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Effects of Debt financing on manufacturing firms' financial performance: Evidence from Textile factories in Addis Ababa and Oromia Special Zone

By

Bzuneh Shibeshi

A Thesis Submitted to the Department of Accounting and Finance of Addis Ababa University in Partial Fulfillment of the Requirement for the Degree of Masters of Business Administration (MBA) in finance

May 2017

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Statement of declaration

I, Bzuneh Shibeshi, have conducted a study entitled: Effects of Debt financing on manufacturing firms' financial performance: Evidence from Textile factories in Addis Ababa and Oromia Special Zone in partial fulfilment of the requirement of the MBA program Finance under the guidance of my advisor Degefe Duressa (PhD)

This study is my own work that has never been submitted for any award of degree or diploma program in in any other University.

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Statement of certification

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This is to certify that the thesis prepared by Bzuneh Shibeshi Tekle entitled: Effects of Debt financing on manufacturing firms' financial performance: Evidence from Textile factories in Addis Ababa and Oromia Special Zone submitted in partial fulfillments of the requirements for the Degree of Masters of Business Administration complies with the rules and regulations of the university and meets the expected standards with respect of originality and quality.

Signed by the Examining Committee

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Abstract

This study examined the impact debt financing on manufacturing firms' financial performance evidenced from textile companies in Addis Ababa and Oromia Special Zone. The study employed explanatory research design with quantitative approach. To achieve the study objective secondary data were collected from the sample of 15 textile companies in Addis Ababa and Oromia Special Zone over the period of 2012-2016 using purposive sampling technique. The relationship between leverage which is measured by short term debt to total assets ratio (STDTA), long term debt to total assets ratio (LTDTA) and total debt to total assets ratio (TDTA) and financial performance measured by return on asset (ROA) and return on equity (ROE) were treated with descriptive statistics, correlation matrix and diagnostic tests. To analyze the cause-effect relationship between the explanatory variables and the dependent variables, fixed effect regression model was employed. Based on the fixed effect regression model output this study concluded that STDTA is negatively related with ROA and vice versa with ROE. LTDTA has positive relationship with financial performance measured by ROA & ROE. TDTA has negative impact on ROA but positively related with ROE. On the other hand, the control variables such as age (AG), asset turnover (ATO) and tangibility of assets (TOA) have significant and positive relationship with financial performance indicators, ROA & ROE whereas a control variable, i.e. firm size (FS) has significant and negative impact on financial performance measured by ROA & ROE.

Key words: leverage, financial performance and textile factory.

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List of Acronyms and Abbreviations

AACCA- Addis Ababa chamber of commerce and sectoral association

AG- Age

BJ- Bera Jarque

CLRM- Classical linear regression model

ETIDI- Ethiopian textile industry development institute

FS- Firm size

FCF- Free cash flow

ATO- Asset turnover

GPM- Gross profit margin

Log- Logarithm

LTDTA- Long term debt to total assets (long term debt ratio)

NPM- Net profit margin

NPV- Net present value

OECD- Organization for economic co-operation and development

ROA- Return on assets

ROE- Return on equity

STDTA- Short term debt to total assets (short term debt ratio)

TDTA- Total debt to total assets (total debt ratio)

TOA- Tangibility of asset

Chapter One

1. Introduction

1.1. Background of the study

Firm's Assets are typically financed with a combination of debt and equity, referred to as firm's capital structure. Capital structure decision is one of the most important financial decisions taken by a firm because it has an impact on the firm's financial performance or value. Company financing is a prior concern for operating any business, and financing is arranged before any business plans are made. By generating revenues that would not have been reached without additional funding, external financing in the form of debt or equity capital allows firms to increase firm value, which is traditionally considered an ultimate goal of any business. Therefore, the problem of capital structure choices has been a central question in the corporate finance literature of the last six decades. While determinants of the choice between debt and equity are well documented and, to a large extent long established, the effects of various debt sources on firm value and performance still remain somewhat unclear.

Debt financing is a key element in a firm's choice of its capital structure. Though debt and equity financing are the two financing options most commonly pursued by companies, debt financing is the main and more preferable element of external financing for corporations raising extra funds after creation (Baltac and Ayaydin, 2014). Debt financing has become a common phenomenon in corporate world across the globe. The majority of corporations are looking for external financing options use debt financing rather than equity financing.

Debt financing takes many forms. It represents any agreement between a lender and a borrower: notes, certificates, bonds, debentures, mortgages and leases. Study by Zietlow, Hankin, & Seidner (2007) notes that debt is one of the important items in the capital structure of companies and it provides a medium for corporate financing as firms borrow money in order to obtain the capital they require for capital expenditure. The essence of debt is that the borrower must repay the funds along with agreed-upon service charge such as interest and loan origination fees. If the money is not repaid as promised, the lender can start collection proceedings.

The main characteristic of debt financing is that the amount borrowed, plus interest, must be paid back to the providers of debt over a given period of time. The interest rate that must be paid on the borrowed money, together with a repayment schedule will be set out in the contract between the lender and the borrower. If the borrower does not fulfill their obligations set out in the contract, it can negatively impact on their credit rating, which in turn can make it more difficult for them to obtain funds in the future and it can also lead to financial failure. Studies remarked that even if a firm suffers financially and is not able to make the scheduled payments, they still have an obligation towards the debt providers.

Debt can either be short-term or long-term. Short-term debt represents funds needed to finance the daily operations of the firm, such as trade receivables, short-term loans and inventory financing. These types of funds' repayment schedules take place in less than one year. A long-term debt usually has a payback period between one and five years. Depending upon the deal negotiated, these debts are normally secured (collateralized by assets) and guaranteed by the debt holders. Rates and terms on long-term debt vary greatly based on the lending institution's policies and the business's age and financial status. Long-term financing is usually acquired when firms purchase assets such as buildings, equipment or machinery. The scheduled repayments for these funds extend over periods longer than one year (Zietlow, Hankin, & Seidner 2007).

Majorly there are two main benefits of debt to a firm. The first one is tax shield: interest payment is normally deductible which has a reducing effect on the cash flow problem and hence the debt can increase the value of the firm. Thus, debt has an advantage in the corporate taxes as interest is deductible as an expense. This view is supported and then proved by many researchers. Among them, Graham (1996) States that due to tax benefit of debt, a firm with higher marginal tax rates is likely to issue more debt. Miller (1977) finds that balancing bankruptcy cost against tax gains result on optimal capital structure. The second benefit is that debt induces discipline to managers (Jensen, 1986). This is because managers are expected to give the debt providers detailed investment information to aid in the monitoring process (Frank and Goyal, 2003). For this reason shareholders acquire debt to discipline management.

As studies show, debt financing comprises of main structures of external funding for most business firms. It provides a mechanism of filling financing deficits for firms that have insufficient financial resources. Over the years it has gained prominence as result pushing up the level of its usage and uptake. For instance, in the world, According to Myers (1988), debt financing of manufacturing sectors grows significantly. Debt financing has over the years been utilized to fund capital expenditure and in the recent years more options and packages to finance general operations have been developed. This has resulted to an increased uptake of debt facilities. In spite of the increasing of debt financing, its effect on the financial performance of these firms over the short and long-term should be identified or studied recently due to volatility of financial environment. A number of theoretical and empirical studies have been conducted to explore the impact of debt financing on the corporate financial performance. Majumdar and Chhibber (1999) conducted studies in India. In Pakistan, Bangladesh and China have also been conducted studies on the impact debt financing on firm's financial performance.

The relationship between debt financing and financial performance of a firm has been argued by many researchers based on the important study of Modigliani and Miller (1958). Since then, many scholars have tried to estimate clearly the relationship between leverage and firm performance based on different theoretical perceptions. Therefore, the subject of finding the link between debt financing and financial performance of a firm has been a topic of long debate globally. Different studies have come with different results, however almost all prove the existence of impacts that exerted due financial leverage. This study will identify and investigate the extent to which leverage/debt level brought about an effect on firm's financial performance.

In this study, the researcher tries to examine the effect of debt financing on manufacturing firms' financial performance in Ethiopia. He has chosen the textile sector because it is the most important manufacturing industry in Ethiopia. Textile industry is among the priority subsector identified by the Ethiopian government in transforming the country's traditional agricultural based economy to industrialization. One of the main Ethiopian industrial sectors is undoubtedly the textile and apparel industry. Currently, according to Addis Ababa Chamber of Commerce and Sectoral Associations, AACCSA (2015) report, Ethiopian textile and apparel industry is recognized as not only an economic development factor, but also a global leading manufacturer

and exporter. It has a significant contribution in providing mass employment, GDP growth and attraction of foreign investment.

1.1.1 Overview of Ethiopian textile industry

The Textile composite is very large industry and plays very important part in the growing economy of a country. China and India are leading textile industry first and second respectively (Dicken, 2011). The textile industry is one of the world's most geographically mobile industries, where transnational corporations are seeking for low-cost production. Starting in 1970s suppliers in South East Asia has increased enormously. However, during the recent years transnational corporations have started to outsource production to Africa and more especially to Ethiopia (Ethiopian textile industry development institute report, 2014).

Textile industry has been one of Ethiopia's traditional based and home grown old age spinning drop wheel and hand loom up to the modern textile and garment integrated mill was established in 1939 in Dire-Dawa by the name of Dire-Dawa Textile factory, which marked the beginning of textile industrialization by foreign Capital. All others textile manufacturing enterprises were established in the 1950s, 1960s, 1980s, 1990s, 2000s and 2010s. Currently, Ethiopian Textiles and apparel industry encompasses spinning, knitting, weaving finishing of textile manufacturing of apparel.

Most of the textile industries in Ethiopia produce yarns and fabrics from 100% cotton fiber for domestic consumption. Some of them, those that are equipped with modern Technology, can provide high quality products for international demand; such as Almeda, Ayka Addis, Awash ... Textile companies produce yarns and fabrics by blending the cotton fiber with polyester fiber for different end use (AACCA, 2015).

1.2. Statement of the Problem

A number of studies have examined the relationship between debt financing and firm's profitability, and the determinants of capital structure of a firm. Furthermore, the impacts of capital structure on firm performance have been investigated for many years, but the researchers have found different results with different contexts, i.e. type of firm, size and growth. For instance, Dessi R. and Donald R. (2013) found that financial leverage affects the financial performance of UK firms positively. Margaritis, D. and Psillaki, M. (2010), proved also that the total debt ratio correlated positively and significantly with financial performance of Indian firms. Berger (1995) and Kiogora (2002) showed that equity and long term debt have positive and significant effect on financial performance, while short term debt has negative and significant effect on financial performance of Kenyan firms. Tauseef, S. (2015) reports a positive relationship between long term debt and financial performance over the period 2002-2007 on the Pakistan's firms. Other studies (Handlock, C & James, 2002), (Gansuwan, P. 2012), (Goddard et al, 2005), (Rao et al., 2007), showed a positive influence of leverage on firms' performance.

In contrast to the above mentioned research works, a great deal of studies proved that leverage negatively influences firm's financial performance. Studies by Majumdar, S.K., Chhibber, P. (1999), Ghosh (2007) and Ogebe, et al. (2013) noted that debt related inversely with firms' financial performance. A non-significant effect was also confirmed by Baum et al (2007) in American industrial companies. A few studies were performed on the topic called "effect of debt financing on firm financial performance" but on different types of firms, size or growth. However the results of the studies were contradictory and mixed. For instance, Muchugias, L.M. (2013), the effect of debt financing on firm profitability of commercial banks in Kenya, and Apima, et al. (2016), effect of debt financing on businesses firms financial performance, evidence from selected firms in Kenya resulted that debt financing affects firm's financial performance negatively. Ahmed, H. (2014) carried out an investigation about the effect of financial leverage on firm financial performance in Saudi Arabia's Public listed companies. His findings show a positive correlation between leverage and financial performance indicators such as return on assets and return on equity.

These inconclusive and contradictory findings require further study that the researcher motivated to undertake an empirical study evidenced from textile factories in Addis Ababa and Oromia Special Zone. On the other hand, there is no specific research work concerning the effect of debt financing on textile firms' financial performance in Ethiopia. A very few studies that were conducted in Ethiopia concerning manufacturing sectors reported inconsistent results. kebede D. (2011) investigated capital structure's determinants in Ethiopian small scale manufacturing Co-operative and concluded that debt is positively correlated with profitability. Amanuel, M.(2011) performed a study on the determinants of capital structure evidence from manufacturing share companies of Addis Ababa city resulted that there is positive correlation between total debt ratio and profitability. Study by Asrat, K. (2016) that examined the relationship between capital structure and financial performance evidence from Ethiopian cement companies concluded that there is negative correlation between capital structure measured by long term debt to equity ratio and return on equity (ROE). This contradictory and mixed result indicates the need of further empirical study. According to the knowledge of the researcher, there is no specific research work on the topic entitled "effects of debt-financing on financial performance". Thus, the purpose of this research has twofold: to explore the inconclusive and contradictory findings of the previous studies and to carry out a study on this untouched part, i.e. the effect of debt financing on manufacturing firm's financial performance based on leverage level. Hence, this paper seeks to fill the gap in the literature as a result of inconclusive and contradictory findings, and lack of studies that have been conducted so far in this particular area from Ethiopian context.

1.3. Objective of the study

1.3.1. General Objective of the study

The major objective of this study is to examine effects of debt financing on manufacturing firm's financial performance with particular evidence from textile factories in Addis Ababa and Oromia Special Zone. Moreover, it investigates the effect of debt levels, i.e. low, medium or high, on firm's financial performance beside the period, short or long- term.

1.3.2. Specific objectives

Having considered the statement of the problem and the general objective of the study the specific objectives of the study are:

- Find out how the variation in short term debt to total assets brings about variation of impact on financial performance.
- Examine the change in long term debt total assets bring about changes to the measurements of financial performance, namely; return on assets, return on equity.
- Measure the extent to which financial performance indicators of manufacturing firms are affected by total debt to total assets.
- Investigate the effect of debt period (short term and long term) on textile firm's success or failure.
- Evaluate the performance and health of textile factories in Addis Ababa and Oromia Special Zone comparing their debt levels from 2012-2016.

1.4. Research hypotheses

Hypotheses are predictions about the outcome of the results, and they may be written which will later to be tested or refuted. The alternative hypothesis will ultimately be interpreted as a successful guess of the solution to the research problem if the null hypothesis is refuted. If the null hypothesis is refuted the alternative one will be accepted (Creswell, 2009). Based on the statement of the problem and the objectives of the study, the researcher formulated the following null hypotheses. The alternative hypotheses will be the inverse of these null hypotheses which will be accepted if the null hypotheses are refuted and vice versa.

H₁. Short-term debt to total assets (STDTA) has positive impact on return on assets (ROA)

H₂. Short-term debt to total assets (STDTA) has positive impact on return on equity (ROE)

H₃. Long-term debt to total assets (LTDTA) has positive impact on return on assets (ROA)

H₄. Long-term debt to total assets (LTDTA) has positive impact on return on equity (ROE)

H₅. Total debt to total assets (TDTA) has positive impact on return on assets (ROA)

H₆. Total debt to total assets (TDTA) has positive impact on return on equity (ROE).

