

DETERMINANTS OF PROFITABILITY PERFORMANCE OF SUGAR MANUFACTURING COMPANIES IN ETHIOPIA

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SCIENCE IN ACCOUNTING AND FINANCE

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Declaration

The undersigned, declare that this thesis is my original work, has not been presented for degree in any other university and that all sources of materials used for the thesis have been dully acknowledged.

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Certification

This is to certify that Ato Bahiru Tesfaye has carried out his research work on the topic under the title of “Determinants of Profitability Performance of Sugar Manufacturing Companies in Ethiopia. This work is original in nature and it is suitable for submission for the award of degree for Master of Science in Accounting and Finance.

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Acronyms

CR = Current Ratio

DR=Debt Ratio

NDTX = Non-Debt Tax Shield

FS = Firm Size

ACP=Average Collection Period

ICP=Inventory Collection Period

CCC=Cash Conversion Cycle

GR= Growth rate

INF=Inflation

GDP=Growth Domestic Product

DW= Durbin Watson

ABSTRACT

The main objective of this study was to examine the determinants factors of profitability of Ethiopia sugar manufacturing companies. The researcher collected quantitative data from financial statements covering a period of 2002-2013 for 3 sugar manufacturing companies in Ethiopia. The researcher used explanatory research design in this study and profitability was measured in terms of return on assets (ROA). Profitability is dependent variable, whereas current ratio, debt ratio, firm size, non-debt Tax shield, average collection period, inventory conversion period, cash conversion cycle, growth rate, inflation and growth domestic product are independent variables. The study used descriptive statistics and balanced fixed effect panel regression to analyze the data. The findings of the study showed that current ratio (CR) and debt ratio (DR) has significant positive relationship with profitability while, gross domestic product (GDP) has significant negative relationship with profitability.

Keywords: Profitability, Sugar manufacturing companies, Return on asset.

CHAPTER ONE

INTRODUCTION

1.1. Background Of the study

This chapter presents a general overview of the study. It starts from the background of the study and followed by statement of the problem, research objectives, Literature Driven Hypotheses, significance of the study, scope and limitation of the study, organization of the paper and finally, Conceptual framework is presented.

Profitability is the final and survival goal of the business (Nguyen, K, M. 2001). 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. For any firm to continue to be in business, it should be able to generate enough revenue to cover its operating cost and make enough profit as compensation to the providers of capital (Nishanthini, A. et.al, 2013). Profitability can be defined as the final measure of economic success achieved by a company in relation to the capital invested in it (Renato, S. V. 2010).

According to Nimalathan (2009) profitability is defined as the ability of given investment to earn a return from its use. Profit is the primary objective of a business. The words profitability is composed of two words profit and ability. The word profit means as an absolute measure of earning capacity and it is defined by Iyer (1995) as excess of return over outlay 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 given investment to earn a return from its use. Profitability performs a dynamic role in determining the business success of a firm. Profitability is the amount of money a firm can engender with whatever resources the firm has. The eventual goal for any organization is maximizing its profitability. Consequently, firms can reap out the benefits associated with the increased profitability. (AloyNiresh.J. et.al, 2014).

Many researchers in different countries have made investigation on this area by considering the importance and the hot issue of profitability in manufacturing sector. For instance research conducted by Goddard, et al, (2004) by using panel data and dynamic panel estimation to investigate the determinants of profitability in four selected Asian and European countries sugar manufacturing sectors: Brazil, France Germany, and Italy for the period 1994-2002. The result suggested that among modeled determinants of profitability incorporate: Firm's size, capital structure, working capital and Productivity, by measuring profitability in term of Return On Equity (ROE), checked that bank specific determinants and profitability relationship is very strong. Finally they checked that there is little evidence of a systematic relationship between industry specific determinants type and profitability.

In the case of Sub Sahara African (SSA) countries manufacturing sector, the profitability of the sugar manufacturing industries are affected by different internal and external factors. For instance research conducted by (Fairtrade foundation, (2008); used a sample from SSA countries to study the determinants of manufacturing profitability measured by the ratio of after tax profits to total assets (ROA). The results revealed that the industry specific and macroeconomic determinants affected the industry return or industry profitability in strong manner. And finally they conclude that industry profits are high in Sub-Saharan Africa (SSA) as compared to other regions. In Ethiopia, Sugar Industry plays vital role in economic growth. The economy which has a profitable sugar sector is better able to contribute to the stability of the economy. Sugar industry profitability are paramount important to the healthiness of Agro-industry is specific and Ethiopian economy at large. Sugar is one of the most important commodities, and is produced and consumed around the world. It is consumed by households as well as different industries such as confectioneries, food processing and beverage industries, institution like colleges and universities, military, hotels, restaurants and bars. Due to its wide application in different sectors the demand for sugar is very huge in the domestic as well as international markets. For many countries, sugar is one of the most important sources of national income. Africa accounts for only 6 per cent of world sugar production, but sugar is produced in more than 40 African countries and is of great economic importance. Fairtrade Foundation, (2013)

According to Central Statistical Agency of Ethiopia (2012) manufacturing industry in Ethiopia is a wealth-creating sector of the economy and came into being with the occurrence of technological and socio-economic transformations. The number of manufacturing industries and their support to the national economy in terms of increasing GDP, providing important material support for national infrastructure and reducing unemployment (which also shows an increasing trend of payment of wages and salaries) is increasing over time.

Therefore, examining the determinants of profitability of manufacturing company is critical activity because the reasonable portion of Ethiopia economy based on manufacturing company. Currently Ethiopian Sugar industries becoming highly transformed and expanded and cover significant portion of the manufacturing companies ratio. To survive in the competitive global market Ethiopian sugar industry should know the facts that drives sugar industries profitability. If sugar industry knows what drives the profitability; they can take action to improve their profitability. Thus, the importance to know the determinants of profitability of sugar industry for an efficient management of the industry operations aimed at ensuring the growth in profit and efficiency.

Sugar Manufacturing firms are believed to provide an impetus to the economic progress of developing countries and its importance is gaining widespread recognition. As such, an understanding of determinants of their profitability and the drivers of sugar industry profitability for that matter is essential and crucial to the stability of the economy. However, substantial amount of studies have not conducted to investigate the status of sugar manufacturing industry profitability as well as the determinants of profitability of the Ethiopian sugar manufacturing sector. This research examined the effects of industry specific and microeconomic determinants on profitability of Ethiopian sugar manufacturing industry from the period 2002-2013.

1.2 Statement of The Problem

The best performance of any industry in general and any firm in particular plays the role of increasing the market value of that specific firm joined with the role of leading towards the growth of the whole industry which ultimately leads to the overall success of the economy. In addition to that, the aim of most companies is to create a sustainable business with profitable growth both now and in the future. Economic and financial conditions can materially affect the Company's financial position and results of operations (Boulhol, 2005).

On a global level, the studies that have been carried out on determinant factors of profitability performance so far are highly concerned with banks and financial intermediaries than manufacturing and retailing businesses. For instance Chen-ying lee (2014), Indranarain, R. (2009), Bashir, A. (2004), Sara, K. (2013), Ommeren, S. (2011), Panayiotis, P. (2008), Molyneux et al (1992), Ani, W. U. et al (2012), Williams, B. (2003) Ash Demirguc, k. et al (1999), Kyriaki Kosmidou (2008), Vejzagic, M. (2014) are among many others. Even though empirical studies have been giving much concern for financial institution, there are also studies conducted on the determinant factors of profitability in manufacturing business on global level like Ozgulbas et al. (2006), Banchuenvijit (2012), Stierwald (2009), Karadeniz et al (2011), Saliha, T. et al. (2011),.

