that affect the performance of firms. In order to measure the impact of access to finance constraint it is important to control for general business conditions, country controls and firm characteristics. In estimating the effect of access to finance on firm performance we will need to control for a range of firm characteristics, market conditions and regulations that could be correlated with both firm growth and firm's financial access. Similar to Fowowe (2017) we picked control variables contained in the Enterprise Surveys dataset. These characteristics are as follows;

- ***Regulation1***- *percentage of senior management time that was spent in dealing with government regulations*
- ***Regulation2***- *frequency of inspections or requirements for meeting by tax officials.*
- ***Corruption***- *percentage of total annual sales paid in informal payments*

- ***Size****- This is categorical variable which is equal to one when the firm is small, i.e. less than 20 employees, two when it has between 20 and 100 employees, and three when it is large (more than 100 employees).*
- ***Age****- the age of the firm is (in tens of years), constructed by subtracting the reported year of establishment from the survey year. Age of the firm is represented in 3 categories: young, mature, old represented by 1, 2 and 3 respectively. Young firms are all firms aged less than 6 years. Mature firms are aged between 6 and 15 years while older comprises of firms aged 16 years and above.*
- ***Government*** *is a dummy variable which has a value of 1 if 10% or more of the firm is government owned,*
- ***Experience*** *is the number of years of experience of firm i's senior manager,*
- ***Competition*** *equals one if firm competes against unregistered or informal firms and otherwise equals zero.*

3.8. Model Specification

As stated above to measure the effect of access to finance on firm performance, we make use of both subjective and objective analysis. In the subjective measure of firm's access to finance are ranked on a scale of 1–5. In the objective measure we make use of external sources of finance in creating measures of access to finance: credit constrained status (CCS), loans or lines of credit, and overdraft.

We also include firm characteristics to capture size of the firm, age of the firm, business regulatory conditions, corruption, ownership (government and foreign), experience and competition.

Access to finance constraints and firm growth

$$FGi=a_0+a_1FC_i+a_2Size_i+a_3Age_i+a_4Corruption_i+a_5Regulation_i+a_6Ownership_i+a_7Expiriance_i+a_8 Competition_i+e_{1i}$$

Objective Measure of Access to Finance and firm growth

$FGi=b_0+b_1CCS_i+b_2Size_{ii}+b_3Age_i+b_4Corruption_i+b_5Regulation_i+b_6Ownership_i+b_7Expiriance_i+b_8Competition+e_{1i}$

$FGi=b_0+b_1OverdraftS_i+b_2Size_{ii}+b_3Age_i+b_4Corruption_i+b_5Regulation_i+b_6Ownership_i+b_7Expiriance_i+b_8Competition+e_{1i}$

$FGi=b_0+b_1CreditS_i+b_2Size_{ii}+b_3Age_i+b_4Corruption_i+b_5Regulation_i+b_6Ownership_i+b_7Expiriance_i+b_8Competition+e_{1i}$

Where:

- *FG = firm growth, employment growth of the firm*
- *FC = access to finance constraint;*
- *CCS = Credit constraint status*
- *Overdraft = a dummy variable with a value of 1 if the firm has an overdraft facility and 0 otherwise.*
- *Credit = a dummy variable which has a value of 1 if the firm has a loan or credit line, and 0 otherwise.*
- *Size= small, medium and large firms*
- *Age = young, medium and mature firms*
- *Regulation 1 and 2= the percentage of senior management time that was spent in dealing with government regulations and the frequency of inspections or requirements for meeting by tax officials respectively;*
- *Corruption = the percentage of total annual sales paid in informal payments.*
- *Ownership = 10% or more of the firm is government owned*
- *Experience =number of years of experience of firm's senior manager*
- *Competition = against unregistered or informal firms*
- *ε = represents the error in the model*

The effect of access to finance on firms' performance is estimated by regressing the above equation. The random error term or disturbance term represents random variations in the economic environment that firms' face in the course of production. It is expected that financial access will have a positive effect on the financial performance of Ethiopian firms.

