

Determinants of Profitability of Manufacturing companies

A case of Adama City, Ethiopia

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June, 2015

Adama, Ethiopia

DETERMINANTS OF PROFITABILITY OF MANUFACTURING COMPANIES

A CASE OF ADAMA CITY, ETHIOPIA

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**A RESEARCH THESIS SUBMITTED TO THE DEPARTMENT OF
ACCOUNTING AND FINANCE FOR THE PARTIAL FULFILLMENT OF
MASTERS OF SCIENCE IN ACCOUNTING AND FINANCE**

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ADAMA SCIENCE AND TECHNOLOGY UNIVERSISTY

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DEPARTMENT OF ACCOUNTING AND FINANCE

JUNE, 2015

ADAMA, ETHIOPIA

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JUNE, 2015

Statement of Declaration

I Mengistukoshe, declare that this thesis entitled “Determinants of Profitability of manufacturing companies a case of Adama City, Ethiopia” is my own original work which has not presented for degree any other Universities and that all sources of materials used for the thesis have been properly acknowledged.

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Statement of Certification

This is to certify that MengistuKosheGobena has carried out his research work on the topic entitled “Determinants of Profitability of manufacturing companies a case of Adama City, Ethiopia”. The work is original in nature and is suitable for submission for the reward of the M.Sc, Degree in Accounting and Finance.

Advisor: Mr. TewodrosDamtew

Acknowledgments

I praise the name of Almighty **God** who gave me power and patience in every endeavor of my life.

I would like to sincerely thank my advisor **Mr. TewodrosDamtew** for his constructive comments; valuable suggestions and good guidance equally thank him for his kindness and necessary encouragement. Second, I am especially, indebted to class mates **Mr.MesfinAman** and **Mr.YosephBijiga** for their unreserved support on course study. Special thanks go to both **Dr.Guruswamy,P.Suganda Shaikh** and **Mr. AbrihamLajore** Adama University Accounting and Finance graduate program teachers for their valuable comments and feedback on the thesis proposal.

I cannot express thoroughly my appreciation and gratefulness to my beloved wife **W/o FitsumTerefe**, mother of my baby girl **YosabetMengistu**. She always supports me to acquire more knowledge and always encouraged me in my study. She is an icon of Love. Her love and sacrifice have no parallels.

Lastly, but not least my appreciation also goes to Adama City Revenue Office workers who have supported me more than my expectation during data collection.

God Bless You all!!

Acronyms & abbreviations

➤ OLS	Ordinary Least Square
➤ DW	Durbin Watson
➤ BP	Breusch Pagan Test
➤ BG	Breusch Godfrey Test
➤ ROA	Return on Asset
➤ SPSS	Statistical Package for Social Science
➤ MSS	Mohammed Seid Plastic Factory
➤ ADF	Adefers PP Bag Factory
➤ BER	Bereket Flour Factory
➤ BWH	Belew G/Tsadik Hallow Block Factory
➤ AH	Ahwan Food Complex
➤ VIF	Variance Inflation Factors
➤ VOC	Volume of capital or capital adequacy
➤ BRO	Brothers Floor and biscuit

Abstract

Profitability is one of the most important objectives of financial management because one goal of financial management is to maximize the owner's wealth. In this paper an attempt has been made to examine firm level factors determine profitability of manufacturing companies in Adama city, Ethiopia. Seven explanatory variables; age of company, size of company, leverage ratio, growth, liquidity ratio, tangibility of assets and volume of capital of the firm were regressed against the dependent variable profitability proxied by ROA. In connection of this, a sample of six companies were taken and secondary data was collected from audited financial statements (Balance sheet and Profit/Loss account) of selected companies, for the period of five years (2009 to 2013) with the total of thirty observations. This study is explanatory research design with judgmental sampling method to select the sample companies.

Data was then analyzed on quantitative basis using multiple regression analysis. From the regression results; volume of capital, growth, tangibility, leverage, liquidity, size, and age are identified as most important determinant factors of profitability. Hence, growth, volume of capital, liquidity, size, and age are positively related. In contrast, tangibility ratio and leverage ratio are negatively related with profitability. The study revealed that growths, volume of capital, liquidity, leverage, tangibility are significant determinants whereas age and tangibility are insignificant determinants of profitability of manufacturing companies in Adama city.

Key words: Profitability, Adama City, Manufacturing companies, Return on asset.

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Chapter One

Introduction

Background of the Study

Profitability has been given considerable importance in the accounting and finance literatures. According to Hifza Malik (2011) Profitability is one of the most important objectives of financial management since, one goal of financial management is to maximize the owners' wealth, and, profitability is very important determinant of performance. A business that is not profitable cannot survive. Conversely, a business that is highly profitable has the ability to reward its owners with a large return on their investment. Hence, the ultimate goal of a business entity is to earn profit in order to make sure the sustainability of the business in prevailing market conditions. Pandey (1980) defined the profitability as the ability of a business, whereas it interprets the term profit in relation to other elements. It is necessary to examine the determinants of profitability to understand how companies finance their operations. A financial benefit is realized when the amount of revenue gained from a business activity exceeds the expenses, costs and taxes needed to sustain the activity. Profitability analysis classifies measures and assesses the performance of the company in terms of the profits it earns either in relation to the shareholders investment or capital employed in the business or in relation to sales, profit, (or loss). J. Hampton (2009) clarified profitability ratio as a class of financial metrics that are used to assess a business's ability to generate earnings as compared to its expenses and other relevant costs incurred during a specific period of time. In practice, executives define profits as the difference between total earnings from all earning assets and total expenditure on managing entire asset-liabilities portfolio (Kaur and Kapoor 2007).

Accordingly, the term 'profitability' is a relative measure where profit is expressed as a ratio, generally as a percentage. Profitability depicts the relationship of the absolute amount of profit with various other factors. Similarly, Michael Koller (2011) argued that profitability is the most important and reliable indicator as it gives a broad indicator of the ability of manufacturing company to raise its income level.

Manufacturing sector offer a viable path for Ethiopia and other Sub-Saharan African countries as they transform their economic structure and strive for productive job creation, Justin Yifu Lin (2010). Manufacturing companies is expected to be financially solvent and strong through being profitable in operation. The Profitability analysis of manufacturing sector is very useful to the stake holders. The Primary objective of a business undertaking is to earn profits. Profit earning is considered essential for the

survival of the business. Profit is the engine that drives the business enterprise Lord Keynes (2007).

In Ethiopia, no adequate researches have been conducted on this arguable area and the available literatures are highly focused on manufacturing companies (for example Ashenafi (2005); and Amanuel (2011). Insurance companies by Abate (2012).

Therefore, profitability requires empirical investigation so as to identify what are the important factors affecting profitability of manufacturing companies so that concerned bodies will focus on relevant factors affecting profitability. Hence, the determinants of profitability on manufacturing companies have become important and an investigation focuses area on what factors determine the profitability.

To meet this objective the researcher used explanatory research approach through collecting data from secondary sources of data. Mainly the panel data which combines the features of both time series and cross sectional data were collected from six sample manufacturing companies to be used for regression analysis.

Statement of the problem

Profitability is one of the most important objectives of financial management since one goal of financial management is to maximize the owners' wealth, and, profitability is very important determinant of performance. Hifza Malik, (2011).

Profitability directly affects the stability of the country economic systems in today's world economy. The best profit performance of any industry in general and any firm in particular plays the role of increasing the market value of that specific firm coupled with the role of leading towards the growth of the whole industry which ultimately leads to the overall success of the economy.

Firms are heterogeneous in their profit performance and that differences in productivity help to explain differences in profitability, Schmalensee (1989) and Mauri & Michaels (1998). The factors affecting firm profitability deserve special attention and Profitability is the major principle of most corporate entities; hence it's relative importance in the analysis of corporate growth and survival Akbase & Karaduman (2012).

There are lots of factors that can have impact on the profitability of firms. Among these factors firm size, cash liquidity and financial leverage have been considered for analysis in this study as determinants of corporate profitability Obehioye(2013).

There are no universally accepted lists of factors claimed to affects the formations of profitability in a given firm. But most of previously conducted empirical studies on financial institutions have repeatedly raised age of company, size of company, capital adequacy, leverage ratio, liquidity ratio, and tangibility of assets as a determinants factor of profitability Amdemikael& Abate (2012). However, the results of the empirical result are not consistence (A.K Dawood 2011).

Hence, not only measuring the financial performance of manufacturing companies but also clear imminent about factors affecting financial performance in the industry is the problem to be investigated.

Therefore, the determinants of manufacturing companies' profitability have attracted the interest of academicians, practitioners and institutional supervisors. Across the globe, different studies were conducted regarding factors affecting profitability of firm. For instant, determinants of profitability in selected manufacturing company in SirlankaNishanthiniA&Nimalthansan B (2013). And the factors influencing the profit performance of manufacturing company SumitK.Majmdar,(1997). In Ethiopia there are also papers conducted regarding determinants of profitability on financial institutions. However, to the best knowledge of the researchers there is no published research conducted regards to the determinants of profitability in manufacturing company in Ethiopia particularly in Adama town.

The absence of these empirical studies concerning determinants of manufacturing companies' profitability is then what motivated the researcher to put his own contribution on determinants of profitability on manufacturing companies.

In other words, the problem that is what factors affect the profitability of manufacturing companies has not been adequately investigated; there is no universally accepted list of factors to impact profitability and as a result ,It requires further investigation for which the researcher is to put the possible contributions to the gaps.

Objectives

With regard to the objectives of this study, the researcher tried to address one broad general objective and some more specific objectives just derived from the general objective and these are presented below.

General Objectives

The major objective of the study to investigate the determinants of profitability with respect to selected manufacturing companies was for the period of five calendar years from 2009 to 2013 in Adama city.

Specific Objectives

Based on the above general objective, the researcher elucidates the following specific objectives:

- To determine the impact of firm age on manufacturing companies profitability.
- To explore the effect of firm size and growth on the profitability of manufacturing companies.
- To explore the impact of financial leverage on manufacturing companies profitability.
- To examine firm liquidity level on profitability of manufacturing companies.
- To examine the significance of asset tangibility on manufacturing companies and profitability.
- To investigate how capital adequacy influence the profitability of manufacturing companies.

Research Hypotheses

Based on review of relevant and related literatures it is hypothesized that volume of capital, growth, age and size of company, leverage ratio, liquidity ratio and tangibility are expected to influence firms' profitability as measured by return on assets. Accordingly, the following hypotheses are tested by the study:

H1: There is a positive relationship between age and profitability of manufacturing companies.

H2: There is a positive relationship between size and profitability of manufacturing companies.

H3: There is a positive relationship between any increases in volume of capital and Profitability for manufacturing companies.

H4: There is a negative relationship between leverage and profitability for manufacturing companies.

H5: Liquidity ratio and profitability of manufacturing companies are negatively related.

H6: There is a positive relationship between growth and profitability of manufacturing companies.

