



Capital Structure & Corporate Performance: A Panel Data Analysis of Pharmaceutical Manufacturing Firms in Ethiopia

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Thesis submitted to

Addis Ababa University

College of Business and Economics

MBA Program

**Presented in Partial Fulfillment of the Requirements for the Degree of
Masters of Business Administration**

October 2018

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Statement of Declaration

I, Yemesrach Adamu, have carried out independently a research work on “Capital structure & corporate performance: A panel data analysis of Pharmaceutical Manufacturing Firms in Ethiopia” in partial fulfillment of the requirement of the MBA program with the guidance and support of the research advisor. This study is my own work that has not been submitted for any degree or diploma program in this or any other institution, and that all references materials contained therein have been duly acknowledged.

Name: Yemesrach Adamu

Signature

Date

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This is to certify that the thesis prepared by Yemesrach Adamu, entitled: *Capital structure & corporate performance: A panel data analysis of Pharmaceutical Manufacturing Firms in Ethiopia* and submitted in partial fulfillment of the requirements for the degree of Master of Business Administration complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

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Advisor: Dr. Habtamu Berhanu Signature _____ Date _____

Abstract

This study investigated the relationship between capital structure and financial performance of pharmaceutical manufacturing firms in Ethiopia. Seven (out of nine) pharmaceutical manufacturing firms operating in Ethiopia were considered in the study. Those pharmaceutical manufacturing firms that have been ten and more years in operation were taken with the idea of increasing the volume of data. The study employed descriptive survey research design and the data was collected from secondary sources i.e. audited financial statements of the respective firms. The data were extracted from the financial statements of respective firms for the period 2007-2016. The study applied panel data models (fixed effects). A computer package EVIEWS 9 was used to solve the multiple regression equations used in this study. Ordinary Least Square (OLS) regression results revealed that long term debt to equity ratio (LTD) has significant negative relationship with return on asset while total debt to asset ratios (TDA) had a statistically significant positive association with performance as measured by return on assets (ROA). All control variables used in the models (Age, SIZE, LQ, & SG) has statistically significant relation with return on asset.

Key words: capital structure, pharmaceuticals, Ethiopia, & financial performance

Acknowledgment

My special thanks should go to Dr Habtamu Berhanu for his unreserved and positive support. In the absence of his cordial approach this study would not come into this shape.

My wife and kids deserve acknowledgment for their encouragements and being with me throughout this study.

Finally, I would like to thank my Lord Jesus Christ for giving me good health and courage.

List of Acronyms/Abbreviations

API	Active Pharmaceutical Ingredients
EBIT	Earnings Before Interest & Tax
GMP	Good Manufacturing Practice
GTP	Growth and Transformation Plan
LQ	Liquidity
LTD	Long term Debt to Equity Ratio
OLS	Ordinary Least Square
ROA	Return on Asset
SG	Sales Growth
Tan	Tangibility
TDA	Total Debt to Asset Ratio
WHO	World Health Organization

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Chapter 1

Introduction

The capital structure of companies refers to the way in which the company is financed through a mix of debt and equity capital. It is the proportion of resources attributed to the firm through different sources, which may include internal and external financiers. Corporate leverage decisions are, as several theories suggest, thus among the key important decisions made by firm executives. Capital structure, capitalization, financial structure, leverage ratio and invested capital, all have the same meaning, how much money and what type of sources the company has used to build itself up and purchase its assets. The ratio of total debt to total capital employed is referred to as the firm's financial leverage. Roanne (2013).

Since late 1950s studies of Lintner (1956) and Modigliani and Miller (1958) emerged with the focus on capital structure. According to Roanne (2013) these days, capital structure has become one of the most interesting issues in the corporate finance literature, and it has also been one of the main topics amongst the studies of finance scholars. The importance of capital structure derives from the fact that it is strongly related to the ability of firms to fulfill the needs of various stakeholders.

The 20th century has witnessed a continuous development of new theories, such as the Agency cost theory (Jensen and Meckling, 1978; Jensen, 1986; Myers, 1977) and Asymmetric information theory (Ross, 1977) on the issue of capital structure and firm performance. Additional capital structure theories such as the static trade-off theory and the pecking order theory have emerged in 1973 & 1984 respectively on the issue of capital structure and firm performance.

According to Kraus and Litzenberger (1973), the static trade-off theory assumes that firm's trade-off the benefits and costs of debt and equity financing and finds an 'optimal' capital structure after accounting for market imperfections such as taxes, bankruptcy costs and agency costs. In contrast, Myers and Majluf (1984) favor the pecking order theory, which suggests that firms should follow a financing hierarchy in order to minimize information asymmetry between parties. So, the pecking order theory predicts that firms prefer to finance themselves internally

before opting for debt or equity. It states that only when all internal finances have been depleted, firms will opt for debt and as last resort will turn to equity. Thus firms that are profitable and therefore generate high cash flow are expected to use less debt capital than those who do not generate high cash flow.

After six decades, since the 1950's work of Lintner, Modigliani and Miller, of studies and research, scholars in the area have still not reached an agreement on how and to what extent the capital structure of firms' impact their performance. Nonetheless, the studies and empirical findings of the last two decades have at least demonstrated that capital structure has more importance than in the simple Modigliani and Miller model. The works of Capon et.al, Roden & Lewellen, and Abor (2005) in support of static trade off theory can be mentioned as evidence. Furthermore, the study carried out by Shyan-Sunder & Myers in 1995 and Frank & Goyalin 2003 in support of pecking order theory can also be sited, as evidence, among many research works that have revolutionized the simple Modigliani and Miller model.

The aim of this research is to provide better insight into the relationship between capital structure of a firm and its performance of pharmaceutical manufacturers in Ethiopia. Hitherto, there has been no study analyzing the determinants of capital structure and the impact of capital structure on firm performance of pharmaceutical manufacturing companies in Ethiopia.

1.1 Pharmaceutical manufacturing in Ethiopia

Ethiopia is one of the fastest growing economies in the world, with an average growth of around 10.9% for the past decade. There is a national aspiration to graduate to middle income country status by 2020–2025 and completely eradicate poverty. IMF (2011).

The annual pharmaceutical market in Ethiopia is estimated to be worth US\$ 400 to US\$ 500 million and growing at an impressive rate of 25% per annum. A 2012 estimate by Frost & Sullivan suggests the Ethiopian pharmaceutical market could witness growth rates of “slightly over 14%” to reach an approximate value of just under US\$ 1 billion by 2018. Frost & Sullivan (2012).

Steady economic growth, improvements in the delivery of health care and introduction of social health insurance coverage across the country in July 2015 all lead to growing demand. These developments are encouraging international pharmaceutical companies to invest in Ethiopia, as

evidenced by activities of Cadila, Julphar, GlaxoSmithKline, Sandoz and Hikma Pharmaceuticals.

There are approximately 200 importers of pharmaceutical products and medical consumables in Ethiopia, with 9 involved directly in the manufacturing of pharmaceutical products. Local manufacturers have limited product portfolios and are thought to be able to supply only 90 of the more than 380 products on the national essential medicines list. WHO (2015).

1.2 Research problem

There are different theories conducted in explaining the capital structure of firms. Despite the theoretical appeal of capital structure, researchers in capital structure have not found the optimal capital structure of firms and various studies were made in different countries to examine the relationship between capital structure and firm's financial performance. However the result documented were contradictory and mixed. The research work of Narender and Lateef (2007) on Omani companies revealed that there is negative association between the level of debt and financial performance. Similarly Muritala (2012) analyzed the impact of leverage on performance for ten Nigerian firms over the period of 5 years and document a negative link between leverage and financial performance. On the other hand, Martine & Assumptah (2015) had established positive relationship between financial performance and leverage of the listed banking institutions in Nairobi Security Exchange. So, where does the case of Ethiopian pharmaceutical firms fall? Not much work has been done that describe the relationship between financial performance and leverage of manufacturing sector. This paper tried to establish the relationship between financial performance and leverage of pharmaceutical manufacturing firms in Ethiopia.

As the result of government change in Ethiopia, in the past two decades investment opportunities have been growing rapidly. Investors seek different sources to finance their investment. Among the alternatives debt financing is the most accessible to investors. Though debt financing is the one on a table to investors the cost of fund is increasing from time to time, for example the interest charged by Wogagen Bank for long term loan for manufacturing sector is reached 16.30% in 2017 from 15% in 2015 (Circular: Feb.2017). The case of Dashen Bank shows similar trend which was 12.5% in 2015 and 13.5% in 2017 (DB/PO/Circular-001/17). This might be

explained in terms of the mother cause for the rise of cost of any item; that is the imbalance of supply and demand. The cost of funds thus affects firm's financial performance.

According to the National Strategy and Plan of Action for Pharmaceutical Manufacturing Development in Ethiopia, the Ethiopian industry exported pharmaceutical products that is only 10% of its Growth and Transformational Plan I, GTP-I, target. In this document it is also disclosed that most of the manufacturers operate below their capacities and supply only about 20% of the local market. These points pose question as what makes the sector to exhibit poor performance. Among different factors that contributed to the inefficiency of the pharmaceutical manufacturers lack of adequate fund is considered to take the lions share, as per the document. WHO (2015)

WHO (2012) had revealed that six pharmaceutical manufacturing firms are able to comply only up to 50% of GMP set by WHO and there is only one firm that meet from 60-80% of GMP.

The Ethiopian Government committed to enhances the health service in the country by supporting pharmaceutical manufacturers. According to the Action Plan one of the supports is making avail capital in the form of loan. Among many projects to be funded two of them are presented here. 1) 70% loan is planned to importing products for local packaging so as the products to comply Good Manufacturing Practice, GMP, setup costs. 2) 70% loan for GMP setup costs production of Active Pharmaceutical Ingredients, API, and research and development.

The supply of fund the Government promised to pump into affects the capital structure of pharmaceutical manufacturers. According to Van der Sar (2011) leverage enhances firm's performance by limiting conflicts between shareholders and managers as a result of having excess cash. Ebaid (2009) argued that leverage mitigates lower agency costs, since the firm's reputation and the managers' wages are at stake. On the other hand, according to Bokhtiar et.al (2014), higher leverage means that the firm has higher commitment to fulfill its future obligations, in terms of principal and interest payments. Furthermore, higher leverage ratios also lead to higher costs relating to financial distress.

Kifle (2016) on his study under the title 'Impacts of Capital Structure on Financial Performance of Cement Factories in Ethiopia' during the period from 2010 to 2014 found that capital structure measured by long term debt to equity ratio has significant positive relationship with return on asset. The more debt financing the better performance is exhibited. The study suggested that sampled cement factories should use more debt than equity in financing their business.

Does the above finding hold true for pharmaceutical manufactures in Ethiopia? Being both are in manufacturing sector will the relationship between capital structure and financial performance show similar trend?

The Ethiopian Government developed an action plan to support pharmaceutical manufacturers by providing 70% loan for major operations of the manufacturers. Will the Government effort of supporting the firms by providing loan improve the performance of the manufacturers?

The researcher could find some research works published on the relation between capital structure and financial performances on non-financial firms in Ethiopia. Among these, the works that have been done by Kifle (2016) and Getahun (2016) are worth to mention.

This study will attempt to analyze the relationship between capital structure and performance of pharmaceutical manufacturers in Ethiopia.

1.3 Research Question

Based on the above statement of the problems the researcher develops the following research question.

‘How does capital structure affect the financial performance of the pharmaceutical firms in Ethiopia?’

1.4 Objective of the study

The general objective of this study will be to analyze the effect of capital structure on financial performance of firms that are engaged in pharmaceutical manufacturing in Ethiopia.

1.4.1 Specific objectives of the study

1. Examine the effect of capital structure on return on asset of the pharmaceutical manufacturers in Ethiopia.
2. Examine the nature of capital structure of the pharmaceutical manufacturers in Ethiopia.

1.5 Significance of study

Financial managers have a responsibility of determining the optimal mix of debt and equity that will ensure maximization of shareholders wealth. This has led to the desire to establish whether there is an optimal capital structure that maximizes firm’s value. Studies on the impact of capital structure on firm performance have mostly been carried out in developed economies on large and listed firms. In the developing economies, Chiang Yat Hung et al., (2002) concluded that while

high gearing is positively related to asset, it's negatively related to profit margins in Hong Kong. In Kenya, Kiogora (2000), found a positive relationship between capital structure and value of the firm.

There are plenty of works on effects of capital structure on financial performance in the literature. Most of them are from well-developed financial market system. There are few works that have been found in Africa. The works of Leoanrd et al (2014) is an example to site with this respect. The research on effects of capital structure on financial performance has got little attention in developing countries. The situation will be worst in Ethiopia as limited research works have been found, in which majority of it are on financial sector. Therefore, this research will provoke scholars in the area to conduct research on effect of capital structure on financial performance of non-financial firms in Ethiopia.

1.6 Hypothesis

The pecking order theory suggests that profitable firms will use less debt as they have more retained earnings to finance their projects. Contrary to the pecking order theory, the static trade-off theory implies that higher profitability will lead to higher debt due to lower bankruptcy probability and higher debt ratings. Therefore, based on the contradiction presented in the literature the study formulates the following hypothesis:

H₀: There is significant negative relationship between long-term debt to equity ratio and ROA of pharmaceutical firms.

H₁: There is significant positive relationship between long-term debt to equity ratio and ROA of pharmaceutical firms.