1.5. Significance of the study

Knowledge of the effect of debt financing on firm's financial performance would help managers to predict and mitigate potential problems associated with their financing decision. However different previous empirical studies that have been done came with contradictory and mixed findings. These studies also did not show the extent to which debt level variation brought about variation in effects on firm financial performance. Thus, firms are still facing in determining the amount of debt in their capital structure. Managers were completely in puzzle due to the inconclusive and contradictory results of previous studies. So the primary significance of this study is to fill the knowledge gap and then to provide better information about the relationship between debt and financial performance.

Moreover, there are no research works on Ethiopian firms, specifically concerning the relationship between leverage and financial performance indicators. Hence, this study will identify the extent to which leverage exerts impact on financial performance which enables firms to determine the debt level in capital structure that increases their financial performance. In addition, this study intends to examine the relationship between debt and financial performance of manufacturing companies in developing countries like Ethiopia because traditional capital structure theories most notably, Modigliani and miller theory, the trade-off, pecking order theory and the agency theory which are most frequently studied in western models, and new empirical views are also merely about developed economy and technological aided financial system.

1.6. Delimitation and limitation

1.6.1. Delimitation

The Topic “effects of debt financing on manufacturing firms’ financial performance” encompasses broadest and a long period study so that the scope of the study confined merely on textile factories. Furthermore, this study focused on the data collected only from the sample

Textile factories in Addis Ababa and Oromia Special Zone over the period of five years (2012-2016). The study relies only on effects of debt financing on firm's financial performance, which excludes equity as independent variable and non-financial performance as the dependent variable.

1.6.2. Limitation

The main limitation of this study is the dependence on the data collected from small sample size, only fifteen textile factories. This sample size of textile factories may not represent the total population of manufacturing firms, because there are a few factories such as Almeda, Ayka Addis, Awash, and Selendaw which are equipped with modern technology and have produced high quality with excessive number of products that enable the country to take competitive advantage in international markets. The other limitation of this study is that the data were collected only from secondary sources. These secondary data collected from annual audited financial statements of textile factories in Addis Ababa and Oromia Special Zone over the period of 2012-2016. Primary data were not incorporated. Hence, the quality of the study relies merely on the accuracy, reliability, quality and validity of these secondary data.

Moreover, because of lack of previous research works that were done on the developing countries like Ethiopia, the researcher is forced to use traditional capital structure theories and empirical studies that have been done on countries which have capital market.

1.7. Organization of the paper

This research paper has five parts: Chapter one is the introduction part which includes background of the study, statement of the problem, objective of the study, hypotheses, significance and scope of the study. Chapter two is the review of related literature in which theories, empirical evidences and knowledge gap are discussed in detail.

The third chapter deals with about research methodology. Following, the fourth chapter presents the results of the different tests used, and analysis are made for testing the hypotheses stated in chapter one. Finally chapter five presents conclusion of the study and the findings with possible recommendations of the researcher.

Chapter Two

2. Review of related literatures

In this chapter a brief summary of the theoretical literature on the different theories developed on the relationship between debt and firm's financial performance is discussed. However, this is simply a summary of the main arguments presented in the last sixty years and, by no means; it should be considered as a complete survey. Furthermore, the available empirical literatures are studied and discussed their significance and findings on the effect of leverage on financial performance.

2.1. Theories concerning debt financing and firms' financial performance

Debt is one of the basic elements of capital structure. It has been one of the most argumentative subjects in corporate finance and there is still research going on to find how much company should mix the securities to maximize the value of shareholders. The foundation for theories and research focus on the subject of capital structure began with the introduction of Modigliani and Miller's (M&M) theoretical model about corporate capital structure in 1958 which is considered to have created the turning point for modern corporate finance theories. The finance literatures on capital structure have developed after the paper of Modigliani and Miller (1958) were published. After 1958 it has been seen lot of research work and criticism on the capital structure irrelevance argument of the Modigliani and Miller.

Many theories have been developed in the literature for examining effect of leverage on the performance of corporations and they focus on which determinants are more likely to have a major role on the capital structure decisions. However, it is still debated what the effect of leverage on firm's financial performance and how they impact capital structure decisions, even though there have been various studies conducted on the relevant subject. While Myers (2001) agrees there is no universal theory on the debt to equity choice, he, however, notes that there are some theories that attempt to explain the amount of debt in capital structure. In the following sections, the researcher intends to review fundamental capital structure theories briefly and give past empirical studies on effect of leverage on firm's financial performance.

2.1.1. Modigliani and Miller's Propositions

The level of debt in capital structure and its influence on the firm financial performance and overall value has been remained a subject of great attention amongst financial scholars since the decisive research of (Modigliani & Miller, 1958) arguing that under perfect market setting capital structure doesn't influence in valuing the firm. Modigliani and Miller (1958) provided the foundation of today's research of capital structure. They concluded that capital structure is irrelevant in determining a firm's value. This is known as 'MM -I proposition'. MM-I proposition, irrelevance theory, states that under specific conditions of no taxes, no bankruptcy cost, an efficient market, and in asymmetric information, the worth of firm is irrelevant that how the firm is financed. It does not matter that what is the dividend policy and how the capital of the firm is raised.

Modigliani and Miller (1958) believed that firm's value is not related to its mix of debt and equity. They categorically stated that, 'the average cost of capital to any firm is completely independent of its class'. They suggested that the value of a firm is determined by its real assets, but not by the amount of debt financed as part of its capital structure. They originally focused on the advantages of debt finance through the effects of corporate tax. Under irrelevance theory, a large firm is expected to have a high rate of debt. However, in this present competitive business environment, such is not always the case, particularly due to high cost of capital.

After the introduction of MM -I proposition, five years later, Modigliani and Miller (1963) modified their conclusion about the relationship between a firm's value and its mix of capital structure. They suggested that a tax can be generated by using debt. Using more debt will reduce the tax that needs to be paid. Hence, they believed that the optimal capital structure for a firm is one that totally uses debt with no equity this is known as 'MM -II Proposition'. MM-II proposition (1963), however, concluded that required rate of return, debt-equity ratio and cost of debt provide bases of firm's value. This MM-II recognizes that firm value is relevant to its capital structure. In fact MM-II concluded that with 100 % debt, the capital structure of a firm is optimum due to interest and tax shield.

As aforementioned, Modigliani and Miller's Propositions were built on the assumption of perfect market in which there are no taxes, no bankruptcy costs, and disclosure of all information. Even though MM theories are based on some unrealistic assumptions, for instance, the assumption of perfect capital markets, these theories provide a ground work to perform further research on capital structure. The theory provides insight into a firm's capital structure decision in a capital market free of taxes, transaction costs, and other frictions. Study by Abor (2005) displayed that Modigliani and Miller's (1958) propositions gave a substantial boost to the development of a theoretical framework that has since been used by most financial studies. As these two propositions are unreasonable and unrealistic, more theories were developed in response, the details of which are outlined below.

2.1.2. Trade- off theory

The trade- off theory was developed as a response to the original theory of Modigliani and Miller, and has been explained by different scholars, Scott (1976) and Copeland and Weston (1988), to mention few of them. This theory refers to the idea that a company chooses how much debt finance and how much equity finance to use by balancing the costs and benefits. Implication of the trade-off theory is to explain the fact that firms usually are financed partly with debt and partly with equity. This theory dates back to 1973, when Kraus and Litzenberger (1973) developed their model of optimal financial leverage. As reported by Scott (1976) and Kim (1978), the trade-off theory concluded that an optimal capital structure derives from balancing the benefits of tax shield that has come from using debt, against the costs associated with debt, such as bankruptcy and financial distress, and agency costs.

According to this theory, influential paper by A Yen and Oruas (2008) stated that in order to achieve a suitable capital structure, firm must balance capital structure, firm must balance between the tax saving that arise from debt, thereby decreasing agency costs, bankruptcy threat and financial distress. The benefits of maximizing a firm's value, as suggested by the trade-off theory, can be traded for the cost of issuing debt. In other words, the benefits of the trade-off theory are traded against their costs to maximize a firm's value. According to Mohamed & Abdullah (2012), the Trade-off theory implies that financial leverage has a positive relationship

with profitability, and it considers the cost of bankruptcy associated with debt financing as well as the tax advantage.

The conclusion of trade-off theory is that there is an advantage to financing with debt, the tax benefits of debt and there is a cost of financing with debt, the costs of financial distress including bankruptcy costs of debt. A supportive study by Al-Sakran (2001) concludes that the main marginal benefits of further increases in debt declines as debt increases, while marginal cost increases, so that a firm that is optimizing its overall values will focus on this trade-off when choosing how much debt and equity to use for financing. An empirical study by Abor (2005) indicated that in a market where tax is expected to be very low, the cost of issuing more debt will exceed the tax benefits associated with this. Hence, in such a scenario, an optimal capital structure will have low debt and more equity.

According to the trade-off theory, companies that make high profits are more likely to have higher leverage and more taxable income to shield. However, study by Rajan and Zingales (1995) shows that this theory fails in some cases to illuminate why profitable firms have low debt ratio. This suggests that the trade-off theory has some shortcomings and limitations. In addition to these empirical studies, Kester (1986) and Titman and Wessels (1988), a support studies, concluded that there is strong inverse correlation between profitability and debt ratios in capital structure. As a result, due to shortcomings and flaws of trade-off theory, the theory is not adequate when determining the ideal capital structure. The shortcoming of trade off theory is that it did not consider the information asymmetry. This problem was later solved by the introduction of the Pecking Order theory which was discussed the conflict between insider and outsider due to information asymmetry.

2.1.3. Pecking order theory

In the theory of firm's capital structure and financing decisions, the pecking order theory was first suggested by Donaldson in 1961. It was later modified by Myers and Majluf (1984). They provided a theoretical justification of Donaldson's (1961) results when he conducted an interview survey of 25 large United States (US) firms, and concluded that management strongly prefers to use internal funds when available, and prefers not to use external sources of funds

unless internal sources are unavailable. Myers and Majluf (1984) developed pecking order theory upon the asymmetry of information between internal stakeholders (owners and managers) and external providers of firm. Pecking Order Theory states that firms first of all decide to use internal financing such as retained earnings and reserves and then they decide to go for debt financing, after debt financing preferred stocks are issued and issuance of common stocks is considered as last resort.

Shyam-Sunder and Myers (1999) conducted a study to test the pecking order theory against the trade-off theory. They found that the pecking order theory is a more suitable descriptor of firm's financial behavior than trade-off theory. They examined the pattern of debt-financing over time and concluded that under the pecking order theory, a regression of net debt financing of the firm's deficit it was observed to yield a slope coefficient close to one. They found that this hypothesis was sustained with 157 US firms that were examined for 19 years (from 1971 to 1989). However, Chirinko and Singha (2000) argued that if, contrary to the pecking order theory, firms follow a policy of using debt and equity in fixed proportions, then Shyam-Sunder and Myers's (1999) regression will identify this ratio. As a result, finding a pecking order coefficient close to one will not disprove the trade-off theory. Hence, Shyam-sunder and Myers's (1999) regression cannot be used to evaluate the pecking order theory or trade-off theory. They concluded that there should be alternative tests to identify the determinants of capital structure and distinguish among competing hypotheses.

Later, the pecking order theory is popularized by Myers (2001), when he argues that equity is a less preferred means to raise capital because when managers (who are assumed to know better about true condition of the firm than investors) issue new equity, investors believe that managers think that the firm is overvalued and managers are taking advantage of this over-valuation. The pecking order theory states that firms prefer to finance new investment first internally with retained earnings, second with debt and last by issuing new equity. This theory maintains that businesses adhere to a hierarchy of financing sources and prefer internal financing when available, and debt is preferred over equity if external financing is required.

Pecking order theory suggests that firms consider all the financing methods available and choose the least expensive option. This offers a framework that states that when financing new projects,

firms first prefer to use internal equity, second prefer to use debt, and last prefer to use external equity. The pecking order theory predicts that high grown firms, typically with large financing needs, will end up with high debt ratios due to their managers' unwillingness to issue equity. However, Barclay, Smith and Morellec (2006) found that firms with consistently high growth use less debt in their capital structure. According to this explanation of the pecking order theory, it is expected that firm with high liquidity tend to use less debt because they are willing to use internal funds when these are available.

2.1.4. Cash flow and free cash flow theory

Michael Jensen (1986) developed the free cash flow theory (FCF) and its relationship with agency costs. The theory focused on the availability of free cash flow and the agency costs associated with this availability. He clarified the effect of cash flow and FCF on firm's financial performance. He argued that even if cash flow has a positive effect on corporate performance, FCF might have a negative impact on corporate performance. In case of FCF, a firm's manager might waste it or / and invest it in negative net present value (NPV) Projects. (Jensen, 1986) Argument of free cash flow predicts that higher leverage might raise financial performance due to the reason that managers of such firms are lesser able to initiate with projects showing negative NPV.

The FCF theory considers the internal source of a firm's funds. However, FCF has costs associated with the way firm's managers deal with FCF. The factors of FCF theory are how to balance cash flow and the costs of FCF. Scott (1981) stated that if a firm has enough cash flow to pay for their expenses, particularly debt, it will be able to survive. He argued that firm's managers will be able to use the firm's history of cash flows to predict the firm's health and future financial performance. He linked this with the ability of current cash flows to predict future financing status.

Many researchers focused on the relationship between the level of debt in the capital structure and agency cost of free cash flows. The importance of debt financing in reducing the cost of FCF was first examined by Harris and Raviv (1990). Debt can reduce the agency costs of FCF because debt financing helps that management is restricted to making efficient investment

decisions. Furthermore, debt prevents managers from pursuing individual objectives, as this would increase the firm's default. As a result, according to this theory high leverage would have a positive relationship with profitability.

However, other studies have shown a negative relationship between debt and FCF. For example, Lingling (2004) investigated the impact of ownership structure on the debt financing in the context of free cash flow problem. In this study he investigated the implications of free cash flow theory in capital structure policy of listed Japanese firms. The paper focuses specially on relations between leverage and free cash flow. The results of the study show that there is a negative relationship between the free cash flow and debt and the results is more significant for low growth firms than the high growth firms. He argued that the firm with low growth opportunities is discouraged by the intuitional ownership as they have to compensate their debt. The results of the study show that the capital structure has a disciplinary role in reducing free cash flow problem. Earlier study by Hart and Moore (1995) stated that firms with high debt will find it hard to raise capital because new security holders will not want to have lower priority than existing creditors. These studies indicate that firms with low debt will attract new security holders because security holders will be the first priority to the firm.

From the empirical studies discussed above, cash flow and FCF can be ensured as determinants of the way firms used debt and equity in their capital structure mix. In addition, FCF can affect a firm's financial performance. However, alike the effect of debt financing on firms' financial performance, the effects of cash flow and FCF on firms' financial performance are still unclear. The inconsistent results of the former studies on the role of debt financing to reduce the agency costs associated with FCF and the relationship between FCF and debt are indication for the need of further investigation.

2.2. Financial performance

The word performance is derived from the word 'par four men', which means 'to do', 'to carry out' or 'to render'. It refers the act of performing; execution, accomplishment, fulfillment, etc. In broader sense, performance refers to the accomplishment of a given task measured against present standards of accuracy, competences, cost and speed (Wikipedia). Performance is a

general term applied to a part or to all conducts of activities of an organization over a period of time often with reference to part or projected cost efficiency, management responsibility or accountability or the like. For him, performance at organization level includes achievement of end results (organizational goals). Hence, performance is used to indicate firm's success, conditions, and compliance. It is widely used as dependent variable by many researchers in past.