H7: Tangibility of assets of manufacturing companies and their profitability are negatively related.

Scope of the study

The study area of this research is manufacturing companies that are registered under the trade and market office of Adama town. Even though there are a number of different factors that may affect profitability manufacturing companies this paper has delimited to assess only the following factors: age of the firm, size of the firm, tangibility of asset, liquidity, leverage, growth and capital adequacy. The purpose of delimiting the scope of the study is to make the study manageable in size because of time and resource constraints.

Limitations of the Study

Despite the researcher carried out the study successfully, however like all research, there were some limitations with this study. The lack of support to get appropriate documentation from companies. Additionally, another limitation to this study was that the nature and background of companies is not uniform throughout the country and since the sample of this study is small the result, the findings can't necessarily

represent companies in the country, because the sample is not a representation of the entire company in the country.

Therefore, the results cannot be taken to generalize for manufacturing companies those were not part of this study. It is very important to note that these limitations did not have any significant obstacle with the outcome of this study.

Significance of the Study

The main reason for this study is that the researchers have not paid enough attention to this subject in Ethiopia specifically in Adama city. Most of the studies previously focused on financial institutions like banks and insurance companies.

Therefore, the following are the significance of the study from various perspectives.

- ✓ The study identifies peculiar characteristic of the firm's that have impact on profitability.
- ✓ The finding can assist the firms in establishing various financing policies and guidelines to mitigate different financial risks.
- ✓ The study will also provide information to academicians, researchers and other stakeholders who are interested in the areas of profitability or other related areas and can also serve as a reference material.

Structure of the Study

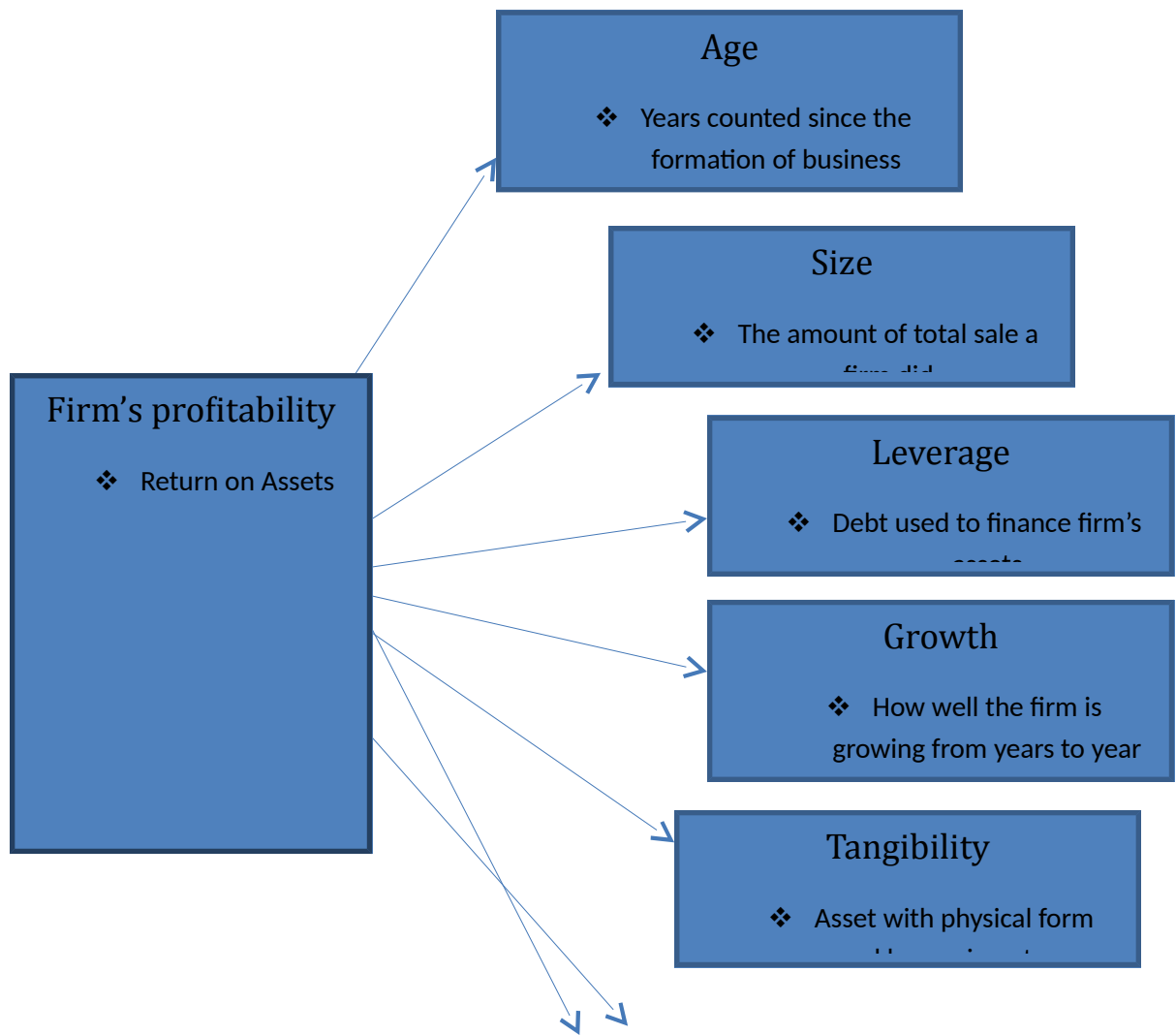
The paper is organized in to five sections. The first chapter includes the introduction part which contains Background of the study, statements of the problems, objective of the study and hypothesis. The second chapter contains literature review regarding the subject matter which was organized as the theoretical and empirical literatures with the empirical literature further divided in to African and Ethiopian. The third chapter of the paper the methodology of the study which contains research design, sampling approach, data source and data collection methods. The fourth chapter is data analysis and discussion part which contains detail analysis of the data, tests for assumptions and discussion on the

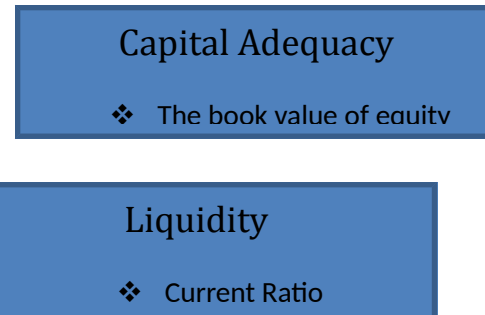
outputs. In the fifth chapter the conclusions and finding are presented and in the last section of the paper contains the reference.

Conceptual Framework for the study

The researcher constructs the following conceptual frame work for the analysis of the problem.

Figure 4-1 Conceptual framework





Source: Researcher's own Design

Chapter Two

Literature Review

2.1 Overview of Profitability

The primary objective of a business (Nimalathasan, 2009) is profit. In point of view of the heavy investment which is necessary for the success of most enterprises. Profit in the accounting sense tends to become a long term objective which measures not only the success of the product, but also of the development of the market for it. It is determined by matching revenue against cost associated with it. Only those costs are placed against revenue, which have contribution in the generation of such revenue. An enterprise should earn profits to survive and grow over a long period of time. It provides evidence concerning potential of a company and how effectively a firm is being managed. If the enterprise fails to make profit. Capital investment is eroded and if this situation prolongs the enterprise ultimately ceases to exist.

Profit and profitability are two different terms. Profit means as an absolute measure of earning capacity, while profitability is relative measure of earning capacity. Profit is defined by Iyer (1995) as "excess of return over outlay" Nimalathasan, (2009) while profitability is defined as "the ability of given investment to earn a return for its use". The words profitability is composed of two words profit and ability. The word profit has

already been defined but the meaning of profit differs according to the use and purpose of the enterprise to earn the profits. Thus the word profitability may be defined as the ability of the given investment to earn a return from its use.

Profitability ratios measure the firm's ability to generate profits and central investment to security analysis, shareholders, and investors. Profitability is the primary measure of the overall success of enterprise. The analysis of profitability ratios is important for the Shareholders, creditors, prospective investors, manufacturers and government alike.

2.2 Over view of manufacturing companies in Ethiopia

The manufacturing sector in Ethiopia is at an early stage of development, currently (2001 E.C) accounting for about 11 percent of GDP and 9.5 percent of employment. There are about 130 state- owned and 7,000 private manufacturing industries of all sizes, mainly engaged in the production of food, beverages, tobacco, textile, leather and foot wear, paper, metallic and non-metallic mineral products, cement and chemicals. Ethiopian's industrial policy is based on Agricultural Development Led Industrialization (ADLI) strategy, whose main objective is the gradual structural transformation of the economy from agricultural to industrial development using the country's human and natural resources CSA,(2001).

Major manufacturing opportunities offering attractive potential benefits to prospective investors are hereby outlined in the food and beverage, leather and textile, chemical and paper, electrical and electronic, building materials, and non-metallic minerals and metallic industrial sub-sectors. Nearly all of these investment opportunities are based upon the need and/or recourses of the country CSA,(2001).

Food and Beverages: Processing and preserving of meat products; integrated production, processing and preserving of fish products; processing and preserving of fruits and vegetables; integrated production and processing of dairy products; manufacture of starch and starch products; processing of animal feed; manufacture of sugar; manufacture of brewery, mineral water, winery, soft drinks etc.

Tannery and Leather Good and Articles: Integrated tanning up to finishing, manufacture of lug gages, handbags, saddler, harness, footwear and garment.

Textile: Preparation and spinning of textile fibers, weaving of textile fabrics, and made up textile articles.

Glass and Ceramics: table ware and sanitary ware, sheet glass, and manufacturing of containers based on raw materials.

Chemicals and Chemical Products: manufacture of basic chemicals based on local raw materials, including PVC granules from ethyl alcohol, formal dehyde from methanol, manufacture of caustic soda and chlorine based chemicals, carbon black, precipitated calcium carbonate; textile dyes, ball-point ink, and tallow for soap.

Drugs and Pharmaceuticals: manufacture of pharmaceutical, medicinal, chemical and botanical products in the form of tables, capsules, syrups, and injectables.

Paper and Paper Products: pulp from indigenous raw materials, paper and paper products.

Plastic Products: high pressure pipes, pipe fittings, shower hoods, wash basins, insulating fittings, lighting fittings, office and school supplies and fittings for furniture.

Building Materials: manufacture of cement, lime, gypsum, marble, granite, limestone, ceramics, roofing tiles, corrugated sheets, tubes, pipes and fittings.

Electrical and Electronic Products: Manufacture of office, accounting and computing machinery; manufacture of electric motors, generators, transformers, capacitors, resistors, switch gears, electrical fittings and integrated circuit boards; manufacture of radio, television, VCRs, printers, floppy disc drivers, communication and other equipment and apparatus for the domestic and export market.

Metallurgy: manufacture of basic iron and steel; operation of blast furnaces, steel converters, rolling and finishing mills.