CHAPTER 4: DATA ANALYSIS

4.1 Introduction

In this chapter the first section explores a descriptive analysis of the firms under the study. The exploratory research helps to understand the current state of financial inclusion among firms in Ethiopia. The second section measures the impact of the access to finance variables on the performance of the firms in Ethiopian firms considering a few control variables. It also helps in understanding the impact in terms of firm's size and age.

4.2 Descriptive Statistics

4.2.1 Dependent Variables

The average growth rate of firms, as measured with employment growth is 0.069. Table 3 below presents summary statistics for employment growth. The highest average firm growth is recorded in Diredawa while the lowest average growth is in Oromia. Firm growth in Oromia and SNNPR are lower than the sample average. Addis Ababa, Amhara, Diredawa and Tigray have average firm growth that is higher than the sample average. The highest and lowest employment growth is both recorded in Addis Ababa i.e. 0.76 and -0.67. The negative minimum value of firm growth shows that some firms has negative employment growth rate. There is a very high variation in the performance of SNNPRs firms. The highest and lowest performance in SNNPR is 0.42 and -0.54 respectively.

Table 3: Employment growth of firms, by region

A3a	Mean	Std. dev.	Min	Max
Addis Ababa	.0708507	.1260225	-.6716343	.7675284
Amhara	.0696951	.1115577	-.2310491	.6108605
Dredawa	.1091965	.138677	-.1044887	.6825643
Oromia	.0527686	.1301482	-.3798114	.5495529
Snnpr	.0669816	.142806	-.5364793	.4175877
Tigray	.0720932	.1229088	-.1702752	.4620981
Total	.0696325	.1265555	-.6716343	.7675284

4.2.2 Independent Variables

Based on ordinal scale of Kuntchev et al (2013) for assessing the credit constrained status of firms, Credit Constraint Status for the firms averaged 2.3 as the table below shows. This suggests that firms in Ethiopia fell mostly under the category of Partially Credit Constrained (PCC) and Maybe Credit Constrained (MCC) group. Partially Credit Constrained firms did not apply for loan for reasons other than having enough capital or firms who applied for a loan but was rejected. Maybe Credit Constrained group are firms that have used some form of external sources of funds within the past financial year or have a loan outstanding within their books.

The subjective measure or access to credit measurement shows that most of these firms believe that access to finance is a moderate obstacle on their performance. On average, for both Overdraft and Credit Line usage, the firms had access to these financial services. Even though these firms are not fully free from credit constraints there is a greater level of financial inclusion as a whole. The average value of overdraft shows us that firms in Addis Ababa has the largest overdraft facilities as compared to other regions. Regarding credit Oromia and Diredawa have the largest and smallest access respectively.

The table below presents mean values of the access to finance constraint, Credit Constraint Status, Overdraft and credit line. and As we can see from the below table, we observe variability across regions. The access to finance constraint is high in SNNPR, Diredawa, Addis Ababa and Oromia. This implies that finance is a particularly severe constraint of firms in these regions. It is observed that the access to finance constraint is lower in Tigray and Amhara. These firms face less severe constraints in accessing finance.

Table 4 also shows Tigray and Amhara have high CCS, implying that firms in these countries have high access to finance. On the other hand, regions such as SNNPR and Oromia have low CCS values, thus, firms in these countries have financial access. We can also observe from the variables of access to finance constraint and Credit constraint status that regions with high access to finance constraints also have low access to finance.

Table 4: Access to finance constraint and access to finance (mean), by region

Region	Access to finance constraint	Credit constraint Status	Overdraft	Credit line
Addis Ababa	2.359869	2.12868	.295207	.2860262
Amhara	2.013514	2.324324	.1812081	.2348993
Dredawa	2.466667	2.177778	.2222222	.1333333
Oromia	2.374269	2.087719	.2196532	.4022989
Snnpr	2.845238	1.904762	.2272727	.3409091
Tigray	1.953704	2.462963	.1376147	.5137615
Total	2.327902	2.156823	.257085	.3099257

4.2.3 Control Variables

The average time used to deal with requirements imposed by government regulations, by senior management above direct supervisors of production/sales workers, managers and directors is about seven percent of senior management time. Some examples of these government regulations are customs, registration, taxes, labor regulations and licensing.