Performance can be measured by different ways; for instance by financial ratios, market share, growth, exports, products, employment and efficiency analysis. Mostly, researchers have measured business performance through business variables. But, Kalirajan and Shand (1999) argued that performance should be measured through productivity and efficiency analysis. Coming to this study's concern, financial performance refers to the act of performing financial activity. In broader sense, financial performance refers to the degree to which financial objectives being or has been accomplished. It is the process of measuring the results of a firm's policies and operations in monetary terms. Financial performance is used to measure firm's overall financial health over a given period of time and can also be used to compare similar firms across the same industry or to compare industries or sectors in aggregation.

The notion of performance is a controversial issue in finance largely because of its multidimensional meaning (Parahalathan, B. & Ranjany, R.P., 2011). Performance can be explored from two points of view: Financial and organizational, the two being interconnected; a company's performance can be measured based on variables that involve productivity, growth or even customer satisfaction. Financial performance (reflected in profit maximization, maximizing return on assets and maximizing shareholder return) is based on the firm's efficiency (Chakravarthy, B.S, 1986). According to Barbosa, N. and Louri, H. (2005), the assessment of financial performance is based on the return on investment, residual income, earnings per share, dividend yield, price/earnings ratio, growth in sales, market capitalization, etc.

Apima, et al. (2016) used profitability, revenues, cash flows and return on assets as financial performance indicators while they were studying the effects of debt financing on business firm's financial performance in Kenya. Other authors (Nirajini, A. and Priya, K.B. 2013) identified dependent variables such as gross profit margin (GPM) Net profit margin (NPM), return on capital employed (ROCE), return on asset (ROA) and return on equity (ROE), on their study

about the impact of capital structure on financial performance in Sri Lanka. Return on investment, assets turn over and operating expense ratio has been employed as financial performance indicators (Ogebe, et al, 2013).

2.3. Empirical studies on debt financing and firms' financial performance

2.3.1. Debt financing

The relationship between debt financing and financial performance is one that has received considerable attention in the finance literature with conflicting views. A number of studies that were done in the past have shown a positive relationship between debt uses and the firm's financial performance. Early Study by Baker (1973) identified that large amount of debt implies large amount of risk thus raises the industry profit. This is in line with portfolios theory that pegs higher returns of security to higher risk levels. Rose (1977) examined relationship of a firm's financial structure and its perceived image with the other stakeholders. He argued that a firm with a debt in its capital structure sends a strong signal to the market about its intentions to continue with operations. In their study of leveraged buyouts, Roden and Lewellen (1995) established a significantly positive relation between profitability and the total debt as a percentage of the total buyout- financing package.

Debt financing comprises of main sources of external funding for most business firms. With debt financing gain in wide spread use by most firms, it is crucial to establish its effects on the financial performance of firm utilizing it. Apima, et al. (2016) have demonstrated that most firms have viewed debt financing as a strategy of increasing returns on investments by generating more returns from borrowed funds. Of concern, is establishing whether firms stand to gain from debt financing and how they decided the proportion of debt that will constitute their capital structure across different industries. Research work by Linus, M. Muchugias (2013), recommended that owing to the less cost incurred in obtaining short- term debts than long-term ones. Other works by Weinraub and Visscher (1998) concluded that debt financing suggests that aggressive liquidity policy combine the higher levels of normally lower cost short-term debt and less long-term capital. They established that total and short-term debt is positively related to firm's

profitability, which might be the most important factor in accessing outside financing in countries with weak collateral laws.

Study by Ahmed, H. (2014) concluded that debt financing maintains complete control over the business, the lender charge a company interest for the use of a loan but have the right to say how a company should manage its business, companies deduct their interest as business expense, i.e., debt financing covers up part of a company's business income from taxes and reduces the company's liability, and continuity of debt borrowing can help to establish a company's record of creditworthiness. In contrast to (Ahmed, H. 2014), debt financing may create financial burden due to interest payment, requires to pledge company properties as collateral to secure loan, may be difficult to obtain business loans if a company does not have a good credit rating and strong track record of loan repayment and can stifle a company's growth because of high cost of repaying the loan, especially in the case of repaying compounding interest (Ogebe, et al, 2013). They recommended that firms should use more of equity than debt in financing their business.

2.3.2. Debt level and Firms' financial performance

A number of empirical studies have shown that the impact of debt financing on firms' performance but most of them didn't clarify the extent to which it exerts effect and the dependence of effect on the level (amount) of debt. They focused merely on the period (short-term & long-term) rather than the level. A few research results identified the impact of debt financing on the bases of debt levels. The debt level (financial leverage) is ambiguous and unsolved problem. Studies by Gitman & zutter (2012) investigate that the level of debt (financial leverage) that is acceptable for one industry or line of business can be highly risky in another, because different industries and lines of business have different operating characteristics. They, further, concluded that the impact of debt level mainly depend on the type of debt (Government debt, private debt, corporate debt, household debt) and the capacity of risk resistance.

Capital structure and its influence on the firm financial performance and overall value has been remained an issue of great attention amongst scholars since the decisive research of (Modigliani and Miller, 1958) arguing that under perfect market setting capital structure doesn't influence in valuing the firm. Influential paper of (Jensen and Meckling, 1976) concluded that high leverage

may initiate clashes between managers and shareholders due to selection of investment equity, debt or hybrid. The aim of their study, here, is empirically to investigate the association among debt level and financial performance of firms. (Jensen, 1986) arguments of free cash flow predicts that higher leverage might raise financial performance due to the reason that managers of such firms are lesser able to initiate with projects showing negative NPV in checking the association among capital structure, firm performance and equity ownership, found supporting results for the center of forecast.

In contrast to the above, the findings of Umar, et al. (2012) proved that with the increase in leverage (debt level) negatively affect the financial performance of firms. This result recommended that managers shall not use excessive amount of leverage in their capital structure, they must try to finance their projects with retained earnings, and use leverage (debt) as a last option. Similarly Cosmir and Anthony (2012) Said that a capital structure of a firm (leverage) has a negative impact on firm's financial performance. They proved, in their study, that highly leverage capital structure causes negative impact on firm's financial performance but it also provides tax rebate on interest expenses. Study by Ebaid, I. (2009), which sought to establish the relationship between debt level and financial performance of companies listed on Egyptian stock exchange, found out that an increase in debt level results negative impact on the financial performance.

Cecchetti, et al. (2011) addressed question using a new data set that include debt levels in 18 OECD countries from 1980 to 2010. Their results support the view that, beyond a certain level, debt is a drag on growth. As debt levels increase, borrowers' ability to repay becomes progressively more sensitive to drop income and sales as well as increases interest rates. For a given shock, the higher debt, the higher is the probability of defaulting. The higher the level of debt is the bigger the drop for a given size of shock to the firm's financial performance. From the result of their study, they recommended that as highly indebted borrowers stop spending, less indebted borrows or lenders could take up the slack; the debt holders should prefer low level debt in order that their firm's financial performance kept health. Early studies by Baker (1973) reveal that large amount of debt implies large amount of risk thus raises the industry profit. This is in the line with the portfolios theory that pegs higher returns of security to higher risk levels.

Studies evidenced by Kinsman and Newman (1998) suggested that, in general, higher levels of debt are correlated with lower firm's financial performance based on the relationship between three measures of debt level. By using current debt as the measure of indebtedness, the findings indicate that current short term debt was negatively correlated with earnings but positively with long term debt. On the other hand, an empirical study done by Abor (2005), on the twenty two sampled firms which were listed in Ghana, found that an increase in the debt position is associated with an increase in profitability thus; the higher the debt will be the higher profitability. This supports the (Myers 1977) argument, that firm's high short term debts to total assets have a high growth rate and high financial performance. Additional works by Grossman and Hart (1986) indicate that higher levels of debt in the firm's capital structure will be directly associated with higher financial performance level. In principle, the higher financial performance level might be contributed by tax shield of interest and disciplinary role imposed by higher long term-debt which reduces agency cost. The findings of (Grossman& Hart, 1986) also concluded that an increase with long term debt level does not contribute to higher return to equity holders.

Compello (2006) conducted a study based on that whether using debt decrease the financial performance of a firm or increase the firm's financial performance. The results showed that the debt financing can increase or boost the financial performance depend upon the level of existing leverage of the firm. According to the conclusion, firm with moderate leverage has a substantial market share gains as compared to other firms, but when these firms increase their leverage their performance in terms of sales decreases. The argument for the existence of optimal debt financing levels has kept researchers long in the field for decades. Studies have analyzed debt finance to determine whether optimal debt finance levels exist. Therefore, decisions on debt finance level have an impact on the success of the corporation financial performance. Precisely how firms decide the amount of debt in their capital structure remains a puzzle (Rao, et al, 2007). A recent study by Aringo, O. (2014) concluded that, in contrast to the findings by (Grossman and Hart, 1986); both current debt and long-term debt affect the return to equity of the shareholders. This study, moreover, gave an emphasis on the impact of debt financing based on the debt amount.

2.3.3. Debt financing and financial performance

Modigliani and Miller (1958) believed that the value of a firm is determined by its real assets and not by the amount of debt and equity available as part of its capital structure. Many studies have been undertaken to examine the determinants of capital structure and the choice between equity and debt financial instruments. However, the question remains whether the choice between debt and equity, and the debt level have any effect on a firm's financial performance. Studies of the impact of capital structure and the determinants of capital structure mix have provided some evidence that could be used as an indicator of the relationship between debt and financial performance of a firm. This section will highlight studies that have examined the effect of debt level choice on the financial performance of a firm.

Since Modigliani and Miller's landmark paper, the cost of capital, corporate finance, the theory of investment, and the theory of capital structure and its effect on firm value and financial performance have remained confusing issues (Ebaid 2009). Some theories consider the roles of managers to maximize a firm's value and subsequently shareholders' benefits. This was central to a firm's effectiveness (Charkravathy 1986). However, debt holders can also influence a firm's value, depending on debt benefits. In this study, capital structure refers to the way that firms finance their activities by using a mix of debt and equity.

The trade-off theory suggests that there is an optimal capital mix (moderate debt levels) that can help to maximize a firm's market value by considering both the costs of bankruptcy and tax shield advantage of debt (Adeyem & Oboh 2011). This theory predicts a positive relationship between a firm's choices of capital structure and its market value. According to Miller (1977), by using debt, tax savings appear large and certain while bankruptcy cost appears negligible, thus implying that many firms are more highly leveraged than they actually are. Myers (1984) argued that if this theory was valid then tax indicators showed provide an important hint about the optimum capital structure decision that should increase the value of the firm. According to Adeyem and Oboh (2011), the static-order hypothesis also suggests that more profitable firms carry more debt in order to be able to get tax deduction over their profit; however, Myers (1984) criticized this suggestion.

Reducing agency costs is one of the issues associated with high leverage levels. Jensen and Meckling (1976) and Jensen (1986) argued that high leverage can help a firm's financial performance by reducing conflicts among shareholders and managers concerning FCF. Jensen (1986) stated that firms with high FCF and low growth opportunities are expected to have high debt levels. Since Jensen and Meckling (1976) and Jensen (1986) argued that capital structure influences firm's financial performance, several researches have conducted studies to examine the relationship between financial leverage and firm performance.

Study by Majumdar and Chhibber (1999) found a negative relationship between capital structure (debt level) and firm performance. Likewise, Chiang, et al. (2002) found a negative relationship between high leverage and firm's financial performance, Korteweg (2004) found a negative relationship between leverage and returns. In their study about the relationship between capital structure and firm performance, Bistrova, et al. (2011) found evidence that supports the pecking order theory. Their study showed a negative relationship between the level of debt and capital profitability. Hence firms should avoid using external funds if they can use internal funds.

There have been a few studies examining the relationship between leverage levels and the financial performance of firms in Africa, the developing countries. The studies that have been undertaken offer mixed results about the relationship between leverage levels and financial indicators. For example, from Kenya, Apima, et al. (2016) and Muchugias, L.M. (2011) conclude that as leverage level increase, financial indicators such as profitability, liquidity and growth opportunity decrease. In contrast to the above, Aringo (2014) who examined the effect of capital structure on financial performance, evidence from firms listed under manufacturing, construction and allied sector at Nairobi securities exchange, found that total debt ratio is positively related to financial performance. He recommended that firms should use high level of long-term debt which should be accompanied by disciplined administration if they reduce agency costs and benefit from interest tax shields and thereby improve performance. In Nigeria, study by Ogebe, et al. (2013) found a negative relationship between leverage levels and firm's financial performance. Their study showed that the extent of its impact varies in relation to highly and lowly geared firms, i.e., high gearing (levering) have large impact on firm's financial performance.

A very few studies that have performed in Ethiopian about the determinants of capital structure and the effect of capital structure on profitability/ firm performance come with different results. Asnakew, B.(2011) conducted a study about capital structure determinants of Ethiopian insurance companies and concluded that there is a negative relationship between leverage and financial performance indicator, growth. Study done by Hailu, A. (2015), about the impact of capital structure on profitability of commercial banks in Ethiopia, proved that capital structure/leverage as measured by debt to asset ratio had statically significant negative relationship with profitability.

2.4. Debt financing and financial performance of Textile Companies

As studies show, Textile industry is one of the leading industrial sectors in the world, and provides a significant contribution in a country's industrial production, exports, creating employment opportunities, Gross domestic product (GDP) and economic growth. For example, currently, in India, Textile sector contributes about 14% to industrial production, 4% to the gross domestic product (GDP) and 17% to the country's export earnings. It provides direct employment to over 35 million people. The sector is second largest provider of employment next to agriculture. Thus, the growth and all round development of this industry has a direct bearing on the important of economy of the nation (<http://www.airj.iar.com>).

The textile and apparel industry participates with equivalent amounts to 4.1% of the total Brazilian GNP and 1.7% showing that this is an industry of greater relevance for the Brazilian economy, has strong social impact (<http://www.buyusa.gov/Brazil>). In Pakistan, Textile industry is the most important sector because it contributes 65% national exports, 46% industrial production, 38% employed industrial work force and 9% gross National product (GNP) (Hasan, Y. & Kashif-ud-din, 2012). In Ethiopia, for the past five years (2010/11-2014/15), the compound annual growth rate (CAGR) of export of the textile sector attains 12%. Export share of textile from total manufacturing export is 23.2% (in 2015); export share from the total export of the country is 3.5% (in 2015). (ETIDI, January 2016)

A number of studies have carried out about capital structure and determinants of capital structure of textile firm in different countries in different time. Hasan,Y.& Kashif-ud- din (2012) and

Mujahid, et al. (2014) Performed studies about the impact of capital structure on textile firms in Pakistan and found that long term debt ratio is significant and has positive impact on financial performance; and short term debt ratio and financial performance are negatively related. Their studies recommend that firms should prefer long term debt rather than short term debt.