Structural Metal Products: manufacture of metal structures, fabricated steel structures, bridges, towers and recycling of meal and non-metal waste and scrap.

Machinery and Equipment: assembly and manufacture of agricultural machinery and equipment, industrial, transport and mining machinery and parts, manufacturing

machinery, machine tools and accessories, miscellaneous light engineering products, components and parts CSA (2001).

2.3 Manufacturing Sectors in Africa

Prospects for inclusive and sustained development in Africa countries depend heavily on an efficient manufacturing sector. Indeed, in the transition economies as well as the developed countries, the manufacturing sector is the engine of growth, an important contributor to wealth creation and an antidote for containing unemployment World Bank, (2005). Recent work by Eschenbank and Felix (2006) shows that developing countries which have achieved more progress in manufacturing sector exhibit faster per capital GDP growth. It is now well documented that institutional factors significantly affect productivity, and growth of manufacturing sector Bosworth and Collins,(2003); (Dollar and al.,2005).

2.4 An Empirical and Theoretical review

Enormous empirical and theoretical studies have been conduct so far across the globe have been developed so far regarding profitability. In the following sections some of the empirically and theoretical studies conducted mainly on the factor affecting profitability was discussed.

2.4.1 Volume of capital and corporate profitability

Studies conducted in different countries found that for companies, size of capital is one of the important factors that affect return on assets;Hifza Malik (2011) examined the relationship between volume capital and return on asset for Pakistan industry and found positive and statistically significant relationship between company's capital and profitability. Similarly Hamadan Ahamed Ali Al-Shami (2008) found in his investigation that there exists a positive and significant relationship between volume of capital and profitability of the UAE companies.

2.4.2 Firm size and corporate Profitability

Ezeoha (2008), the size of a firm plays an important role in determining the kind of relationship the firm enjoys within and outside its operating environment. The larger a firm is, the greater the influence it has on its stakeholders. The growing influences of conglomerates and multinational corporations in today's global economy (and in local economies where they operate) are indicative of what role size plays within the corporate environment.

Punnose (2008) shows positive relationship between firm size and profitability. According to Nguyen (1985), profitability is largely independent of variations in firm size, although large foreign-owned firms generally earn higher profits than large domestic firms.

Akbas and Kraduman (2012) analyzed the effect of firm size on the profitability of manufacturing companies listed in the Istanbul stock exchange by using a panel data set over the period 2005 to 2011. Profitability was measured by using return on asset, while both total assets and total sales were used as the proxies of the firm size. According to result of the supply, firm size, both in terms of total sales, had a positive impact on the profitability of Turkish manufacturing companies.

Salawu, Assaolu and Yinusa (2012) investigated the effects of financial policy and firm specific characteristics ; such as firm size, on corporate performance. Panel data covering the period from 1990 to 2006, for 70 firms were analyzed. Pooled OLS, Fixed Effect Model and Generalized Method of Moment Panel were employed in the estimation. Their results showed that firm size, growth and foreign direct investment are negatively related to firm's performance.

Ani, Uguwanta, Ezeudu&Uguwuaniy (2012) investigated the determinants of the profitability of the manufacturing in Nigeria. Their data set was made up of 147 manufacturing level observation over a 10 years of period,(2001 to 2010) in respect of 15 manufacturings that satisfied the study requirements. Pooled OLS stated in a multiple regression form was used to estimate the coefficients. Their major results hinged on the fact that increase in firm size may not necessarily lead to higher profits due to

diseconomies of scale; as a higher capital-assets ratio, and loans and advances contribute strongly to manufacturing profitability.

Abu Tapanjeh (2006) examined the relationship between firm structure and profitability, taking into consideration major characteristics such as firm size, firm age, and debt ratio and ownership structure of 48 Jordanian companies from 1995 to 2004, listed in Amman stock exchange. The study employed to model two modern specifications in order to test proposed hypothesis, using the profitability measures of return on equity (ROE) return on investment (ROI). The results indicate that a positive, non-significant relationship existed between the independent variables (including firm size) and profitability; with the exception of debt ratio.

Demsetz (1973) offers an alternative explanation for the relationship between firm size and profitability, arguing that the greater profits of large firms have little or nothing to do with conventional scale economies. Demsetz argues that some firms are inherently more efficient than others due to superior management. Over time, the more efficient firms are rewarded with both growth and elevated profit. Cross sectional studies that provide a mere snapshot of the firm size-profitability relationship suggest that profitability is a function of firm size, but in Demsetz' model, both increased firm size and higher profits are merely the consequences of the firm's superior efficiency. Using Internal Revenue Service data, Demsetz observes that firms earn higher profits in highly concentrated markets while smaller firms earn a normal return. Demsetz interprets these findings as supporting evidence for this premise regarding the superior efficiency of large firms. However, Demsetz' findings are not supported by more rigorous empirical testing Amato & Wilder, (1988) .

Capital market imperfections provide yet another conceptual argument to support size related differences in profitability. The basis for this argument is that financial markets may overstate the risks associated with small firms and charge interest rates that more than compensate the lender for any actual risk differential. Reinganum& Smith (1983) found that lenders charge risk premiums of small firms borrow in a national credit market whereas the credit market faced by smaller borrowers is local or regional Meyer,(1967).

2.4.3 Liquidity and corporate Profitability

Owolabi&Obida (2012) measured the relationship between liquidity management and corporate profitability using data from select manufacturing companies quoted on the floor of the Nigerian Stock exchange. The result of the study was obtained using descriptive analysis and their finding showed that liquidity management measured in terms of the company's credit policies, cash flow management and cash flow conversion has significant impact on corporate profitability.

Bordeleau& Graham (2010) analyzed the impact of liquid asset holding on the manufacturing profitability for a sample of large U.S and Canadian manufacturing's. Their results suggest that profitability is improved for manufacturing's that hold some liquid assets. However, there is a point at which holding further liquid asset diminishes a manufacturing's profitability, all else equal. Moreover, empirical evidence suggests that this relationship varies depending on firm's business model and the state of the economy.

2.4.4 Financial Leverage and Corporate Profitability

Ojo (2012) examined the effect of financial leverage on selected indicators of corporate performance in Nigeria. In an attempt to juxtapose the earlier findings that were specific to developed nations, economic technique of Vector Auto Regression (VAR) model was employed to analyze the model. The finding of the study revealed that leverage shocks exert substantial on corporate performance in Nigeria.

Soumadi&Hayajneh (2011) investigated the effect of profitability and financial leverage on the performance of Jordanian firms listed in the Amman stock market. The study used multiple regression model represented by ordinary least squares (OLS) as a technique to examine the effect of profitability on the firm performance. The study investigated 76 firms (53 industrial firms and 23 service firms) for the period 2001 to 2006. Their results indicated that profitability was negatively associated with firm performance. In addition, the study found out that there was no significant difference to the impact of the financial leverage between high financial leverage firms and low financial leverages firms on their performance.

Gill & Mathur (2011) examined the factors that influenced financial leverage of Canadian firms. Among these factors was profitability measured by Return on asset (ROA). A sample of 166 Canadian firms listed on the Toronto stock exchange was selected for a period of 3 years (2008 to 2011).

The study applied correlation and non-experimental research design. Their results depicted a negative non-significant relationship between financial leverage and profitability. Therefore, based on the above fact factors that impact the corporate profitability of developing economies like (profitability, size, growth, tangibility and age) are the factors that have been proposed to impact the corporate profitability of developing economies.

In the case of manufacturing, the factors that impact the profitability of manufacturing's. Manufacturing specific factors like (capital strength, operational efficiency, income diversification, liquidity risk, size, asset liquidity). Industry specific factors like industry concentration level and Microelectronics factors like economic growth inflation etc. are the factors that have been proposed to impact the manufacturing's profitability Amdemikael (2012).

From insurance companies perspective factors like age of company, size of company, volume of capital, leverage ratio, liquidity ratio, growth and tangibility of assets etc, are the factors that have been proposed to impacts the insurance company's profitability Abate (2012).

2.4.5 Tangibility and corporate profitability

Agency theory suggests that equity-holders of leveraged firms have an incentive to invest in risky investment to expropriate wealth from the firm's debt-holders. If debt can be collateralized, the borrowers are restricted to use the funds for specified project. Since no such guarantee can be used for projects that cannot be collateralized, creditors may require more favorable terms. This reveals a positive relation between debt ratios and the capacity of firms to collateralize their debt Jensen & Meckling, (1976).

Titman & Wessels, (1988) referring to the trade-off theory suggest that the extent to which the firm's asset are tangible results in the firm having a greater liquidation value. This

reduces the degree of financial loss incurred by financiers if the firm defaults. Consequently, firms with assets that have greater liquidation value tend to have relatively easier access to finance with lower costs of financing.

Under the pecking order theory, Harris & Raviv (1991) argue that the low information asymmetry associated with tangible assets makes equity financing less costly, resulting in a negative relation between leverage and tangibility.

According to Nguyen & Ramachandran (2006), firms with high collateralizable tangible assets tend to have easier access to debt by pledging those assets as collateral.

Shah & Khan (2007) suggest that firms with large amount of fixed assets tend to incur debt at relatively lower rate of interest by providing these assets to creditors as an insurance. Thus, firms with higher percentage of fixed asset tend to borrow more as compared to firms whose cost of borrowing is higher because of having less fixed assets.

Bradley et al. (1984) also suggest that firms that invest a lot in tangible assets have higher financial leverage since they borrow at lower interest rates if their debt is secured with such assets.

Most of empirical studies suggest a positive relationship consistent with theoretical argument between tangibility and leverage of the firms, i.e., support the trade-off and agency theories Bradley et al. (1984); Esperanca et al., (2003) ; Hovakimian et al., (2004) ; Shah & Khan, (2007); Salawu&Agboola, (2008); Ramlall, (2009); Teker et al., (2009); and Smith, (2010). In contrast, Buferna, et al., (2005) and Nguyen & Ramachandran (2006) suggest a negative relationship between tangibility and leverage, i.e., support the pecking order theory.

Beyene (2005) by studying the determinants of profitability decision of Medium Enterprises in Ethiopia based on a cross sectional data over 1991 to 1996 EC, found a negative relationship between tangibility and leverage. Thus, he suggests that as Ethiopian Medium firms kept more and more fixed assets, they become attractive to debt.

Daskalakis&Thanou (2010) in examining a number of hypotheses relating to the profitability decision in relation to the firms' size, i.e., distinguishing among micro, small

and medium firms they found tangibility being negatively correlated with leverage. This result leads them to the conclusion that firms view tangible assets as a stable source of return which provides more internally generated funds and leads firms to use less debt, following the pecking order theory.

Kashefi-Pour & Lasfer (2010), in contrast, found that consistent with the trade-off theory, strong evidence concerning the significant positive relationship between debt ratio and tangibility across firms' sizes listed in the U.K Main and AIM markets.