H₀: There is significant negative relationship between total debt to asset ratio and ROA of pharmaceutical firms

H₁: There is significant positive relationship between total debt to asset ratio and ROA of pharmaceutical firms

1.7 Limitation

Since there is no financial market in Ethiopia it would limit and force the researcher to measure the dependent variable as well as the proxies of the independent and control variables in terms of book values rather than market values. Furthermore, this study was done only by secondary data collected from annual audited financial statement of pharmaceutical manufacturing firms in

Ethiopia during the period 2007 – 2016 and primary data were not included in this research. Therefore, the quality of the study depends purely upon the accuracy, reliability and quality of the secondary data source.

1.8 Scope of the study

The study is restricted to assess the effect of capital structure on financial performance of pharmaceutical manufactures in Ethiopia, which are nine. The audited financial statement of the firms in the time period from 2007 to 2016 is used for the analysis. The study used one dependent variable, ROA and two independent variables: long term debt to equity ratio and total debt to asset ratio. In addition age, size, liquidity, and sales growth are also used as control variables.

1.9 Delimitation

Delimitation consists of studying firms in Ethiopia. Moreover, the study is limited to pharmaceutical manufacturers. Since there are only seven companies that have been in operation for the last ten and more years, known for manufacturing pharmaceuticals in Ethiopia I would encounter statistical problems with such a limited number of companies.

Theoretically this study is limited to existing theories that are connected to and describe capital structure. These theories are Modigliani and Miller, pecking order theory, and trade off theory.

1.10 Organization of the paper

This thesis is organized into five chapters. Chapter one is the introductory part of the thesis. Chapter two presents various theories and a comprehensive empirical literature on capital structure and firms financial performance. Chapter three focused on the methodology and the aggregated framework for relationship evaluation of capital structure and financial performance. Chapter four contains the empirical results of the study. Finally, chapter five focused on the major empirical findings of the study (conclusion), recommendations and suggests issues for future research.

Chapter 2

Literature Review

2.1 Introduction

This chapter presents the literature review on the relationship between capital structure and financial performance. It summarized the information from other researchers who have studied the field. The review covered both the theoretical and empirical reviews of the existing literature. The theoretical review helps in understanding of the current body of knowledge on the research topic while the empirical review helped in understanding what other related studies found and suggested. The reviews were used to develop a conceptual frame work.

2.2 Capital structure

A firm's capital structure refers to the mix of its financial liabilities. As financial capital is an uncertain but critical resource for all firms, suppliers of finance are able to exert control over firms Harris and Raviv (1991). Debt and equity holders represent the two types of investors in any firm. Each of these is associated with different levels of risk, benefits, and control. It is the way the corporation finances its assets through some combination of equity, debt, or hybrid securities. A firm's capital structure is then a composition or structures of its liabilities.

The capital structure is how a firm finances its overall operations and growth by using different sources of funds. Debt comes in the form of bond issues or long-term notes payable, while equity is classified as common stock, preferred stock or retained earnings. According to Harris and Raviv (1991), the consensus is that "leverage increase with fixed assets, non-debt tax shields, investment opportunities, and firm size, and decreases with volatility, advertising expenditure, the probability of bankruptcy, profitability, and uniqueness of the product." Titman and Wessel (1988) state that asset structure; non-debt tax shields, growth, uniqueness, industry classification, size, earnings volatility and profitability are factors that may affect leverage according to different theories of capital structure. Still, other authors may provide another set of potential determinants of capital structure. This clearly shows that there is no a consensus among researchers what factor may constitute a minimum set of attributes Harris and Raviv (1991).

2.3 Financial performance

A firm's financial performance, in the view of the shareholder, is measured by how better off the shareholder is at the end of a period, than it was at the beginning and this can be determined using ratios derived from financial statements; mainly the balance sheet and income statement, or using data on stock market prices (Berger and Patti, 2002). These ratios give an indication of whether the firm is achieving the owners' objectives of making them wealthier, and can be used to compare a firm's ratios with other firms or to find trends of performance over time. The main objective of shareholders in investing in a business is to increase their wealth. Thus the measurement of performance of the business must give an indication of how wealthier the shareholder, has become as a result of the investment over a specific time.

2.4 Capital structure and financial performance

Baxter (1976) has identified positive association between debt and profitability for industries. In the study of leveraged buyouts, Roden and Lewellen (1995) established a significantly positive relation between profitability and total debt as a percentage of the total buyout-financing package.

However, some studies have shown that debt has a negative effect on firm profitability. Fama and French (2002), for instance argue that the use of excessive debt creates agency problems among shareholders and creditors and that could result in negative relationship between leverage and profitability. Majumdar and Chhibber (1997) found in their study on Indian firms that leverage has a negative effect on performance.

Abor (2007) in his scholarly works on debt policy and performance of medium sized enterprises found the effect of short-term debt to be significantly and negatively associated with gross profit margin for both Ghana and South African firms. This indicated that increasing the amount of short-term debt would result in a decrease in the profitability of the firms.

2.5 Modigliani-Miller Capital Structure Theory

Modigliani and Miller (1963) theorem is considered the greatest breakthrough in theory of optimal capital structure. The theorem specifies the financial decisions by firms that are irrelevant to the firm's value. Its propositions include; the value of a firm is the same regardless of whether it finances itself with debt or equity. The weighted average cost of capital is constant.

The assumptions of Modigliani-Miller theorem are; perfect and frictionless markets, no transaction costs, no default risk, no taxation, both firms and investors can borrow at the same interest rate; there is homogeneous expectation, homogeneous risk and equal access to all of relevant information.

The rate of return on equity grows linearly with the debt ratio implying that the higher the debt equity ratio the higher the expected return on equity. The distribution of dividends does not change the firm's market value it only changes the mix of equity and debt in the financing of the firm. In order to decide an investment, a firm should expect a rate of return at least equal to cost of capital no matter where the finance would come from. Hence the marginal cost of capital should be equal to the average cost of capital. The constant cost of capital is sometimes called the "hurdle rate" (the rate required for capital investment). In summary the theory states that the value of a firm is invariant with respect to its leverage policy in an arbitrage-free market when there is no corporate income tax and no bankruptcy cost: whether firm is financed through debt or equity, its value remains the same Wald (1999).

2.6 The Agency Cost Theory

The agency cost theory is premised on the idea that the interest of the company's managers and its shareholders are not perfectly aligned. It explains the relationship of principal, shareholders of the firm, with agent, management of the firm, in the decision making process regarding the firm's capital structure. Jensen and Meckling (1976) indicate that in the decisions about a firm's capital structure, the level of leverage affects the agency conflicts between shareholders and managers.

2.7 Static Trade off Theory

According to Kraus and Litzenberger (1973), the static trade-off theory assumes that firms trade-off the benefits and costs of debt and equity financing and find an optimal capital structure after accounting for market imperfections such as taxes, bankruptcy costs and agency costs. The theory states that there is a benefit to financing with debt, specifically the tax benefit. However there is also a cost of financing with debt, namely the indirect bankruptcy costs and the more direct financial distress costs of debt. This is thus the trade-off that all firms, whom are maximizing value, should focus on when choosing the amount of debt and equity needed to

finance their operations. Needless to say, there is a maximum point where the marginal benefit of further increases in debt declines as debt increases, whereas the marginal cost increases.

Hence, this static trade-off theory of capital structure states that optimal capital structure is obtained where the net tax advantage of debt financing balances leverage related costs such as financial distress and bankruptcy, holding firm's assets and investment decisions constant. Baxter (1967) & Altman (1984, 2002) in view of this theory, claim that issuing equity means moving away from the optimum and should therefore be considered bad news. According to Myers (1984), firms adopting this theory could be regarded as setting a target debt-to-value ratio with gradual attempt to achieve it. However, Myers (1984) suggests that managers will be reluctant to issue equity if they feel it is undervalued in the market. The consequence is that investors perceive equity issues to only occur if equity is either fairly priced or overpriced.

Ebaid (2009) argued that leverage mitigates lower agency costs, since the firm's reputation and the managers' wages are at stake. On the other hand however, higher leverage also means that the firm has higher commitment to fulfill its future obligations, in terms of principal and interest payments. Furthermore, higher leverage ratios also lead to higher costs relating to financial distress. Miller (1977) documented that the cost related to financial distress is not material compared to the benefits of higher leverage ratios. Moreover, the trade-off theory suggests that those firms with higher levels of retained earnings, i.e. profitable firms, tend to have higher debt levels because they can more effectively use the tax shields on interest. Besides, since these companies have higher operating profits, the probability and costs of financial distress for them are also lower. Consequently, the trade-off theory expects a positive association between firms' leverage ratios and their performance. Myers, (1984; Myers and Majluf, 1984; Karadeniz et al. 2009; Chakraborty, 2010).

2.7.1 Empirical Results on Trade-Off Theory

Arbiyan and Safari (2009) documented after analyzing the impact of leverage ratios of 100 Iranian publicly listed firms on their performance over the period 2001 to 2007. They found that short-term and total debts are positively related to profitability measured by ROE, but found a negative relationship between long-term debts and ROE.

Furthermore, Salteh et al. (2009) studied the link between capital structure and firm performance for 28 firms listed on the Tehran Stock Exchange for the period 2005 through 2009. They

illustrate that when firm performance is measured by Return on Equity and Tobin's Q, it reflects a significant positive link with capital structure. They used several proxies to measure leverage ratios, namely short-term debt to total assets, long-term debt to total assets, total debt to total assets and total debt to equity.

In 2012 Umar et al.'s findings also suggest a positive link between firm performance and leverage, where they measured performance and leverage by respectively earnings per share and current liabilities to total assets. They used an exponential generalized least squares approach to study the top 100 firms on the Karachi Stock Exchange over the period 2006 to 2009 and they document consistent findings supporting the trade-off theory.

According to Goyal (2013) positive relationship is found between short term debt and profitability as measured by ROE, ROA & EPS. The research was carried out to study the impact of capital structure on profitability of public sector banks in India on national stock exchange during 2008-2012. Khalaf (2013) examined the impact of capital structure on performance of Jordanian banks. The annual financial statements of 12 commercial banks listed on Amman Stock Exchange were used for the study which covers a period of five (5) years from 2007-2011. Multiple regressions was applied on performance indicators such as Net Profit (NP), Return on Capital Employed (ROCE), Return on Equity (ROE) and Net Interest Margin (NIM) as well as Total Debt to Total Funds (TDTF) and Total Debt to Total Equity (TDTE) as capital structure variables. Multiple regression models are applied and concluded that bank performance, which is measured by net profit, return on capital employed and net interest margin is to be significantly and positively associated with total debt.

Younus et al. (2014) investigated the impact between financial performance and capital structure of 33 sugar industry in Karachi Stock Exchange Pakistan over the period of 2006-2011. They based their measure of leverage on debt equity ratio on performance, measured by ROA, ROE, GP, and NP. Their finding showed that there is a weak positive correlation between capital structure and financial performance.

Abor (2005) carried out regression analyses to analyze the impact of leverage ratio on firm performance between Ghanaian listed firms over the period 1998 to 2002. Throughout his analysis, he compared the capital structures of publicly quoted firms, large unquoted firms and small and medium enterprises. He based his models on three measures of leverage, namely, short-term debt over total assets, long-term debt over total assets and total debt over total assets,

on performance, measured by the Return on Equity. His results indicate that there exists a significantly positive relationship between the short-term and total debt and Return on Equity.

Agnes (2013) determined the relationship between firm characteristics (size, diversification, leverage, liquidity, age, and premium growth and claim experience) and financial performance of life insurance companies in Kenya. Agnes used data from 17 life insurance companies for the period of 2008-2012 and found that the variables are statistically significance to influence financial performance of life insurance companies as indicated by the positive and strong Pearson correlation coefficients.

Martine & Assumptah (2015) determined the effect of capital structure to the company's financial performance of the listed banking institutions in Nairobi Security Exchange. The research findings indicated that there was a positive relationship between the variables.

Kifle (2016) investigated the relationship between capital structure and financial performance of cement companies in Ethiopia. Data from 8 companies in the period 2010-2014 were used for the analysis. In the study the ratio of long term debt to equity is used as a measure of capital structure while ROA and ROE as performance proxy. The study found out that capital structure measured by long term debt to equity ratio has significant positive relationship with return on asset (ROA).

2.8 Pecking Order Theory

Pecking order theory of capital structure, by Myers (1984), states that firms have a preferred hierarchy for financing decision. Firms will borrow instead of issuing equity when internal cash flow is not sufficient to fund capital expenditure. The highest preference is to use internal financing before resorting to any form of external funds. Internal funds incur no floatation costs and require no additional disclosure of financial information that may lead to a possible loss of competitive advantage. If a firm must use external funds, the preference is to follow a certain order of financing sources: debt, convertible securities, preferred stock, and common stock, (Miller, 1977). This order reflects the motivations of the financial manager to retain control of the firm, reduce the agency costs of equity, and avoid negative market reaction to an announcement of a new equity issue. The amount of debt will reflect the firms' cumulative need for external funds. The theory has two key assumptions about financial managers. The first of these is the likelihood that a firm's managers know more about the company's current earnings and future growth opportunities than outside investors. There is a strong desire to keep such

information proprietary. The use of internal funds prevents managers from having to make public disclosures about the company's investment opportunities and potential profits to be realized from investing in them.

The second assumption is that managers will act in the best interests of the company's existing shareholders. The managers may even forgo a positive-NPV project if it would require the issue of new equity, since this would give much of the project's value to new shareholders at the expense of the old, Fischer, Heinkel, and Zechner, (2009). However the theory has some limitations since it does not explain the influence of taxes, financial distress, security issuance costs, agency costs, or the set of investment opportunities available to a firm upon that firm's actual capital structure. It ignores the problems that can arise when a firm's managers accumulate so much financial slack that they become immune to market discipline. As such the theory is offered as a complement to, rather than a substitution for, the traditional trade-off model.