A few studies conducted in the area of sugar manufacturing company's profitability and it's by considering the importance of the area at international level. They verified that there is a direct association between profitability of sugar manufacturing industries and it's both internal and external determinants (Fairtrade foundation, (2008); Hermanson, (1989). Even though, all these and other researchers conducted study on this area, the determinants of profitability have been debated for many years and still unsolved issues in the corporate manufacturing industry literature. Indeed what makes the profit determinants debate exciting is the determinants of profit is dynamic through time to time and differ with the nature of operating of the firm from place to place (Andreas, S. 2009). To sum up, there is no universally accepted finding to the determinants of profitability of the manufacturing industry sector. Because countries differ each other by their economic systems, financial systems, political systems and operating environments. Thus in this study, the researcher examined some industry specific and microeconomic determinants of

profitability of sugar manufacturing companies in Ethiopia, and a variety of variables (Liquidity, debt used, Firm Size, Non debt tax shield, growth rate, Average collection period, inventory conversion period, Cash conversion cycle, Inflation and GDP) that are potentially responsible for determining profitability of sugar manufacturing companies was selected based on the selected theoretical literatures and previous empirical works. Although, numbers of earlier studies have made to add their own contribution to the theory of profitability and stated their own policy implication, they will inclined towards to the developed economy, and less developed countries including Ethiopia received little attention in various literature on this issue. Consequently the conclusion and finding of the study in one country may not serve to another.

Specifically in Ethiopia the manufacturing industry sector is unstudied area, though, few studies have been conducted on factors affecting working capital management on profitability of wonjishoa sugar factory (Haileliul G/mariam 2011). For instance, study determinants of profitability performance of wonjishoa sugar factory (Andargachew teferi, 2015) indicated that, even if, after 2008 manufacturing industry liberalization, the numbers of Sugar manufacturing in the industry are increased and the performance progress of the sector is better than the past. However, Ethiopia's sugar manufacturing sector remains closed and is much less developed than its neighbors. This researcher was concluding that, Ethiopian sugar manufacturing company's profitability affected by other additional factors. Even though, those two studies conducted on this area, the researchers not included macroeconomic variables and other variable from their studies. As a result, this area is not effectively studied. Because, these variables are the most important factors to determine the profitability of the sugar manufacturing sector. Among these determinants the most commonly known variables are Average collection period, Inventory conversion period, cash conversion period, inflation and GDP (Mathuva, D.M. 2010; Hifza, M. 2011). As per the result of those researchers, the variables are highly significant and explanatory of profitability of the sugar industry. Because of this, the current researcher will included these variables in addition to the previous study. So, the aim of this research will empirically examined the main determinants of sugar manufacturing industry profitability performance (industry-specific and macroeconomic) during the period of 2002 - 2013 by adding other variables determinants of profitability which are not included in previous study. It is an important research area that needs to be investigated by benchmark.

1.3 Objective of the Study

1.3.1. General Objective of the study

The main objective of the study was to examine the determinants factors of profitability of Ethiopia sugar manufacturing companies.

1.3.2. Specific objectives of the study

- ✓ To Investigate the relationship between Liquidity and profitability
- ✓ To find out the relationship between debt used and profitability
- ✓ To find the relationship between non-debt tax shield and profitability
- ✓ To examine the relationship between average collection period and profitability.
- ✓ To analyze the relationship between inventory collection period and profitability.
- ✓ To examine the relationship between Cash Conversion Cycle and profitability.
- ✓ To study the relationship between growth rate and profitability.
- ✓ To measure the relationship between inflation and profitability
- ✓ To Assess the effects of growth domestic product on profitability

1.4 Literature Driven Hypothesis

Based on the above objectives, it is hypothesized that current ratio, debt ratio, firm size, non-debt Tax, Average collection period , Inventory collection period , Cash conversion cycle, growth rate, inflation and growth domestic product are expected to influence sugar industry profitability Accordingly the following are the hypothesis.

1.4.1 Dependent Variable

Profitability

According to Dietrich and Wanzenreid (2011), portability is usually measured by the return on average assets and is expressed as a function of determinants. The determinants variables that are expected to affect the portability of firms. The return on equity ratio (ROE) is also used as an index for firm profitability in a study done by Basil Al-Najjar and Taylor, 2008. Carsten (2002) said that profitability can be measured by a number of indicators. The first indicator is profit per equity.

Profit is the residual of sales revenue once all costs, including interest payments on debt, have been deducted; it thus constitutes the return to equity holders. (“Profit” is the aggregate profit of profitable enterprises minus the losses of loss-making enterprises). The Return on Assets (ROA) indicator expresses the company’s ability to generate profit as a consequence of the productive use of resources and of the efficient management, and it’s used as a dependent variable in the assessment of economic performance. It is computed as a ratio between Net Income and Total Assets (Burja, 2010). So, in this study the researcher were used Return on Assets (ROA) as a dependent variable.

1.4.2 Independent Variable

Liquidity

Liquidity means the amount of capital available for company to invest and spend. In every area of financial management, the finance managers are always faced with the dilemma of liquidity and profitability, hence have to strike a balance between the two, (Eljelly, 2004). Most of the time, liquidity goals of a firm is to have adequate cash to pay for its bills; to make large unexpected purchases and finally, firm has an adequate cash reserve to meet emergencies in all time. Whereas, profitability goal on the other hand requires that, funds of a firm are used so as to yield higher returns. Therefore, when one increases, the other decreases, (Brigham and Houston, 2003). Apparently, liquidity and profitability goals conflict in most of the decisions the finance managers make. Higher inventories are kept in anticipation of increase in prices of raw materials; hence, profitability goal is approached but the liquidity position of a firm is endangered. In reality, none of the managers choose any of these two extremes instead they want to have a balance between profitability and liquidity which fulfils their need of liquidity and gives required level of profitability, (Arnold,2008;Muluaalem,2011 and Mohamed ,2011), finds that there is a significant negative relationship between liquidity and profitability. In contrast other studies (Naimulbari, 2012and Azam and Haider, 2011) show a positive correlation between gross operating profitability and current ratio. This shows that as the firm’s current ratio increases, the gross operating profitability also increases. In view of this explanation, the researchers hypothesize:

H0: There is no relationship between liquidity and profitability of sugar manufacturing companies in Ethiopia.

H1: There is a positive/negative relationship between liquidity and profitability of sugar manufacturing companies in Ethiopia.

Factory's debt

Debt Ratio estimates that how much portion of total assets of a company is financed by its creditors. It represents the leverage of a company. Higher value of debt ratio shows that the company has greater indebtedness and more financial leverage. Greater leverage shows that the cost of financing working capital would be higher. Many researchers have discovered an inverse relationship between debt ratio and profitability such as (Mohamad and Saad, 2010; Gill et al. 2010; Raheman and Nasr 2007 and Raheman et al. 2010). This inverse relation implies that as the debt ratio of the manufacturing companies' increases the profitability decreases.