The average inspection requirement by tax officials for Ethiopian firms is on average, three times a year for all firms. But there is a high variation in the inspection requirements. From our comparison based on firm size, it is noted that on average the smaller the firm the higher the average inspection requirement.

From the average size and age of the firms we can infer that the firms surveyed in this study are mostly medium sized and mature firms whose age is between 6 and 15 years. Fowowe (2017) in his study identified that firms that are larger and older in age tend to have greater financial inclusion.

In this study, informal payments and gifts made to get service by the public officials are represented by Corruption. On the average, Ethiopian firms pay 3.10% of their total annual sales, or estimated total annual value for public officials for this purpose.

Table 5 Summary statics of Control variables

	Mean	Std. dev.	Min	Max
Regulation1	6.940128	13.4896	0	100
Regulation2	3.951357	12.82802	1	300
Corruption	3.10493	1.277375	0	4
Size	1.706434	.7835577	1	3
Age	2.048928	.3526645	1	3
Government	.1454424	.1229088	0	1
Competition	.3595989	.4800548	0	1
Experience	14.0307	9.935959	1	60

4.3 OLS Regression

4.3.1 Access to finance constraints and performance of firms

The results of examining the effects of access to finance constraints on the performance of Ethiopian firms are presented in Table 6. We have included all business environment obstacles in the same equations and added region controls in the first column, region and industry controls in the second column ,and region industry and year controls in the third column and region, industry, business regulatory environment controls and survey/year in the fourth column.

The negative sign and significance of the coefficient of access to finance implies that inadequate finance is a serious constraint on the growth of firms. Our regressions result shows that access to finance constraint has a significant negative effect on firm performance.

The other constraints which have significant negative effect on firm growth are transportation, customs and trade, informal sector competitors and labor regulations

Table 6: Effect of business environment constraints on employment growth of firms using region, year, firm, and business regulatory controls

Dependent variable: employment growth				
Constraints to business environment	(1)	(2)	(3)	(4)
access_finance	-0.00736**	-0.00559*	-0.0045	-0.00096
	(-2.88)	(-2.08)	(-1.65)	(-0.26)
Electricity		0.0043	0.00519	0.00526
		-1.38	-1.65	-1.29
Telecommunications		-0.0014	-0.00345	-0.00234
		(-0.44)	(-1.05)	(-0.52)
Transportation		-0.00750*	-0.00745*	0.00425
		(-2.16)	(-2.11)	-0.92
tax_rates		-0.00348	-0.00319	-0.00663
		(-0.85)	(-0.76)	(-1.18)
tax_administrations		-0.00693	-0.0061	-0.00539
		(-1.61)	(-1.37)	(-0.87)
business_licensing		0.000146	-0.00021	-0.00011
		-0.03	(-0.04)	(-0.02)
political_instability		0.0123*	0.00982	0.0190*
		-2.2	-1.76	-2.25
customs_trade				-0.00930*
				(-2.01)
informal_competitors				-0.0119**
				(-3.21)
crime_theft				0.00787
				-1.2
Corruption				-0.00182
				(-0.37)
Courts				0.00538
				-0.79
labour_regulations				-0.0185**
				(-2.79)
low_educat_labour				0.00978
				-1.52
access_land				-0.0053
				(-1.59)
_cons	0.0878***	0.0837***	0.0793*	0.0865
	-11.87	-3.36	-2.12	-1.69
N	1312	1201	1126	705
r2	0.0114	0.0292	0.044	0.135

p-values in parentheses (* p<0.1, ** p<0.05, *** p<0.01)

The models in columns 1–4 control for the effects of regions, 3 and 4 control for firm and business regulatory controls, 4 controls for survey/year.

4.3.2. Access to finance and performance of firms (Objective Measurement)

Table 7 contains the results of estimating the effects of objective access to finance variables on the performance of Ethiopian firms. Table 7 contains the results of estimations using the objective access to finance variables credit constrained status variable (CCS), loans and credit lines, and over-draft and including region, Industry and business regulation controls.

Credit Constraint Status (CCS) is an ordinal variable for which higher values indicate greater access to financial markets. This means that higher values of CCS denote higher better financial access.