2.8.1 Empirical Results on Pecking Order Theory

Hitherto, extant literature on the pecking order theory has provided mixed evidence regarding the impact of capital structure on firm performance.

Analyzing data from the New York Stock Exchange covering various sectors over the period 1971 to 1989, Shyam-Sunder and Myers (1999) find evidence in favor of the pecking order theory. On the other hand, Frank and Goyal (2003) found little support for the pecking order theory, while they also used American publicly traded firms covering the period 1971 to 1998. They argued that net equity issued as opposed to net debt issued, is more closely correlated with financing deficit. They also highlighted that the pecking order hypothesis seems to be more applicable for data prior to 1990. Further, Fama and French (2005) examined the financing decisions of numerous individual firms and detected that these decisions are in conflict with the pecking order theory. They also discovered that while equity is supposed to be the last financing alternative, most firms issue some sort of equity every year.

Fama and French also tested the pecking order and the trade-off theories on more than 3000 firms in their publication of 2002. Their study covered the period 1965 to 1999. Their models were based on both cross-section and time series methods in order to check for robustness of their results. They support the pecking order theory by documenting a negative relationship between a firm's leverage and its performance. In 2001 Minton and Wruck examined domestic

financial conservative firms and their capital structure over the period of 1974 to 1998 and they concluded that the performance of low leverage firms outweigh the performance of high level firms. This thus indicates that there is a negative relationship between leverage and a firm's performance.

Sorana (2015) conducted a research to establish the relationship between capital structure and financial performance in 196 Romanian companies listed on the Bucharest Stock Exchange and operating in manufacturing sector over a period of eight-year (2003-2010). The analysis is based on cross sectional regressions. The capital structure indicators refer to long-term debt, short-term debt; total debt and total equity, while return on assets and return on equity are the performance proxies. He found that the performances of the companies are high when they avoid debt and operate based on equity.

Narender and Lateef (2007) studied the link between capital structure and financial performance of publically traded Omani companies. All the 93 companies that are non-financial were chosen for the study. These 93 firms were ranked in descending order by the debt ratio. The top 25% of the companies and the bottom 25% of the companies were chosen and made classified into separate groups. The top 25% of the companies were designated as the 'high leverage' group and the bottom 25% of the companies were designated the 'low leverage' group. Five performance measures were used to determine which group i.e. high leverage or low leverage has performed better over the five-year period 1998-2002. The result shows that there is a negative association between the level of debt and financial performance.

Salteh et.al (2009) used three performance measures, namely Return on Equity, Tobin's Q and Return on Assets. They suggest a positive link between leverage and firm performance when ROE and Tobin's Q were used to measure firm performance. Nevertheless, when testing the impact of leverage on performance using the ROA, there seems to be a negative impact.

Furthermore, Muritala (2012) analyzed the impact of leverage on performance for ten Nigerian firms over the period of 5 years and document a negative link, while Soumadi and Hayajneh (2012) suggest a similar link after analyzing 76 firms listed on the Amman stock market. Also, Adekunle and Sunday (2010) performed panel least square tests to study the impact of debt ratio on firm performance- measured as ROE and ROA- and suggest that higher levels of leverage negatively affect performance, thus a negative link exists. Finally, by means of panel least

squares; Manawaduge et.al (2011) also recorded a negative link between leverage and firm performance. Their study entailed 155 firms in Sri Lanka and covered the period 2002-2008.

Velnamby (2012) analyzed the relationship between capital structure and profitability of ten listed Srilankan banks over the past 8 year period from 2002 to 2009. The data has been analyzed by using descriptive statistics and correlation analysis to find out the association between the variables. Results of the analysis show that there is a negative association between capital structure and profitability except the association between debt to equity and return on equity.

Nur et al. (2017) examined the link between capital structure and the performance of banks in Bangladesh. They have used the panel data of 22 banks for the period of 2005–2014. The results of the pooled ordinary least square analysis showed that capital structure inversely affects bank performance. Ebrahim (2016) clarified the impact of capital structure on performance of Iranian listed companies on Tehran Stoke Exchange for the period of ten years from 2005 to 2014. The OLS regression model is used to determine the relationship between dependent and independent variables. Finding show that profitability is the most important determinant of capital structure for Iranian companies followed by tangibility, growth and business risk. Profitability and business risk are inversely correlated with debt ratio, while liquidity and growth are directly associated to debt ratio.

Abor (2007) used a panel data approach on 160 Ghanaian and 200 South African SMEs, where he tested the relationship between leverage ratios and performance of the firms. He suggests that higher leverage ratios would negatively affect a firm's performance, since firms rely extremely on borrowing they will not receive tax shields and this lead to an increase in borrowing costs, which may expose the firms to bankruptcy risks and reduce the return. Zeitun and Tian (2007) focused their study on capital structure choices affecting corporate performance during 1989 to 2003, whereby their dataset comprised 167 Jordanian companies. Zeitun and Tian concluded that capital structure has a significant and negative effect on firm performance. They used both market performance measures such as market value of equity to book value of equity as for accounting measures such as Tobin's Q, ROA, ROE and EBIT.

Onaolapo (2010) use data from Nigerian firms and found a negative relationship between firm's debt ratio and a firm's ROA or ROE. In 2010 Chakraborty used two performance measures including ratio of profit before interest, tax and depreciation to total assets and ratio of cash flows to total assets. They also employed two leverage measures including ratio of total

borrowing to asset and ratio of total liability to total liability plus equity. Their results illustrate a negative relation between leverage and performance. Majumbar and Chibber (1997), Fama and French (2002), Booth et al. (2001), Chiang et al. (2002), Chen (2004), Deesomsak et al. (2004), Karadeniz et al. (2009) also indicate a negative relationship between financial leverage and performance.

Maina and Ishmail (2014) studied the effect of capital structure on financial performance of firms listed at the Nairobi Security Exchange from the year 2002 to 2012. The study used causal research design and Gretl statistical software to perform the panel regression analysis. The study concluded that debt and equity are major determinants of financial performance of firms listed at the NSE. There was evidence of a negative and significant relationship between capital structure (DE) and all measures of performance.

Lucy, et.al (2014) studied relationship between capital structure and performance of non-financial companies listed in the Nairobi Security Exchange. They used explanatory non-experimental research design. A census of 42 non-financial companies listed in the Nairobi Securities Exchange, Kenya was taken. The data were extracted from the Nairobi Securities Exchange hand books for the period 2006-2012. The study applied panel data models (random effects). Feasible Generalized Least Square (FGLS) regression results revealed that financial leverage had a statistically significant negative association with performance as measured by return on assets (ROA) and return on equity (ROE). Similarly Bokhtiar et.al (2014) studied the influence of capital structure on firm's performance. They have used 36 Bangladeshi firms listed in Dhaka Stock Exchange during the period 2007–2012. In this study they have used four performance measures; earnings per share (EPS), return on equity (ROE), return of asset (ROA) and Tobin's Q; as dependent variables and three capital structure ratios; short-term debt, long-term debt and total debt ratios; as independent variables. They have found that there is significant negative relation between ROA and capital structure.

Finally, Getahun (2016) applied the panel data regressions for nine insurance companies in Ethiopia during the period 2004 to 2013. He found that firm leverage, size, tangibility and business risk have significant impact on performance of insurance companies in Ethiopia. He concluded that a significant negative relationship is established between leverage and performance.

2.9 The Influence of other Variables on Firm's Financial Performance

Age

It is believed that as firms continue longer in business, they establish themselves as an ongoing business, thus increase their capacity to access more debt. Esperanca et al. (2003), referring to agency theory suggest that financiers use reputation of the firms as a measure of their credit worthiness. Reputation refers to the good name firms have built up over the years (historical) and which is understood by the market, which has observed their ability to meet their obligations in a timely manner.

Managers concerned with a firms' reputation tend to avoid riskier investments in favor of safer investments, even when equity-holders do not approve the safer investment, thus reducing debt agency cost. Johnson (1997) also argues that the reputational capital of older firms is sufficient to ensure they will avoid actions harmful to lenders even though they are unmonitored, and thus can borrow in public debt markets. These arguments indicate a positive association between age of the firm and leverage.

In contrast, referring to pecking order theory, Hutchinson, (2003) suggests that older firms are able to accumulate funds and need less to borrow either long-term or short-term. In other words, a new firm will not have had time to retain funds and may be forced to borrow. Consequently age is likely to be negatively related to both short-term and long term debt.

Size

Due to economies of scale the size of a firm is considered to be an important determinant of a firm's performance. Larger, well known firms have greater access to the long term capital market than smaller unknown firms. Smaller, unknown firms tend to either borrow short term by means of bank loans, or issue stock. This explains why larger companies will lean toward debt financing and smaller firms toward equity financing (Rao, Al-Yahyee, and Syed, 2007). According to the studies Orser, Hogarth-Scott, & Riding (2000) using Canadian firms using changes in gross revenue to reflect performance. They found a positive effect for a firm's size support the arguments that size reflects greater diversification, economies of scale production, greater access to new technology and cheaper sources of funds. Besides, of those, Shergill &

Sarkaria (1999) using data of Indian firm also confirm a positive relationship between a firm's size and financial performance.

However, according to the study Moen (1999) for a Norwegian company finds that export performance is not subject to the firm's size (employment). He finds that small firms are just as successful as large firms and the main competitive advantages are their products and technology.

Liquidity

Liquidity and its management determines to a great extent the growth and profitability of a firm. This is because either inadequate liquidity or excess liquidity may be injurious to the smooth operations of the organization. More recent studies have confirmed the existence of the tradeoff between liquidity and profitability. For instance Gill, Biger & Mathur (2010) did a case study of Cement Industry in Pakistan and found significant negative relation between the firm's profitability and its liquidity level.

Inversely, some study's findings had tended to render the profitability-liquidity trade off invalid. In other words, that there exist a direct and positive relationship between a longer liquidity and profitability. For instance, Mathuva (2000) argued that a firm can have larger sales with a generous credit policy, which extends the cash cycle. In this case, the longer cash conversion cycle may result in higher profitability. Also, Deloof (2003) assert that, a longer cash conversion cycle might increase profitability because it leads to higher sales. The above arguments are in consistent with the findings of Lyroudi & Lazaridis (2000), studied this relationship among the food industry in Greek and found a positive and significant relationship between liquidity and profitability (measured by ROI and NPM). This result indicates that a longer cash conversion cycle can improve company's profits.

Sales Growth

Sales growth, in the literatures is considered as an important determinant of firm's performance, hence 'SG', is used as a proxy for sales growth in this study. Zeitun & Tian (2007), argue in support of this, that firms with positive sales growth are able to generate profit from investment.

According to Brush, Bromiley, & Hendrickx (2000) in the light of free cash flow hypothesis, they conducted in Maryland-USA and they found a strong positive relationship between sales growth and a firm's financial performance in terms of stockholders' returns and return on assets. Furthermore, Hutchinson & Gul (2006) they found that firms with high investment opportunities are associated with lower agency costs and better return on equity.

2.10 Conclusion and Knowledge Gap

The studied theories predict different relations between the corporate profitability and its capital structure. The trade-off theory suggests that taxation and deadweight bankruptcy costs are important for the capital structure. The pecking order theory developed by Myers (1984) suggests that the financing order of firms, such as retained earnings, debt, and then equity, are important for the corporate capital structure. Also, Modigliani Miller theory suggests that the free cash flow problems and being disciplined by debts are important for the corporate capital structure.

This chapter clearly reviewed the relevant literature in relation to the research question presented in this study. It revealed that there exists a negative as well as a positive relation between a firm's capital structure and its financial performance. However the firm's profitability may not have a direct impact to change the capital structure due largely to information asymmetry and the agency conflicts. In Ethiopia, there are some research works that have been done by different scholars in related areas. Most of the works are focused on studying the determinants of financial performance. There are only few works that analyzed the effect of capital structure on financial performance. The work of Getahun (2016) on insurance industry can be mentioned as an example. A study conducted by Kifle (2016) on cement companies is a pioneer work on manufacturing sector. The researcher couldn't find empirical studies that have been done to establish the relationship between capital structure and financial performance of pharmaceutical manufacturers. This study therefore came in to fill the gap by identifying determinants and how it affects financial performance of pharmaceutical manufacturing firms in Ethiopia and suggest policy makers the kind of support that the government should make.

2.11 Conceptual Framework

After carefully reviewing the theoretical and empirical literature of capital structure and firms financial performance, the following conceptual model is formulated to examine the relationship between capital structure and financial performance of pharmaceutical manufacturing firms in Ethiopian.