In contrast other studies (Abraham, 2013) and (Owlabi, 2012), show a positive correlation between profitability and debt ratio. Positive relationship between debt ratio and profitability indicates that as debt ratio increases profitability increases. Thus, in light of the above theoretical grounds, the following research hypothesis is developed:

H0: There is no relationship between debt used by sugar manufacturing companies in Ethiopia and profitability.

H1: There is a negative/positive relationship between debt used and profitability of sugar manufacturing company in.

Firm size

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 (Ezeoha, 2008). 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.

H0: There is no relationship between firm size and profitability of sugar manufacturing companies in Ethiopia.

H1: There is a positive/positive relationship between firm size and profitability of sugar manufacturing companies in Ethiopia.

Non-Debt Tax Shield

In terms of non-debt tax shield, DeAngelo and Masulis (1980) said that non-debt tax shield can be substitutes for the tax benefits of debt financing and a firm with larger non-debt tax shield is expected to use less debt. The study conducted by Shah and Khan (2007) stated that size and tangibility has a positive and significant relationship with Leverage while profitability and non-debt tax shield has significant and negative relationship with leverage

H0: There is no relationship between non-debt Tax shield and profitability of sugar manufacturing companies in Ethiopia.

H1: There is a Positive/negative relationship between non-debt Tax shield and profitability of sugar manufacturing companies in Ethiopia.

Growth rate

The use of growth as a measure of firm performance is generally based on the belief that growth is a precursor to the attainment of sustainable competitive advantages and profitability (Markman, 2002). In addition, larger firms have higher rates of survival (Aldrich 1986), and may have the benefits of associated economies of scale. Trau (1996), Sutton (1997), and Hart (2000) have reviewed the theoretical and empirical literature on firm growth. In the early empirical literature, a number of manufacturing studies find either no relationship or a positive relationship between firm sizes and growth rates. MacMillan and Day (1987) considered that rapid growth could lead to higher profitability based on evidence that new firms become more profitable when they enter markets quickly and on a large scale. On the other hand, Hoy (1992) concluded that the pursuit of high growth may be minimally or even negatively correlated with firm profitability. While growth

has been considered the most important measure in small firms, it has also been argued that financial performance is multidimensional in nature and that measures such as financial performance and growth are different aspects of performance that need to be considered (Wiklund, 1999) However, larger firms are found to grow faster than smaller, and younger firms are found to grow faster than older.

H0: There is a no relationship between growth rate and profitability of sugar manufacturing companies in Ethiopia.

H1: There is a Positive/negative relationship between growth rate and profitability of sugar manufacturing companies in Ethiopia.

Average collection Period (ACP)

Average collection period refers to the average length of time required to convert the firm's receivables into cash following a sale. A longer average collection period requires a higher investment in accounts receivable. A higher investment in accounts receivable means less cash is available to cover cash outflows, such as paying bills.(Mulualem, 2011) shows that there is statistically significant negative relationship between profitability and average collection period. This result suggests that firms can improve their profitability by reducing the number of day's accounts receivable outstanding. Also this can be interpreted as the less the time it takes for customers to pay their bills, the more cash is available to replenish inventory hence the higher the sales realized leading to high profitability of the firm. If firms don't manage debtors, they gradually lose control due to reduced cash flow and could experience an increased rate of bad debts. So the longer someone owes firm's money, the greater the chance the firm never gets paid. As a result, profit may only be called real profit after the receivables are turned into cash. Therefore, the management of account receivables is inevitable and largely influenced by the credit policy and collection procedure.(Deloof, 2003).This leads the researcher to propose the following hypothesis:

H0: There is no relationship between average collection period and profitability of sugar manufacturing companies in Ethiopia.

H1: There is a Positive/negative relationship between average collection period and profitability of sugar manufacturing companies in Ethiopia.

Inventory conversion Period (ICP)

Inventory turnover in days refers to the average time required to convert materials into finished goods. Inventory turnover ratio, which represents the efficiency of inventory management, is expected to be high for firms with greater profitability. A low inventory turnover ratio could indicate either poor sales or an excess amount of inventory, (Ruichao, 2013). Although most empirical research suggest a negative relation between inventory turnover in days and profitability (Lazaridis and Tryfonidis, 2006; Mansoor and Muhammad, 2012; Raheman and Nasr, 2007; Dong, 2010), find contradictory findings on the relationship between inventory turnover in days and profitability. (Gill, Biger and Mathuva, 2010) suggest a positive relationship between inventory turnover in days and profitability. Maintaining sufficiently high inventory levels reduces costs of possible interruptions in the production process and loss of doing business due to scarcity of products (Mathuva, 2010), while investing too much in inventories unnecessarily blocks the funds in working capital that could be invested in revenue generating activities. (Dong, 2010), found in his study that there are strongly negative relationships between inventory conversion cycle and profitability. This denote that decrease in the profitability occur due to increase in cash conversion cycle. This leads the researcher to propose the following hypothesis: Thus, in light of the above theoretical grounds, the following research hypothesis is developed:

H0: There is no relationship between inventory conversion period and profitability of sugar manufacturing companies in Ethiopia.

H1: There is a Positive/negative relationship between inventory conversion period and profitability of sugar manufacturing companies in Ethiopia.

Cash conversion cycle

This hypothesis implies that the longer the cash conversion cycle was the less profit the company will have. The shorter the cash conversion cycle is, the higher the profit the company will generate. Gill et al (2010) states that a long conversion cycle can increase the profitability because of the higher sales accomplished. On the other hand, the profitability can reduce due to the cash conversion cycle when the investments in working capital is higher than the benefits attained from holding more inventories and extending more trade credit to customers.

H0: There is a no relationship between Cash conversion cycle and profitability of sugar manufacturing companies in Ethiopia.

H1: There is a Positive/negative relationship between Cash conversion cycle and profitability of sugar manufacturing companies in Ethiopia.

Inflation

Inflation is one of economic condition indicator which has impact on manufacturing companies profitability. When there is high inflation rates in the economy selling price was high and eventually results in high income (marcus, M. (1969). Past studies indicate that countries with high inflation have under developed financial system and experience financial crises (Boyd,Levine& smith ,2001;Demirguc-Kunt & Detragiach,1998). Doumpos and Gaganis (2012) estimated the performance of found that inflation influence the over performance of firms.

H0: There is a no relationship between Inflation and profitability of sugar manufacturing companies in Ethiopia.

H1: There is a Positive/negative relationship between Inflation and profitability of sugar manufacturing companies in Ethiopia.

Growth domestic product

The growth of real GDP/capita, it is a macroeconomic variable, and it is expected to have a positive influence on the manufacturing financial performance, Since economic growth improves the living standards and the levels of income, increase the purchasing power of population. The gross domestic product growth is calculated by the annual change of the GDP (Kosmidous, 2008). According to athanasoglous P. et al., (2005) the economic growth positively and significantly affects manufacturing profitability. Kozak, (2011), as quoted by doumpos and Gaganis (2012) GDP growth rate positively influence the sugar manufacturing profitability.

H0: There is a no relationship between Growth domestic product and profitability of sugar manufacturing companies in Ethiopia.

H1: There is a Positive/negative relationship between Growth domestic product and profitability of sugar manufacturing companies in Ethiopia.

1.5. Significance of the Study

This study was significance to show the degree of the industry specific and macroeconomic determinants in what extent it affected the profitability of the sugar manufacturing companies in Ethiopia, by identifying and showing the main determinants of profitability performance and to suggest policy implications after critical examination of the profitability determinants of the sugar industry of Ethiopia. To this end, particularly this study was importance for the following body.