The below results shows that credit constrained status (CCS) has a significant positive effect on employment growth of Ethiopian firms. The significant positive coefficients for CCS imply that access to finance have a positive impact on employment growth of firms in Ethiopia. This means that the higher access to finance, then the higher growth they will experience. In contrast, firms who are credit constrained will experience lower growth. The positive coefficient of loans and credit lines shows us that firms that have loans and credit lines have faster growth rates as the coefficient on this variable is positive. This result shows us the importance of finance to the performance of firms.

Table 7: Effect of access to finance variables on employment growth using firm, region, year, and business regulatory controls

Dependent variable: employment growth						
	(1)	(2)	(3)	(4)	(5)	(6)
Credit constraint Status	0.00825**	0.00607	0.00607	0.00589	0.00570	0.00494
	(2.94)	(1.94)	(1.93)	(1.87)	(1.81)	(1.58)
Overdraft			-0.00399		-0.00702	-0.0102
			(-0.59)		(-0.97)	(-1.43)
Credit line				0.00721	0.00890	0.0145*
				(1.10)	(1.28)	(2.07)
_cons	0.0411***	0.0202	0.0222	0.0171	0.0185	0.0231
	(5.97)	(0.83)	(0.91)	(0.70)	(0.75)	(0.95)
N	1312	1160	1157	1161	1154	1154
r2	0.0106	0.0684	0.0694	0.0715	0.0707	0.0869

p-values in parentheses (* p<0.1, ** p<0.05, *** p<0.01)

The models in columns 1–6control for the effects of regions, 2-6 control for firm and business regulatory controls, 6 controls for survey/year.

4.4 Instrumental variable estimation

The major weakness of the enterprise survey is that the responses for the survey might depend on the optimism and pessimism of the firm owners/ managers. Measures of access to finance are potentially endogenous because banks are more willing to provide finance to firms with higher performance. Therefore, OLS estimates may be biased.(Fowowe 2017)

To capture this drawback, we use instrumental variable. We use instrumental variable when there is endogenous variables, variables that are influenced by other variables in the model. For an instrument to be valid it must be correlated with the endogenous variable and it must be uncorrelated with other variables in the system or the error term.

To address potential endogeneity and OLS estimation bias, GMM regression models are used where the model allows endogenous variables to be used as instruments. This helps to control for the impacts of unobserved and unmodelled firm specific differences. The regressions are based on Generalized method of moments (GMM) estimation, using "xtabond2" statacommand.GMM estimator uses first differencing and the lagged values of the endogenous variables as instruments. The Arellano–Bond GMM estimation starts by transforming all regressors, usually by differencing, and uses the generalized method of moments (GMM) (Hansen 1982), and is called difference GMM. The Arellano–Bover/Blundell–Bond estimator (implemented via 'xtabond2' stata command) augments Arellano–Bond by making an additional assumption that first differences of instrument variables are uncorrelated with the fixed effects. This allows the introduction of more instruments and can dramatically improve efficiency. It builds a system of two equations the original equation and the transformed one and is known as system GMM (Roodman,2009).

The results of the instrumental variable estimation are presented in Table 8. The below table shows us that access to finance constraint has a significant negative coefficient i.e. Firms who have difficulty in obtaining credit have poorer growth. Thus, the result of the instrumental variable estimation confirms our previous findings.

Table 8: Effect of access to finance variables on employment growth: instrumental variable with Generalized method of moments (GMM) estimation

Dependent variable:	**employment growth**				
	(1)	(2)	(3)	(4)	(5)
access_finance	-0.00607*				
	(-2.43)				
Credit constraint Status		0.00724			
		(1.91)			
Overdraft			-0.00469		-0.00553
			(-0.87)		(-1.07)
Credit line				-0.000536	0.000225
				(-0.08)	(0.03)
_cons	0.0800***	0.0503***	0.0673***	0.0654***	0.0670***
	(10.86)	(6.29)	(17.45)	(19.31)	(16.02)
N	1163	1163	1175	1176	1173
Hansen	79.60	80.67	83.45	87.83	87.47
Hansenp	0.0133	0.0108	0.00621	0.00246	0.00267
F	5.883	3.647	0.763	0.00610	0.589
F_p	0.0155	0.0565	0.382	0.938	0.555

P-values in parentheses (* p<0.1, ** p<0.05, *** p<0.01)

All models include controls for regions, firm and business regulatory controls. Figures in () are standard errors.