2.5. Conclusion and knowledge gap

Prior different empirical studies were conducted at different time in different contexts. Early studies by Grossman and Hart (1986), Berger (1995), Weinraub and Vischer (1998), that concerned the relationship between capital structure of a firm (leverage) and financial performance indicators, indicated a positive relationship. Additional work by Compello (2006), Kiogora (2002) concluded that debt financing can increase or boost the financial performance depending upon the level of existing leverage of the firm. The results of those studies showed that debt is positively related with measurements of financial performance. Recent studies by Muchugias, L.M. (2011), Dessi, R. and Donald, R. (2013), Apima, et al. (2016) found a positive relationship between leverage and firm's financial performance.

In contrast to the above findings, a great deal of studies proved that debt affects firms' financial performance negatively. For example, Chiang, et al. (2002), Korteweg (2004), Ebaid (2009) reported that long term and total debt impact the financial performance of a firm negatively. Other studies by Cosmir & Anthony (2002), Umar, et al, & Sajid, M. (2012), Ogebe, et al. (2013) also concluded that leverage and financial performance correlated negatively.

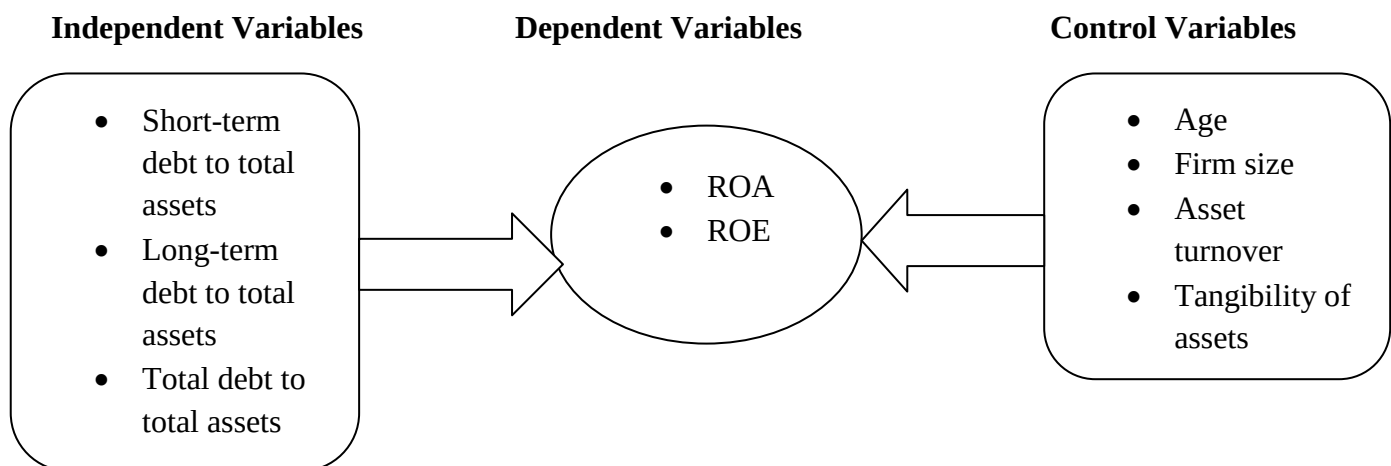
Most powerful studies that were undertaken in developed economy and in countries that have capital market might fail to conclude the relationship between debt financing and financial performance of a developing countries like Ethiopia. A few studies, which are loosely related with this study, were conducted in Ethiopia provided contradicting and mixed results. For instance, study by Amanuel, M. (2011), Kebede, D. (2011) reported a positive relationship between debt and profitability. Contrary to the above findings study by Asrat, K. (2016) concluded that leverage and financial performance indicators are correlated negatively. This study designed to investigate the impact of short term debt ratio, long term debt ratio and total debt ratio on firms' financial performance which the previous studies didn't touch.

The inconclusive and contradictory results of earlier empirical studies are definitely an indication of the need of further studies. Hence this study is supposed to fill this knowledge gap that revealed in the inconsistency results of the previous literatures. On the other hand, a number of literature reports contradictory and mixed outcomes about the association between leverage and financial performance of firm in developed economies, very few tests the relationship in developing economies. Therefore, this study provides an investigation of the effect of debt financing on financial performance in developing countries, with no capital market, inefficient market setting.

2.6. Conceptual framework

Based on the revision of related theoretical and empirical literatures the following conceptual framework is formulated to examine the relationship between the explanatory variables such as short term debt to total assets (STDTA), long term debt to total assets (LTDTA) and total debt to total assets (TDTA); and the dependent variables such as return on assets (ROA) and return on equity (ROE), measures of financial performance having considered the firm size (FS), age (AG), asset turnover (ATO) and tangibility of assets (TOA) as controlling variables.

2.1. fig. conceptual framework of the paper



Source: Researcher own design

Chapter Three

3. Research Design and Methodology

The preceding chapter presented the literature review of related theories and empirical studies in which knowledge gap have been identified. This chapter is designed to discuss the research methods, methodology and research design to accomplish the research objectives. It is organized as follow: the first section 3.1 is the research design which is intended to examine the effect of debt financing on firm's financial performance. Section 3.2 presents source of data and data collection methods. In section 3.3, the sampling design and the sample size are presented. Finally, Data Analysis techniques, and variable identification and model specification are presented in section 3.4 and 3.5 respectively.

3.1. Research Design

As it is already mentioned in chapter one, the main objective of this study is to examine the effect of debt financing, by identifying the explanatory variables, on manufacturing firm's financial performance. To achieve the research objective, explanatory type of research design with quantitative approach is adopted. The explanatory type of research design helps to identify and evaluate the causal relationship between different variables under consideration (Marczyk, et al. 2005). The main aim of explanatory research is to identify any causal links between the factors or variables that pertain to the research problem. Such research is also very structure in nature. Hence, in this study, in which cause effect relationship is investigated, the explanatory research design is employed. Since the variables are quantified, quantitative approach is preferred to use.

Panel data of fifteen textile factories from Addis Ababa and Oromia Special Zone for five years (2012-2016) were used, because panel data combines the attributes of cross-sectional and time series data. This enables panel data analysis to provide more reliable estimates of parameters in the model (Wooldridge, J. M., 2012). According to the definition of Brooks, C. (2008), panel data can address a broader range of issue and tackle more complex problem than would be possible with pure time series or cross-sectional data alone. With panel data, sophisticated

behavioral model with less restrictive assumptions can be tested and examined the relationship between variables change (Baltagi, 2008). Therefore, the researcher prefers to apply panel data analysis because it consists of both the cross-sectional information, which captures individual variability, and the time-series information, that captures dynamic natures of the data.

3.2. Source of data and collection methods

The researcher merely used secondary data sources to accomplish the research objective. According to Stewart and Kamins (1993), secondary data have its own advantages. Secondary source gives higher quality data, and provides a source of data that is both permanent and available in a form that can be checked relatively by others and increases the dependability of the data.

The data were collected from financial statements and annual reports of the selected textile factories, and Commercial Bank of Ethiopian, CBE, (corporate credit and commercial credit). The study included fifteen textile factories, and used panel data of these factories for five years (2012-2016) resulted in 75 observations.

3.3. Sampling and sample size

The population size of Textile factories in Addis Ababa and Oromia Special Zone, currently on production excluding those that perform only ginning, spinning, knitting, weaving, sewing or garment production alone; is all 35 Textile factories. To select sample factories from the population (35 factories), purposive sampling technique was employed which enables the researcher to choose sample factories that fulfill the study requirements. In the sample, textile companies that have complete financial statements for the study period were included purposively. The age of the companies was taken into consideration, i.e. those that were established before six year and on production at least for five years, and contain a five year financial statements are selected. Based on these criteria fifteen textile companies were selected as samples are presented below:

Table.3.3. List of sample textile companies operating from 2012 to 2016

	Company/Factory Name	Year of Establishment (in G.C)	Type of company/ Factory	Location (Sub-city)	Ownership type
1.	Yirgalem Addis Textile factory P.L.C	1969	Integrated	Nifas silk- Lafto	Private
2.	KK Textile P.L.C	2000	Textile	Akaki Kality	Private
3.	DH.Geda blanket factory P.L.C	2002	Textile	Akaki Kality	Private
4.	Eltex Textile and garment factory P.L.C	2004	Integrated	Akaki Kality	Private
5.	Nuoya Textile investment	2004	Textile	Oromia Liyu Zone-Gelan	private
6.	Yabets Textile factory	2005	Textile	Nifas Silk- Lafto	Private
7.	Al-Mehdi industries (textile manufacturing)	2005	Integrated	Oromia Liyu Zone-Dukem	private
8.	Ayka Addis Textile & investment group	2007	Integrated	Oromia Liyu Zone-Alemgena	private
9.	Al-Asr industries (textile manufacturing)	2007	Integrated	Oromia Liyu Zone-Dukem	private
10	SayginDima textile and weaving	2008	Integrated	Oromia Liyu Zone-Sebeta	Share
11	Firke factory P.L.C.	2009	Textile	Kolfe	Private
12	Mahiver industries P.L.C (Textile manufacturing)	2011	Textile	Nifas Silk- Lafto/Jemo	Private
13	MNS manufacturing PLC	2011	Integrated	Oromia Liyu Zone-Legetafo	private
14	Big M Apparel and garment P.L.C	2011	Integrated	Akaki Kality	Private
15	BM Ethiopia garment & textile S.C.	2011	Integrated	Nifas Silk- Lafto	Share

Source: Ethiopian Textile Industry Development Institute (ETIDI), 2008.

3.4. Data Analysis Techniques

The multiple regression models were used to identify the relationship between financial performance of textile firms and leverage. To analyze the collected data, descriptive statistics, correlation matrix, and multiple panel regression data analysis techniques were employed. In the analysis of the descriptive statistics, the mean, standard deviation, maximum and minimum values were used to analyze the important features of the variables. The correlation analysis was used to identify the relationship between the independent and control variables; and dependent variables.

The correlation analysis shows only the degree of association between variables but not makes causal interferences concerning the relationship between variables (Marczyk et al, 2005). Therefore multiple regression analysis was used to test the hypotheses and to identify the relationship between the independent and dependent variables. In addition, diagnostic test were employed so as to check the validity of the model on the bases of the assumption of classical linear regression model (CLRM). The diagnostic tests that were managed in this study were Heteroscedasticity test, Auto correction test, and tests for multi-collinearity and normality. To analyze the collected panel data using the descriptive statistics, diagnostic test and multiple regressions, E-views econometric software version 9 was applied.

3.5. Variables identification and model specification

3.5.1. Variables identification

3.5.1.1. Independent variable

The definition of company leverage depends on the objective of the researcher. However, Rajan and Zingales (1995) offered one of the most important empirical studies to analyze leverage and its impacts. They introduced five definitions of leverage, while prior studies focused on the debt to total assets ratio as an acceptable measure of financial leverage (e.g. Ebaid, 2009; Zeitun & Tian 2007; Abor 2005). Such studies applied three measures of financial leverage: short- term debt to total assets (STDTA), long-term debt to total assets (LTDTA) and total debt to total

assets (TDTA). Ahmed, H. (2014) employed only total debt to total assets (TDTA) as independent variable while he was conducting an investigation on the effect of financial leverage on firm financial performance in Saudi Arabia's public listed companies.

To achieve the objective of this study, the researcher preferred to use three independent variables, short term debt to total assets (STDTA), long term debt to total assets (LTDTA) and total debt to total assets (TDTA) because these variables are often used by researchers who had studied the presence of financial leverage and its impact on firm's financial performance.

3.5.1.2. Dependent variables

As prior studies show, the firm's financial performance is measured by return on assets (ROA) and return on equity (ROE). Given the observed differences in the composition of financial performance indicators/measurements, it is clear that ROA and ROE have been used most frequently as performance measures in prior studies (Ebaid 2009, Zeitun and Tian 2007). Other measurements have also been used, such as Tobin's Q, which mixes market values with accounting values (Zeitun & Tian 2007) Sanda, et al. (2008) considered ROE and ROA among acceptable measurements of financial performance. Ahmed, H. (2014) used ROA, ROE, GPM and NPM as Financial Performance measurements. ROA represents one of the most used methods of quantifying financial performance. It was developed in 1919 by Dupont and it emphasizes the company's ability to efficiently use its assets (Maria, 2014). ROA was used, in this study, as dependent variable because it is the most popular profitability ratio that determines the financial performance and is considered the most useful measure of operational efficiency by most researchers.

ROA is key profitability ratio which measures the amount of profit made by a company per dollar of its asset. It shows the company ability to generate profit before interest and tax. In other words, it is the ability the company to pay its interest and tax. Furthermore, return on asset measurements include all of company asset including those which arise from liability as well as those which arise from contribution by investors. Return on asset gives an idea as to how efficiently management use company asset to generate profit (Ghosh, 2007). ROA gives an idea as to how efficiently management use company asset to generate profit (Ghosh, 2007). ROA is

computed by dividing earnings before interest and tax by the total assets (Zeitun & tian, 2007, Okpara, I., 2014, Suheyli, R., 2015, Asrat, K., 2016).

$$ROA = \frac{\text{earnings before interest and tax (EBIT)}}{\text{total assets}}$$

Preedanani (2005) used ROE as an accounting indicator for financial performance and Abor (2005) used ROE as a measurement of profitability. It shows the ability of the company to generate profit. It is calculated by dividing net income by total equity (Ahmed, H., 2014, Okpara, I., 2014, Asrat, K., 2016)

$$ROE = \frac{\text{net income}}{\text{total equity}}$$

Hence, this study used the most acceptable and frequently used financial performance measurements (indicators), i.e. ROA and ROE as dependent (Explained) Variables because they are a primary concern for profit oriented firms and offer an acceptable measurement of financial performance.

3.5.1.3. Control variables

In this study four control variables have been used to consider their potential influence when the effect of explanatory variables on the financial performance was investigated. The selected control variables, which have been preferred and employed in most of the previous studies, are firm size (FS), age (AG) and asset turnover (ATO) and tangibility of assets (TOA). A number of previous studies have suggested that firm size, age and growth can influence financial performance, Abor (2005), (Abdullah, 2005), (Aljifri & Mustefa, 2007), (Ahmed, H., 2014) to mention some of them. Asrat, K. (2016) applied growth, size and tangibility as control variables in his model. These variables are calculated as:

Firm size

Several authors have suggested that performance of a firm is related to firm size. Zeitun and Tian (2007), Majumdar and Chhibber (1999), Okpara, I. (2014) and Ahmed, H. (2014) provide

empirical evidence that the size of a firm determines firms' performance. Thus in this study, firm size is considered as control variable. It is computed as: the natural logarithm of total assets, $FS = \log TA$. Where, TA denotes total assets.

Age

In most powerful studies age of the firm has been considered as an important proxy of control variable while determining firm's financial performance. In this study age of the firm is taken as control variable. Older firms are expected to have better experience than the younger in financial performance. Age (AG) is measured as the natural logarithm of number of years since inception to the date of observation (Majumdar and Chhibber, 1999, and Abdullah, 2005). It is the difference between working year and year of foundation. It is computed as $AG = \text{natural log (year of function - year of foundation)}$.

Asset turnover

Asset turnover (ATO) measures how efficiently a company uses its assets to generate sales. Asset turnover ratio is an important financial ratio that can be used to achieve the purpose of measuring financial performance, hence the introduction of the variable, ATO, as a control variable, in various studies (Weygandt, et al., 2012, Okpara, I., 2014 & Muritala, T.A., 2012)

It can be calculated as $ATO = \text{net sales} / \text{average assets}$.