- It help the Management of the Sugar Corporation needs to know indicator of profitability to take necessary action to improve the performance of sugar industry.
- It help research beginners who are interested to conduct their research in this area.
- It provides a road map for managers and the shareholders to evaluate their factories performance in term of profitability with respect to the internal and external determinants.
- It gives direction for economic policy makers to measure the impact of the industry performance on the economy and its implications on the issues of policy.

1.6. Scope and Limitation of the study

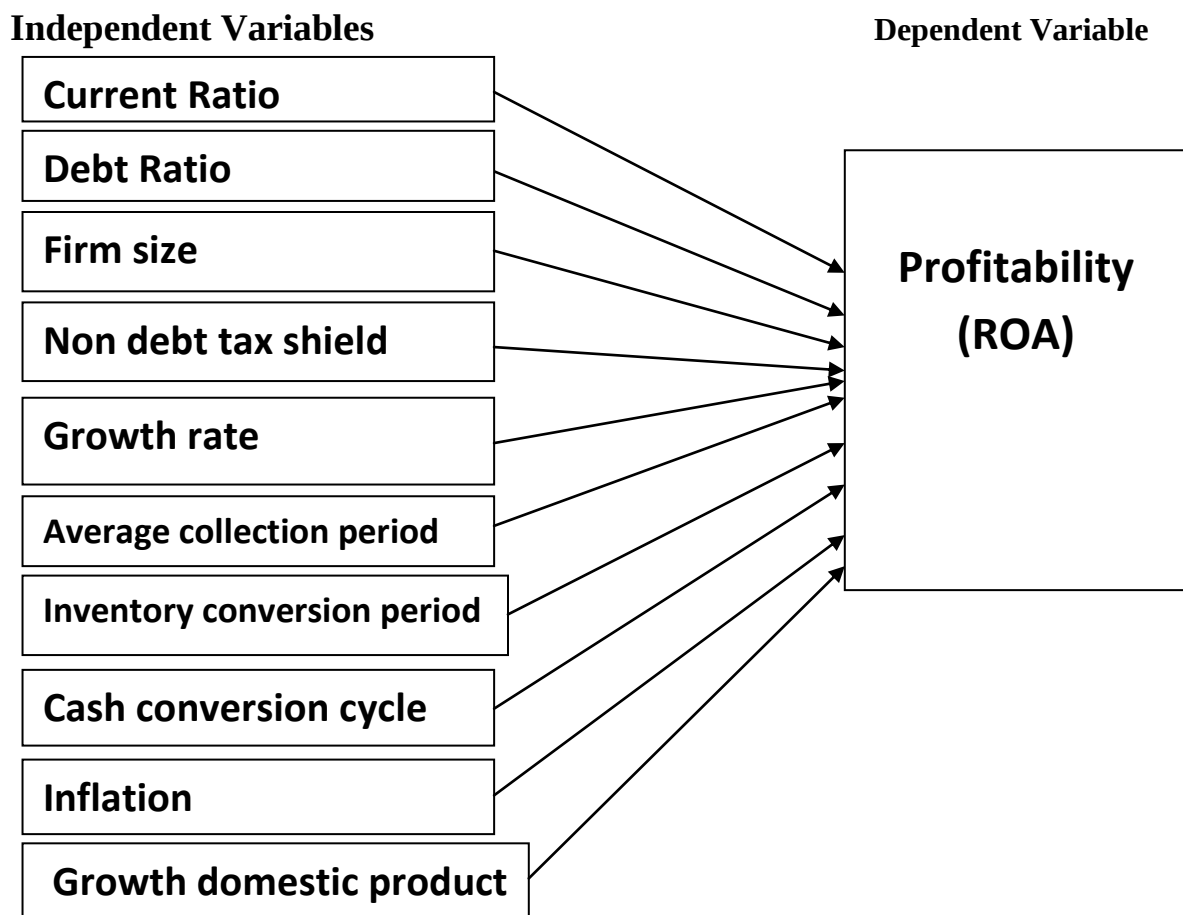
This study was concerned the examination of determinants of profitability of sugar manufacturing companies in Ethiopia. In order undertake this study; only three sugar manufacturing companies were used by the researcher. Namely: wonji/shoa sugar factory, metahara sugar factory and Fincha sugar factory. This study was limited to the following variable: Liquidity, debt use, Firm size, Non-debt tax shield, Average collection period, Inventory conversion period, Cash conversion period, Growth rate, inflation and GDP. For the analysis purpose twelve Years data from 2002 through 2013 was used for the study. At the end, the limitation of the study is that the researcher was not used qualitative data.

1.7. Organization of the paper

The paper was organized into five chapters. The first chapter deals with background of the study, statement of the problem, research objective, literature driven hypothesis, scope, limitation and

organization of the paper. Chapter two presents the most significant theoretical and empirical studies including Ethiopian sugar manufacturing company's environment. Chapter three presents the research methodology as well as model specification and econometric models. Chapter four presents the analysis, findings and results and chapter five presents the conclusions, possible recommendations and implications of the results.

1.8. Conceptual framework



The Return on Assets (ROA) indicator expresses the company's ability to generate profit as a consequence of the productive use of resources and of the efficient management, and it's used as a dependent variable in the assessment of economic performance. It is computed as a ratio between Net Income and Total Assets (Burja, 2010). So, in this study the researcher was used Return on Assets (ROA) as a dependent variable.

CHAPTER TWO

Literature Review

This section of the study provides theoretical literatures, empirical literatures, from global and Ethiopian view. Also it present the research gap on the determinants of profitability performance of sugar manufacturing companies in Ethiopia by referring the findings of earlier related researches

2.1 Theoretical literature review

Weidenfeld and Nicholson (1970) concerned that the profit as a reward to owner of the capital but with the return to capital as an objective of a firm's activities. Velnamby and Nimalathan (2009) noticed the profitability will provide more accurate view of the firm's performance. Pandey (1979) indicated that recent experience in countries with totally planned economies indicated that economists are probably right in emphasizing the importance of overall profitability as a criterion for the efficient operation of an enterprise.

Welstedt (1980) in his book entitled "state manufacturing enterprises in a Mixed Economy: Turkish case" stated that profitability of an enterprise can be ascertained, if profit is analyzed in terms of sales and investment. Schmalensee (1987) mentioned that to determinacy of systematic changes in intra-industry profitability occurred over time so as to distinguish between an efficiency story and collusion story about why concentrated industries had higher profit rates than other industries, and also he found that large firms in general were higher profitable than small firms within the same industry.

Nimalathan (2009) mentioned that the profit is the primary objective of a business, which measures not only the success of a product, but also of the development of the market for it. Further profit is the report card of the past, the inventive gold star for the future.

Velnampy and Nimalthasan (2007) pointed out that sales are positively associated with profitability ratios except return on investment, and numbers of depositors are negatively correlated with the profitability ratios except return equity, likewise number of advances to the return on investment, and return on average assets in Bank of Ceylon. Sexton and Kasarda (2000) found that firm profitability was correlated with sustainable growth, while Chandler and Jensen (1992) found that sales growth and profitability were not correlated.