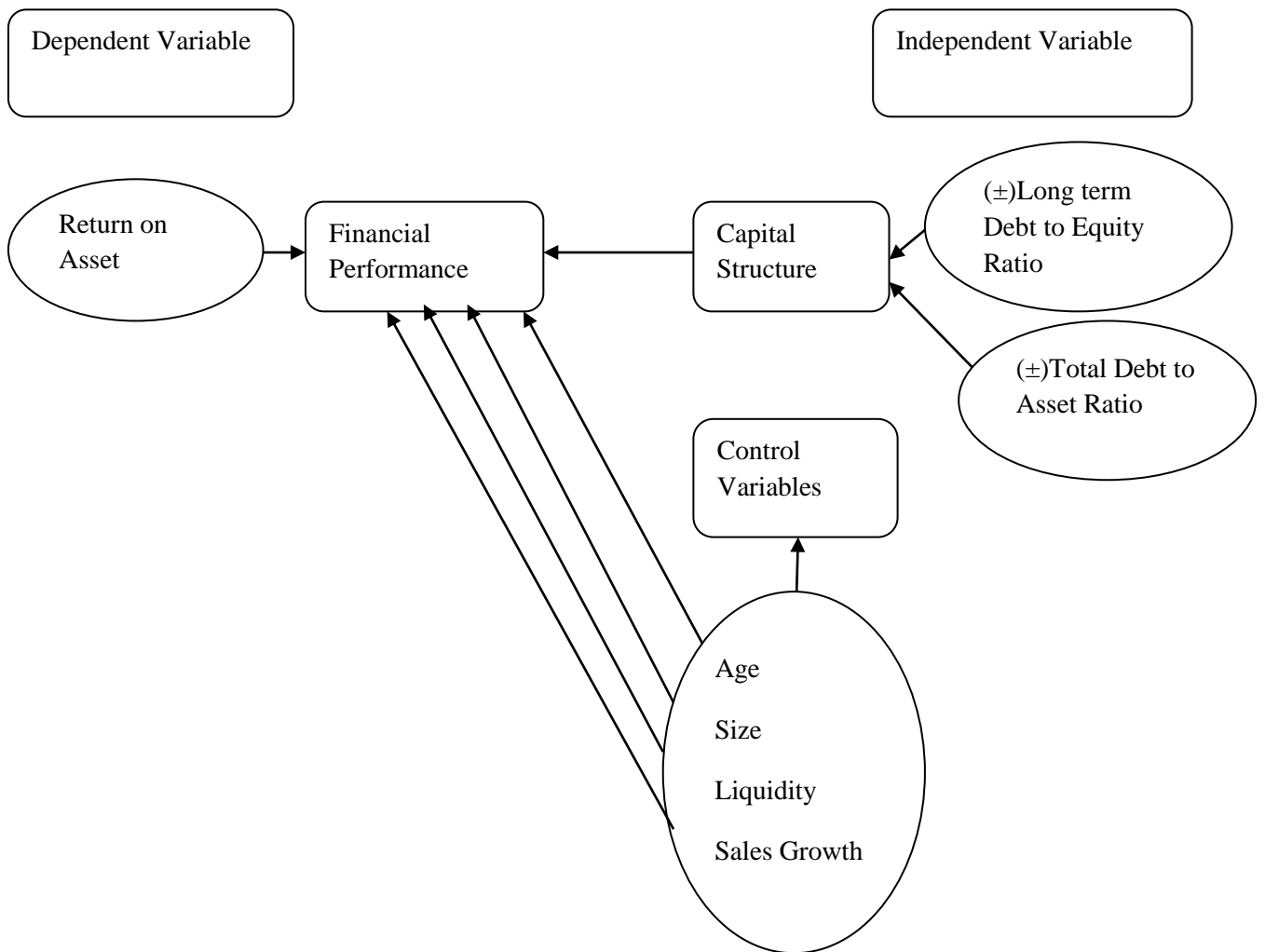


Figure 3.1 Conceptual Framework

Chapter 3

Research Methodology

3.1 Introduction

This chapter sets out various stages and phases that were followed in completing the study. It involves a blueprint used for the collection, measurement and analysis of data. The research identified the procedures and techniques that are used in the collection, processing and analysis of data. Specifically the following subsections of research methodology are included; research design, target population, data collection instruments and procedures and finally data analysis.

3.2 Research Design

A descriptive survey research design is employed in this study. Descriptive research is the investigation in which quantitative data will be collected and analyzed in order to describe the specific phenomenon in its current trends, current events and linkages between different factors at the current time. In this study, descriptive research design has been chosen because as it will enable to generalize the findings to a larger population.

3.3 Target Population

The target population of the study is pharmaceutical manufacturing firms in Ethiopia that have been ten and more years in operation with the intention of increasing the volume of data. There are nine manufactures at all and among these; two of them, Medsol and Julfar have lived only for six and four years respectively as of December 2017. Therefore, these two are excluded from the study. The analysis is carried out on the remaining seven pharmaceutical manufacturing firms in Ethiopia.

3.4 Data Collection

The study utilized panel data which consist of time series and cross-sections. The data for all the variables in the study are extracted from financial statements of the companies covering the years 2007 to 2016.

3.5 Data Analysis

This study used interactive econometrics software package called EViews 9. The study being descriptive in nature, the quantitative method of data analysis and inferential analysis are used as analysis techniques. Descriptive analysis enables to describe relevant aspects of capital structure and financial performance of pharmaceutical manufacturing firms in Ethiopian and to provide detailed information about each relevant variable. Diagnostics tests such as Normality, Multicollinearity, Autocorrelation, Redundant Fixed Effects Test, and Hausman Test were conducted to ensure that the data suits the basic assumptions of classical linear regression model. Regression analysis is used to examine the relationship between capital structure and financial performance of Ethiopian pharmaceutical manufacturing firms and to know the effect and magnitude of capital structure on financial performance of Ethiopian pharmaceutical manufacturing firms. Furthermore, in order to examine the relationship between capital structure and financial performance of Ethiopian pharmaceutical manufacturing firms, panel least square method is used. Finally, the P-value was used to determine the significance of the constant term and the coefficients terms for each of the regressions. The importance of each of the regressions was determined by carrying out the F-test at 95% confidence level. The coefficient of determination R^2 was used to measure the strength to which independent variables explain the variations in the dependent variables.

3.5.1 Analytical Model

In order to identify the effect of capital structure on pharmaceutical manufacturing firms' financial performance, multiple regression analyses were applied. Multiple regressions are not only a technique, but a whole family of techniques which can be used to explore the relationship between one dependent variable and a number of independent variables. Brooks (2014)

According to Brooks (2014), econometricians use regression analysis to make quantitative estimates of economic relationships that previously have been completely theoretical in nature. Regression is a statistical technique that attempts to explain movements in one variable, the dependent variable, as a function of movements in a set of other variables, called the independent (or explanatory) variables, through the quantification of a single equation.

There will often exist several explanatory variables in a given situation. In a multiple regression we can find the best relationship between the response and the different explanatory variables.

The general multivariate regression model with K independent variables can be written as follows. Brooks (2014)

$$y_i = \beta_0 + \beta_1 x_{1i} + \beta_2 x_{2i} + \beta_3 x_{3i} + \dots + \beta_k x_{ki} + \varepsilon_i (i = 1, 2, 3 \dots n) \quad (1)$$

Where y_i is the i^{th} observation of the dependent variable, x_{1i}, \dots, x_{ki} are the i^{th} observation of the independent variables, β_0, \dots, β_k are the regression coefficients, ε_i is the i^{th} observation of the stochastic error term, and n is the number of observations.

The following models were used to identify the effect of capital structure on financial performance of pharmaceutical manufacturing firms in Ethiopian. The study used one proxy of accounting variable to measure the financial performance of pharmaceutical manufacturing firms and the researcher used the proxy ROA as accounting financial performance measure. The financial performance measure variable reflects the dependent variable. The independent variables are capital structure measured by long-term debt to equity ratio and total debt to asset ratio and control variables consist of age, size, liquidity, and sales growth.

Model 1

$$Y_{it} = \beta_0 + \beta_1 TDA_{it} + \beta_2 Age_{it} + \beta_3 SIZE_{it} + \beta_4 LQ_{it} + \beta_5 SG_{it} + e_{it} \quad (2)$$

Model 2

$$Y_{it} = \beta_0 + \beta_1 LTD_{it} + \beta_2 Age_{it} + \beta_3 SIZE_{it} + \beta_4 LQ_{it} + \beta_5 SG_{it} + e_{it} \quad (3)$$

Where,

Y_{it} is ROA (Return on Asset) for firm i in time t as a measure of performance hence having 2 regression models.

TDA_{it} (Total Debt to Asset) is the total debt to asset ratio for firm i in time t .

LTD_{it} (Long Term Debt to Equity) is the long-term debt to equity ratio for firm i in time t .

Age_{it} is age or number of years since establishment for firm i in time t

$SIZE_{it}$ (Size) is the natural logarithm of total assets for firm i in time t .

LQ_{it} (Liquidity) is the current asset to liability ratio of firm i in time t .

SG_{it} (Sales Growth) is the difference between two time periods per previous period's of sales of firm i in time t .

e_{it} is the error term.

β_0 is the constant coefficient term.

3.5.2 Test of Significance

The models helped in determining if there is a relationship between capital structure and financial performance of the pharmaceutical manufacturing firms. Collected data is subjected to the analysis tool EViews 9.

The data is collected from the secondary sources and analysis is done; the EViews test is used to determine the impact independent variables have on the dependent variable in a regression analysis. EViews provides a statistical test of whether or not the means of several groups are equal.

3.6 Variable Explanation

3.6.1 Dependent Variable

The financial performance is the dependent variable and measured by the return on asset (ROA). The reason for choosing return on asset (ROA) variable as a proxy of financial performance measurement shows the percentage of profit that a company earn in relation to its overall resource (total asset). ROA is key profitability ratio which measures the amount of profit made by a company per birr of its asset. It shows the company's ability to generate profit before 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). Return on asset has been used as a proxy of financial performance measurement by (Zeitun & Tian, 2007), (Salteh, Ghanavati, E., Khanqah, & Khosroshahi, 2009) and (Agarawal & Zhao, 2007) in their previous study. Return on asset calculated by the following formula:

$$ROA = \frac{\text{Earnings Before Interest and Tax}}{\text{Total Asset}}$$

3.6.2 Independent Variables

Capital structure is the independent variable of this research and measured by long term debt to equity ratio and total debt to asset ratio.

Long term debt

According to Leon (2013) and Abor (2005), long term debt to equity ratio measures long term debt financing as a percentage of total financing and they have been used long term debt to equity ratio as a measure of capital structure and it is calculated by following formula:

$$\text{Long term debt to equity ratio} = \frac{\text{Long term debt}}{\text{Total equity}}$$

Total debt to asset ratio

Total debt to asset ratio measures the portion of asset covered by debt. Mohammadzadeh (2013) and Maria (2014) used total debt to asset ratio as a measure of capital structure. This independent variable is calculated by:

$$\text{Total debt to asset ratio} = \frac{\text{Total debt}}{\text{Total asset}}$$

3.6.3 Control Variables

In order to isolate the association of particular variables and to enhance the explanatory power of independent variables in the model, many researchers Abor (2005); Booth, Aivazian, Demirguc, Kunt, and Maksimovic, (2001); Cheng, Liu, & Chien, (2007); Goyal, (2013) and Mwasu & Leonard, (2014) included control variables in their study that might affect the financial performance not captured by capital structure. Firm size, age, sales growth, and liquidity are included in this research model as a proxy of control variables. Those control variables included in this research are only for the purpose of enhancing the explanatory power of independent variables.

3.7 Hypothesis

By establishing two models, the study attempted to analyze the relationship between capital structure and return on asset of pharmaceutical manufacturing firms in Ethiopia. It is logical to study the past researches to formulate the hypothesis for this study.

Lucy (2014) on the study conducted on the relationship between capital structure and financial performance of non-financial companies listed in Nairobi Security Exchange found that financial leverage, measured by both short and long term debt to equity ratio, had statistically significant negative association with performance as measured by return on asset. Bokhatir (2014) found

significant negative relation to long term debt on the study conducted on influence of capital structure on firm performance. Study carried out by Roanne (2013) on capital structure and firm's performance: an empirical analysis of the S & P500 revealed that there is a negative link between leverage ratios, measured by both short term and total debt to equity ratios, and return on asset. Getahun (2016) also had come up with negative relationship between leverage and financial performance of insurance industries in Ethiopia. On the other hand Kifle (2016) found out that capital structure measured by long term debt to equity ratio (LTD) has significant positive relationship with return on asset (ROA) in his study on capital structure and financial performance of Ethiopian cement companies'. Similarly Martine (2013) on the study conducted on effect of capital structure on financial performance of banking institution listed in Nairobi Security Exchange has found that there is a positive relationship between capital structure measured by debt to equity ratio and return on asset.

From the above arguments one can learn that there is no one agreed relationship between capital structure and financial performance. Therefore, for this study, the relationship between return on asset and long-term debt to equity ratio the following hypothesis is formulated.

H₀: There is significant negative relationship between long-term debt to equity ratio and ROA of pharmaceutical firms.

H₁: There is significant positive relationship between long-term debt to equity ratio and ROA of pharmaceutical firms.

The previous studies on the relationship between total debt to asset ratio and return on asset are presented below.

Mohammadzadeh (2013), on the study carried out on 'The Effect of Capital Structure on the Profitability of Pharmaceutical Companies: the case of Iran' has showed that there was significant negative relationship between the profitability and capital structure. Maria (2014) has found that negative relationship between profitability and debt to total asset ratio.