Tangibility of assets

The influence of tangibility of assets (TOA) was taken into consideration in the previous studies. Studies by (Majumdar and Chhibber, 1999, Aljifri & Mustefa, 2007, Mistre, S., 2015, Asrat, K., 2016) employed TOA as control variable. On the bases of those prior studies the researcher introduced it as control variable. It is calculated as fixed assets divided by total assets, $TOA = FA / TA$ where FA denotes fixed assets and TA represents total assets.

3.5.2. Model Specification

This study employed panel data regression model. Short term debt to total assets (STDTA), long term debt to total assets (LTDTA) and total debt to total assets (TDTA) as explanatory variables, the control variables firm age (AG), firm size (FS), asset turnover (ATO) and tangibility of assets (TOA) and the explained variables, return on assets (ROA) and return on equity (ROE) are identified in this study. To achieve the objective of the study (to identify the impact of leverage on firm's financial performance), multiple regression model was employed.

The general model for panel data: $Y_{it} = \alpha_{it} + \beta X_{it} + \mu_{it}$

Where,

Y_{it} = the dependent variable

α_{it} = Intercept (the constant term over time t)

β = Coefficients of the independent variable x_{it}

μ_{it} = The error term

The subscript i represents the cross-sectional dimension and t denotes the time series dimension.

Many researchers applied this general regression model to investigate the relationship between the variables in their study. Recent studies such as (Chechet, I. & Olayiwola, A., 2014), Okara, I. (2014), (Javed et al, 2015), (Kimathi, et al, 2015), (Banafa, A., 2016) applied this multiple regression model in their analysis. The first study mentioned above used this model to predict the relationship of capital structure and profitability, while the later three studies utilized it to investigate the effect of leverage on firm performance. Hence, based on the above general model, the effect of debt financing on manufacturing firms' financial performance can be evaluated using the models formulated below:

$$\text{Model I: } ROA_{it} = \alpha_{it} + \beta_1 STDTA_{it} + \beta_2 LTDTA_{it} + \beta_3 TDTA_{it} + \beta_4 AG_{it} + \beta_5 FS_{it} + \beta_6 ATO_{it} + \beta_7 TOA_{it} + \mu_{it}$$

$$\text{Model II: } ROE_{it} = \alpha_{it} + \beta_1 STDTA_{it} + \beta_2 LTDTA_{it} + \beta_3 TDTA_{it} + \beta_4 AG_{it} + \beta_5 FS_{it} + \beta_6 ATO_{it} + \beta_7 TOA_{it} + \mu_{it}$$

Where, α_{it} = the intercept for textile factory i in year t

ROA_{it} = Return on Assets for textile factory i in year t

ROE_{it} = Return on Equity for textile factory i in year t

$STDTA_{it}$ = Short- term debt to total assets for textile factory i in year t

$LTDTA_{it}$ = Long-term debt to total assets for textile factory i in year t

$TDTA_{it}$ = Total debt to total assets for textile factory i in year t

AG_{it} = Age for textile factory i in year t

FS_{it} = Size of textile factory i in year t

ATO_{it} = Sales growth for textile factory i in year t

TOA_{it} = Tangibility of assets for textile factory i in year t

μ_{it} = The error term for textile factory i in year t

$\beta_1, \beta_2, \beta_3$ denote the coefficient of explanatory variable

$\beta_4, \beta_5, \beta_6, \beta_7$, stand coefficient of control variable

3.6 summaries of variable measures

The description, measurements and their expected sign of each variable in this study are given below.

Fig.3.6. Summary of the study variables and their measurements

Category	Variables	Measurements	Reference	Expected signs
Independent Variables	Short term debt to total Assets(STDTA)	$STDTA = \frac{\text{short term debt}}{\text{total assets}}$	Ebaid (2009), Abor (2005), Zeitun&Tian (2007),Hasan (2014)Amara & Aziz, B. (2014),Javed, T.,Younas, W. & Imran, M. (2014),Javed, Z., Akram, B. & Nazir, M.F.(2015) Okpara, I. (2014)	
	Long term debt to total assets (LTDTA)	$LTDTA = \frac{\text{long term debt}}{\text{total assets}}$		
	Total debt to total assets (TDTA)	$TDTA = \frac{\text{total debt}}{\text{total assets}}$		
Dependent Variables	Return on assets (ROA)	$ROA = \frac{EBIT}{\text{total assets}}$	Ebaid (2009), Zeitun & Tian (2007),Sand, Garba &Mikailu (2008), Ahmed, H. (2014), Okpara, I. (2014)	(+)
	Return on equity (ROE)	$ROE = \frac{\text{net income}}{\text{total equity}}$		(+)
Control Variables	Age of the firm (AG)	Age (AG) =present year-year of foundation computed by $AG = \log \text{Age}$	Ahmed, H. (2014), Okpara, I. (2014)	(+)
	Firm's size (FS)	$FS = \log TA$	Abdullah (2005) Ahmed, H. (2014) Okpara, I. (2014), Azarmi, S. (2014)	(+)
	Asset turnover (ATO)	$ATO = \frac{\text{net Sales}}{\text{average assets}}$	Weygandt, et al. (2012), Okpara, I. (2014) Muritala, T.A. (2012)	(+)
	Tangibility of Assets (TOA)	$TOA = \frac{\text{fixed assets}}{\text{total assets}}$	Aljifri & Mustefa, (2007),Asrat ,K. (2016)	(+)

Chapter four

4. Data analysis and interpretation

In this chapter the collected panel data are presented, and analyzed and interpreted through E-views econometric software version 9. The descriptive statistics of the study variables are presented in section 4.1. Section 4.2 presents the correlation analysis between the financial performance measurements (ROA & ROE); and the explanatory variables such as short term debt to total assets (STDTA), long term debt to total assets (LTDTA), total debt to total assets (TDTA) and the selected control variables, i.e. age (AG), firm size (FS), asset turnover (ATO), tangibility of assets (TOA). The diagnostic test for the model such as Heteroscedasticity Test, Autocorrelation test, Multicollinearity test and Normality test are presented in section 4.3. Section 4.4 presents model specification test, the fixed effect vs. random effect. Finally, results of the regression analysis and summary of the findings are presented in section 4.5 and section 4.6 respectively.

4.1. Descriptive statistics of the study

The descriptive statistics of dependent independent and control variables of this study is discussed based on the data collected from fifteen textile companies over the period of 2012-2106. The value of mean, standard deviation, minimum and maximum of the dependent variables (ROA & ROE), the independent variables (STDTA, LTDTA & TDTA) and the control variables (AG, FS, ATO & TOA) of the study for both models, which consists 75 observations are computed using Eviews 9.

The summary of the descriptive statistics of the dependent, independent and control variables of the sample used in this empirical study is presented in Table 4.1 below.

Table.4.1. Descriptive statistics of the study variables

	Mean	St. Dev.	Minimum	Maximum	No. of Observations
ROA	0.056807	0.018866	0.017932	0.117875	75
ROE	0.177502	0.126379	0.006456	0.526457	75
STDTA	0.500369	0.190133	0.127659	0.824192	75
LTDTA	0.200853	0.076997	0.015998	0.457847	75
TDTA	0.703025	0.156712	0.451939	0.970949	75
AG	0.806437	0.309428	0.000000	1.461280	75
FS	8.292981	0.281833	7.651684	8.970817	75
ATO	0.111454	0.084368	0.020039	0.70390	75
TOA	0.354096	0.157408	0.122437	0.812224	75

Source: Author own estimation from Eviews 9 summary descriptive statistics output.

As can be observed from the Table 4.1 above, over the period of 2012 to 2016 for the textile companies in the sample, the mean value of financial performance indicators such as return on asset (ROA) and return on equity (ROE) on average is 5.68% and 17.75% respectively. It implies that the Ethiopian textile factories under this study generate 5.68% revenues from their invested total assets and the average return on equity is 17.75% over the period of 2012- 2016. The standard deviation, the measure of dispersal, of return on asset (ROA) and return on equity (ROE) is 0.019 and 0.126 respectively. These standard deviation values depict the volatility of ROA & ROE from the mean values over the period of study for this sample of fifteen textile companies in Ethiopia. The minimum and the maximum values of return on asset (ROA) are 0.018 and 0.118 respectively, whereas the minimum and maximum values of return on equity (ROE) are 0.006 and 0.526 respectively. With regard to ROE, the average value was 17.75% which is very low when compared with the 52.6% maximum return. It shows that some firms reported large losses and hence poor performance generally.

The mean value of short term debt to total assets (STDTA) is 0.500. This statistical figure signifies that 50% their short term investment of textile companies in Ethiopia, under this study, is financed by short term debt. On the other hand, the mean value of long term debt to total assets

(LTDTA) is 0.201, which shows that 20.1% of the long term investment of Ethiopian textile companies is financed by long term debt. The total debt ratio (TDTA) has mean value of 0.703, which indicates that 70.3% of their finance comes from total debt. This value also implies that the Ethiopian textile factories are financed more by total debt than either by internal funds or equity. The mean value of firm's age (AG), firm size (FS), asset turnover (ATO) and tangibility of assets (TOA) is 0.806, 8.293, 0.111 and 0.354 respectively. (See Appendix 1)

4.2. Correlation test

Correlation analysis is defined as the degree (the strength) of relationship between two variables (Sharma 2005). Since the correlation between two variables measures the degree of linear association between them, the dependent variable and the explanatory variables are being treated in a completely symmetrical way. Thus, it is not implied that changes in explanatory variables cause changes in dependent variable. Rather, it is simply stated that there is evidence for a linear relationship between the two variables, and that movements in the two are on average related to an extent given by the correlation coefficient (Brooks, C. 2008, p28). In this study the correlation co-efficient analysis was undertaken to find out the relationship between debts and financial performance. It can be said that what relationship exist among variables. The correlation coefficients show the extent and direction of the linear relationship between the dependent variables, ROA, ROE; and the explanatory variables, STDTA, LTDTA, TDTA and the control variables, AG, FS, ATO, and TOA of textile factories over a period of five years. Hence, the correlation coefficient matrix for all variables of the 2 models is presented below in table 4.2.

Table.4.2. Correlation matrix between dependent; independent and control variables

	ROA	ROE	STDTA	LTDTA	TDTA	AG	FS	ATO	TOA
ROA	1.000000	0.339968	-0.250969	0.144230	-0.250600	0.415278	-0.196470	0.768570	0.372199
ROE	0.339968	1.000000	0.754928	-0.252816	0.781282	0.103363	-0.763301	0.373337	0.081310
STDTA	-0.250969	0.754928	1.000000	-0.589623	0.826531	0.094846	-0.547696	-0.074926	-0.337942
LTDTA	0.144230	-0.252816	-0.589623	1.000000	-0.253496	-0.415542	0.074901	-0.076924	0.468909
TDTA	-0.250600	0.781282	0.826531	-0.253496	1.000000	-0.073923	-0.618721	-0.136357	-0.192274
AG	0.415278	0.103363	0.094846	-0.415542	-0.073923	1.000000	-0.038082	0.313459	-0.298809
FS	-0.196470	-0.763301	-0.547696	0.074901	-0.618721	-0.038082	1.000000	-0.032784	0.055334
ATO	0.768570	0.373337	-0.074926	-0.076924	-0.136357	0.313459	-0.032784	1.000000	0.016164
TOA	0.372199	0.081310	-0.337942	0.468909	-0.192274	-0.298809	0.055334	0.016164	1.000000

Source: own estimation from Eviews 9

As the Eviews output shows, return on assets (ROA) has very strong positive correlation with asset turnover (ATO) of textile companies with the value of (0.769). Furthermore, ROA is moderately and positively correlated with age (AG) and tangibility of assets (TOA) of the textile companies in Ethiopia with the value of (0.415) and (0.372) respectively; and negatively correlated with short term debt ratio (STDTA), total debt ratio (TDTA) and firm size (FS) with the values (-0.25097), (-0.2506) and (-0.1965) respectively. On the other hand, this study shows, relatively, weak correlation between ROA and long term debt ratio (LTDTA) with the value of (0.144).

The correlation coefficients signify strong and positive associations between return on equity (ROE) and total debt ratio (TDTA), ROE and short term debt ratio (STDTA) for Ethiopian textile companies over the period of 2012-2016 with the values of (0.781) and (0.755) respectively. Return on equity (ROE) and firm size (FS) are strongly and negatively correlated with the value of (-0.763). The study also identifies weak relationship between return on equity (ROE) and age of the companies (AG), tangibility of assets (TOA) with the correlation coefficients (0.103) and (0.081) respectively.

4.3. Diagnostic tests

Much has been written about "diagnostic tests" for model misspecification in econometrics in recent years. Some useful general references in this field include Kramer and Sonnberger (1986), Godfrey (1988, 1996), and White (1994) among many others. It is important to test the validity of the assumptions which underlie our model because when one or more assumptions fail our inference might be misleading. The properties of the least squares estimator depend on the assumptions of the CLRM. The derivation of the t and F tests also depends on these assumptions. Much of econometrics is about testing whether these assumptions hold. If they do not, then the model should be re- specified and perhaps estimated by a different method, depending on the exact nature of the misspecification. The various diagnostic tests that are applied, in the context of the classical multiple linear regression models, in this study are heterokedasticity test, autocorrelation test, multi-collinearity test and normality test.

4.3.1. Heteroskedasticity test

There are occasions in econometric modeling when the assumption of constant variance, or homoscedasticity, will be unreasonable. If the errors do not have a constant variance, they are said to be heteroskedastic (Brooks, C. 2008, p132). There are various types of tests depending on the nature of heteroskedasticity. However, there are a number of formal statistical tests to detect the presence of heteroskedasticity in the model; White's test which is a popular and general test for heteroskedasticity was conducted in this study. The test is particularly useful because it makes few assumptions about the likely form of the heteroskedasticity.

Table.4.3.1. Heteroskedasticity test

Heteroskedasticity Test: White for model test 1

F-statistic	1.524832	Prob. F(31,43)	0.0993
Obs*R-squared	39.27376	Prob. Chi-Square(31)	0.1462
Scaled explained SS	29.86867	Prob. Chi-Square(31)	0.5241

Heteroskedasticity Test: White test for model 2

F-statistic	0.783138	Prob. F(31,43)	0.7596
Obs*R-squared	27.06405	Prob. Chi-Square(31)	0.6690
Scaled explained SS	7.376507	Prob. Chi-Square(31)	1.0000

Source: Eviews 9 output by author

As it is shown in the above the p-value of F-statistic for model1 and model 2 is (0.0993) and (0.7596) respectively. The result of heteroskedasticity test for both models gives the same values, the p-value greater than 5% which proves the absence of heteroskedasticity. The p-value of X^2 (Chi-Square) and scaled explained SS version also support the absence of heteroskedasticity. This implies that the null hypothesis was not rejected at 5% significant level which says that the error variance is constant. (See Appendix 2)

4.3.2. Autocorrelation test

Assumption 3 that is made of the CLRM's disturbance terms is that the covariance between the error terms over time (or cross-sectionally, for that type of data) is zero. In other words, it is assumed that the errors are uncorrelated with one another. If the errors are not uncorrelated with one another, it would be stated that they are 'auto correlated' or that they are 'serially correlated' (Brooks, C. 2008, p139). A test of this assumption is therefore required; hence, this study employed the Breusch-Godfrey test which is a more general test for autocorrelation for several of lagged values at the same time.