Weston (1978) declared that the profit is use to test the efficiency and use to measure the control and worth of the investment to the owners, margin of safety to the creditors, source of extreme benefits to the employees, to the Government a measure of taxable capacity and the basis of legislative action, to the country profits are an index of economic progress, national income generated and rise in the standard of living.

2.1.1 Determinants of profitability performance

Liquidity

Liquidity refers to the companies continuous ability to meet maturing obligations because lenders and creditors expect prompt settlement of their claims as and when due. On the other hand, Profitability goal requires that funds of a company should be utilized as to yield the highest return.

Hence, liquidity and profitability are conflicting decisions, when one increases the other decreases. More liquidity results in less profitability and vice versa. This conflict finance manager has to face as all the financial decisions involve both liquidity and profitability (Moyer, et al.,1998).

Creditors of the company always want the company to keep the level of short term assets higher than the level of short term liabilities; this is because they want to secure their money. If current assets are in excess to current liabilities then the creditors was in a comfortable situation. On the other hand managers of the company don't think in the same way, obviously each and every manager want to pay the mature liabilities but they also know that excess of current assets might be costly and idle resource which will not produce any return. For example, having high level of inventory will raise warehouse expense. So, rather than keeping excessive current assets (cash, inventory, account receivable) managers want to keep the optimal level of current assets, to a level

which is enough to fulfill current liabilities. And also managers want to invest the excessive amount to earn some return (Pandey, 2011).

Hence, managers have to make a choice between two extreme positions; either they will choose the long term investments, investments in non-current asset such as subsidiaries (equity), with high profitability i.e. high return and low liquidity. On the other hand to choose short term investment with low profitability i.e. low return and high liquidity. However, creditors of the company want managers to invest in short term assets because they are easy to liquidate but it reduces the profitability because of low interest rate. On the other hand, if the managers prefer the long term investment to enhance the profitability then in case of default lenders or creditors have to wait longer and bear some expense to sell these assets because the liquidity of long term investment is low. In reality, none of the managers choose any of these two extremes instead they want to have a balance between profitability and liquidity which will fulfill their need of liquidity and gives required level of profitability (Muluaem, 2011).

Company debt

It is very useful in measuring the liquidity position of a firm. It measures the firm's capacity to pay off current obligations immediately and is more rigorous test of liquidity than the current ratio. On the other hand, debt ratio is one part of financial ratio which is used for debt management used by different company. Hence, it is ratio that indicates what proportion of debt a company has relative to its assets. The measure gives an idea to the leverage of the company along with the potential risks the company faces in terms of its debt-load (Jain, 2010). It can be calculated as dividing total debt by total asset.

Firm size

A different study uses different proxies for size and finds the significant measures to be total assets, total sales, number of owners, and number of employees. The study finds number of owners and total assets to be variables with maximum explanatory power. In this study the researcher were used total asset for the measurement of firm size.

Non debt tax shield

A tax shield is the reduction in income taxes that results from taking an allowable deduction from taxable income. For example, because interest on debt is a tax-deductible expense, taking on debt creates a tax shield. Since a tax shield is a way to save cash flows, it increases the value of the business, and it is an important aspect of business valuation.

Average collection period:

Most of the findings indicate that there is a negative relationship between the number of days Accounts receivable and profitability. This implies that a longer time span for retrieving payments from customers is associated with low profits. Gill et al (2011) and Lazaridis et al (2006) for instance, rationalize their finding by stating that companies decrease the accounts receivables in order to reduce the cash gap in the cash conversion cycle. But still there exist some inconclusiveness about the findings. Sharma and Kumar (2011) who conducted their research in India found a positive relationship which implies that firms can improve the profitability by lengthening the credit period for their customers. The rationale these researchers came up with was that Indian companies grant longer credit periods in order to sustain their market and respond to competition.

Inventory conversion Period:

Although most researchers found a negative relationship between the number of days of inventories and the profitability, there also exists a contradictory. Mathuva (2009) found a positive relationship between the two variables mentioned above. Mathuva (2009) suggests that by having high inventory levels firms reduce bottlenecks in the production process and the loss of business due to deficiency of products. This also reduces the supply costs of products and protects the firm from possible price fluctuation due to macroeconomic factors. Whereas Garcia Teruel and Martinez-Solano (2007) state that there is a negative relationship because less profitable firms tend to keep their stocks low in times of falling sales and as a consequence declining profits.

Cash Conversion Cycle:

Over the years, researchers found a negative relationship between number of days Cash Conversion Cycle and profitability, but in recent years some researchers such as Sharma and Kumar (2011) and Gill et al (2010) have found in contrary a positive relationship. Their result implies that firms with shorter cash conversion cycle will generate lesser profits and vice versa. But Sharma and Kumar (2011) also state that this positive relationship is not significant. However, Gill et al (2010) found a significant positive relationship between the CCC and the profitability.

Based on the previous studies done by researchers in which they determine how the working capital components in firms affect the profitability, the following hypotheses are identified:

Growth rate

The amount of increase that a specific variable has gained within a specific period and context. Different types of industries have different benchmarks for rates of growth. For instance, companies that are on the cutting edge of technology would be more likely to have higher annual rates of growth compared to a mature industry, like retail sales. To many readers, "Calculating a growth rate" may sound like an intimidating mathematical process. In actuality, growth rate calculation can be remarkably simple. Basic growth rates are simply expressed as the difference between two values in time in terms of a percentage of the first value.

Inflation

Researchers have paid little attention on the impact of inflation on profitability (Rasiah, 2010). This notwithstanding, theory predicts a relationship between inflation and companies profitability. For example, Perry (1992) argues that the effects of inflation on companies' profitability depend on whether inflation is anticipated or unanticipated. If inflation is anticipated, then the factory adjusts product selling rate accordingly, thereby increasing the profit. On the other hand, if inflation is not anticipated, then factory may be slow in adjusting their selling rate and so may affect the profitability negatively because of increased costs occasion by inflation. Whichever case, inflation affects profitability. DemirgüçKunt and Huizinga (1999) found a positive relationship between inflation and profitability in a study of 15 developed and developing countries. These results are

consistent with other studies such as Claessens et al. (2001) in a study of 15 countries; and Drakos (2002) in a study of brazil manufacturing companies.

Growth domestic product

Economic growth is an important variable in the determination of profitability because it affects demand and supply of manufacturing product. However, there is no consensus on how economic growth affects profitability. Some studies argue that growth domestic product has a positive effect on profitability (Claessens et al.,2001), others do not find any effect in cross country studies of European countries (Abreu and Mendes, 2003; Maria and Agoraki, 2010), while a majority find a negative effect (Demirgüç-Kunt and Huizinga, 1999; Demirgüç-Kunt et al.,2004; Carbo and Rodriguez, 2007).

They, argue that increase in economic growth could result in increase in business activity and improved business performance. In the same vein, low economic growth weakens the manufacturing capacity. (Maria andAgoraki, 2010).

2.2. Empirical review

Previous studies have generated many results that attempt to explain the determinants of profitability of several institutions. There exist a number of determinants of profitability, out of which this study focuses on current ratio, debt ratio, firm size, non-debt tax shield, average collection period, inventory collection period, cash collection cycle, growth rate, inflation and growth domestic product.

Haileliul G/mariam (2011), factors affecting working capital management on profitability of wonjishoa sugar factory. The result of his study shows there is a negative relationship between average payment period, cash conversion cycle and liquidity with profitability. No significant relationship between current assets to total assets ratio and profitability measures has been observed. On the other hand the finding shows that a high significant positive relationship between current liability to total assets ratio and profitability.