Based on the above findings the following hypothesis is formulated:

H₀: There is significant negative relationship between total debt to asset ratio and ROA of pharmaceutical firms

H₁: There is significant positive relationship between total debt to asset ratio and ROA of pharmaceutical firms

Table 3.1 Summary of Variables and its Measurements

Variables	Measurement	Reference	Expected Sign
Return on Asset	$\frac{EBIT}{Total\ Asset}$	(Zeitun, R., Tian, G., 2007), (Salteh, H. M., Ghanavati, E.,Khanqah, V. T., &Khosroshahi,M. A., 2009)	
Long-term Debt to Equity Ratio	$\frac{Long - term\ Debt}{Equity}$	(Leon, 2013) & (Abor, 2005)	-
Total Debt to Total Asset	$\frac{Total\ Debt}{Total\ Asset}$	Mohammadzadel (2013) & Maria (2014)	-

Chapter 4

Data Analysis and Interpretation

This chapter presents the main findings relating to the impact of capital structure on financial performance of pharmaceutical firms in Ethiopia. The results are analyzed and discussed. In Section 4.1 the descriptive statistics of dependent and independent variables are presented and discussed. Section 4.2 presents the diagnostic tests such as Autocorrelation, Multicollinearity, Normality, Redundant Fixed Effect, and Hausman Tests. In Section 4.3 the estimation output presented to examine the relationship between capital structure and financial performance of pharmaceutical manufacturing firms in Ethiopia.

4.1 Descriptive Statistics

The descriptive statistics for dependent, independent, and control variables of the two models are depicted in Table 4.1

Table 4.1 Descriptive Statistics

	ROA	LTD	TDA	AGE	SIZE	LQ	SG
Mean	0.047434	2.462647	0.854060	12.865035	8.062653	5.493232	0.352265
Median	0.052515	1.648611	0.526157	13.999902	8.250000	2.593803	0.245000
Maximum	0.334798	16.84916	4.249498	51.999958	9.017074	36.42230	5.500000
Minimum	-0.299560	-4.782862	0.028749	1.000000	7.023156	0.327926	-0.870000
Std. Dev.	0.150888	5.416221	0.884753	22.150257	0.492281	7.166081	0.808959
Skewness	-0.039366	1.375319	1.885846	-0.747196	-0.686102	2.542518	3.885665
Kurtosis	2.663954	4.155613	7.125034	4.382347	2.715455	9.634092	24.75770
Jarque-Bera	0.347450	25.96256	91.12123	12.08693	5.728070	203.7839	1556.890
Probability	0.840528	0.000002	0.000000	0.002373	0.057038	0.000000	0.000000
Sum	3.320409	172.3853	59.78422	77.65877	564.3857	384.5262	24.65852
Sum Sq. Dev.	1.570944	2024.146	54.01233	8.990263	16.72152	3543.338	45.15466
Observations	70	70	70	70	70	70	70

Source: Eviews 9 output by the researcher

As presented in Table 4.1, during the study period the mean value of financial performance measured by Return on Asset (ROA) is 4.7%. This indicates that the pharmaceutical

manufacturers under this study earn 4.7% per year for the total asset invested during 2007 to 2016. The standard deviation of return on asset is 0.15 that indicates the small variation in the profitability among the firms under study. The minimum and the maximum return on asset are -0.299 and 0.334 respectively. The mean value of leverage measured by long term debt to equity ratio (LTD) have 2.46 this indicates that the liabilities are 246% of stockholders equity. On the other hand the total debt to total asset ratio (TDA) has 0.85. The total debt to asset ratio value of 0.85 indicates that 85% of the total asset is funded by debt. The mean values of age (Age), size of the firm measured by natural logarithms of total asset (SIZE), liquidity (LQ), and sales growth (SG) are 12.8, 8.06, and 5.49 respectively.

4.2 Diagnostic Test

4.2.1 Autocorrelation Test

It is assumed that the covariance of the errors over time is zero. If the errors are not uncorrelated with one another, it would be stated that they are autocorrelated or that they are serially correlated. The consequences of ignoring autocorrelation when it is present are the coefficient estimates derived by using OLS are still unbiased, but they are inefficient, meaning that the standard errors could be wrong. There thus exists the possibility that the wrong inferences could be made about whether a variable is or is not an important determinant of variations in y .

The DW static that is automatically calculated with Eviews for Model 1 and Model 2 are 1.7 and 1.8 that means the correlation is close to zero; this indicates there is little evidence of autocorrelation. The regression results are presented in Annex A (Tables 4.2 & 4.3).

In addition to DW test, since the data is panel it is also important to test the cross-sectional autocorrelation. Breusch-Pagan LM Test was used to detect cross-sectional autocorrelation problem.

Table 4.4 present the Cross-section Dependence Test for the effect of LTD to ROA model.

Residual Cross-Section Dependence Test

Null hypothesis: No cross-section dependence (correlation) in residuals

Equation: EQ01

Periods included: 10

Cross-sections included: 7

Total panel observations: 70

Note: non-zero cross-section means detected in data

Cross-section means were removed during computation of correlations

Test	Statistic	d.f.	Prob.
Breusch-Pagan LM	28.22507	21	0.1339
Pesaran scaled LM	0.034730		0.9723
Pesaran CD	-0.204968		0.8376

Source: Eviews 9 output by the researcher

Table 4.5 present the Cross-section Dependence Test for the effect of TDA to ROA model.

Residual Cross-Section Dependence Test

Null hypothesis: No cross-section dependence (correlation) in residuals

Equation: EQ01

Periods included: 10

Cross-sections included: 7

Total panel observations: 70

Note: non-zero cross-section means detected in data

Cross-section means were removed during computation of correlations

Test	Statistic	d.f.	Prob.
Breusch-Pagan LM	28.88270	21	0.1168
Pesaran scaled LM	0.136203		0.8917
Pesaran CD	-0.040085		0.9680

Source: Eviews 9 output by the researcher

Tables 4.4 and 4.5 shows F test results and the P values of F-statistic for the two models; 1) LTD to ROA and 2) TDA to ROA are 0.1339 and 0.1168 respectively which is more than the significance level of 5%. Hence, the null hypothesis of no Cross-section Dependence is failed to

reject at 5 percent significant level for the models. This implies that there is no significant evidence for the presence of cross-sectional dependence for the two models.

4.2.2 Multicollinearity Test

An implicit assumption that is made when using the OLS estimation method is that the explanatory variables are not correlated with one another. If there is no relationship between the explanatory variables, they would be said to be *orthogonal* to one another. If the explanatory variables were orthogonal to one another, adding or removing a variable from a regression equation would not cause the values of the coefficients on the other variables to change. Brooks (2014).

In any practical context, the correlation between explanatory variables will be non-zero, although this will generally be relatively benign in the sense that a small degree of association between explanatory variables will almost always occur but will not cause too much loss of precision. However, a problem occurs when the explanatory variables are very highly correlated with each other, and this problem is known as multicollinearity Brooks (2014).

There were different arguments towards the multicollinearity problem. Different researchers come up with different correlation coefficient cutoff points. This study considered the correlation coefficient the one set by Kennedy (2008). It is argued that as any correlation coefficient above 0.7 could cause a serious multicollinearity problem leading to inefficient estimation and less reliable results.

The results of Multicollinearity Test are presented on Table 4.6 and 4.7

Table 4.6 Multicollinearity Test for Model 1

	LTD	AGE	SIZE	LQ	SG
LTD	1.000000	0.129921	0.259454	-0.044019	-0.081201
AGE	0.129921	1.000000	0.411240	-0.088509	0.014861
SIZE	0.259454	0.411240	1.000000	-0.474692	-0.022385
LQ	-0.044019	-0.088509	-0.474692	1.000000	-0.021889
SG	-0.081201	0.014861	-0.022385	-0.021889	1.000000
TAN	0.621270	-0.190461	-0.070633	-0.033436	-0.007313

Source: Eviews 9 output by the researcher

Table 4.7 Multicollinearity Test for Model 2

	TDA	AGE	SIZE	LQ	SG
TDA	1.000000	-0.190926	0.037529	-0.038248	0.092799
AGE	-0.190926	1.000000	0.411240	-0.088509	0.014861
SIZE	0.037529	0.411240	1.000000	-0.474692	-0.022385
LQ	-0.038248	-0.088509	-0.474692	1.000000	-0.021889
SG	0.092799	0.014861	-0.022385	-0.021889	1.000000
TAN	-0.084133	-0.190461	-0.070633	-0.033436	-0.007313

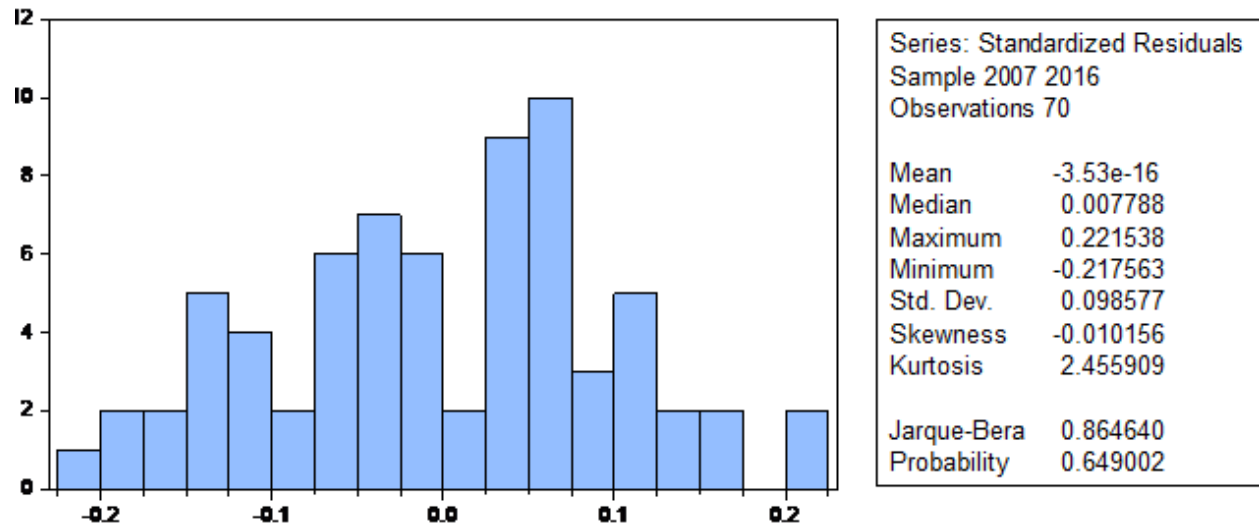
Source: Eviews 9 output by the researcher

As can be seen from Tables 4.6 and 4.7 the highest correlation coefficient is found between Size (SIZE) and liquidity (LQ) that is -0.474. Since this value is below 0.7 one can conclude that there is no concern of multicollinearity in both models.

4.2.3 Normality Test

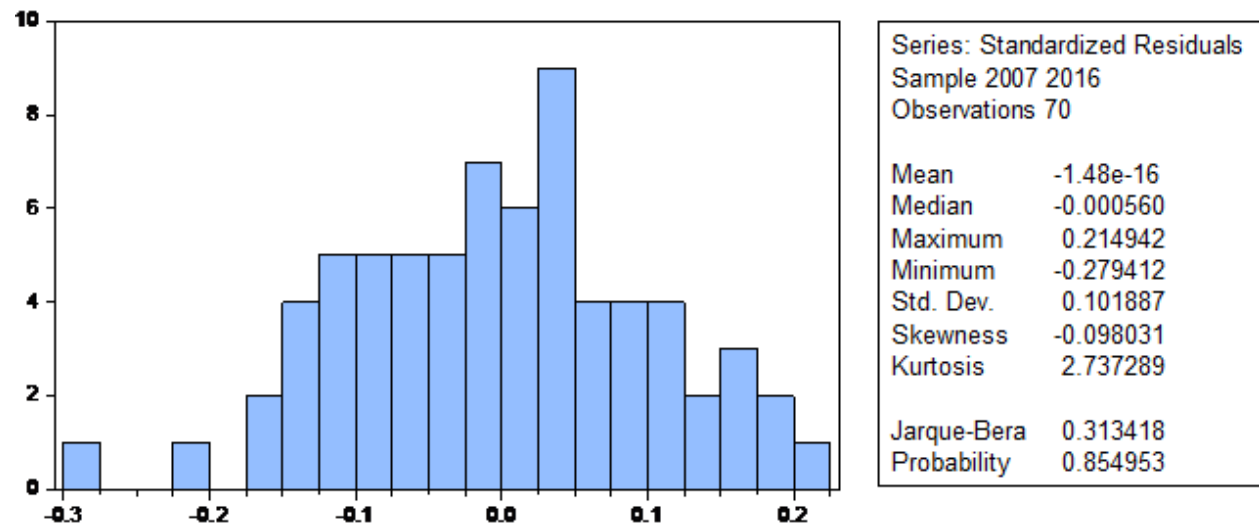
This assumption is required in order to conduct hypothesis testing, particularly if the sample size is small. For sample sizes that are sufficiently large, violation of the normality assumption is virtually inconsequential. Based on the central limit theorem, the test statistic will asymptotically follow the appropriate distribution even in the absence of error normality. In smaller samples it is important to meet this assumption for the p-values of the F-test to be valid. Brooks (2014). The most often used diagnostic statistics to test for normality of the residuals is the Bera-Jarque test. In this study, the normality of the data was checked with the popular Bera-Jarque test statistic. It measures the difference of the skewness and kurtosis of the series with those from the normal distribution. A normal distribution is not skewed and is defined to have a coefficient of kurtosis of 3. Bera-Jarque formalizes this by testing the residuals for normality and testing whether the coefficient of skewness and kurtosis are zero and three respectively. The Bera-Jarque probability statistics is also expected not to be significant. Brooks (2014).