4.5 Further analysis by firm size and age

In this section we look at the effect of access to finance constraint on firm growth as affected by firm characteristics. The results for these are presented in Table 9.The results show negative coefficients for firm size and age. This result contradicts with Gibrat's law of proportionate effects that states that growth is random. Gibrat's law states that the proportional rate of growth of a firm is independent of its absolute size. This study findings is in consistent with finance growth theory, which states that problems related with finance is more severe for smaller firms than larger ones. There are many similar studies that have found that firm growth is affected by size and age (Yasuda, 2005; Calvo,2006; Fowowe 2019). The significant negative coefficient on firm age and size indicates that younger and/or smaller firms grow faster than older and/or firms.

These results are similar to other studies who found that smaller and younger firms grow faster than older and larger firms (Sleuwaegen and Goedhuys, 2002; Bigsten and Gebreeyesus, 2007).

Table 9: Effect of access to finance constraint on employment growth (further analysis by firm size and age)

Dependent variable: employment growth			
	(1)	(2)	(3)
access_finance	-0.00484*	-0.0131*	-0.0135*
	(-2.44)	(-2.36)	(-2.47)
Firmsize	-0.0101**	0.00784	0.00599
	(-2.83)	(0.88)	(0.68)
Firmage		-0.0424***	-0.0424***
		(-4.75)	(-4.78)
SMEs#access_finance[(a)]		0.00808	0.00721
		(1.63)	(1.48)
LargeFirms#access_finance[(b)]		-0.00385	-0.00385
		(-0.63)	(-0.64)
MatureFirms#access_finance[(c)]		0.0124*	0.0124*
		(2.06)	(2.10)
OlderFirms#access_finance[(d)]		0.0111	0.0124
		(1.64)	(1.85)
_cons	0.0884***	0.133***	0.138***
	(10.88)	(4.11)	(4.32)
N	1312	1161	1161
r2	0.0164	0.114	0.124

p-values in parentheses (* p<0.1, ** p<0.05, *** p<0.01)

The models in columns 1–3 control for the effects of regions, 2 and 3 control for firm and business regulatory controls, 3 controls for survey/year.

(a) Relates to firms with 20-100 employees

(b) Relates to firms over 100 employees

(c) Relates to firms operational for 5-15 years

(d) Relates to firms operational for over 15 years

Table 10 presents our access to finance constraint, Credit constraint, overdraft and credit line by firm size and age. As per previous studies, we observe that older and larger firms have lower access to finance constraints and have higher access to finance. In contrast young and smaller firms have the highest access to finance constraints and lowest access to finance.

Table 10: Access to finance constraint and access to finance variables (mean), by firm characteristics.

Firm Age	Access to Finance Constraint	Credit Constraint Status	Overdraft	Credit line
Older	2.049563	2.344023	.1152738	.1676301
Mature	2.318881	2.156643	.2604457	.3045897
Young	2.573494	2.00241	.3693046	.4375
Total	2.327902	2.156823	.257085	.3099257

Firm Size	Access to Finance Constraint	Credit Constraint Status	Overdraft	Credit line
Large	2.156379	2.268861	.1071913	.2262873
Medium	2.406742	2.101124	.3468468	.3534676
Small	2.628763	1.966555	.4916944	.4527027
Total	2.327902	2.156823	.257085	.3099257

CHAPTER 5: CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter concludes the study and enquiry into the effect of access to finance on performance of Ethiopian firms. This chapter helps in understanding the role of financial access on firm's growth and performance and recommends actions that should be taken by firms, financial institutions and the government to ensure better access to finance and improve firm's performance. This paper has also suggested a research agenda for future studies.