Andargachew Teferi (2015), studied determinants of profitability performance of wonji/Shoa sugar factory, Ethiopia using descriptive statistics, correlation and regression analysis which is supported by Eview 6 software package and finds that there is an imperial linkage between the determinants of profitability performance of Wonji/Shoa sugar factory whereas capital structure, and non debt tax shield have significant impact on the profitability of the factory. Firm size, and growth rate has a positive but insignificant impact on profitability of the factory

Almazari (2013) investigated the relationship between the working capital management (WCM) and the firms' profitability for the Saudi cement manufacturing companies. The sample included 8 Saudi cement manufacturing companies listed in the Saudi Stock Exchange for the period of 5 years from 2008 - 2012 Pearson Bivariate correlation and regression analysis was used. The study results showed that Saudi cement industry 's current ratio was the most important liquidity measure which effected profitability, therefore, the cement firms must set a tradeoff between these two objectives so that, neither the liquidity nor profitability suffers. It was also found, as the size of a firm increases, profitability increased. Besides, when the debt financing increased, profitability declined. Linear regression tests confirmed a high degree of association between the working capital management and profitability

In the study conducted by KeseevanPadachi (2006) on the trend in working capital management and its impact on firm's performance, it was found that high investment in inventories and receivables is associated with lower profitability.

Gul, Khan, Rehman, Khan, Khan and Khan (2013) investigated the influence of working capital management (WCM) on performance of small medium enterprises (SMEs) in Pakistan. The duration of the study was seven years from 2006 to 2012. The data used in this study was taken from SMEDA, Karachi Stock Exchange, tax offices, company itself and Bloom burgee business week. The dependent variable of the study was Return on Assets (ROA) which was used as a proxy for profitability. Independent variables were Number of Days Account Receivable (ACP), Number of Day's Inventory (INV), Cash Conversion Cycle (CCC) and Number of Days Account Payable (APP). In addition to these variables some other variables were used which included Firm Size (SIZE), Debit Ratio (DR) and Growth (GROWTH). Regression analysis was used to determine the relationship between WCM and performance of SMEs in Pakistan. Results suggested that APP, GROWTH and SIZE have positive association with Profitability whereas ACP, INV, CCC and DR have inverse relation with profitability.

Velnampy and Nimalathan (2010) examined about firm size on profitability between Bank of Ceylon and Commercial Bank of Ceylon in Sri Lanka during fifteen Year period from 1997 to 2006 and found that there is a positive relationship between firm size and profitability in Commercial Bank of Ceylon Ltd, but there is no relationship between firm size and profitability in Bank of Ceylon.

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. Using Internal Revenue Service data, he observes that large firms earn higher profits in highly concentrated markets while smaller firms earn a normal return. On contrast, Managerial utility maximization thus provides a conceptual framework for a negative relationship between firm size and profitability (Amato and Wilder 1985).

Marcus (1969) found either a weak negative relationship or none at all, Hall & Weiss (1967) observed through their studies a positive association that disappears or reverses itself among the firms with the largest assets. Trau (1996), Sutton (1997), and Hart (2000) have reviewed the

theoretical and empirical literature on firm growth. In the early empirical literature, a number of manufacturing studies find either no relationship or a positive relationship between firm sizes and growth rates. MacMillan and Day (1987) considered that rapid growth could lead to higher profitability based on evidence that new firms become more profitable when they enter markets quickly and on a large scale.

Ozgulbas et al. (2006) have studied the effects of firm size on performance over the firms operating in Istanbul Stock Exchange between the years of 2000 to 2005. As a result of their study, they have found that big scale firms have a higher performance as compared to small scale firms. In a similar fashion, Jonsson (2007) has studied the relation between profitability and size of the firms operating in Iceland. Results of the analysis showed that bigger firms have higher profitability as compared to smaller firms.

Becker et al. (2010) have studied the effects of firm size on profitability in the firms operating in manufacturing sector in USA using the data of years 1987 to 2002. Results of the study showed that negative and statistically significant relations exist between the total assets, total sales and number of employees of the firms and their profitability.

Banchuenvijit (2012) studied factors affecting performances of the firms operating in Vietnam. A positive relation has been found between total sales and profitability of the firms but on the contrary, a negative relation has been found between profitability and total assets. Additionally, the author has found statistically non-significant results between number of employees and profitability.

Hoy (1992) concluded that the pursuit of high growth may be minimally or even negatively correlated with firm profitability. Keith (1988) examined the relationship between company characteristics, profitability and growth using accounts data for a sample of 38 small manufacturing firms and his research revealed that size, age, location, and industry group are found to be limited value in explaining profitability. The use of growth as a measure of firm performance is generally based on the belief that growth is a precursor (originator) to the attainment of sustainable competitive advantages and profitability (Markman, 2002). In addition, larger firms have higher rates of survival (Aldrich 1986), and may have the benefits of associated economies of scale.

Haque (1989) empirically tested the Bangladeshi firms and finds that capital structure do significantly vary among industries and it has no significant impact on firm's profitability, dividend and market value.

Chowdhury (2004), based on Bangladeshi and Japanese panel data, did another study on capital structure determinants with agency variables and finds agency-debt, bankruptcy risk, growth rate, profitability and operating leverage to significantly affect capital structure choice.

In terms of non-debt tax shield, DeAngelo and Masulis (1980) said that non-debt tax shield can be substitutes for the tax benefits of debt financing and a firm with larger non-debt tax shield is expected to use less debt. The study conducted by Shah and Khan (2007) stated that size and tangibility has a positive and significant relationship with Leverage while profitability and non-debt tax shield has significant and negative relationship with leverage

Based on the above literatures, the researcher can say that various studies have been done on this area, but a detailed and comprehensive study has not yet been conducted in sugar industries in Ethiopia. Their findings may not be applicable to the Ethiopian sugar industry for the following reasons. First, those studies were conducted base on data from other countries that are economically different from Ethiopia and also the studies cover different time periods. Second, there is no any research conduct specifically in Ethiopian sugar industry. Hence, the present study is initiated to determine the profitability of Ethiopia sugar factory with ten (12) year accounting period from 2002-2013 and need to be identifies on a country base.

CHAPTER THREE

METHODOLOGY

The chapter explains the methodology employed for conducting the study on determinants of profitability performance of sugar manufacturing companies in Ethiopian. It includes research design, data source and type, population and sampling, method of data analysis and presentation, and model specification.

3.1. Research design

Brian van Wyk (2013) explanatory type research design for researches that study "...a situation or a problem in order to explain the relationship between variables" the researcher were used an explanatory research design for this study as suggested by the above scholars. Because, the main aim of this study is going to assess the determinants of profitability of sugar manufacturing companies, by examine the relationship between dependent variables, Profitability, and independent variables such as current ratio, debt ratio, firm size, non-debt tax shield, Average collection period, Inventory conversion period, Cash conversion cycle, growth rate, inflation and gross domestic product. Explanatory study looks for explanation of nature of relationships between one dependent variables, and one or more independent variables with the help of hypotheses testing which provide an understanding of the relationships that exist among variables. It attempts to clarify why and how there is a relationship between two or more variables of a situation or phenomenon.