Figure 4.1 Normality Test for Model 1



Source: Eviews 9 output by the researcher

Figure 4.2 Normality Test for Model 2



Source: Eviews 9 output by the researcher

As shown in Figures 4.1 and 4.2, the Skewness value for the two models (LTD to ROA and TDA to ROA) are -0.01 and -0.09 respectively. This indicates that the residuals are skewed to some extent to the left of the origin. The Kurtosis values presented in Figures 4.1 and 4.2 are 2.45 and 2.73 for Models 1 and 2 respectively. This indicates that the peakness of the distribution is close to the standard value; 3. The Bera-Jarque probability statistics for Model 1 and 2 are 0.65 and 0.85 respectively which are more than 5% level of significant. The conclusion from the two models P-values in this case is that, the null hypothesis of the residuals follows a normal

distribution is failed to reject at 5 percent level of significance. This implies that there is no strong evidence to support Skewness of the graphs is sufficiently different from 0. Similarly Kurtosis value of the two models residuals are 2.45 and 2.73 which have no strong evidence that the values are sufficiently different from 3 at the 5% level of significance.

4.2.4 Redundant Fixed Effects Test

The redundant fixed effect tests the significant of effects. To examine the significance of effects first the unrestricted model which includes all the effects is estimated for both models (Annex B, Tables 4.8 & 4.9). Then, the redundant fixed effects likelihood ratio is performed.

Redundant fixed effect test reveals three sets of tests: the significance of the cross-section effects, period effects only and the remaining is the significance of all the effects. The cross-sectional only fixed effects model parameters are not qualitatively different from those of the initial pooled regression, so it is the period fixed effects that make a difference. Brooks (2014). Therefore, Tables 4.10 and 4.11 (the detail is annexed, Annex C, Tables 4.12 & 4.13) presents the period effects only. According to the results, the sum of squares (F-test) and p-values for both models are zero to four decimal places indicating that the restrictions are not supported by the data and that a pooled sample could not be employed.

Table 4.10 Redundant Period Fixed Effects Test Output for Model 1

Redundant Fixed Effects Tests

Equation: EQ01

Test cross-section and period fixed effects

Effects Test	Statistic	d.f.	Prob.
Period F	0.921836	(9,48)	0.0000
Period Chi-square	11.160225	9	0.0000

Source: Eviews 9 output by the researcher

Table 4.11 Redundant Period Fixed Effects Test Output for Model 2

Redundant Fixed Effects Tests

Equation: EQ01

Test cross-section and period fixed effects

Effects Test	Statistic	d.f.	Prob.
Period F	1.104454	(9,48)	0.0000
Period Chi-square	13.174593	9	0.0000

Source: Eviews 9 output by the researcher

4.2.5. Hausman Test

There are broadly two classes of panel estimator approaches that can be employed in financial research: fixed effects models and random effects models. The simplest types of fixed effects models allow the intercept in the regression model to differ cross-sectionally but not over time, while all of the slope estimates are fixed both cross-sectionally and over time. The random effects approach proposes different intercept terms for each entity and again these intercepts are constant over time, with the relationships between the explanatory and explained variables assumed to be the same both cross-sectionally and temporally. Brooks (2014).

The question is which model is more appropriate: fixed effect model or random effect model that best explain the model? Hausman Test is used to identify which effect is appropriate for the model. The 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. The null hypothesis for this test is that unobservable heterogeneity term is not correlated or random effect model is appropriate, with the independent variables. If the null hypothesis is rejected then Fixed Effects method is employed. Brooks (2014).

Table 4.14 Hausman Test for Model 1 (LTD to ROA)

Correlated Random Effects - Hausman Test
Equation: EQ01
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	71.601470	6	0.0000

Source: Eviews 9 output by the researcher

Table 4.15 Hausman Test for Model 2 (TDA to ROA)

Correlated Random Effects - Hausman Test
Equation: EQ01
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	70.558287	6	0.0000

Source: Eviews 9 output by the researcher

Tables 4.14 and 4.15 show Hausman specification Test results. Accordingly, the P-values of Model 1 and Model 2 are zero to four decimal places indicating the null hypothesis of ‘random effect model is appropriate’ is strongly rejected at 1 percent significant level. This implies that, for this research model fixed effect model is more appropriate than random effect model.

4.3 Regression Analysis

Regression analysis is a statistical technique used to test the relationship between one dependent variable and one or several independent (predictor) variables.

4.3.1 The Relationship between Long-term Debt to Equity ratio (LTD) and Return on Asset (ROA)

Table 4.16 Regression output for Model 1 (LTD to ROA)

Dependent Variable: ROA
Method: Panel Least Squares
Date: 08/11/18 Time: 12:14
Sample: 2007 2016
Periods included: 10
Cross-sections included: 7
Total panel (balanced) observations: 70

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.892532	0.274635	3.249883	0.0019***
LTD	-0.008722	0.003304	-2.640181	0.0104**
AGE	0.308135	0.039308	7.839033	0.0000***
SIZE	-0.140143	0.033616	-4.168904	0.0001***
LQ	-0.006134	0.002021	-3.035409	0.0035***
SG	-0.037184	0.015449	-2.406866	0.0190**

Effects Specification			
Cross-section fixed (dummy variables)			
R-squared	0.810822	Mean dependent var	0.147434
Adjusted R-squared	0.770995	S.D. dependent var	0.050888
S.E. of regression	0.072207	Akaike info criterion	-3.910340
Sum squared resid	0.297188	Schwarz criterion	-3.785491
Log likelihood	91.84025	Hannan-Quinn criter.	-3.521027
F-statistic	20.35859	Durbin-Watson stat	1.738558
Prob(F-statistic)	0.000000		

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

Source: Eviews 9 output by the researcher

Adjusted R² from Table 4.16 indicates that 77.09% variations in the dependent variable can be accounted for by the independent variables. This means 77.09% of variations in the performance

of selected pharmaceutical manufacturers in Ethiopian are explained by independent variables presented in the Model. This showed that the independent variables values have 77.09% significant influence on performance of the pharmaceutical manufacturers. This also indicates that there are other variables (both internal and external) that influence the variations in the level of performance of the firms. The F-value shows that the explanatory variables are jointly statistically significant in the model.

a) Firm Leverage (LTD)

As presented in Table 4.16, the panel fixed effect estimation regression analysis indicate that the regression coefficient of financial leverage measured by long-term debt to equity ratio of -0.008722 is statistically significant at 5 percent level with P-value of 0.0104 that is smaller than 0.05. The results indicate that there was significant negative relationship between financial leverage and performance of pharmaceutical manufacturers in Ethiopia. Therefore, the null hypothesis that states there is significant negative relationship between long-term debt to equity ratio and performance of pharmaceutical firms is rejected.

b) Age

The analysis result reveals that there is significant positive relationship between age and performance of Ethiopian pharmaceutical manufacturers with a regression coefficient of 0.308135, t-statistic of 7.839033, and P-value of 0.0000. And it is statistically significant at 1% significant level. Rossi (2016) affirms that the longer a firm remains in the market, the more it learns about its true costs and its relative efficiency and the less likely it is to fail.

c) Size

The panel fixed effect estimation result reveals that there is significant negative relationship between size and performance of Ethiopian pharmaceutical manufacturers with a regression coefficient of -0.140143, t-statistic of -4.168904, and P-value of 0.0001. Moen (1999) finds that small firms are just as successful as large firms and the main competitive advantages are their products and technology. Larger pharmaceutical firms under study are unable to benefit from economies of scale production.

d) Liquidity

The analysis result reveals that there is significant negative relationship between liquidity and performance of Ethiopian pharmaceutical manufacturers with a regression coefficient of -0.006134, t-statistic of -3.035409, and P-value of 0.0035. And it is statistically significant at 1%

significant level. The result shows that firms are not efficient in translating liquid asset to increase the performance.

e) Sales growth

The analysis result reveals that there is significant negative relationship between sales growth and performance of Ethiopian pharmaceutical manufacturers with a regression coefficient of -0.037184, t-statistic of -2.406866, and P-value of 0.0190. And it is statistically significant at 5% significant level. The inverse relationship between sales growth and return on asset exhibited on pharmaceutical manufacturing firms under study indicates that they are unable to generate profit from investment.

4.3.2 The Relationship between Total Debt to Asset ratio (TDA) and Return on Asset (ROA)

Table 4.17 Regression output for Model 2 (TDA to ROA)

Dependent Variable: ROA
 Method: Panel Least Squares
 Date: 08/11/18 Time: 12:24
 Sample: 2007 2016
 Periods included: 10
 Cross-sections included: 7
 Total panel (balanced) observations: 70

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.338865	0.637229	-0.531779	0.5969
TDA	0.055415	0.019725	2.809340	0.0068***
AGE	0.342576	0.041247	8.305396	0.0000***
SIZE	-0.189300	0.032949	-5.745260	0.0000***
LQ	-0.007036	0.002058	-3.418652	0.0011***
SG	-0.041058	0.015976	-2.570049	0.0125**

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.817390	Mean dependent var	0.146006
Adjusted R-squared	0.778945	S.D. dependent var	0.059382
S.E. of regression	0.074936	Akaike info criterion	-4.098196
Sum squared resid	0.320076	Schwarz criterion	-3.873346
Log likelihood	89.24354	Hannan-Quinn criter.	-4.008883
F-statistic	21.26168	Durbin-Watson stat	1.878611
Prob(F-statistic)	0.000000		

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

Source: Eviews 9 output by the researcher

Adjusted R^2 from Table 4.17 indicates that 77.89% variations in the dependent variable can be accounted for by the independent variables. This means 77.89% of variations in the performance of selected pharmaceutical manufacturers in Ethiopian are explained by independent variables presented in the Model. This showed that the independent variables values have at least 77.89% significant influence on performance of the pharmaceutical manufacturers. This also indicates that there are other variables (both internal and external) that influence the variations in the level of performance of the firms. The F-value shows that the explanatory variables are jointly statistically significant in the model.

a) Firm Leverage (TDA)

As presented in Table 4.17, panel data results for the analysis method of fixed effects model results indicate that the regression coefficient of financial leverage measured by total debt to asset ratio of 0.055415 is statistically significant at 1 percent level with P-value of 0.0068 that is less than 0.1. The results indicate that there was significant positive relationship between financial leverage measured by total debt to total asset ratio and performance of pharmaceutical manufacturers in Ethiopia. Therefore, the null hypothesis that states there is significance negative relationship between total debt to total asset ratio and performance of pharmaceutical firms is rejected.

b) Age

The analysis result reveals that there is significant positive relationship between age and performance of Ethiopian pharmaceutical manufacturers with a regression coefficient of 0.342576, t-statistic of 8.305396, and P-value of 0.0000. And it is statistically significant at 1% significant level.

c) Size

The panel fixed effect estimation result reveals there is significant negative relationship between size and performance of Ethiopian pharmaceutical manufacturers with a regression coefficient of -0.189300, t-statistic of -5.745260, and P-value of 0.0000. Moen (1999) finds that small firms are just as successful as large firms and the main competitive advantages are their products and technology. Larger pharmaceutical firms under study are unable to benefit from economies of scale production.

d) Liquidity

The panel fixed effect estimation result reveals there is significant negative relationship between liquidity and performance of Ethiopian pharmaceutical manufacturers with a regression coefficient of -0.007036, t-statistic of -3.418652, and P-value of 0.0011. And it is statistically significant at 1% significant level.

e) Sales growth

The analysis result reveals that there is significant negative relationship between sales growth and performance of Ethiopian pharmaceutical manufacturers with a regression coefficient of -0.041058, t-statistic of -2.570049, and P-value of 0.0125. And it is statistically significant at 5% significant level. The inverse relationship between sales growth and return on asset exhibited on pharmaceutical manufacturing firms under study indicates that they are unable to generate profit from investment.

4.4. Discussion on Regression Results

In this section the results of the regression models are discussed and compared with prior studies related to the subject of this study. Based on the results in Tables 4.16 and 4.17 the relationship between the variables and their impact on financial performance of pharmaceutical manufacturers in Ethiopia is explained. The data are analyzed in light of the research objective stated. Hence, the analysis is based on the results of the documentary analysis mainly using the results of the panel least square regression analysis between the dependent and independent variables of the pharmaceutical manufacturing firms under study.

The major findings and the statistical significance are discussed in the following sub-sections.

4.4.1 The Relationship between Capital Structure and Financial Performance

As discussed earlier; two models are developed to study the impact of capital structure on financial performance of pharmaceutical manufacturing firms:

- a. Model 1: The relationship between Long-term Debt to Equity ratio (LTD) and Return on Asset (ROA)
- b. Model 2: The relationship between Total Debt to Asset ratio (TDA) and Return on Asset (ROA)

The regression results are presented in Tables 4.16 and 4.17 for Models 1 and 2 respectively. The adjusted R^2 values for the two models are nearly identical, that is about 78%. This value shows that the 78% variability of dependent variable is accounted for independent variables in the

models. 22% of the variability of the dependent variable is accounted for the factors other than the ones captured in the models.

The long term debt to equity ratio (Model 1) has negative relationship with return on asset for pharmaceutical manufacturing firms. The regression coefficient of -0.008722 for Model 1 is statistically significant at 5% significance level with $p =$ values of 0.0104. The increase in long-term debt to equity ratio by one unit maintaining other variables fixed would decrease the return on asset by 0.008722. This finding is consistent with the preposition of the Pecking Order Theory. The works of Vatavu (2015), Mwangi (2014), Hasan (2014), Pouraghajan & Malekian (2012), Velnampy & Niresh (2012), and Getahun (2016) also support the pecking order theory.

The total debt to asset ratio (Model 2) has positive relationship with return on asset for pharmaceutical manufacturing firms in Ethiopia. The regression coefficient of 0.055415 for Model 2 is statistically significant at 1% significance level with $p =$ values of 0.0068. The increase in total debt to asset ratio by one unit keeping other variables constant would increase the return on asset by 0.055415. This finding is consistent with the capital structure theory of trade off theory. This capital structure theory proposes the positive relationship between capital structure and financial performance. The research works of Kaguri (2012), Kifle (2016), Goyal (2013), Kaani (2013), and Njeri & Kagiri (2013) are some, among many, in support of trade off theory.