Hutchinson (2003), Cassar & Holmes (2003), Hall et al. (2004), Yazdanfar (n.d) and Bas et al. (2009) specifically suggest a positive relationship between tangibility and long term debt, and a negative relationship between tangibility and short-term debt. The conclusion of their finding is that firms with a large proportion of fixed assets tend to maintain a higher long-debt than other firms. Esperanca et al. (2003). However, suggest a positive relationship between tangibility and both long-term and short-term debt.

Marsh (1982) agrees that firms with few fixed assets are more likely to issue equity, thus, positive relationship between tangibility and leverages. Munyo (n.d) also found tangibility of assets being positively related to long-term debt, thus, suggests that firms with a bigger proportion of tangible assets are more likely to be finance through debt.

2.4.6 Growth and corporate profitability

The pecking order theory suggests that firms with higher growth opportunities need external finance to cover their investment when they do not generate enough internal funds (Myers & Majluf, 1984). Moreover, this theory predicts that firms with more investments should accumulate more debt over time (Frank & Goyal, 2008). Thus, according to this theory, growth and leverage are expected to be positively related.

In contrast, both the trade-off and agency theories predict a negative relation between leverage and growth. The former suggests growth firms lose more of their value when they go into distress, and the later suggests as growth options increase, asset substitution problems also become more severe. In high growth firms, it is easier for equity-holders to increase project risk and it is harder for debt-holders to detect such changes. Thus, debt is more costly for firms with high growth opportunities.

Myers (1977), referring to agency theory, holds the view that firms with growth opportunities will have a smaller proportion of debt in their profitability. This is because conflicts of interest between debt and equity holders are especially serious for assets that give the firm the option to undertake such growth opportunities in the future.

The benefits of this growth, if realized, will not be enjoyed by lenders who will only recover the amount of their loans, resulting in a clear agency problem. This will be reflected in increased costs of debt that leads firms to maintain low level of debt in their profitability. Titman & Wessels (1988) also suggest that equity-controlled firms have a tendency to invest borrowed funds in risky investments to transfer wealth from the firm's debt-holders to equity-holders. The costs associated with this agency problem are likely to be higher for firms in growing industries, which have more flexibility in their choice of future investment. In addition, growth opportunities are capital assets that add value to a firm but cannot be collateralized and do not generate current taxable income.

These arguments suggest a negative relationship between growth and leverage. Empirical evidence seems inconclusive. Most of studies found negative relationship between growth and leverage, i.e., support the trade-off and agency theories Buferna et al., (2005); Eriotis et al., (2007); Shah & Khan, (2007); Kila & Mahmood, (2008); Salawu & Agboola, (2008); Morri & Cristanziani, (2009); Ramlall, (2009).

In contrast, Michaelas et al. (1999), Hutchinson (2003), Cassar & Holmes (2003), Hall et al. (2004), Nguyen & Ramachandran (2006), Saeed (2007) and Smith (2010) suggest positive relationship between growth and leverage, i.e., support the pecking order theory.

Bas et al. (2009) found growth being positively related to long-term debt ratio, while negatively related to short-term debt ratio.

Hall et al. (2004) suggest that growth tends to place a greater demand on internally generated funds and push the firm into borrowing. Marsh (1982) also suggests that firms with high growth tend to maintain relatively higher debt ratios.

Daskalakis & Thanou (2010) in examining a number of hypotheses relating to the profitability decision in relation to the firm's size, i.e., distinguishing among micro, small

and medium firms they found growth being positively related to the debt for all groups of firms. The result leads them to the conclusion that high-growth firms are most likely to exhaust internal funds and use debt as a good alternative in their search for additional capital, as raising equity may be difficult and time-consuming for smaller firms.

Beyene (2005) in examining the determinants of profitability decision of medium enterprises in Ethiopia based on a cross sectional data over 1991 to 1996 EC, found a negative relationship between growth and leverage. Thus, suggests that as Ethiopian Medium Enterprises desire to expand their operation increases, their desire to use debt declines. Kasher-Pour & Lasfer (2010) with respect to the agency conflict between shareholders and debt-holders, also found a negative relationship between leverage and growth opportunities in large companies, whereas, positive relationship in small companies.

2.4.7 Age and corporate profitability

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 creditworthiness. 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 investment in favor of safer investments, even when equity-holders do not approve the safer investment, thus reducing debt agency cost. Johnson (1997) also agrees 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.

Hall et al. (2004) found age being positively related to long-term debt, but negatively related to short-term debt, i.e., support agency theory in relation to long-term, and pecking order theory in relation to short-term debt. Esperanca et al. (2003), however, found age being negatively related to both long-term and short-term. Hutchinson (2003) also found age being negatively related to short-term debt, but insignificant relation with long-term debt. Both the findings of Esperanca et al. (2003) and Hutchinson (2003) support the pecking order theory.

2.5 Summary of Literature

Osuji and Oditia (2012) examined the impact of profitability on the financial performance of Nigerian firms using the samples of thirty non-financial firms listed on the Nigerian stock exchange during the period, 2004 to 2010. Panel data for the selected firms were generated and analyzed using ordinary least squares (OLS) as a method of estimation. Their result shows that a firm's profitability surrogated by debt ratio has a significantly negative impact on the firm's financial profitability measured by return on asset (ROA) and return on equity (ROE).

Ogbulu and Emeni (2012) examined the relationship between profitability, size, growth, tangibility, age and profitability of a firm. Using cross-sectional survey data from 110 firms listed on Nigerian stock exchange and analysis of the data by the OLS method, they found that the relationship between profitability and profitability was non-significant, albeit positive.

Omorogic and Erah (2010) analyzed the relationship between profitability and corporate performance in Nigeria. They utilized data ranging between 1995 and 2009. A model was specified for the study comprising five explanatory variables, based on theoretical underpinnings. The ordinary least square (OLS) technique of model estimation was employed to ascertain the existence of relationship among the variables. They found that profitability exhibited a significant relationship with corporate performance. They also found that the other explanatory variables are useful and had statistical relationship with corporate performance.

Zeitun & Tian (2007) investigated the effect of profitability on corporate performance using a panel data sample of 167 Jordanian companies during the period 1989 to 2003.

Their results showed that a firm's profitability has a significantly negative impact on firm's performance measures. They also found that the level of leverage has a significantly positive effect on the market performance measures.

Most literatures focus on factors affecting profitability of banks and insurance companies rather than manufacturing companies. Therefore, there are fewer literatures concerning manufacturing companies as compared to insurance companies and banks.

The existing literatures concerning manufacturing companies could be; determinants of corporate profitability of developing economies and determinants of profitability an analysis of large Australian firms focused only on internal factors such as age, size, leverage, growth, volume of capital, tangibility of assets and liquidity.

The determinants of profitability evidence from Malaysian construction companies from 2000 – 2012, this study used return on equity (ROE) to measure profitability of company, debt to equity ratio to measure capital structure, quick ratio to measure liquidity, sales used to measure the size of company and term premium to measure the economic cycle. The result showed that liquidity and size have significant relationship with profitability.

The results found by the researchers mentioned above in the empirical revealed inconsistencies according to the country in which the research is conducted regarding some variables.

For this reason, analyzing the factors determining firm profitability and identification of the sources of variation in firm-level profitability has been regarded as important research themes by the researchers in the fields of economics, strategic management, marketing, accounting and finance (Gaur and Gupta, 2011; Nunes , 2009; Jonsson, 2007).

Chapter Three

Methodology

This chapter presents the methodology employed in conducting the research and detail steps and procedures used to conduct the analysis of factors affecting profitability of manufacturing companies in Adama city.

3.1 Research Design

In this study the researcher used an explanatory research design as it is aimed to find the casual relationship between the firm specific factors and profitability of the firm. The data was analyzed using panel data model with seven explanatory variables.

3.2 Data type and Source

In order to answer the research questions and to achieve the objectives of the study, the researcher used a quantitative data type which was collected by reviewing audited annual financial report of six manufacturing companies for the period covering 2009 to 2013. Both balance sheet and income statement prepared for tax purpose were reviewed. The reports were obtained from Adama city revenue office as the organizations were highly resistant to provide financial reports for fear of confidentiality and being a time taking to find back five years data report.

3.3 Sampling Techniques

In this study the researcher used non probability sampling or judgmental sampling approach to align with the time and cost constraints because the approach is less complicated and less time consuming than probability sampling.

As per the information acquired from tax officials there are 40 manufacturing companies operating in Adama city which are registered as federal tax payers and regional tax

payers. In the processes of selecting a sample, these federal tax payers were excluded from the sample as it complicates the data collection and elongate the allocated time.

Furthermore, the regional tax payers themselves are divided in to three categories (A,B and C) depending up on the requirements for financial statements preparation. From above mentioned categories only those companies registered as category “A” tax payers were selected as they are required to prepare both balance sheet and income statement from which information were collected for the study. In addition, the researcher decided to use a five years financial report for each company and only these companies which have been in operations for five years or more were included in to the samples.

Accordingly, out of the available 24 regional tax payers, the numbers of companies which are registered as category “A” tax payers and have been in operations for more than five years were found to be 10. Therefore, six companies were included in to the sample which is 60 percent of the total population, have been used purposely from the whole population.

Those sample manufacturing companies includes:-

- ❖ Bereket Flour Factory/BER
- ❖ AH Food Complex/AH
- ❖ Mohammed Seid Plastic Shoes/MSS
- ❖ Adefrese PP Bag Factory/ADF
- ❖ Below W/Tsadik Hallow Blocks Factory/BWH
- ❖ Brothers Floor and biscuit /BRO

3.4 Data Analysis Method

The model tells that there is a regression analysis between one dependent variable (ROA) against seven independent variables (age, size, tangibility of asset, liquidity, leverage, growth and capital adequacy) and therefore, multiple regression analysis have been used for the study. In analyzing data researcher used SPSS 20 software packages. The diagnostic tests and estimating the result for the study were conducted through SPSS 20 software package because researcher believes that this software package is relatively simple to understand for diagnostic test, estimating and interpretation of the result.

In general, to examine determinants of profitability of manufacturing companies' explanatory research approach has been employed. Factors that might explain the determinants of profitability of firm are a broad concept that needs further investigation from different perspective.

This is the one which tried to investigate and analyze the determinants of profitability of Firms in Ethiopian manufacturing industry. The aim of the study is to investigate and analyze the firm-specific determinants of profitability of companies in manufacturing industry of Ethiopia by including a certain important new explanatory variables which are empirically investigated by few researchers.

3.5 Definitions and Measurements of Variable

In this study measurements of variables were made according to these empirical studies previously conducted to compare the output with previous findings. For example (Rajan and

zingals(1995), Joshua Abor and Nicholas Biekpe (2005), AkinloOlayinka (2011) and Fawad Ahmad (2011)) with some adjustments to suit this study and it has been useful for the meaningful comparison of the last findings with these and other prior empirical studies.