Table.4.3.2.Autocorrelation test

Breusch-Godfrey Serial Correlation LM Test for model 1

F-statistic	2.177771	Prob. F(2,65)	0.1215
Obs*R-squared	4.710014	Prob. Chi-Square(2)	0.0949

Breusch-Godfrey Serial Correlation LM Test for model 2

F-statistic	1.153439	Prob. F(2,65)	0.3219
Obs*R-squared	2.570553	Prob. Chi-Square(2)	0.2766

Source: Eviews 9 output by author

The Eviews 9 result shows that the p-value of F-statistic for model 1 and model 2 are (0.1215) and (0.3219) respectively. These values are more than 5% significant level which signify the absence of autocorrelation in these research models. The Chi-Square P value of both model (0.0949 & .2766) also support the absence of autocorrelation. Hence, the researcher is failed to reject the null hypothesis, which says the errors are uncorrelated with one another, at 5 % significant level. (See Appendix 3)

4.3.3. Multicollinearity test

Multicollinearity is a statistical phenomenon in which there exists a perfect or exact relationship between the predictor variables. When there is a perfect or exact relationship between the predictor variables, it is difficult to come up with reliable estimates of their individual coefficients. It will result in incorrect conclusions about the relationship between outcome variable and predictor variables (Joshi, H. 2012, p3). Large correlation coefficients in the correlation matrix of predictor variables indicate multicollinearity. If there is multicollinearity between any two predictor variables, then the correlation coefficient between these two variables will be near to a unit. To test the existence of multicollinearity between the predictor variables, correlation matrix was used.

Table.4.3.3. Multicollinearity test

	STDTA	LTDTA	TDTA	AG	FS	ATO	TOA
STDTA	1.000000	-0.589623	0.826531	0.094846	-0.547696	-0.074926	-0.337942
LTDTA	-0.589623	1.000000	-0.253496	-0.415542	0.074901	-0.076924	0.468909
TDTA	0.826531	-0.253496	1.000000	-0.073923	-0.618721	-0.136357	-0.192274
AG	0.094846	-0.415542	-0.073923	1.000000	-0.038082	0.313459	-0.298809
FS	-0.547696	0.074901	-0.618721	-0.038082	1.000000	-0.032784	0.055334
ATO	-0.074926	-0.076924	-0.136357	0.313459	-0.032784	1.000000	0.016164
TOA	-0.337942	0.468909	-0.192274	-0.298809	0.055334	0.016164	1.000000

Source: EvIEWS9 output by author

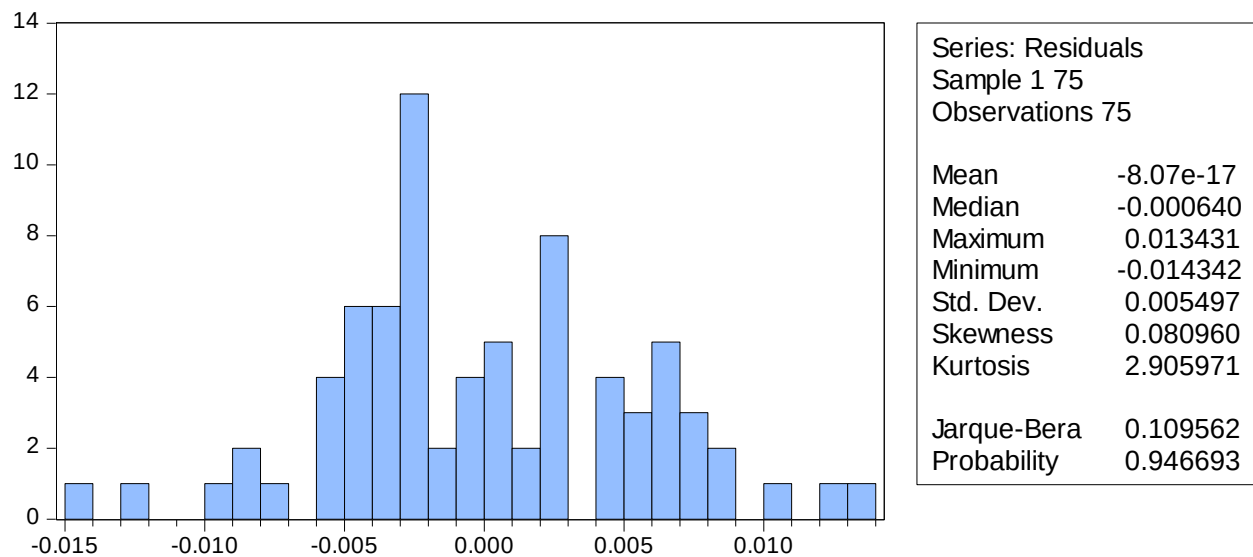
According to (Pallant, 2005), multicollinearity exists if the correlation coefficient between two independent variables is 0.9 or more than 0.9. Additional study by Hair (2006) concluded that correlation coefficient below 0.9 may not cause serious multicollinearity problem. Therefore, as shown in table.4.3.3, there is no a problem of multicollinearity between independent variables.

4.3.4. Normality test

Normality tests are used to determine whether a data set is well-modeled by a normal distribution or not, or to compute how likely an underlying random variable is to be normally distributed. Brooks, C. (2008) noted that in order to conduct hypothesis test about the model parameter, the normality assumption must be fulfilled. The normality applied tests for normality is the Bera-

Jarque (BJ) test. BJ uses the property of a normally assumption is about the mean of the residuals is zero. According Brooks, C. (2008) one of the most commonly distributed random variable that the entire distribution is characterized by moments, the mean, the variance, skewness and kurtosis.

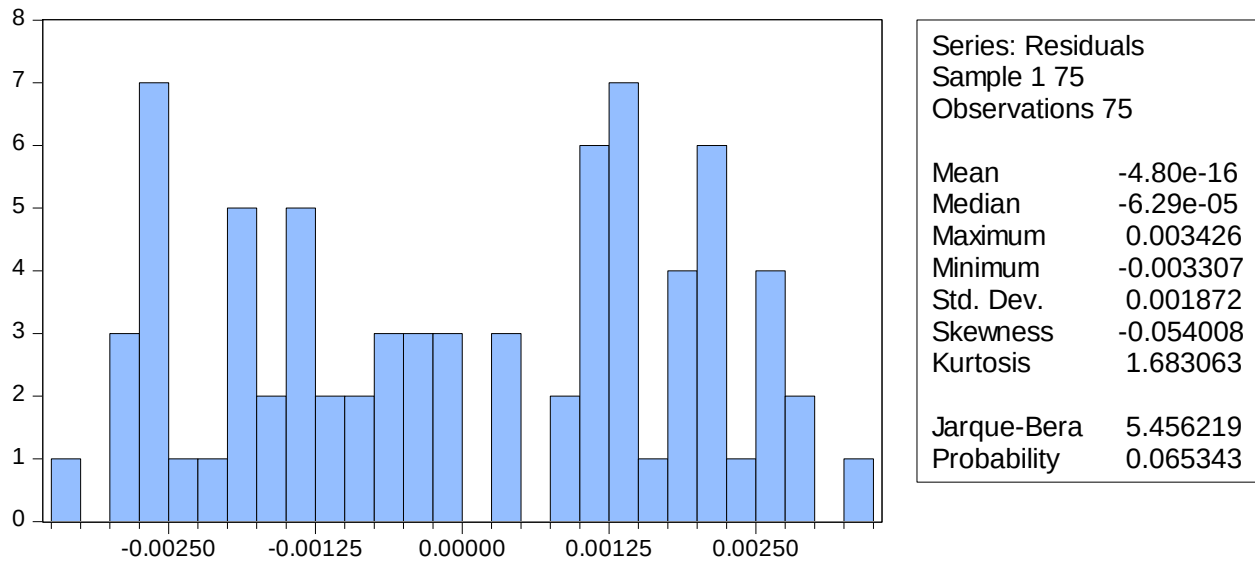
Fig.4.3.4.1 Histogram-Normality test for model 1



Source: Eviews9 output by author

As above figure shows the coefficients of skewness and kurtosis are 0.080960 and 2.905971 respectively. The Bera-Jarque statistic has a P-value of 0.946693. Based on the results shown in fig. 4.3.4.1 above, the p-value is more than 5% level of significant so that the researcher failed to reject the null hypothesis, which says the residual value is normally distributed. A normal distribution is not skewed and is defined to have a coefficient of kurtosis of 3 (Brooks. 2008). The value of kurtosis (2.91) for model 1 is close to 3 which supports that the residual value is normally distributed.

Fig.4.3.4.2 Histogram-Normality test for model 2



Source: Eviews9 output by author

As presented in figure 4.3.4.2, the Bera-Jarque probability statistics of model 2 (P-value) is 0.065343 which is more than 5% level of significant. This implies that the null hypothesis, the residual value is normally distributed, was not rejected for the model 2. As can be observed the figure shows two peaks data which usually indicates two different group data. These properties are not defined for a particular sample size; rather, they are defined as the sample size grows without bound (Wooldrige, J.M., 2012: 168). Bimodal (Binormal) distribution is discrete but not continuous. This figure shows that there exist quite differences in their financial performance among the selected sample textile factories in Ethiopian.

4.4. Fixed effect vs. random effect

In order to identify, which model (Fixed effect or Random effect) is appropriate the researcher applied Hausman test that examines whether the unobservable heterogeneity term is correlated with explanatory variables, while continuing to assume that regressors are uncorrelated with the disturbance term in each period (Brooks, C. 2008. pp.492-501). The null hypothesis for this test is that unobservable heterogeneity term is not correlated with the independent variables. If the researcher is failed to reject the null hypothesis random effect model is appropriate whereas if it is rejected, fixed effect model is appropriate (Brooks, C. 2008, pp.503-511).

Table.4.4. Hausman test

Correlated Random Effects - Hausman Test for model 1

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	51.885638	7	0.0000

Correlated Random Effects - Hausman Test for model 2

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	14.301664	7	0.0461

Source: Eviews9 output by author

The P-values of Hausman model specification test for model 1 and model 2, as shown in the table.4.4 above, are 0.0000 and 0.046 respectively. The p-values of both models are less than 5% level of significant which implies that the null hypothesis of the random effect is rejected at 5% of significant level. Hence, for this study, based on the result of model specification tests, the fixed-effect least squares regression model of panel data has been selected to analyze the relationship between dependent variables ROA, ROE as measures of firm's financial performance and independent variables STDTA, LTDTA, TDTA as proxy of leverage.

4.5. Results of the regression analysis

Regression analysis has been conducted by using panel data in E-Views 9 to test the research hypothesis. The effect of debt financing on firm financial performance was determined with a cross-section fixed effects model. Regression analysis is discussed in this section. Both models are treated and the results are displayed separately.

4.5.1. Relationship between leverage and financial performance

The relationship between leverage that is measured by short term debt ratio (STDTA), long term debt ratio (LTDTA) and total debt ratio (TDTA) and; the financial performance measurements such as return on assets (ROA) and return on equity (ROE) textile companies in Ethiopia over the period of 2012-2016 is analyzed and interpreted based on the regression results using Eviews9. The hypotheses that were formulated in chapter 1 are then tested using cross-section fixed effects regression model and their results are also treated below.

4.5.1.1. Leverage vs. return on assets, ROA

Table.4.5.1.1. Fixed effects regression result for model 1

Dependent Variable: ROA

Method: Panel Least Squares

Date: 05/06/17 Time: 06:04

Sample: 2012 2016

Periods included: 5

Cross-sections included: 15

Total panel (balanced) observations: 75

Variable	Coefficient	Std. Error	t-Statistic	Prob.
STDTA	-0.007374	0.037575	-0.196251	0.8452
LTDTA	0.028368	0.032677	0.868128	0.3892
TDTA	-0.028938	0.038289	-0.755793	0.4531
AG	0.030812	0.004122	7.474696	0.0000***
FS	-0.025289	0.013382	-1.889753	0.0643*
ATO	0.132874	0.007129	18.63769	0.0000***
TOA	0.021545	0.006718	3.207239	0.0023***
C	0.237580	0.112343	2.114781	0.0392**

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.967317	Mean dependent var	0.056807
Adjusted R-squared	0.954367	S.D. dependent var	0.018866
S.E. of regression	0.004030	Akaike info criterion	-7.950593
Sum squared resid	0.000861	Schwarz criterion	-7.270796
Log likelihood	320.1472	Hannan-Quinn criter.	-7.679157
F-statistic	74.69687	Durbin-Watson stat	2.290531
Prob(F-statistic)	0.000000		

***Correlation coefficient significant at 1%, **correlation coefficient significant at 5% and

*correlation coefficient significant at 10%

Source: Eviews9 output by author

From the fixed effects model specification test results, as presented in table 4.5.1.1 above, model 1 can be rewritten as:

$$ROA_{it} = 0.2376i_{it} - 0.0074STDTA_{it} + 0.0284LTDTA_{it} - 0.0289TDTA_{it} + 0.0308AG_{it} - 0.0253FS_{it} + 0.1329ATO_{it} + 0.0215TOA_{it} + \mu_{it}$$

Where i denote the cross-sectional dimension (1-15), t represents the time series dimension (2012-2016) and μ_{it} represents the error term.

The fixed effect result in the above indicates the average influence of all the explanatory variables put together is able to explain the dependent variable up to 95.44% as indicated by the adjusted R-squared and remaining only 4.56% is controlled by other factors. This implies that the model resulted from the fixed effect regression test well fits the data.

As the fixed effect estimation regression result shows in the above, the value of intercept (constant) is 0.2376. This implies that when all the value of explanatory variables is zero, the average value ROA would be 0.2376 units and statistically significant at 5% of significance level which indicates that ROA will increase by 0.2376 units when there is no change in explanatory variables.

As fixed effect regression result shows above, the coefficient of short term debt ratio (STDTA) is -0.0074. The negative coefficient indicates that a unit increase in STDTA of the Ethiopian textile companies resulted to 0.0074 unit decrease in firm financial performance measured by ROA. Since the p-value is 0.8452, it is statistically insignificant at 10% significant level. Hence, the null hypothesis, which says STDTA has positive impact on ROA, is rejected (See 1.4 research hypotheses in page 7 for detail). On the other hand, the coefficient of leverage expressed by LTDTA is 0.0284 which implies that, holding other variables constant, a unit increase in LTDTA of textile companies in Ethiopia would result an increase with 0.0284 units in ROA; but statistically insignificant at 10% significant level since the p-value (0.3891) is more than 0.1(10%). Therefore the null hypothesis would not be rejected. As presented in the model equation above, the coefficient of TDTA is -0.0289. This value shows that, other variables holding constant, a unit increase in TDTA of the Ethiopian textile companies would result in 0.0289 unit decrease. As the p-value (0.4531) is more than 0.1, it is statistically insignificant at 10% significant level; and hence, the null hypothesis would be rejected.