5.2 Conclusion

Firms are considered to have crucial role in an economy and are a key source of employment and economic growth. Firms make a great contribution for diversifying economic activities. They also make a significant contribution to export and trade. The importance of firm's development for economic growth has prompted increased interest in determining the main determinants of firm's performance. This study discussed one of the most important issues that affect firm's performance i.e. access to finance. Access to finance is one of the key aspects that affect firm performance not only when starting the business project but also when operating.

This study's findings show that access to finance enhances the performance of firms in Ethiopia. This was shown with a significant negative effect of access to finance constraints on firm growth. This effect implies that the sensitivities of firm performance to finance suggest that access to external finance is still not sufficiently widespread in Ethiopia. Adequate access to finance enables firms to acquire all the necessary facilities that are needed to enhance the performance of their businesses. Access to finance provides a range of instrument to help improve the productivity and competiveness of firms. It helps firms to operate efficiently grow.

In line with previous literature, we have also found that financial constraints are more series for smaller and younger firms than larger and older one. The study also shows that participation in financial markets promotes firm growth. The study also shows us that firm characteristics such as size and age can influence firms' ability to access finance and its effect on performance. This implies that these results are that firms must overcome credit constraints and obtain more

external finance to attain sustainable performance. The robustness of the results is confirmed by the results obtained after adding the instrumental variable.

5.3 Recommendations

Based on the above conclusions the study recommends that the government and financial institutions should make a concrete effort to provide adequate access to finance for firms. The government has to improve and revise policies and programmes to address the problems of their finance accessibility. Financial institutions should develop products that suit characteristics such as age, size and location and make funding mechanisms simpler and more responsive to the firm's needs.

Special attention should be given for small and young firm's to enable them access loans of low interest.The government has to take measures to improve the challenge of small and young firms in accessing finance though through direct government interventions through public banks, provision of business support, awarding government contracts, credit guarantee schemes and other forms of subsidized financing. The government should also assist microfinance institutions for providing better access to these firms.

In addition to that, policy makers should promote local financial development so as to enhance firm performance. The government should take action in creating conducive environment for financial market development. A well regulated financial market must be produced in order to create competitive financial environment.

5.4 Limitations and Suggestions for future Research

Further research is needed to measure the effect of access to finance on firm performance. In addition, the study recommends further investigations approaching the same problem from the financial institutions' point of view. This study used an enterprise survey at a 2011 and 2015. Lengthening the time span of the analysis will allow for a greater understanding of the relationship between financial inclusion and performance of firms. This study used and employment growth variables to measure firm performance. This proxy variable is used because of data availability and they may not be able to fully reflect firm performance. Better measures like return on asset could be used for a better measurement.

More detailed and focused future survey efforts could help improve the potential for sound research and policy-making in addressing firm finance questions and firm performance in Ethiopia. Further research should be done on firms targeted by microfinance institutions and informal markets. One could also determine if the findings of this research are consistent across different sectors and on firm specific characters.

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Annex

Calculation of Employment Growth

For a variable N that takes on the value Nt in period t the growth rate between period t and t-1 is defined as

$g = (N_{t+1} - N_t)/N_t$

such that

$N_{t+1}/N_t = 1 + g$

If we take logs of both sides of the expression, then we can see that

$\log(N_{t+1}) - (\log N_t) = \log(1 + g)$

Since g is usually much smaller than 1, we can take advantage of the Taylor Series approximation, which takes the following form:

$\log(1 + g) = g - (g^2/2) + (g^3/3) - (g^4/4) + \ldots$

Hence, based on the first-order Taylor Series approximation, we can simply rewrite the expression for the first-differences as:

$\log(1 + g) = g$

Therefore, the growth rate (or percentage change) of the time series Z can be approximately measured by the first-difference of its log levels as:

$\log(N_{t+1}) - (\log N_t) = g$

Then to find out the annual growth rate we divide by the length of the period.

$1/t(\log(N_{t+1}) - (\log N_t)) = G_t$

Therefore, taking the difference between the natural logarithms of output at the start of the period and the end of the period and dividing by the length of the period gives the growth rate.

Similarly, we calculate employment growth by as the log difference between the current number of permanent employees and the number of permanent employees three years before the survey year, divided by the difference between the survey years.

$FGit = (lnN_{it} - lnN_{i,t-3})/3$