4.4.2 The relationship between return on asset (ROA) and Age

The panel fixed effect estimation results for the two models reveals that there are significant positive relationship between age and financial performance of pharmaceutical manufacturing firms with a regression coefficient of 0.308135 and 0.342576 for Models 1 and 2 respectively at 1% significance level. The t-statistic and P-value for Model 1 are 7.839033 and 0.0000. The t-statistic and P-value for Model 2 are 8.305396 and 0.0000. This indicates that firms remained longer in operation the more efficient in translating resources to enhance their performance. Rossi (2016) and Pouraghajan (2012) have also reported positive relationship between return on asset and firm age on their research.

4.4.3 The relationship between return on asset (ROA) and Size

The panel fixed effect estimation results for the two models reveals that there are significant negative relationship between size, measured by the natural logarithm of total asset, and financial

performance of pharmaceutical manufacturing firms with a regression coefficients of -0.140143 and -0.189300 for Models 1 and 2 respectively at 1% significance level. The t-statistic and P-value for Model 1 are -4.168904 and 0.033616. The t-statistic and P-value for Model 2 are -5.745260 and 0.032949. This indicates that firms with larger size earn smaller compared to small size firms. Siddik (2017), Sorana (2015), and Bokhtiar (2014) have also reported negative relationship between return on asset and firm size on their research.

4.4.4 The relationship between return on asset (ROA) and Liquidity

The panel fixed effect estimation results for the two models, in this study, shows a statistical significant negative relationship between liquidity and financial performance of Ethiopian pharmaceutical manufacturers with a regression coefficients of -0.006232 and -0.0061134 for Models 1 and 2 respectively at 1% significance level. The t-statistic and P-value for Model 1 are -3.035409 and 0.002021. The t-statistic and P-value for Model 2 are -3.418652 and 0.0011. This shows that the pharmaceutical manufacturing firms in Ethiopia are unable to use the opportunity at their disposal to increase the profitability of firms. This finding is consistent with the Siddik (2017), Getahun (2016), and Sorana (2015) research works.

4.4.5 The relationship between return on asset (ROA) and Sales Growth

The panel fixed effect estimation results for the two models, in this study, shows a statistical significant negative relationship between sales growth and financial performance of Ethiopian pharmaceutical manufacturers with a regression coefficients of -0.006232 and -0.007036 for Models 1 and 2 respectively. The t-statistic and P-value for Model 1 are -3.035409 and 0.0035 which is significant at 1% significant level. The t-statistic and P-value for Model 2 are -2.570049 and 0.0125 which is significant at 5% significant level. This finding is consistent with the Siddik (2017) and Abbasi & Delghandi (2016) research works.

Chapter 5

Conclusions and Recommendations

This study is conducted to establish the relationship between capital structure and financial performance of pharmaceutical manufacturing firms in Ethiopia. This chapter provides a conclusion and recommendations based on the main findings.

5.1 Conclusion

Based on the findings the following conclusions are drawn. The pharmaceutical manufacturers in Ethiopia earn 4.7% per year with standard deviation of 0.15 indicating that the variation among the pharmaceutical manufacturers in earning is very small.

The adjusted R^2 values for Model 1 and Model 2 are 77% and 78% respectively. This means 77% variability of the dependent variable is accounted for each of the capital structure used in the models: long-term to equity ratio, total debt to asset ratio, and control variables included in the models. This indicates that there are other factors that account for about 23% of the variability of the dependent variable that are not captured in the model.

Long-term debt to equity ratio (Model 1) has negative and statistically significant, at 5% significant level, relation with return on asset of sampled pharmaceutical manufacturing firms in Ethiopia. This finding is consistent with some of the previous research conducted by Vatavu (2015), Mwangi (2014), Hasan (2014), Pouraghajan & Malekian E. (2012), Velnampy & Niresh (2012), and Getahun (2016). The result is also in favor of the pecking order theory which indicates leverage is negatively related with firm's financial performance; as high level of debt decreases the financial performance of the business. Age has positive significant relationship with return on asset. On the other hand size, liquidity, and sales growth have negative and statistically significant relationship with return on asset.

On the other hand total debt to asset ratio (Model 2) has positive and statistically significant, at 1% significant level, relation with return on asset of sampled pharmaceutical manufacturing firms in Ethiopia. This finding is consistent with some of the previous research works conducted by Kaguri (2012), Kifle (2016), Goyal (2013), Kaani (2013), and Njeri & Kagiri (2013). This result is consistent with Proposition II of Modigliani and Miller and Trade-off theories. Age, one of the control variables shows positive and statistically significant relations with return on asset

while other control variables: size, liquidity, and sales growth have negative relations with return on asset. Size and liquidity are significant at 1% significant level while sales growth is significant at 5% significant level.

Finally, the results show that firm leverage measured by long-term to equity ratio has negative and statistically significant relation with return on asset. On the other hand, firm leverage measured by total debt to asset ratio has statistically significant positive relation with return on asset. All control variables have statistically significant relation with return on asset.

5.2 Recommendation

Based on the study finding, the financial performance of pharmaceutical manufacturing firms in Ethiopia measured by Return on Asset (ROA) is mainly affected by capital structure measured by long-term debt to equity ratio and total debt to asset ratio. The variability of the dependent variable depend 77% and 78% for Model 1 and Model 2 respectively on the independent variables presented on the model. Size, liquidity, and sales growth have significant and inverse relation with return on asset for both models. Therefore the researcher forwarded the following recommendations:

- The management of pharmaceutical manufacturing firms in Ethiopia should explore for proper mix of capital structure to enhance the financial performances. It is revealed that capital structure, measured by long-term debt to equity ratio and return on asset (ROA) has significant negative relationship. The literature indicated that this is due to high financing cost the pharmaceutical manufacturing firms use to finance their operations. Therefore it is recommended that the sampled pharmaceutical manufacturing firms to focus on internal sources of financing to enhance their financial performance.
- Should exploit opportunities for advancement being large firm size, have additional production line, and benefit from economy of scales.
- It is very inviting for researchers to explore factors, other than discussed in this research, such as lack of hard currency, shortage of skilled man power, lack of well developed chemical industry, and lack of emphasis on research and development, that affect the performance of Ethiopian pharmaceutical manufacturers. 22% variability of the dependent variable is not captured in the model, which means the aforementioned factors plus others could affect the performance of pharmaceutical manufacturing firms.

Annex A

Table 4.2 Autocorrelation Test result for the Model 1, LTD to ROA

Dependent Variable: ROA
Method: Panel Least Squares
Date: 07/18/18 Time: 22:26
Sample: 2007 2016
Periods included: 10
Cross-sections included: 7
Total panel (balanced) observations: 70

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.892532	0.274635	3.249883	0.0019
LTD	-0.008722	0.003304	-2.640181	0.0104
AGE	0.308135	0.039308	7.839033	0.0000
SIZE	-0.140143	0.033616	-4.168904	0.0001
LQ	-0.006134	0.002021	-3.035409	0.0035
SG	-0.037184	0.015449	-2.406866	0.0190

R-squared	0.573182	Mean dependent var	0.147434
Adjusted R-squared	0.532533	S.D. dependent var	0.050888
S.E. of regression	0.103165	Akaike info criterion	-3.910340
Sum squared resid	0.670506	Schwarz criterion	-3.785491
Log likelihood	63.36190	Hannan-Quinn criter.	-3.521027
F-statistic	14.10067	Durbin-Watson stat	1.738558
Prob(F-statistic)	0.000000		

Source: Eviews 9 output by the researcher

Table 4.3 Autocorrelation Test result for the Model 2, TDA to ROA

Dependent Variable: ROA
 Method: Panel Least Squares
 Date: 07/12/18 Time: 18:31
 Sample: 2007 2016
 Periods included: 10
 Cross-sections included: 7
 Total panel (balanced) observations: 70

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.233658	0.257615	4.788764	0.0000
TDA	0.053482	0.015109	3.539840	0.0008
AGE	0.342576	0.041247	8.305396	0.0000
SIZE	-0.189300	0.032949	-5.745260	0.0000
LQ	-0.007036	0.002058	-3.418652	0.0011
SG	-0.041058	0.015976	-2.570049	0.0125

R-squared	0.591343	Mean dependent var	0.146006
Adjusted R-squared	0.552423	S.D. dependent var	0.059382
S.E. of regression	0.106628	Akaike info criterion	-4.098196
Sum squared resid	0.716286	Schwarz criterion	-3.873346
Log likelihood	61.05027	Hannan-Quinn criter.	-4.008883
F-statistic	15.19392	Durbin-Watson stat	1.878611
Prob(F-statistic)	0.000000		

Source: Eviews 9 output by the researcher

Annex B

Table 4.8 Unrestricted test with all effects estimation output for Model 1

Dependent Variable: ROA
 Method: Panel Least Squares
 Date: 08/10/18 Time: 19:01
 Sample: 2007 2016
 Periods included: 10
 Cross-sections included: 7
 Total panel (balanced) observations: 70

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.131540	0.797216	1.419364	0.1623
LTD	0.009677	0.006901	1.402376	0.1672
AGE	0.125941	0.128651	0.978937	0.3325
SIZE	-0.142267	0.083271	-1.708490	0.0940
LQ	-0.002738	0.002076	-1.318937	0.1934
SG	-0.022368	0.012262	-1.824166	0.0744

Effects Specification

Cross-section fixed (dummy variables)

Period fixed (dummy variables)

R-squared	0.838701	Mean dependent var	0.047434
Adjusted R-squared	0.768133	S.D. dependent var	0.150888
S.E. of regression	0.072657	Akaike info criterion	-2.154867
Sum squared resid	0.253391	Schwarz criterion	-1.448198
Log likelihood	97.42036	Hannan-Quinn criter.	-1.874170
F-statistic	11.88498	Durbin-Watson stat	1.346644
Prob(F-statistic)	0.000000		

Table 4.9 Unrestricted test with all effects estimation output for Model 2

Dependent Variable: ROA
 Method: Panel Least Squares
 Date: 08/10/18 Time: 19:07
 Sample: 2007 2016
 Periods included: 10
 Cross-sections included: 7
 Total panel (balanced) observations: 70

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.358068	0.820380	0.436466	0.6645
TDA	0.050343	0.020562	2.448327	0.0181
AGE	0.067290	0.134373	0.500771	0.6188
SIZE	-0.039609	0.086285	-0.459047	0.6483
LQ	-0.001698	0.002107	-0.805857	0.4243
SG	-0.026852	0.012629	-2.126194	0.0387

Effects Specification

Cross-section fixed (dummy variables)
 Period fixed (dummy variables)

R-squared	0.848718	Mean dependent var	0.046006
Adjusted R-squared	0.782532	S.D. dependent var	0.159382
S.E. of regression	0.074325	Akaike info criterion	-2.109453
Sum squared resid	0.265164	Schwarz criterion	-1.402783
Log likelihood	95.83084	Hannan-Quinn criter.	-1.828755
F-statistic	12.82325	Durbin-Watson stat	1.331526
Prob(F-statistic)	0.000000		

Annex C

Table 4.12 Redundant Fixed Effects Test for Model 1

Redundant Fixed Effects Tests

Equation: EQ01

Test cross-section and period fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	11.024703	(6,48)	0.0000
Cross-section Chi-square	60.640773	6	0.0000
Period F	0.921836	(9,48)	0.0000
Period Chi-square	11.160225	9	0.0000
Cross-Section/Period F	5.267621	(15,48)	0.0000
Cross-Section/Period Chi-square	68.116913	15	0.0000

Table 4.13 Redundant Fixed Effects Test Output for Model 2

Redundant Fixed Effects Tests

Equation: EQ01

Test cross-section and period fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	11.166190	(6,48)	0.0000
Cross-section Chi-square	61.159439	6	0.0000
Period F	1.104454	(9,48)	0.0000
Period Chi-square	13.174593	9	0.0000
Cross-Section/Period F	5.444138	(15,48)	0.0000
Cross-Section/Period Chi-square	69.561143	15	0.0000

Annex D

1. List of pharmaceutical manufacturing firms
 - a. Addis Pharmaceuticals
 - b. Epharm
 - c. Cadila
 - d. East Africa Pharmaceuticals
 - e. Medsol
 - f. Fawes Pharmaceuticals
 - g. Pharmacure
 - h. Julfar
 - i. Dana

Reference

- Abbasi E. and Delghandi M., (2016). Impact of firm specific factors on capital structure based on Trade off Theory and Pecking Order theory - An Empirical Study of the Tehran's Stock Market Companies. *Arabian Journal of Business and Management Review*.
- Abor, J. (2007). Debt policy and performance of SMEs: evidence from Ghanaian and South Africa firms. *Journal of Risk Finance*, 8, 364-79.
- Abor, Joshua (2005). The Effect of Capital Structure on Profitability: An Empirical Analysis of Listed Firms in Ghana, *Journal of Risk Finance* Vol.6 No. 5, 2005, pp. 438-445.
- Adekunle, O, & Sunday, K. (2010). Capital Structure and Firm Performance: Evidence from Nigeria. *European Journal of Economics*.
- Agnes W. (2013). Relationships between firm characteristics and financial performance of life insurance companies in Kenya. Master's thesis unpublished.
- Altman, E. (2002). Bankruptcy, Credit Risk, and High Yield Junk Bonds.
- Arbabian, Ali-Akbar, Safari, & Mehdi. (2009). The effects of capital structure and profitability in the listed firms in Tehran Stock Exchange. *Journal of Management Perspective*, 33, 159-175.
- Baxter, N. D. (1976). Leverage, Risk of Ruin and the Cost of Capital. *Journal of Financial Economics*, 1976, 3: 305-360
- Baxter, N. (1967). Leverage, Risk of Ruin and the Cost of Capital. *The Journal of Finance*, 22 (3), 395-403.
- Berger, Allen, and Patti, Emilia Bonaccorsi di (2002); Capital Structure and Firm Performance: A new approach to testing agency theory and an application to the Banking Industry. Retrieved from www.federalreserve.gov/pubs/feds/2002/200254/200254pap.pdf.
- Bokhtiar H. (2014). Influence of Capital Structure on Firm Performance: Evidence from Bangladesh. *International Journal of Business and Management*; V. 9 No 5.
- Booth, L., Aivazian, V., Demirguc-Kunt, A., & Maksimovic, V. (2001). Capital Structures in developing countries. *Journal of Finance*, 1, 87-130.
- Brush T. H., Bromiley P., & Hendrickx M. (2000). The free cash flow hypothesis for sales growth and firm performance. *Strategic Management Journal*, 21(4), 455.
- Chakraborty, I. (2010). Capital structure in an emerging stock market: The case of India. *Research in International Business and Finance*, 24, 295-314.