3.2. Data source and type

The study was based on quantitative data which were gathered from secondary data, which are obtained from annual reports of individual sugar manufacturing companies and Sugar Corporation. And this is because the advantage of using secondary data includes the higher quality data compared with primary data collected by researcher themselves Stewart and Kamis, (1993) as cited by Yuqi Li (2007); the feasibility to conduct panel evidence, which is the case in this study; and

the permanent and available in a form that may be checked relatively easily by others. Thus, the data type that was used in this research is a quantitative one.

3.3 Population and sampling

Target population of the study was all current operational sugar manufacturing companies in Ethiopia. The total number of actively operated sugar manufacturing companies in Ethiopia is three. These are; Wonji/Shoa sugar factory, Methara sugar factory and Fincha sugar factory

3.4 Method of data analysis and presentation

Analysis of data was undertaken to show the important relationship of variable in the study. Data analysis was based on descriptive analysis, correlation analysis and regression analysis. The descriptive statistics explores and present an overview of all variables used in the analysis. Mean, minimum, maximum and standard deviation values are was used to analyze the general trends of the data from 2002 to 2013 for the variables which included in the study.

The correlation analysis shows how variables are related with each other. The results of this analysis represent the nature, direction and significant of the correlation of the variables considered under this study.

The regression analysis was the researcher to examine the relationship between the profitability of Ethiopian sugar manufacturing companies and explanatory variable such as current ratio, debt ratio, firm size, non-debt tax shield, Average collection period, Inventory conversion period, Cash conversion cycle, growth rate, inflation and growth domestic product. The balanced panel of sugar manufacturing companies in Ethiopia over the last twelve years was used for running the regression equation panel data is selected by the researcher in order to meet the research objectives as it best fits better than the single time series or cross-sectional alone. That is why Chris Brookes (2008) in his book clearly presents the advantage of using panel data in the following way. First and perhaps most importantly we can address a broader range of issues and tackle more complex problems with panel data than would be possible with pure time-series of pure cross-sectional data alone. Second, it is often of interest to examine how variables or the relationships between them, change dynamically(overtime).To do this using pure time-series data would often require along run

of data simply to get a sufficient number of observations to be able to conduct any meaningful hypothesis tests. But by combining cross-sectional and time series data, one can increase the number of degrees of freedom, and thus the power of the test by employing information on the dynamic behavior of a large number of entities at the same time.

The additional variation introduced by combining the data in this way can also help to mitigate problems of multi collinearity that may arise if time series are modeled individually.

Third, structuring the model in an appropriate way, we can remove the impact of certain forms of omitted variables bias in regression results.

E-views programmed software package was used in the analysis of the data. The output generated by this software was presented by different tools.

3.5 Model specification

This study assesses about the factors affecting the profitability of sugar manufacturing companies in Ethiopia by using descriptive, correlation, and regression analysis. regression analysis or model was applied by researcher to identify the independent variables that have determinants of profitability performance of sugar manufacturing companies of Ethiopia.

The researcher constructs an econometric model to identify and measure the factors affecting the profitability of sugar manufacturing companies in Ethiopia. classical linear regression analysis is adopted to measure the factors affecting profitability performance of sugar manufacturing companies measured by return on total assets by E-view software package. Specifically, regressions considers the simultaneous relationships between the multiple numbers of independent and dependent variables found across the regression model, therefore, it was suit to the nature of the study.

The estimated regression model was used to identify the relationship between profitability of sugar manufacturing companies measured by return on total assets and current ratio, debt ratio, firm size, non-debt tax shield, Average collection period, Inventory conversion period, Cash conversion cycle, growth rate, inflation and growth domestic product. In order to do this, the following econometric model was used in this study;

$$ROA_{i,t} = \alpha + \sum \beta_j X_{ji,t} + \epsilon_{i,t} \text{-----}(1)$$

Where $ROA_{i,t}$ is the return on total assets of sugar manufacturing companies i for period t ; α is the regression constant; $x_{ji,t}$ denotes sugar manufacturing companies determinants; $\epsilon_{i,t}$ the disturbance term.

Talking all explanatory variables in to consideration, the extended equation to reflect the variables is formulated as follows:

$$ROA_{i,t} = \alpha + \beta_0 + \beta_1 CR_{i,t} + \beta_2 DR_{i,t} + \beta_3 FS_{i,t} + \beta_4 NDTX_{i,t} + \beta_5 GR_{i,t} + \beta_6 ACP_{i,t} + \beta_7 ICP_{i,t} + \beta_8 CCC_{i,t} + \beta_9 I_{i,t} + \beta_{10} GDP_{i,t} + \epsilon_{i,t}$$

Where;

1. $ROA_{i,t}$ is the profitability in sugar manufacturing company i at time t (dependent variable) in this study measured by return on assets to evaluate companies profitability. 2. α is constant of the regression

2. **CR**= Current Ratio

3. **DR**=Debt Ratio

4. **FS** = Firm Size

5. **NDTX** = Non-Debt Tax Shield

6. **GR**= Growth rate

7. **ACP**=Average collection period

8. **ICP**=Inventory collection period

9. **CCC**=Cash conversion cycle

10. **INF**=Inflation

11. **GDP**= growth domestic product

12. $\beta_0, \beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8$, - coefficient of independent variable

13. **E** is the Error term.

14. **i** is sugar manufacturing companies

In this study, regression analysis was used to analyze the data from Ethiopia Sugar Factory.

E-view 6 was used to analyze the data the researcher collects.

Table 3.1: Summary of variables with their notation and measurement

Variable	Indicator	Notation	Measurement
Dependent	Return on Asset	ROA	Net income to total asset
Independent Variables	Current ratio	CR	Current assets/current liability
	Debt ratio	DR	Total liabilities/Total assets
	Firm size	FS	The log of Total Assets
	Non debt tax shield	NDTX	(EAIT + Depreciation) / average tax rate / total assets
	Average collection period	GR	(Current year's sales-Last year's sales) / Last year' sales X 100
	Inventory conversion period	ICP	(Average of accounts receivable / Sales)*365
	Cash conversion period	CCC	(Average Inventory/Cost of Goods Sold)*365
	Growth rate	GR	(Current year's sales-Last year's sales) / Last year' sales X 100
	Inflation	IFL	Product inflation
	Growth domestic product	GDP	GDP at current price market

CHAPTER-FOUR

DATA ANALYSIS AND DISCUSSION

This part of the paper presents data analysis and discussion and it is structured as follows: First, it gives the descriptive statistics of the variables used in the research. Second, it presents the results of correlation analysis and tests for the Classical Linear Regression Model assumptions respectively. Then the result of the regression analysis and test hypothesis was presented in the last section.

4.1 Descriptive statistics of data

The descriptive statistics was computed, so that it gives detail understanding of determinants of profitability performance and other chosen variables among the sugar manufacturing companies and it is used as stand to give recommendations after identifying the association between the variables from correlation and regression analyses.

Table 4.1 presents the descriptive statistics like mean, standard deviations, minimum and maximum values of study variables for the study period. The researcher has employed 11 variables under the study for the analysis purpose.