Hence, the definitions and measurements of the variables in the study.

3.5.1 Dependent Variable

Companies' profitability was measured by the ratio of the Return on Assets (ROA). The principal measure of profitability used in this study is the Return on Assets (ROA), which Show as net profit before interest and taxes divided by total assets.

‘Total assets’ used in the denominator of this ratio represents the ‘gross capital employed’ which includes all types of funds used by a firm for earning its net income.

Return on asset was used as a measurement of profitability not return on equity because of the following reasons;

First,ROA calculated before-tax rate of return (EBIT) whereas ROE calculated earning after interest and tax.EBITprovides comparability between firms by avoiding possible distortions that could be caused by differences in the tax rates of the countries and also

different types of tax holidays and exemptions applicable to some companies in the same country.

Second, taxes are primarily charged on profits earned and are generally uncontrollable by management. Thus, the analysis of this study focused on the before-tax rate of return (EBIT). Furthermore, since the numerator of ROA should also include the interest paid by a firm in order to find the rate of return on the total capital employed including those based on borrowed funds (Wolf, 1975), 'Net profit before Taxes as well as interest were used as the numerator.

3.5.2 Independent variables

There are seven independent variables used in the study.

- **Capital Adequacy of companies (CA):**-In this study Capital adequacy was measured by a ratio of total equity over total assets. This measurement also the same with Athanasoglou et al. (2005) and Davydenko (2010). There is Positive correlation between returns and capital has been demonstrated by Demircuc-Kunt and Huizinga (1999) and Naceur (2003).The researcher expected positive relation between capital adequacy and profitability.
- **Company Size (CSize):**- Studies conducted on determinants of profitability took company size variable, as considered to an important determinants of company performance (Penrose, 1959). Like previous studies this research also was used log of total sales to measure the size of the company. To capture the non-linearity between size and company profitability, the researcher proxy company size by using the logarithm of total sales. The expected sign was positive.
- **Tangibility(TA):** -Expresses the share of the assets that the company disposes of permanently for its activities and indicates the level of capital investment in the technical and Productive infrastructure. A high level of this indicator means an active investment policy, but its growth over a certain level (50%) may lead to an efficient use of the working capital and it limits the ability to expandCurrent activities.

Tangibility = Fixed Asset/Total Asset

- **Leverage(Lev):** - A good view of the modality of business financing is provided by the indicator leverage. It can be expressed as a ratio between debts and own capitals. Achieving an optimum rapport of financing structure can ensure company's investors by the perspective of a future development and implicitly of the increasing of equities (Ryan, 2008).

Leverage = Total Debt/Owner's equity

- **Age:** - the variable age of company will be measured from the number of years to date of establishments (difference between observation year and establishment year).
- **Growth(GR):** - the company growth rate measured as the percentage change of total asset. Buyanegara.s (2008).
- **Liquidity(LQ):** - The ratio of asset in a short lived form out of total asset. Afaz and Husien 2011, Mary Dawood et al. (20011).

3.6 Model Specification

A multiple linear regression model was used to determine the relative importance of each independent variable to determine manufacturing companies' profitability. The p-value of explanatory variables was used to test the hypotheses at a 1%, 5% and 10% significance level. The multiple linear regressions model for ROA is shown on equation below. These models were run by using SPSS20 software packages. The six manufacturing company's financial statement was used to analyze the profitability of companies.

Thus, the general multiple regression model used in this paper will be the following.

$$ROA_{i,t} = \alpha + \beta_1 Age_{i,t} + \beta_2 Size_{i,t} + \beta_3 Lev_{i,t} + \beta_4 Gri_{i,t} + \beta_5 CA_{i,t} + \beta_6 Tai_{i,t} + \beta_7 LQ_{i,t} + \epsilon_i \text{ -----(1)}$$

Where:-

- ✓ **ROA_{i,t}** is the return on assets of manufacturing at time t

- ✓ α is constant
- ✓ **Age_{i,t}**: the variable age of company measured from the number of years to date of establishments (difference between observation year and establishment year) of firm i in time t .
- ✓ **Size_{i,t}**: company size measured by total assets in log value of firm i in time t .
- ✓ **Levi_{i,t}**: is leverage ratio and for this variable the proxy is the ratio of total debt to equity value of the company that means total debts divided by total equity of firm i in time t .
- ✓ **CA_{i,e}**: is volume of capital and it is measured as the book value of equity so will also use the book value of equity as a measure of capital (total equity capital that is book value of equity will be measured by the natural log of book value of equity) of firm i in time t .
- ✓ **Tai_{i,t}**: Tangibility (Fixed assets divided by total assets) of firm i in time t .
- ✓ **LQi_{i,t}**: Liquidity (Current assets divided by current liabilities) of firm i in time t .
- ✓ **B1... β_6** : coefficient of independent variables
- ✓ ε is error term

Chapter Four

Data Analysis and Findings

4.1 Introduction

The study examines the determinants of profitability in manufacturing companies operated in Adama city, Ethiopia. The sample contains six manufacturing companies listed at Adama city Revenue office for which five consecutive year's financial data for the period between 2009 to 2013 were used.

In examining the determinants of profitability of manufacturing companies, the study used a regression analysis to test the effect of seven explanatory variables on explained variable i.e., profitability (ROA). Thus, in this study multiple regression analysis used, in which tests have been made to examine whether one or more explanatory variables

influence the variation on dependent variable. In relation to this, the study also examined whether the independent variables have a positive or negative effect on the variations of the dependent variable i.e., return on asset. In this chapter, along with the regression analysis and discussion for the study have been made using SPSS 20 software package. The study also conducts a diagnostic test to increase the reliability of the study.

4.2 Descriptive statistics

Marczyk, Dematteo and Festinger (2005 PP.209-210) noted that descriptive statistics are used to describe the data collected in research studies and to accurately characterize the variables under observation within a specific sample and are frequently used to summarize a study sample. The major information provided through descriptive analysis are mean, maximum and minimum these used as measure of dispersions or variability (standard deviation, variance, coefficient of variations) and these used as measure of relations among variables (correlation coefficient and coefficient of determination). Unlike other forms of descriptive statistics, measure of correlations can be tested with tests of significance which allows them to estimate the likelihood that a relationship between variables in a sample actually exists in the population and is not simply the result of chance.

In the below (Table 4-1) the descriptive statistic of the data is presented for each explanatory variable and the explained.

Table 4-1 Summary of Descriptive for Explanatory Variables

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Age	30	2	27	14.5	7.281
Size	30	0.47	8.75	7.078	1.527
Tan	30	0.01	60	2.171	10.924
Lev	30	0.01	7.58	1.734	2.034
Liq	30	0.15	9	1.538	0.986
VOC	30	0.02	18	1.103	0.691
Gro	30	-10	0.71	0.111	0.101
ROA	30	-0.2	0.47	0.088	0.13

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Source: - Output of SPSS 20

Tan=>Tangibility, Liq=>Liquidity, Lev=>Leverage, Gro=>Growth,
VOC=>Capital adequacy and ROA=>Return on assets

Volume of capital: on the table 4-1 the average value for volume of capital(VOC) has become 1.103 with standard deviation of 0.691. Therefore, there exists slight variation among the values of volume of capital across the sample manufacturing company included in this study.

Growth: - As per the information depicted on the Table 4-1, the average growth rate of the company as approximated by the percentage growth in asset was i.e, on average an asset of the companies has been growing annually at 0.111 while the maximum growth rate was 0.71. However, there was an observation where by the asset was decreasing at -10. The standard deviation for the firm growth is 0.101.

Tangibility: In this paper tangibility is used to represent the ratio of fixed asset to total asset of the companies. As indicated on table 4-1, on average about 2.171 of the sampled manufacturing company's asset is in the form of fixed asset or is tangible form. The maximum amount of fixed asset ratio in the observation was 60 while the minimum ratio is 0.01 with standard deviation attributable to the variable was 10.924.

Leverage: - is measured by ratio of the manufacturing company's asset financed with liability. In this paper it is measured as the ratio of total liability to capital. As it can be seen from the Table 4-1, on average 1.734 of the asset of the firms observed were financed with owner's capital. The maximum amount of liability financing observed was 7.58 while the minimum was 0.01 of the total capital.

Liquidity: is the amount of asset set aside in the form of current asset to pay for short term obligation. Accordingly, the average liquidity level of all companies taken in to considerations was 1.538 Birr for 1 birr of short term liability with a maximum of 9 Birr and minimum 0.15 cents and standard deviations of 0.986.

Size: - The size of the company was measured based on annual sales turnover they have been generating over the five years. Accordingly, to this parameter average size of the companies considered by this paper were companies with 7.078 sales turnovers while the maximum and the minimum size were these with annual turnover of 8.75 and 0.47 respectively. The variability of the size between the firm as measured by the standards deviations of the sale turnover was 1.527.

Age:- The mean value of age is 15, indicating that the average age of the manufacturing companies is 15 years, ranging between the minimum of 2 years and maximum of 27 years.

ROA: - is used to represent a dependent variable and the ratio of net income before tax to total asset is the profitability measurements used. As indicated on the Table 4-1, on average a 1 Birr invested as asset has been generating 0.088 Birr of net profit for the last five years across the companies. As per the observations the maximum amount of return per unit of asset invested was 47cents approximately while the minimum was -0.2.

Distribution of the Data: -As part of the descriptive statistics report (Tables 4-1), SPSS 20 provides information about the distributions of the sample data that can support to have a look at if the data is normally distributed or not. Because even though it is not a requirement for variables to be normally distributed, they have an impact on the final distribution of the residual which are required to be normally distributed.

4.3Diagnostic Test

In order to show how the estimation technique used for this study is appropriate and the hypothesis tests regarding the coefficient estimates are correctly made, a diagnostic test was carried out by using SPSS20 software package. Here in this section all of the crucial tests are made with the help of a series of tables.

Ordinary Least square regression methods have some fundamental assumptions. Some writers (Poolw and O'farrell, 1970) provided six assumptions by adding linearity assumptions to the list provided by (Brook, 2008) on which this study also based. According to (Anderson, 2007) unless otherwise the assumptions are proofed to be adhered to, the estimators will not be a BLUE (Best linear unbiased Estimator) and it will not be possible to reach to concrete conclusions.

Therefore, the following are the basic assumptions to be tested in this study:

- The mean Zero Assumptions(residual are with mean zero)
- Normality Assumptions(Residual are normally Distributed)
- Homoscedasticity Assumptions(Residual terms are with constant variance)
- Multicollinearity Assumptions(Explanatory Variables should not have strong relations)
- Autocorrelations Assumptions(Residuals should not have relations with themselves)

4.3.1 Mean Zero Assumptions

According to this assumption, the residual terms (estimators of the error term) of the regression models should have mean of zero value. This assumption is sometime named as an innocent assumption because unless otherwise the financial theory prohibits for additions of intercept, a constants terms is usually added to the model and if the constant term is added the residuals will automatically assumed zero Value. Accordingly as the model used in this paper has included a constant term(c), the mean values of the residual have been automatically turned to zero. As it can be seen from the descriptive statistics of residual terms, the mean value of the residual is zero and hence the “mean Zero Assumptions” has been fulfilled for the model.