As presented in table 4.5.1.1 above, the coefficients of the control variables represented by AG, ATO and TOA are 0.0308, 0.1329 and 0.0215 respectively. This implies that, other variables

holding constant in their average values, a unit increase in AG, ATO and TOA of the Ethiopian textile companies would result 0.0308, 0.1329 and 0.0215 units increase in ROA respectively; and statistically significant at 1% significant level. However, the negative coefficient of FS (-0.0253) indicates that a unit increase in FS of the Ethiopian textile companies resulted to 0.0253 unit decrease in firm financial performance (ROA) and significant at 10% with the P-value 0.0643.

4.5.1.2. Leverage vs. return on equity, ROE

Table.4.5.1.2. Fixed effects regression result for model 2

Dependent Variable: ROE

Method: Panel Least Squares

Date: 05/06/17 Time: 06:13

Sample: 2012 2016

Periods included: 5

Cross-sections included: 15

Total panel (balanced) observations: 75

Variable	Coefficient	Std. Error	t-Statistic	Prob.
STDTA	0.418932	0.013732	30.50828	0.0000*
LTDTA	0.138068	0.011942	11.56158	0.0000*
TDTA	0.091268	0.013993	6.522636	0.0000*
ATO	0.012989	0.001506	8.622533	0.0000*
FS	-0.166444	0.004891	-34.03397	0.0000*
GR	0.625888	0.002605	240.2275	0.0000*
TOA	0.235467	0.002455	95.91705	0.0000*
C	1.092694	0.041055	26.61505	0.0000*

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.999903	Mean dependent var	0.177502
Adjusted R-squared	0.999864	S.D. dependent var	0.126379
S.E. of regression	0.001473	Akaike info criterion	-9.963850
Sum squared resid	0.000115	Schwarz criterion	-9.284054
Log likelihood	395.6444	Hannan-Quinn criter.	-9.692415
F-statistic	25944.27	Durbin-Watson stat	2.335163
Prob(F-statistic)	0.000000		

***Correlation coefficient significant at 1%**

Source: Eviews9 output by author

From the fixed effect regression test's results, as indicated in table 4.5.1.2 above, model 2 can be rewritten as:

$$ROE_{it} = 1.0927 + 0.4189STDTA_{it} + 0.1381LTDTA_{it} + 0.0913TDTA_{it} + 0.0130AG_{it} - 0.1664FS_{it} + 0.6259ATO_{it} + 0.2355TOA_{it} + \mu_{it}$$

Where i denote the cross-sectional dimension (1-15), t represents the time series dimension (2012-2016) and μ_{it} represents the error term.

The fixed effect regression result in the above shows all the explanatory variables are able to explain the dependent variable up to 99.98% as indicated by the adjusted R-square which implies that the model resulted from the fixed effect regression test well fits the data. The variation in the dependent variable explained by other factors is negligible.

As the fixed effect model regression result shows in the above, the value of intercept (constant) is 1.0927 which indicates that when all the value explanatory variables is zero, the average value ROE would be 1.0927 unit and statistically significant at 1% of significance level. In other words, ROA will be increased by 1.0927 units when there is no change in explanatory variables.

As the equation of model 2, resulted from the fixed effect estimation presented in table.4.5.1.2, displays the coefficients of leverage measured by short term debt ratio (STDTA), long term debt ratio (LTDTA) and total debt ratio (TDTA) are 0.4189, 0.1381 and 0.0913 respectively. This implies that, other variables holding constant, a unit increase in STDTA, LTDTA and TDTA of textile companies in Ethiopia would result an increase with 0.1489, 0.1381 and 0.0913 in firm financial performance measured by return on equity (ROE) respectively. All the coefficients of the explanatory variables are statistically significant at 1% significant level. Hence, the null hypotheses, which say STDTA, LTDTA and TDTA are positively related with ROE, would not be rejected (See 1.4 research hypotheses page 7 for detail).

As model 2 indicates, the coefficients AG, ATO and TOA (control variables) are 0.0130, 0.6259 and 0.2355 respectively. This implies that, other variables holding constant in their average values, a unit increase in AG, ATO and TOA of the Ethiopian textile companies would result 0.0130, 0.6259 and 0.2355 units increase in ROE respectively; and statistically significant at 1% significant level. The coefficient of one control variable, i.e. firm size (FS) shows negative

value (-0.1664) which implies when the Ethiopian textile companies' size increased by a unit the ROE would be decreased by 0.1664 units and significant at 1% significant level.

4.6. Summary of the findings

This section investigated the effect of Leverage measured by short term debt to total assets (STDTA), long term debt to total assets (LTDTA) and total debt to total assets (TDTA) on firm financial performance measured by return on assets (ROA) and return on equity (ROE) based on the panel fixed effect regression results of textile companies in Ethiopia over the period of 2012-2016. In addition, the relationship between the control variables and the financial performance indicators of this study was summarized and discussed referring the previous studies. Thus, the discussions on the findings of the study are presented as follows:

Short term debt ratio

The panel fixed effect estimation result of the study revealed a negative relationship between short term debt ratio (STDTA) and return on assets (ROA) of textile factories in Ethiopia with regression coefficient -0.0074 and statistically insignificant. The correlation matrix also indicated a supportive result with correlation coefficient -0.250 (See table.4.2). This implies that excess use of short term debt while financing the project might decrease the firm financial performance measured by ROA. This result is consistent with previous findings (Berger, 1995 and Kiogora, 2002). Other studies by (Majumdar, S.K. & Chhibber, P., 1999) and (Ghosha, 2007) also supported this result.

However, the financial performance measured by return on equity (ROE) is positively influenced by STDTA with regression coefficient 0.4189 and significant at 1%. This regression result is consistent with the correlation matrix's result. As fixed effect regression result revealed, a unit increase in STDTA of textile companies in Ethiopia would bring an increase in ROE with 0.4189 units which implies that financing a textile project with short term debt boosts the financial performance measured by ROE. But this result is inconsistent with the findings of (Hasan, Y. and Kashif-ud-din, 2012, Mujahid et al, 2014).

Long term debt ratio

As shown in table 4.5.1.1, long term debt ratio (LTDTA) has positive impact on financial performance measurements such as ROA and ROE of textile companies in Ethiopia over the period of 2012-2016 with regression coefficient 0.0284 and 0.1381 respectively. This signifies that when the LTDTA of textile factories in Ethiopia increased by a unit, their financial performance measured by ROA and ROE would be increased by 0.0284 and 0.1381 units respectively. This indicates that financing a textile factory in Ethiopia with long term debt enhance financial performance of the firm. Prior studies by Berger (1995), Kiogora (2002), Hasan, Y. and Kashif-ud-din (2012), Majumdar, S.K. & Chhibber, P. , 1999) and (Ghosha, 2007)) and Tauseef, S. (2015) supported this result. In contrast, this empirical result is not agreed with the findings of Javed et al. (2015) which supported the pecking order theory.

Total debt ratio

The fixed effect estimation regression result shows a negative relationship between total debt ratio (TDTA) and ROA. The negative regression coefficient (-0.0289) of TDTA indicates that a unit increase in TDTA of textile companies in Ethiopia results decrease in ROA with 0.0289 units. This implies that, other variable holding constant, when leverage measured by total debt ratio (TDTA) increased by a unit, ROA would be declined by 0.0289. This study result is consistent with the findings of Chiang, Chang & Hui (2002), Korteweg (2004), Ebaid (2009), Amanuel, M. (2011), Ahmed, H. (2014) and Apima et al. (2016).

On the other hand, as presented in table 4.5.1.2, the regression coefficient of TDTA is 0.0913 with p-value 0.0000 which implies that an increase in TDTA of textile companies in Ethiopia with a unit would result an increase in ROE with 0.0913 units and; statistically significant at 1% significant level. This result is supported by empirical study's result (Margaritis, D & Psillaki, M., 2010).

In general, the fixed effect estimation regression results of both models (model1 & model 2) tell us that financing textile firms in Ethiopia with debt has an impact on financial performance, return on equity (ROE) and return on assets (ROA). Since there exists strong correlation between STDTA & TDTA (See table 4.2), the impact of TDTA on firm financial performance is

determined by the amount of STDTA. As shown in the 4.5.1.2, however all explanatory variables have impacts on ROA, statistically insignificant. This indicates that ROE is more appropriate to measure financial performance of textile firms in Ethiopia.

Age

The fixed effect regression model results a positive effect of age which is measured by natural logarithm of (current year-year of foundation) for model 1 and model 2 on textile companies' financial performance in Ethiopia over the period 2012-2016 with regression coefficient 0.0308 and 0.0130 respectively and statistically significant at 1%. This shows that, neglecting other factors, when the age of the textile companies in Ethiopia increased by a unit their financial performance that is measured by ROA & ROE would be increased by 0.0308 & 0.0130 units respectively. It implies that old textile firms have better financial performance than the younger one if all other factors are kept constant. This result is in line with the empirical studies (Okpara, I., 2014 & Ahmed, H., 2014).

Firm size

The result of fixed effect estimation as indicated in table 4.5.1.1 & table 4.5.1.2 reveals that textile firm size (FS) in Ethiopia from 2012 to 2016 had negative relationship with financial performance indicators, i.e. ROA and ROE with regression coefficient -0.0253 & -0.16644 respectively; and statistically significant. This means that an increase in textile firm size (FS) with a unit, during the period 2012-2016, resulted in a decrease on their ROA & ROE with the values 0.0253 & 0.16644. This result is inconsistent with the previous studies by Zeitun, R. & Tian, G. (2007), Javed et al. (2015) and Asrat, K. (2016); but supported by the study of Azarmi, S. (2014) that was conducted on Turkish textile firms over the period 1999-2012. On the other hand, study by Tauseef, S. (2015) that was conducted on 95 textile companies in Pakistan from 2002 to 2007, concluded the non-impact of firm size on financial performance.

Asset turnover

As presented in table 4.5.1.1 & table 4.5.1.2, growth that is measured by sales to total assets ratio, had positive and significant on textile firms in Ethiopia. The regression coefficients of asset turnover (ATO) for model 1 and model 2 are 0.1329 & 0.6259 respectively which indicates that, other variables holding constant, when growth in sales increased by a unit, ROA and ROE would be increased by 0.1329 & 0.6259 units respectively. This means that an increase in sales results an increase in earnings and thereby increment on net income. The regression result of this study concerning the effect sales growth of manufacturing firm on their financial performance is similar with the finding of (Okpara, I., 2014 & Muritala, T.A., 2012). It is also consistent with the previous empirical studies (Hutchinson, M. & Gul, A., 2006).

Tangibility of assets

The panel fixed effect estimation result in above revealed that, the regression coefficients of tangibility of assets (TOA) that by is measured by the ratio of total fixed assets to total assets, for model 1 and model 2 are 0.0215 & 0.2355 respectively and significant at 1% significant level. These regression coefficients signify that, other variables holding constant, when TOA of textile firms in Ethiopia increased by a unit ROA & ROE would be increased by 0.0215 & 0.2355 from 2012 to 2016. This result is supported by the previous empirical evidences (Aljifri & Mustefa, 2007). It is also similar with the recent findings by Asrat, K. (2016). However, this result is inconsistent with the empirical evidence by Azarmi, S. (2014).

Chapter five

5. Conclusion and recommendations

Based on the findings the study, this chapter presents conclusion and the possible recommendations which can be applied in practice to help the manufacturing sectors in Ethiopia so as to enhance their financial performance by optimizing the debt level in financing system. Hence, section 5.1 presents the conclusion of the study whereas the researcher recommendations and suggestion for further research are presented in sections 5.2 and 5.3 respectively.

5.1. Conclusion

Most powerful empirical studies that were undertaken in developed economy and in countries that have capital market might fail to conclude the relationship between debt financing and financial performance of a developing countries like Ethiopia. As far as the knowledge of the researcher a few studies, which are loosely related with this study, were conducted in Ethiopia provided contradicting and mixed results. Thus, the purpose of this study, with its various ramifications, was to explore the relationship between debt financing (leverage) and financial performance evidenced from textile firms in Addis Ababa and Oromia Special Zone. It attempted to explore some gaps in financial performance analysis, in addition to providing empirical evidence about the impact of debt financing on firm's financial performance that could be the basis for further research and improved understanding in this particular area.

In this study, in order to examine the relationship between debt and financial performance, the researcher identified short term debt ratio (STDTA), long term debt ratio (LTDTA) and total debt ratio (TDTA) as a proxy of leverage; age (AG), firm size (FS), growth (GR) and tangibility of assets (TOA) as control variables; and return on asset (ROA) and return on equity (ROE) as a proxy of financial performance. Secondary data (financial data) of 15 textile firms over the period of 2012 to 2016 were collected. The collected panel data were analyzed by applying a fixed effect model using econometrics software, Eviews version 9.

As can be observed in the fixed effect regression model result, the adjusted value of R square for model 1 is 0.9544 which implies that return on assets (ROA) of textile firms in Ethiopia is explained by the independent variables (STDTA, LTDTA & TDTA) and the control variables (AG, FS, ATO & TOA) up to 95.44%. On the other hand, the adjusted value of R square (0.9998) of model 2 indicates that return on equity (ROE) textile companies in Ethiopia, over the period of 2012-2016, is explained by the explanatory variables (STDTA, LTDTA & TDTA) and the control variables (AG, FS, ATO & TOA) up to 99.98%.

However, there is some variation between model 1 and model 2 regarding the impact of debt on financial performance of textile companies in Ethiopia, these empirical results are consistent with the previous studies (Majumdar, S.K. & Chhibber, P., 1999, Ghosha, 2007, Chiang, Chang & Hui, 2002, Korteweg, 2004, Ebaid, 2009, Margaritis, D & Psillaki, M., 2010, Ahmed, H., 2014 and Apima et al, 2016). In general, as the fixed effect regression estimation results indicate, there is a potential impact of debt on textile firms' financial performance in Ethiopia over the period of 2012-2016.

5.2. Recommendations

Knowledge of the effect of debt financing on firm's financial performance would help managers to predict and mitigate potential problems associated with their financing decision. This empirical study thus provides some possible recommendations which enable managers to choose the type (short term or long term) and the amount of debt (debt level) while financing their companies.

Based on the findings obtained from the fixed effect model estimation and the objective of this study, the following recommendations were proposed:

- As the findings revealed, when short term debt level raises the return on assets which emphasizes the company's ability to efficiently use its assets will be declined. Furthermore, since short term debt ratio highly correlated with total debt ratio, excess uses of short term loan would increase the overall negative impact of short term debt to total assets on textile firms financial performance in Ethiopia. Therefore it is preferable first to finance short term operation with internal funds such as reserves and earnings.