- Chen, J. (2004). Determinants of capital structure of Chinese-listed companies. *Journal of Business Research*, 57, 1241-51.
- Chiang, Y., Chang, P., & Hui, C. (2002). Capital Structure and profitability of the property and construction sectors in Hong Kong. *Journal of Property Investment & Finance*, 20, 434-453.
- Deesomsak, R., Paudyal, K., & Pescetto, G. (2004). The determinants of capital structure: evidence from the Asia Pacific Region. *Journal of Multinational Financial Management*, 14, 387-405.
- Deloof, M. (2003). Does working capital management affect profitability of Belgian Firms? *Journal of Business Finance and Accounting*, 30(4), 41-67.
- Esperanca, J., Ana G., and Mohamed A.G. (2003). Corporate debt policy of small firms: An empirical (re)examination. *Journal of Small Business and Enterprise Development*, 10(1): 62–80.
- Fama, E., & French, K. (2005). The Anatomy of Value and Growth Stock Returns.
- Fama, E., & French, K. (2002). Testing trade-off theory and pecking order predictions about dividends and debt. *Review of Financial Studies*.
- Fischer, O., Heinkel, R. & Zechner, J. (2009). Dynamic capital structure choice: Theory and tests. *Journal of Finance* 44(1), 19-40.
- Frank, M. Z., & Goyal, V. K. (2003). Testing the Pecking order Theory of Capital Structure. *Journal of Financial Economics*, 67, 217-248.
- Frost & Sullivan (2012). Market Insight: *High growth rates expected for the Ethiopian pharmaceutical market, but it's not all smooth sailing – Unpacking the challenges.*
- Gethaun M. (2016). Capital Structure and Financial Performance of Insurance Industries in Ethiopia. *Global Journal of Management and Business Research*, 16 (7).
- Gill A, Bigger N. & Mathur N. (2010). The relationship between working capital management and profitability: Evidence from Pakistan. *Journal of Business and Economics*, 8(1), 45-56.
- Glen, J., Lee, K. and Singh, A. (2003). Corporate profitability and the dynamics of competition in emerging markets: A time series analysis. *Economic Journal*, 113 (491), 465–484.
- Goyal A.M. (2013). Impact of capital structure on performance of listed public sector banks in India. *International Journal of Business and Management Invention Vol. 2 (10)*

- Harris, M., and Raviv, A. (1991). The theory of the capital structure. *Journal of Finance*, 46, 297- 355.
- Hasan B., et.al (2041). Influence of capital structure on firm performance: Evidence from Bangladesh. *International Journal of Business and Management*. Volume 9, No. 5.
- Hutchinson, P (2003). How Much Does Growth Determine SMEs ‘Capital Structure? <http://www.cric.com.au/seanz/resources/5Hutchinson.pdf>
- IMF country Report No. 11/304. Washington, DC: International Monetary Fund; 2011. Federal Democratic Republic of Ethiopia poverty reduction strategy paper: growth and transformation plan 2010/11–2014/15.
- Jensen, M., & Meckling, W. (1976). Theory of the firm: managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3, 305-60.
- Jensen, M. (2006). Agency Cost of Free Cash Flow, Corporate Finance and Takeovers, *American Economic Review, Papers and Proceedings*, Vol.76 (1).
- Johnson, SA (1997). An empirical analysis of the determinants of corporate debt ownership structure <http://www.jstor.org/stable/pdfplus/2331316.pdf>
- Kaguari A. (2012). Relationship between firm characteristics and financial performance of life insurance companies in Kenya. *A master thesis*.
- Khalaf T. (2013). Capital structure effect on banking performance: a case study of Jordan. *International journal of economics, finance, and management sciences*, 1(5): 227-233.
- Karadeniz, E., Kandir, S., Balcilar, M., & Onal, Y. (2009). Determinants of capital structure: Evidence from Turkish lodging companies. *International Journal of Contemporary Hospitality Management*, 21, 594-609.
- Kester, W. (2006). *Capital and ownership structure: a comparison of United States and Japanese manufacturing corporations*, Financial Management.
- Kifle A. (2016). Capital structure and financial performance: Evidence from cement companies in Ethiopia. Master’s thesis unpublished.
- Kiogora, G.M. (2000), Testing for variations in the capital structure at the NSE. An empirical study.
- Kraus, A., & Litzenberger, R. (1973). A State-Preference Model of Optimal Financial Leverage. *Journal of Finance*, 911-922.
- Kyereboah-Coleman, A. (2007). The impact of capital structure on performance of microfinance institutions. *Journal of Risk Finance*, 8, 56-71.

- Lee. J. (2009), “Does Size Matter in Firm Performance? Evidence from US Public Firms”, *Int. J. of the Economics of Business*, Vol. 16, No. 2, pp. 189 – 203.
- Leonard M. and Mwasia I. (2014), Capital structure and financial performance in Kenya: Evidence from firms listed at the Nairobi Securities Exchange. *International Journal of Social Sciences and Entrepreneurship*, Vol. 1 Issue 1.1
- Lyrودي & Lazaridis. (2000). The relationship between working capital management and profitability: Evidence from food industry in Greek. *Journal of business and management*, 12(3), 87-91.
- Madubuko U. (2016).The effect of capital structure on the financial performance of Nigerian Quoted Conglomerates.*European Journal Accounting, Auditing & Finance Research*, Vol. 4, 61-69.
- Maina, L. and Ishmail, M. (2014). Capital Structure and Financial Performance in Kenya: Evidence from Firms Listed at the Nairobi Security Exchange. *International Journal of Social Sciences and Entrepreneurship*, 1 (11), 1-14
- Majumbar, S., & Chibber, P. (1997). Capital Structure and Performance: Evidence from a Transition economy on an Aspect of Corporate Governance. *Public Choice*, 98, 287-305.
- Majumdar, S. & Chhibber, P. (1999). *Capital structure and performance: evidence from a transition economy on an aspect of corporate governance*. Public Choice 98,
- Manawaduge, A., Zoysa De, A., Chowdhury, K., & Chandarakumara, A. (2011). Capital Structure and Firm Performance in Emerging Economies: An Empirical analysis of Sri Lankan Firms. *Corporate Ownership & Control*.
- Martine M.K. & Assumptah W.K. (2015). Effect of capital structure on financial performance of banking institutions listed in Nairobi Security Exchange. *International journal of science and research*, Vol 4 (7).
- Mathuva D. (2000). The influence of working capital management components on corporate profitability: a survey on Kenyan listed firms. *Research Journal of Business Management*, 4(1), 81-101.
- Miller, M. (1977). Debt and Taxes. *Journal of Finance*, 32, 261-275.
- Ministry of Health and Ministry of Trade (2015). National Strategy and Plan of Action for Pharmaceutical Manufacturing Development in Ethiopia 2015-2025.

- Minton, B., & Wruck, K. (2001). Financial Conservatism: Evidence on Capital Structure from low leverage firms.
- Modigliani, F. & Miller, M. H. (1963). Corporate income taxes and the cost of capital: A correction. *53(3)*, 433-443.
- Modigliani, F., & Miller, M. (1958). The cost of capital, corporation finance and the theory of investment. *American Economic Review*, *48*, 261-97.
- Moen. (1999). The relationship between firm size, competitive advantage and export performance revisited. *Journal of international small business*, *18(1)*, 53.
- Muritala, T. (2012). An Empirical Analysis of Capital Structure on Firms' Performance in Nigeria. *International Journal of Advances in Management and Economics*, 115-124.
- Mwangi W., Makau S., and Kosimbei G., (2014). Relationship between Capital Structure and Performance of Non-Financial Companies Listed In the Nairobi Securities Exchange, Kenya. *Global Journal of Contemporary Research in Accounting, Auditing and Business Ethics*. V. 1, Issue 2.
- Myers, S. (1984). The capital structure puzzle. *Journal of Finance*, *39*, 575-92.
- Myers, S., & Majluf, N. (1984). Corporate Financing and Investment Decisions when firms have information that investors do not have. *Journal of Financial Economics*, *13*, 31-49.
- Njeri M. & Kagiri A. (2013). Effect of Capital Structure on Financial Performance of Banking Institutions Listed in Nairobi Securities Exchange. *International Journal of Science and Research*.
- Onaolapo, A. A. and Kajola, S. O. (2010), "Capital Structure and Firm Performance: Evidence from Nigeria", *European Journal of Economics, Finance and Administrative Sciences*, Issue, 25, pp.70-82.
- Orser, B. J., Hogarth-Scott, S., & Riding, A. L. (2000). Performance, firm size and management problem solving. *Journal of small business management*, *38(4)*, 42-58.
- Osuji & Odita A. (2012). *Arabian Journal of Business and Management Review* V. 1, No 12
- Pouraghajan A. & Malekian E., (2012). The Relationship between Capital Structure and Firm Performance Evaluation Measures: Evidence from the Tehran Stock Exchange. *International Journal of Business and Commerce*. Vol. 1, No. 9.
- Rajan, R., & Zingales, L. (1995). What do we know about capital structure? Some Evidence from International data. *Journal of Finance*, *50*, 1421-60.

- Rajan, R. (2008), The paradox of liquidity, *Quarterly Journal of Economics*, Vol. 113, pp. 733-71.
- Roanne N.M (2013) Capital Structure & Firm's Financial Performance: An Empirical Analysis of the S&P500. Master's thesis unpublished.
- Rao, N. , V. ,Al-Yahyee, K. and Syed, L. (2007). Capital structure and financial performance: evidence from Oman. *Indian Journal of Economics and Business*, 1-26.
- Roden, D., & Lewellen, W. (1995). Corporate capital structure decisions: evidence from leveraged buyouts. *Financial Management*, 24, 76-87.
- Rossi M., (2016). The impact of age on firm performance: A literature review. *Corporate ownership and control*, Volume 13, Issue 2
- Roy, L and Minfang, L (2000) "Environmental Dynamism, Capital Structure and Performance: A theoretical Integration and an Empirical Test. *Strategic Management Journal*
- Salteh, H., Ghanavati, V., & Khosroshahi, M. (2009). Capital Structure and Firm Performance: Evidence from Tehran Stock Exchange.
- Shergill, J. & Sarkaria, M. (1999). Impact of industry type and firms characteristics on firm financial performance: Evidence from Indian industry level. *Journal of entrepreneurship*, 8(1), 81-90.
- Shyam-Sunder, L., & Myers, S. (1999). Testing static trade off against pecking order models of capital structure. *Journal of Financial Economics*, 51, 219-244.
- Sorana V. (2015). The Impact of Capital Structure Financial Performance in Romanian Listed Companies. *Procedia Economics and Finance*, 32 (2015).
- Siddik N.A. (2017). Impacts of Capital Structure on Performance of Banks in Developing Economy: Evidence from Bangladesh. *International Journal of Financial Studies*.
- Soumadi, M., & Hayajneh, O. (2012). Capital structure and corporate performance: Empirical study on the public Jordanian shareholdings firms listed in the Amman Stock Market. *European Scientific Journal*.
- Taani K. (2013). Capital structure effects on banking performance: a case study of Jordan. *International Journal of Economics, Finance and Management Sciences* 2013; 1(5): 227-233.
- Titman, S. & Wessels, R. (2008). The determinants of capital structure choice. *Journal of Finance*, (43).

- Umar, M., Tanveer, Z., Aslam, S., & Sajid, M. (2012). Impact of Capital Structure on Firms' Financial Performance: Evidence from Pakistan. *Research Journal of Finance and Accounting*.
- Vatavu S. (2015). The impact of capital structure on financial performances in Romanian listed companies. *Procedia Economics and Finance*. 32, 1314-1322.
- Velnampy T. & Niresh J. (2012). The Relationship between Capital Structure & Profitability. *Global Journal of Management and Business Research*. Volume 12 Issue 13 Version 1.0
- WHO (2015). National Strategy and Plan of Action for Pharmaceutical Development in Ethiopia (2015-2025).
- Zeitun, R., & Tian, G. (2007a). Capital Structure and corporate performance: evidence from Jordan. *The Australian Accounting Business & Finance Journal*, 1, 40-61.