Table 4-2 Descriptive statistics of Residual Terms

Residuals Statistics ^a					
	Minimum	Maximum	Mean	Std. Deviation	N
Residual	-.09595	.08763	.00000	.04350	30

a. Dependent Variable: Return on Asset

Source: Output of SPSS 20.

4.3.2 Normality Assumptions:

Normality assumption states that, the residual terms should be normally distributed around the mean of zero.

The presence of outliers, misspecifications of the model and collections of data from populations which are not normally distributed themselves are the usual causes of normality and if normality assumption is violated, the point estimator will remain unbiased and the problems will be reflected on the test statistics. The test statistics, which are used to test the significance of the estimators and the significance of the model (T-test and F-test respectively), are based on normality assumptions and if the residuals are not normally distributed there is a possibility of reaching to wrong conclusion.

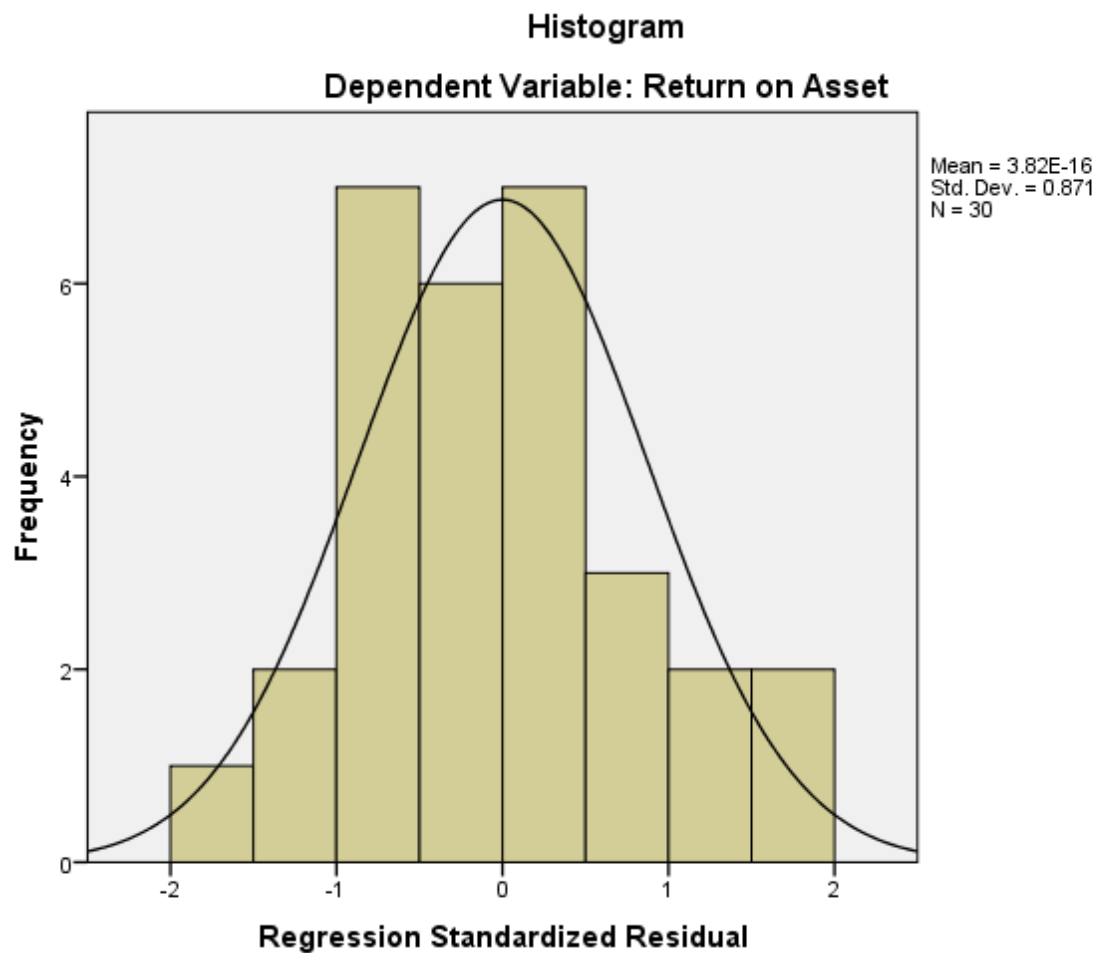
There are different measuring techniques used to detect the normality assumptions of OLS. They are categorized as graphical and numerical method. Graphical methods commonly used are histogram; box plots, normal probability plot etc., and graphically a histogram has been utilized to check the normality of residual terms as SPSS 20 provides the output jointly.

For a normally distributed or approximately normal data, the following characteristics and value or an approximate of it will be exhibited on the output of SPSS 20 software.

- ✓ The histogram will be a bell shaped

Figure 4-2: Histogram

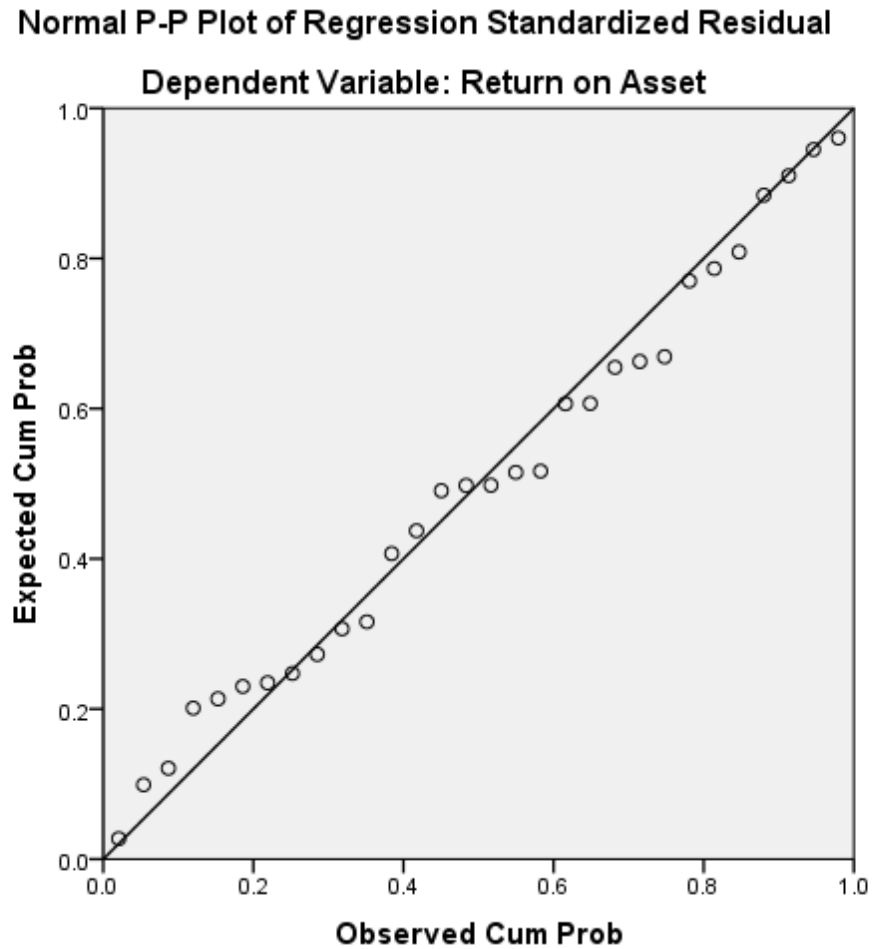
..



Source: Output of SPSS 20

If the residuals are normally distributed around its mean of zero the histogram shows approximated bell-shaped. The shape of the histogram shown above is indicated the residual is normally distributed around its mean of zero.

Figure 4-3: Normal P –P Plot of Regression



Source: Output of SPSS 20

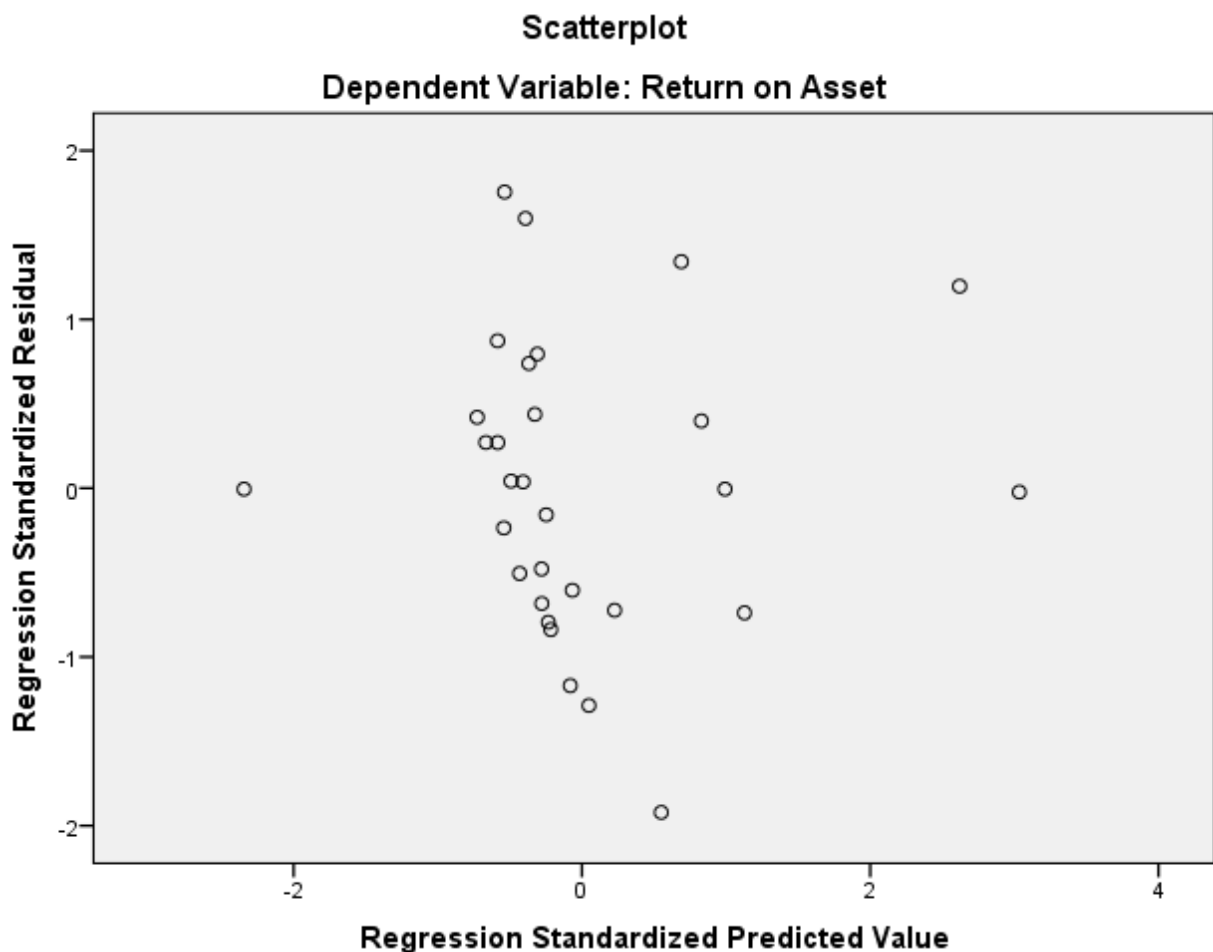
Similarly, P-P plot shown on figure 4-3 confirms the normality of the residual distribution around its mean of zero. Therefore, since the normality assumption is fulfilled based on looking at histogram and p-p plot it can be concluding that the inferences the researcher made about the population parameter from the sample parameter is somewhat valid.