- The fixed effect regression model findings indicated that long term debt ratio has positive impact on financial performance measured by ROA & ROE; of textile companies in Ethiopia from 2012-2016. Thus managers of textile firms should prefer long term debt than short term debt or equity while financing their projects. But, the amount should be taken into accounts because the maximum lending interest rate engaged on long term debt may exert financial distress or the firm fails to pay the principal and interest on or before maturity date. However, the choice of debt level is varied from industry to industry and depends on different criteria, contexts; textile firms in Ethiopia need to be financed with appropriate amount of long term debt.
- As the empirical results revealed short term debt ratio, long term debt ratio and total debt ratio strongly explained the financial performance (ROA & ROE) of textile companies in Ethiopia as indicated by adjusted R-square. Hence top managements should necessarily take into consideration not only amount (level) but the period (short term & long term) debts when decision is made to finance which increase textile firms financial performance in Ethiopia.
- The findings revealed although leverage measured by STDTA, LTDTA & TDTA has impacts on ROA, it is statistically insignificant. Therefore it is better to use ROE, in which all sorts of debt is significant, to measure financial performance of textile firms in Ethiopia than ROA

5.3 Suggestions for further research

This study focused merely on the effect of debt financing on textile firms' financial performance with small sample size. By further increasing the sample size and employing other research design and approach may come up with better findings. In addition, since there is a great variation among textile factories in Ethiopia regarding the technology they equipped, the financial potential, the resource, ability to generate income, it is better to apply stratified sampling system so that the result of the study improved. This study incorporated only two variables proxy to financial performance and a few number of control variable's representatives. The researcher believed that if the number of proxy variable increase, the findings of the study would improve. It could also possible to conduct a study on the impact of leverage on non-financial performance that this study did not cover.

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Appendices

Appendix 1: Descriptive statistics for the study variables

	ROA	ROE	STDTA	LTDTA	TDTA	AG	FS	ATO	TOA
Mean	0.056807	0.177502	0.500369	0.200853	0.703025	0.806437	8.292981	0.111454	0.354096
Median	0.058025	0.140326	0.475235	0.200010	0.678510	0.903090	8.296663	0.106759	0.315844
Maximum	0.117875	0.526457	0.824192	0.457847	0.970949	1.461280	8.970817	0.703900	0.812224
Minimum	0.017932	0.006456	0.127659	0.015998	0.451939	0.000000	7.651684	0.020039	0.122437
Std. Dev.	0.018866	0.126379	0.190133	0.076997	0.156712	0.309428	0.281833	0.084368	0.157408
Skewness	0.429265	0.826370	0.133654	0.442837	0.134828	-0.896454	-0.173825	4.728133	1.116416
Kurtosis	3.641772	2.757055	1.675417	3.903131	1.780351	3.587510	3.550866	33.69027	3.697659
Jarque-Bera	3.590453	8.720531	5.706169	5.000202	4.875806	11.12402	1.325983	3222.855	17.10083
Probability	0.166090	0.012775	0.057666	0.082077	0.087344	0.003841	0.515307	0.000000	0.000193
Sum	4.260554	13.31264	37.52766	15.06396	52.72691	60.48278	621.9736	8.359069	26.55720
Sum Sq. Dev.	0.026338	1.181905	2.675127	0.438711	1.817346	7.085178	5.877820	0.526734	1.833513
Observations	75	75	75	75	75	75	75	75	75

Appendix 2: Heteroskedasticity test

Heteroskedasticity Test: White test for model 1

F-statistic	1.524832	Prob. F(31,43)	0.0993
Obs*R-squared	39.27376	Prob. Chi-Square(31)	0.1462
Scaled explained SS	29.86867	Prob. Chi-Square(31)	0.5241

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 05/06/17 Time: 01:56

Sample: 1 75

Included observations: 75

Collinear test regressors dropped from specification

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.009395	0.013702	0.685637	0.4966
STDTA^2	-0.232317	0.910100	-0.255265	0.7997
STDTA*LTDTA	-0.360718	1.528107	-0.236055	0.8145
STDTA*TDTA	0.499884	1.965011	0.254392	0.8004
STDTA*AG	-0.050612	0.202667	-0.249732	0.8040
STDTA*FS	2.64E-05	0.000523	0.050416	0.9600

TDTA*ATO	0.000458	0.001938	0.236197	0.8144
STDTA*TOA	0.000318	0.000641	0.495550	0.6227
STDTA	-0.000295	0.005022	-0.058675	0.9535
LTDTA^2	-0.127457	0.619028	-0.205898	0.8378
LTDTA*TDTA	0.395419	1.673494	0.236283	0.8143
LTDTA*AG	-0.051098	0.202576	-0.252240	0.8021
LTDTA*FS	-9.82E-05	0.000815	-0.120549	0.9046
LTDTA*ATO	0.000238	0.004077	0.058370	0.9537
LTDTA*TOA	-0.002132	0.001237	-1.722727	0.0921
LTDTA	0.001998	0.008029	0.248823	0.8047
TDTA^2	-0.267666	1.055058	-0.253698	0.8009
TDTA*AG	0.050882	0.202702	0.251020	0.8030
AG^2	-0.000139	0.000101	-1.372400	0.1771
AG*FS	0.000348	0.000292	1.190889	0.2402
AG*ATO	0.000600	0.001268	0.473565	0.6382
AG*TOA	-0.000222	0.000360	-0.617409	0.5402
AG	-0.002777	0.002592	-1.071282	0.2900
FS^2	0.000109	0.000175	0.626467	0.5343
FS*ATO	0.000599	0.000899	0.665767	0.5091
FS*TOA	-0.000225	0.000304	-0.739630	0.4635
FS	-0.002048	0.003060	-0.669271	0.5069
ATO^2	-0.000218	0.000694	-0.314000	0.7550
ATO*TOA	0.000219	0.001393	0.156856	0.8761
ATO	-0.005711	0.009407	-0.607096	0.5470
TOA^2	0.000448	0.000318	1.411432	0.1653
TOA	0.001892	0.003081	0.614183	0.5423
R-squared	0.523650	Mean dependent var	2.98E-05	
Adjusted R-squared	0.180235	S.D. dependent var	4.14E-05	
S.E. of regression	3.75E-05	Akaike info criterion	-17.24657	
Sum squared resid	6.05E-08	Schwarz criterion	-16.25777	
Log likelihood	678.7463	Hannan-Quinn criter.	-16.85175	
F-statistic	1.524832	Durbin-Watson stat	2.372499	
Prob(F-statistic)	0.099329			

Heteroskedasticity Test: White test for model 2

F-statistic	0.783138	Prob. F(31,43)	0.7596
Obs*R-squared	27.06405	Prob. Chi-Square(31)	0.6690
Scaled explained SS	7.376507	Prob. Chi-Square(31)	1.0000

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 05/06/17 Time: 02:16

Sample: 1 75

Included observations: 75

Collinear test regressors dropped from specification

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.000452	0.001102	-0.410498	0.6835
STDTA^2	-0.001039	0.073172	-0.014202	0.9887
STDTA*LTDTA	-0.004390	0.122860	-0.035730	0.9717
STDTA*TDTA	0.002289	0.157987	0.014491	0.9885
STDTA*AG	-0.000239	0.016294	-0.014646	0.9884
STDTA*FS	-2.43E-05	4.21E-05	-0.577321	0.5667
STDTA*ATO	-2.45E-05	0.000156	-0.157484	0.8756
STDTA*TOA	-9.33E-06	5.15E-05	-0.180996	0.8572
STDTA	0.000233	0.000404	0.577266	0.5668
LTDTA^2	-0.003529	0.049770	-0.070912	0.9438
LTDTA*TDTA	0.004690	0.134549	0.034858	0.9724
LTDTA*AG	-0.000289	0.016287	-0.017724	0.9859
LTDTA*FS	3.48E-05	6.55E-05	0.530921	0.5982
LTDTA*ATO	-2.64E-05	0.000328	-0.080539	0.9362
LTDTA*TOA	2.03E-05	9.95E-05	0.204115	0.8392
LTDTA	-0.000222	0.000646	-0.343130	0.7332
TDTA^2	-0.001280	0.084827	-0.015084	0.9880
TDTA*AG	0.000233	0.016297	0.014284	0.9887
AG^2	-4.05E-06	8.15E-06	-0.496994	0.6217
AG*FS	2.02E-05	2.35E-05	0.858707	0.3953
AG*ATO	5.44E-05	0.000102	0.533978	0.5961
AG*TOA	-1.46E-06	2.89E-05	-0.050309	0.9601
AG	-0.000152	0.000208	-0.728701	0.4701
FS^2	-7.89E-06	1.40E-05	-0.562133	0.5769
FS*ATO	-2.46E-05	7.23E-05	-0.340812	0.7349
FS*TOA	1.24E-07	2.45E-05	0.005054	0.9960
FS	0.000118	0.000246	0.481289	0.6328
ATO^2	-3.90E-05	5.58E-05	-0.698943	0.4884
ATO*TOA	3.88E-05	0.000112	0.346150	0.7309
ATO	0.000177	0.000756	0.234088	0.8160
TOA^2	4.80E-06	2.55E-05	0.188107	0.8517
TOA	-6.53E-06	0.000248	-0.026371	0.9791
R-squared	0.360854	Mean dependent var	3.46E-06	
Adjusted R-squared	-0.099926	S.D. dependent var	2.88E-06	
S.E. of regression	3.02E-06	Akaike info criterion	-22.28804	
Sum squared resid	3.91E-10	Schwarz criterion	-21.29925	
Log likelihood	867.8017	Hannan-Quinn criter.	-21.89323	
F-statistic	0.783138	Durbin-Watson stat	2.441257	
Prob(F-statistic)	0.759568			

Appendix 3: Autocorrelation test

Breusch-Godfrey Serial Correlation LM Test for model 1

F-statistic	2.177771	Prob. F(2,65)	0.1215
Obs*R-squared	4.710014	Prob. Chi-Square(2)	0.0949

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 05/06/17 Time: 02:03

Sample: 1 75

Included observations: 75

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
STDTA	-0.022151	0.043113	-0.513798	0.6091
LTDTA	-0.019071	0.041735	-0.456954	0.6492
TDTA	0.020945	0.043429	0.482294	0.6312
AG	0.001308	0.002651	0.493507	0.6233
FS	-5.13E-05	0.003089	-0.016600	0.9868
ATO	-0.003107	0.008919	-0.348405	0.7287
TOA	-0.003022	0.005071	-0.595891	0.5533
C	0.000998	0.029625	0.033678	0.9732
RESID(-1)	0.239273	0.137229	1.743609	0.0860
RESID(-2)	0.121487	0.135591	0.895981	0.3736

R-squared	0.062800	Mean dependent var	-8.07E-17
Adjusted R-squared	-0.066966	S.D. dependent var	0.005497
S.E. of regression	0.005678	Akaike info criterion	-7.380899
Sum squared resid	0.002096	Schwarz criterion	-7.071901
Log likelihood	286.7837	Hannan-Quinn criter.	-7.257520
F-statistic	0.483949	Durbin-Watson stat	1.866384
Prob(F-statistic)	0.880254		

Breusch-Godfrey Serial Correlation LM Test for model 2

F-statistic	1.153439	Prob. F(2,65)	0.3219
Obs*R-squared	2.570553	Prob. Chi-Square(2)	0.2766

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 05/06/17 Time: 02:17

Sample: 1 75

Included observations: 75

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
STDTA	-0.006060	0.015028	-0.403274	0.6881
LTDTA	-0.004082	0.014362	-0.284217	0.7771
TDTA	0.006166	0.015194	0.405849	0.6862
AG	-4.25E-06	0.000892	-0.004758	0.9962
FS	1.56E-05	0.001069	0.014566	0.9884
ATO	0.000704	0.003001	0.234741	0.8151
TOA	-0.000536	0.001719	-0.311613	0.7563
C	-0.000504	0.010236	-0.049240	0.9609
RESID(-1)	0.148933	0.131200	1.135156	0.2605
RESID(-2)	0.118504	0.135154	0.876811	0.3838
R-squared	0.034274	Mean dependent var	-4.80E-16	
Adjusted R-squared	-0.099442	S.D. dependent var	0.001872	
S.E. of regression	0.001963	Akaike info criterion	-9.505564	
Sum squared resid	0.000250	Schwarz criterion	-9.196565	
Log likelihood	366.4586	Hannan-Quinn criter.	-9.382184	
F-statistic	0.256320	Durbin-Watson stat	1.940643	
Prob(F-statistic)	0.983771			

Appendix 4: Hausman test

Correlated Random Effects - Hausman Test for model 1

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	51.885638	7	0.0000

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
STDTA	-0.007374	0.046598	0.000420	0.0084
LTDTA	0.028368	0.074435	0.000165	0.0003
TDTA	-0.028938	-0.077899	0.000437	0.0192
AG	0.030812	0.023148	0.000012	0.0289

FS	-0.025289	-0.022998	0.000171	0.8610
ATO	0.132874	0.134398	0.000011	0.6438
TOA	0.021545	0.042696	0.000028	0.0001

Cross-section random effects test equation:

Dependent Variable: ROA

Method: Panel Least Squares

Date: 05/06/17 Time: 03:43

Sample: 2012 2016

Periods included: 5

Cross-sections included: 15

Total panel (balanced) observations: 75

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.237580	0.112343	2.114781	0.0392
STDTA	-0.007374	0.037575	-0.196251	0.8452
LTDTA	0.028368	0.032677	0.868128	0.3892
TDTA	-0.028938	0.038289	-0.755793	0.4531
AG	0.030812	0.004122	7.474696	0.0000
FS	-0.025289	0.013382	-1.889753	0.0643
ATO	0.132874	0.007129	18.63769	0.0000
TOA	0.021545	0.006718	3.207239	0.0023

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.967317	Mean dependent var	0.056807
Adjusted R-squared	0.954367	S.D. dependent var	0.018866
S.E. of regression	0.004030	Akaike info criterion	-7.950593
Sum squared resid	0.000861	Schwarz criterion	-7.270796
Log likelihood	320.1472	Hannan-Quinn criter.	-7.679157
F-statistic	74.69687	Durbin-Watson stat	2.290531
Prob(F-statistic)	0.000000		

Correlated Random Effects - Hausman Test for model 2

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	14.301664	7	0.0461

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
STDTA	0.418932	0.427502	0.000034	0.1390
LTDTA	0.138068	0.142349	0.000011	0.1996
TDTA	0.091268	0.083789	0.000032	0.1889
AG	0.012989	0.012115	0.000001	0.4351
FS	-0.166444	-0.159696	0.000021	0.1455
ATO	0.625888	0.625052	0.000001	0.3387
TOA	0.235467	0.238560	0.000002	0.0438

Cross-section random effects test equation:

Dependent Variable: ROE

Method: Panel Least Squares

Date: 05/06/17 Time: 05:12

Sample: 2012 2016

Periods included: 5

Cross-sections included: 15

Total panel (balanced) observations: 75

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.092694	0.041055	26.61505	0.0000
STDTA	0.418932	0.013732	30.50828	0.0000
LTDTA	0.138068	0.011942	11.56158	0.0000
TDTA	0.091268	0.013993	6.522636	0.0000
AG	0.012989	0.001506	8.622533	0.0000
FS	-0.166444	0.004891	-34.03397	0.0000
ATO	0.625888	0.002605	240.2275	0.0000
TOA	0.235467	0.002455	95.91705	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.999903	Mean dependent var	0.177502
Adjusted R-squared	0.999864	S.D. dependent var	0.126379
S.E. of regression	0.001473	Akaike info criterion	-9.963850
Sum squared resid	0.000115	Schwarz criterion	-9.284054
Log likelihood	395.6444	Hannan-Quinn criter.	-9.692415
F-statistic	25944.27	Durbin-Watson stat	2.335163
Prob(F-statistic)	0.000000		