Hence, it can be concluded that the normality assumptions of ordinary least square have been proofed for alignments (fulfillments).

4.3.3 Test for Heteroskedasticity

(Barbara G, 2005 PP.125-126) noted that residuals scatterplots provides a test of assumption of homoscedasticity between predicted scores and errors. Assumption of analysis are that the residuals(differences between obtained and predicted scores) are normally distributed about the predicted scores, that residuals have a straight-line relationship with predicted scores, and that the variance of the residuals about predicted scores is the same for all predicted scores.

Figure 4-4*output for Plots of predicted values of (Y') against residual*



Source: Output of SPSS 20

Therefore, as you see from the above table the assumptions are met meaning the residuals will be nearly distributed with a concentration of scores along the center. There is no problem of heteroskedasticity in the residual and the assumption was not violated.

4.3.4 Multicollinearity Assumptions

4.3.4.1 Correlation analysis between study variables

In this section the correlation between profitability measures return on asset, and explanatory variables; age, size, tangibility, liquidity, leverage, growth and capital adequacy have been presented and analyzed. A correlation matrix used to ensure the correlation between explanatory variables.

The correlation coefficient represents the linear relationship between two variables. The most widely-used type of correlation coefficient is Pearson correlation also called linear or product-moment correlation. The significance level calculated for each correlation is a primary source of information about the reliability of the correlation.

Cooper and Schindler (2009) suggested that a correlation coefficient above 0.8 between explanatory variables should be corrected for because it is for multicollinearity problem. Mashotra (2007) argued that the correlation coefficient can be 0.75. Lastly *et al.* (2006) argued that also correlation coefficient below 0.9 may not cause serious multicollinearity problem. Thus, in this study no explanatory variables have more than 0.8 correlation coefficient from the regression model to control multicollinearity problem.

4.3.4.2 Correlation analysis between return on asset and explanatory variables

Profitability measure is correlated with other explanatory variables either positively or negatively. In table below, the correlation analysis was undertaken between profitability measure; return on asset and explanatory variables; age, size, tangibility, liquidity, leverage, growth and capital adequacy.

As it can be seen from the table below, there was a positive correlation between return on asset and age, size, leverage and growth. Whereas, there is a negative correlation between manufacturing companies profitability measure return on asset and liquidity, tangibility and capital adequacy.

Table 4-3 Correlations between ROA and Explanatory variables.

Correlations								
	ROA	Age	Size	Lev	Gro	Liq	Tan	VOC
ROA	1							
Age	.385	1						
Size	.318	-.060	1					
Lev	.174	.635	.217	1				
Gro	.419	.009	-.181	.178	1			
Liq	-.132	-.268	-.110	-.244	-.145	1		
Tan	-.087	-.142	.002	.153	.039	.068	1	
VOC	-.519	-.177	.145	.030	-.032	.026	.015	1

Source: SPSS 20 out put

As per the above table correlation coefficient between return on asset and leverage was 0.174 that is the smallest positive coefficient as compared to other variables, that means manufacturing company leverage has small association with profitability which supports argument that manufacturing company have weak debt practice, which in turn have impact on leverage. Whereas, age, size and growth have the highest positive correlation coefficient which is 0.385, 0.318 and 0.419 respectively.

4.3.4.3 Correlation analysis between explanatory variables

The correlation between explanatory variables; age, size, tangibility, liquidity, leverage, growth and capital adequacy included in this study are presented and analyzed. According to table 4-4 below, leverage, age and growth of manufacturing company is highly correlated to other explanatory variables included in this study with the coefficient of 0.635 and 0.009 respectively. Hair *et al.* (2006) argued that correlation coefficient below 0.9 may not cause serious multicollinearity problem.

Table; 4-4 Correlations between explanatory variables.

Correlations							
	Age	Size	Lev	Gro	Liq	Tan	VOC
Age	1						
Size	-.060	1					
Lev	.635	.217	1				
Gro	.009	-.181	.178	1			
Liq	-.268	-.110	-.244	-.145	1		
Tan	-.142	.002	.153	.039	.068	1	
VOC	-.177	.145	.030	-.032	.026	.015	1

As per the above table, size has a negative correlation with age. Leverage of manufacturing companies is positive correlation with age and size. Growth of manufacturing companies have positively related with age and leverage respectively, but negatively with size. Liquidity has negative correlation coefficient value with growth, age, size and leverage. Tangibility has negative correlation with age, but positively with size, leverage, growth and liquidity. Finally, the volume of capital of manufacturing companies positively related with size, leverage, liquidity, tangibility, but negatively with age and growth.

4.3.4.4 Multicollinearity Test with-Tolerance and Variance Inflating Factor

The multicollinearity test (table 4-5) summarizes the unstandardized and standardized coefficient, t-statistic and statistics for collinearity for all of seven explanatory variables. The t-statistic helps us to determine the relative importance of each variable in the model.

Among the statistics for collinearity. Tolerance is the one which is used to determine how much the independent variables are linearly related to one another. A variance with a very low tolerance contributes little information in to a model, can cause computational problem. Variance Inflation Factor (VIF), is the other indicator of multicollinearity and it

is the reciprocal of the tolerance. As an indication if the VIF is low there is no evidence for the presence of multicollinearity. But, as the VIF increase, the variance of the regression coefficient is high and making it unstable estimate. If there is high VIF value it is an indication of multicollinearity and therefore, it needs further investigation.

As a conventional rule a very small values of tolerance is an indication that a predictor is redundant, and values that are less than 0.10 may merit for further investigation and a variable whose VIF values are greater than 10 may merit further investigation. But in this study there is no variables with the value of tolerance less than 0.10 and no variables whose VIF values are greater than 10.

Table 4-5: Test for multicollinearity

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	.355	.058		6.093	.001		
Age	.003	.002	.171	1.635	.116	.462	2.166
Size	.049	.007	.578	7.046	.003	.752	1.330
Lev	-.047	.007	-.738	-6.835	.000	.434	2.305
Gro	.007	.001	.596	7.741	.000	.853	1.173
Liq	.019	.005	.265	3.493	.002	.878	1.139
Tan	-.001	.005	-.009	-.121	.905	.957	1.045
VOC	.026	.003	.647	8.493	.000	.873	1.146

a. Dependent Variable: Return on Asset

Source: SPSS 20 Regression result from manufacturing company financial statements.

From the table 4-5above results show that VIF value for all variables becomes less and the tolerance value for all variables is not near to zero. It indicates that this model is free from multi-collinearity. Hence, there is no problem of multi-collinearity between the variables in this model.

4.3.4.5 Autocorrelation Assumptions

According to Chris Brooks (2008), assumption three said that the CLRM disturbance term is the covariance between the error terms over time is zero. In other terms, it is assumed that the errors are uncorrelated with one another, it would be stated that they are autocorrelated or that they are serially correlated. To test this assumption the Durbin Watson (DW) statistics test was applied. As table 4.6 below indicates that the DW test result was 1.89 for this profitability measures; return on asset.

This indicates that there is no series evidence of autocorrelation in the data since the DW test result is not far from two, because Chris Brooks (2008) pointed out that there is no autocorrelation problem if the DW is near 2.

Table 4.6 Durbin Watson test result for the regression models Return on asset

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.943 ^a	.889	.854	.04979	1.890

a. Predictors: (Constant), Volume of Capital, Tan, Gro, Liq, Size, Age, Lev

b. Dependent Variable: Return on Asset

Source: - SPSS 20 output from manufacturing company financial statements

4.4 Goodness of fit

In examining the determinants of profitability of manufacturing companies, the researcher included one dependent variable i.e. profitability and seven explanatory variables i.e. age, growth, size, tangibility, leverage, volume of capital, and liquidity. The functional relationship between variables in this study is therefore, profitability (ROA) is a function of age, growth, size, tangibility, leverage, volume of capital, and liquidity.

However, to show well the model containing those of seven explanatory variables actually explains the variations in the dependent variables (i.e. profitability) it is necessary to test it through goodness of fit statistic.

Table 4-7: Testing the model through ANOVA

ANOVA ^a					
Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	.438	7	.063	25.249	.000 ^b
Residual	.055	22	.002		
Total	.493	29			

a. Dependent Variable: Return on Asset

b. Predictors: (Constant), Volume of Capital, Tan, Gro, Liq, Size, Age, Lev

Source: - SPSS20 result from manufacturing company's financial statement

The above table summarizes the information about the variation of the dependent variable explained by the existing model used for this study, and the residual that indicates the variation of the dependent variable that are not captured by the model. Mean square, shown on the 4th column of the table, is the sum of square divided by the degree of freedom. F-statistic, on the other hand, is the regression mean square divided by the residual mean square.

The hypothesis to be tested in goodness of fit statistic is;

H0: There is no relationship between explained and explanatory variables.

H1: There is a relationship between explained and explanatory variables.

Therefore, by comparing the significance value of F-statistic from the table with the P-value at 5 percent significance level, we may reject or fall to reject the null hypothesis of the fitness of the model is not good.

The significance value of F-statistic or regression model in general, from the table shows 0.000. Thus, the statistical significance of the regression model that is used for the study is less than 0.05 (i.e. $P < 0.000$). And therefore we reject the null hypothesis of "there is

no relationship between explained and explanatory variables" indicating that, over all, the model used for the study is significantly good enough in explaining the variation on the dependent variable.

Similarly, the goodness of fit the model can be measured by the square of the correlation coefficient also called R². According to Brook (2008) the most common goodness of fit statistic is R². He stated that R² is the square of the correlation between the value of the dependent variable and the corresponding fitted values from the model. This square of the correlation coefficient (R²) is always lie between 0 and 1. If this correlation is high (close to one), the model fits the data well, while if the correlation is low (close to zero), and the model is not providing a good fit to the data. (Brook(2008)).

Table 4.8 Goodness of fit through R squares

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.943 ^a	.889	.854	.04979

a. Predictors: (Constant), Volume of Capital, Tan, Gro, Liq, Size, Age, Lev

b. Dependent Variable: Return on Asset

Source: SPSS regression output from companies financial statements.

Both R² and adjusted R² measure the fitness of the model i.e. they measures the proportion of the variation in dependent variable explained by the model. But since adjusted R² is the modification for the limitation of R² the value of adjusted R² is considered to measure the fitness of the model.

Thus, as it is shown on table 4-9, the value of adjusted R² is 0.85, indicating that the independent variables in the model are explaining 85 % of the variations on the dependent variables. Thus, we can understand that the model of the study is providing a good fit to the data.

4.5 Overview of Regression Analysis

To examine the relationship between profitability measures and explanatory variables regression analysis were run. The regression analysis was carried out to investigate the relationship between ROA and independent variables.

This regression model was applied:-

$$ROA = 0.355 + 0.003Age + 0.049Size - 0.047Lev + 0.007Gro + 0.019Liq - 0.001Tan + 0.026VOC \quad (1)$$

In the following table coefficients, standard errors, t-values, and p-values for explanatory variables, and R-squared, Adjusted R-squared, Standard Error of regression, F-statistic, Prob (F-statistic) for the regression, and number of observations included in the study are presented.

Table 4-9 Regression Output of the Model.

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	0.355	0.058	6.093	0.001
Age	0.003	0.002	1.635	0.116*
Size	0.049	0.007	7.046	0.003**
Lev	-0.047	0.007	-6.835	0.000***
Gro	0.007	0.001	7.741	0.000***
Liq	0.019	0.005	3.493	0.002**
Tan	-0.001	0.005	-0.121	0.905*
Volume of capital	0.026	0.003	8.493	0.000***
R-squared	0.889021			
Adjusted R-squared	0.854103			
S.E. of regression	0.049790			
Sum squared resid	0.055064			
Log likelihood	27.48553			
F-statistic	25.24900			
Prob(F-statistic)	0.000101			

***Significant at 1%; **Significant at 5%; *Significant at 10%

Source: Output of SPSS 20

As it can be seen from the above table age and tangibility are statistically insignificant at 10% significant level, size and liquidity are statistically significant at 5%, and leverage, growth and capital adequacy are statistically significant at 1% with Return on asset. This

means leverage, growth and capital adequacy of the firm have great contribution to their profitability. All explanatory variables have a positive relationship with return on asset in agreement with the hypothesis except tangibility and leverage with coefficient of -0.001 and -0.047 respectively shows that tangibility has weak impact on the profitability of manufacturing company. A positive coefficient of capital adequacy 0.026 implies that an increase in capital leads to increase profitability. Similarly, age, growth and liquidity have a positive coefficient of 0.003, 0.007 and 0.019 respectively. This means any increase in these variables leads to increase in profitability of manufacturing company in Adama city.

R-Square is measured the goodness of fit of explanatory variables in explaining the variation in companies profitability measure ROA. As clearly described in Table 4-9, R-square values for the regression model were 0.89. This indicates the explanatory variables in this study jointly explain about 89 percent of the variation in the profitability measure, return on asset. The remaining 11 percent of the variation in the profitability of manufacturing company explained by other variables which are not included the model. Therefore, these explanatory variables together, are good explanatory variables of the profitability of manufacturing company in Adama city, Ethiopia.

Chapter Five

Summary, Conclusions and Recommendations

In this chapter the major findings of the study are summarized; conclusions are drawn based on the findings and recommendations are forwarded for the concerned bodies.

5.1 Summary and Conclusions

The objective of this study was to examine determinants of profitability of manufacturing company in Adama city. Specific objectives were to determine and evaluate the effects of company-specific factors expressed within Age, Size, Tangibility, Liquidity, Leverage, Growth and capital adequacy and selected as explanatory variables while ROA is taken as dependent variable. Balanced panel data of thirty observations from 2009 to 2013 of manufacturing companies were analyzed using multiple linear regressions method. In this study secondary data analysis was used to investigate the major determinant factors of profitability of manufacturing company in Adamatown. Regard to secondary data analysis based on the financial statement of manufacturing company and regression model were used for profitability measures (ROA). The major findings of the study results from secondary data analysis are presented as follows:-

- The adjusted value of R square 0.854 indicates that performance of manufacturing companies is nearly 85.4% dependent on independent variables i.e. Age, size, leverage, growth, tangibility, volume of capital and liquidity. Therefore, it implies determinants of profitability of manufacturing companies in Adama city to the extent on average 85.4% of the change in profitability of the companies can be explained by the selected explanatory variables.
- Growth opportunity shows a mean value of 0.111, and the maximum and minimum values are 0.71 and -10 respectively. Indicating that the maximum and

minimum annual revenue of manufacturing companies are 71% and (10) % respectively.

- The positive and statistical significant relation between growth rate and profitability of manufacturing companies in Adama city implies that manufacturing companies with high rate of growth in terms of their total assets are also in a better position of being profitable.
- Capital adequacy likewise, has the second lowest mean value of 1.103, and the moderate standard deviation of 0.691 as compared to the other independent variables. This shows that the data was consistent because the standard deviation value is not much far from the mean value.
- The positive and significant relationship between capital adequacy and profitability of manufacturing companies in Adama city implies that a sound capital position is able to pursue business opportunities more effectively.
- Tangibility shows a mean value of 2.171 indicating that out of the total assets owned by manufacturing companies 2.171 is categorized as tangible or fixed assets. Manufacturing companies generally assumed to have huge machinery and equipment used in their operation and the result strengthens this fact and majority of their assets are fixed assets.
- As it is shown on the study the leverage ratio has a mean value of 1.734. This indicates that manufacturing companies in Adama, Ethiopia are financed their total assets through debt to the extent of 1.734 times equity capital.
- Leverage is negatively and significantly related with profitability of the manufacturing companies.
- Liquidity shows a mean value of 1.538. This means that the manufacturing companies have current assets (liquid assets) that are 154% of their short term liabilities. Thus, since they have adequate current assets which are assumed to be used to cover their current liability, this high liquidity positions for manufacturing companies may assist them in generating debt financing because their ability in paying liabilities is assumed to be high.
- Positive coefficient of variable liquidity specifies the positive relationship between profitability and liquidity is statistically significant at 5% level. Hence, manufacturing companies having more liquid assets should find any available investment alternative. As liquidity do have positive impact on profitability.

- The companies' size plays an important role to maintain the position of a company in market. The size of manufacturing companies under this study has mean value of 7.078, and the maximum and minimum values of 8.75 and 0.47 respectively. But the standard deviation value is 1.527 which is the second highest value among independent variable. These result shows that manufacturing companies in Adama have big variation in their total asset.
- The coefficient of variable size is positive and statistically significant at 5% level. This predicts that profitability of large size manufacturing companies is better than small size companies. The positive relationship between size and ROA implies that size is used to capture the fact that larger manufacturing companies are better placed than smaller once in harnessing economies of scale in transactions and enjoy a higher level of profits.
- Lastly, the mean value of age is 15, indicating that the average age of the manufacturing companies is 15 years, ranging between the minimum of 2 years and maximum of 27years.

Regarding ROA, growth, capital adequacy, and liquidity have significant impact on the profitability of manufacturing company. All explanatory variables have a positive relationship with return on asset in agreement with the hypothesis and also leverage and tangibility have negative relationship with return on asset in agreement with the hypothesis.

Based on the findings it can be concluded that growth, capital adequacy, and liquidity have significant impact on ROA that means any increase or decrease on the value of these variables leads to an increase or decrease on profitability of manufacturing company in Adama town.

Based on data analysis explanatory variables ranked as growth and capital adequacy of the companies towards the manufacturing industry have very significant impact on the profitability of manufacturing company. Liquidity, Leverage, was ranked as third and fourth significant factors. Lastly, Tangibility, size and age are ranked as the fifth, sixth and seventh significant variables for the profitability of manufacturing company in Adama city. Therefore, it can be concluded that profitability in the Ethiopian

manufacturing sector is largely driven by capital position and growth than other explanatory variables.

5.2. Recommendations.

This work is an attempt to study the internal factors affecting profitability of the manufacturing sector in Adama Ethiopia. Given the key role that the sector plays in the economy of the country, future research should focus on both internal and external factors that would provide better insights for both management and regulatory bodies. Manufacturing company leaders should do their best to reinforce company specific factors like growth, capital adequacy, and company size. Because, these factors are highly influence profitability of the firm.

Financial leverage was not favorable that means not increasing the return on assets this aspect justifying the company's financing strategy is not through increasing debts. So, the management body should strive to correct the financing strategy through increasing debt.

These are important considerations for manufacturing companies' development in Adama, Ethiopia.

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Appendix:

Appendix (1) Regression output

Dependent Variable: ROA
Method: Panel (Two-way random effects)
Date: 05/22/15 Time: 02:07
Sample: 2009 2013
Periods included: 5
Cross-sections included: 6
Total panel (balanced) observations: 30

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	0.355	0.058	6.093	0.001
Age	0.003	0.002	1.635	0.116*
	0.049	0.007	7.046	0.003*
Size				*
	-0.047	0.007	-6.835	0.000*
Lev				**
	0.007	0.001	7.741	0.000*
Gro				**
	0.019	0.005	3.493	0.002*
Liq				*
Tan	-0.001	0.005	-0.121	0.905*
	0.026	0.003	8.493	0.000*
Volume of capital				**
	0.88902			
R-squared	1			
Adjusted R-squared	0.85410			
S.E. of regression	3			
	0.04979			

	0
	0.05506
Sum squared resid	4
	27.4855
Log likelihood	3
	25.2490
F-statistic	0
	0.00010
Prob(F-statistic)	1

***Significant at 1%; **Significant at 5%; *Significant at 10%

Appendix (2) Descriptive statistics for selected company's financial statements.

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Age	30	2	27	14.5	7.281
Size	30	0.47	8.75	7.078	1.527
Tan	30	0.01	60	2.171	10.924
Lev	30	0.01	7.58	1.734	2.034
Liq	30	0.15	9	1.538	0.986
VOC	30	0.02	18	1.103	0.691
Gro	30	-10	0.71	0.111	0.101
ROA	30	-0.2	0.47	0.088	0.13

Appendix (3) Correlations between ROA and Explanatory variables.

Correlations

	ROA	Age	Size	Lev	Gro	Liq	Tan	VOC
ROA	1							
Age	0.385	1						
Size	0.318	-0.06	1					
Lev	0.174	0.635	0.217	1				
Gro	0.419	0.009	-0.181	0.178	1			
Liq	-0.132	-0.268	-0.11	-0.244	-0.145	1		
Tan	-0.087	-0.142	0.002	0.153	0.039	0.068	1	
VOC	-0.519	-0.177	0.145	0.03	-0.032	0.026	0.015	1