Table 4.1 Results of descriptive statistics of all variables under study

Variables	Observations	Mean	Median	Maximum	Minimum	Std. Dev.
ROA	36	0.046018	0.029853	0.480641	-0.196161	0.148806
CR	36	1.48656	1.390016	3.468412	0.37923	0.666671
DR	36	0.476304	0.504782	0.858884	0.080388	0.190807
FS	36	20.54537	20.22529	22.63636	19.7914	0.769563
NDTX	36	0.147839	0.122007	1.207373	-0.567847	0.392743
ACP	36	62.80357	39.80006	255.6624	12.15993	60.12209
ICP	36	340.8177	277.4355	916.4345	41.62847	246.9442
CCC	36	112.8556	88.385	984.5529	-1536.505	485.4183
GR	36	14.38467	13.77048	123.5327	-46.44181	29.4251
INF	36	0.107798	0.110556	0.364	-0.105722	0.08575
GDP	36	0.124909	0.110556	0.364	-0.105722	0.110288

Source: Eviews 6 output Based on Annual report of companies from 2002-2013

Descriptive statistics result interpretation for dependent variable

As it can be seen from the table 4.1 the profitability measurement (ROA) indicates that, the sugar manufacturing companies in Ethiopia positive and negative profit over the last twelve years. From the total of 36 observations, the mean of ROA equals 4.60 percent with a maximum return on asset earned over the last 12 years shows 0.480641, which indicates that sugar manufacturing companies have generated almost birr 48.06 of net income from a single birr invested in the asset and the minimum return on asset earned is -0.19616, which shows loss to incur is birr 19.61 from a single birr invested in the asset.

Descriptive statistics result interpretation for Independent variable

To check the liquidity of the company, current ratio which is traditional measure of liquidity is used. The results reveal that average current ratio for the company is 1.49 which is greater than the preferred current ratio (as a rule of thumb it is good for the company to have current ratio of 2:1). The standard deviation is 0.67. This shows a wide variability in current ratio among the companies. The highest current ratio for a company in a particular year is 3.47 times and that of the minimum ratio for a company in a year is 0.38.

Debt ratio is used to check the debt financing and its relationship with the profitability and the results show that the average debt ratio for the company is 47.63 percent with a standard deviation of 19.08 percent. The maximum debt financing used by a company is 85.89 percent in this case the factory is almost totally financed through debt. While the minimum is 8.04 percent, this means that there are companies which finance some part their asset from their own equity in its operation.

Firm size measured by natural logarithm of sales is used to check the size of the firm and its relationship with profitability. The average size is 20.54 with standard deviation of 0.77 maximum and minimum value of log of sales revealed 22.64, and 19.79 respectively.

The other determining factor is non-debt tax shield. The descriptive statistics result of this variable indicates that sugar industries had incurred averagely birr 14.78 as non-debt tax shield from a single birr invested with maximum and minimum values of 120.5996 and -56.7847 birr respectively.

Likewise, the descriptive statistics for the three measures of efficiency of working capital Investment policy, namely, average collection period, inventory conversion period and cash conversion cycle are also presented in the same table.

Companies collect payment against sales after an average of 63 days which means companies wait on average 63 days to collect cash from credit sales. The standard deviation is 60 days. Minimum and maximum time taken by companies to collect cash from receivables is 12 days and 256 days respectively. The variance shows the existence of large difference in collection period among the companies. However, the lesser the time taken by the customer to pay their bills, the more cash is available to replenish the inventory that leads to more sales that results to increase in profitability.

As per the results from the descriptive statistics, the mean value of inventory conversion period (ICP) is 340 days indicating that the sugar manufacturing companies on average wait 340 days to sell and converted inventory in the store. The standard deviation for ICP is 246 days. The standard deviation shows by how much the time is deviated either to the increase side or to the decrease side. The maximum and minimum ICP is 916 and 41 days respectively. The maximum days of 916 days to convert inventory in to sale and processes is long period. The minimum value for ICP indicated that the companies convert their stock within a short period. A low ICP is held as a sign of efficient management. The faster that inventory sells the less cash that is tied up in inventory. However, it is important that inventory is not too low because this could indicate under stocking of inventory, which could lead to loss of sales and revenue.

The average value of cash conversion cycle variable over the last twelve years was 113 days indicating that the sugar manufacturing companies on average wait 113 days to convert in to cash. The standard deviation for CCC is 485 days. Maximum and minimum cycle taken by companie to convert cash is 984 days and -1536 days respectively. The variance shows the existence of large difference in conversion cycle among companies This result implies that the longer the cash conversion cycle the company was generate less profit.

In addition, to check the sales growth and its impact on profitability, growth rate is used as another independent variable and the results of descriptive statistics show that the average growth rate for the sugar manufacturing companies in Ethiopia is 14.38 percent with standard deviation of 29.42 percent. The maximum and minimum values for this purpose are 123.53 and -46.44 respectively.

The average value of inflation over the last twelve years was 0.107798 the maximum value of inflation variable was 0.364 and the minimum value of inflation during the last twelve years was -0.105722. The variation of each individual data of inflation variable to the mean during the last twelve years which is represented by the standard deviation was 0.08575.

The mean and other descriptive outputs of GDP variable were computed as a natural logarithm of growth domestic product at current market prices in order to make more linearity. The mean value of GDP over the last twelve years was 0.124909 the maximum value of GDP variable was 0.364 and the minimum value of GDP during the last twelve years was -0.105722 and the standard deviation of GDP 0.110288. This shows the existence of low variation of each individual data of GDP to the mean during the last twelve years comparing with the standard deviation of inflation variable. Pertaining to the microeconomic variables, inflation has a least mean value which is 0.107798 and GDP has the highest mean value which is 0.124909. Similarly, inflation is the least volatile variable which has a standard deviation of 0.08575 and GDP is the highest volatile variable which has a standard deviation of 0.110288. This shows that among the macroeconomic variables GDP changes greatly over time.

4.2 Correlation analysis

One of the measures used to identify the degree of linear association between variables is correlation. Values of the correlation coefficient are always ranged between +1 and -1. A correlation coefficient of +1 indicates that the existence of a perfect positive association between the two variables; while a correlation coefficient of -1 indicates perfect negative association. A correlation coefficient of zero, on the other hand, indicates the absence of relationship (association) between two variables (Brooks, 2008). In this study, the researcher employed the Pearson product moment of correlation coefficient in order to find the association of the independent variables with the profitability of sugar manufacturing companies in Ethiopia.

Table 4.2 Correlation matrix between explanatory variables

Corr.	ROA	CR	DR	FS	NDTX	ACP	ICP	CCC	GR	INF	GDP
ROA	1										
CR	-0.1209	1									
DR	0.1061	-0.9017	1								
FS	-0.3858	0.3413	-0.4359	1							
NDTX	0.9916	-0.1496	0.1234	-0.4144	1						
ACP	-0.0765	0.5062	-0.6153	0.6999	-0.1178	1					
ICP	-0.0719	0.1979	-0.3400	0.7383	-0.1144	0.6535	1				
CCC	0.2275	0.5664	-0.6921	0.3709	0.2381	0.5629	0.413203	1			
GR	0.0594	-0.2042	0.0303	0.0863	0.0687	-0.0092	0.0022	0.0878	1		
INF	-0.1153	0.4570	-0.4418	0.4231	-0.0993	0.4038	0.3100	0.6216	0.0669	1	
GDP	-0.2444	0.0655	-0.0925	-0.0583	-0.1630	-0.1908	-0.2539	0.0740	-0.0401	0.1183	1

Source: Eviews 6 output Based on Annual report of companies from 2002-2013

Table 4.2 above provides information on the degree of correlation between the dependent variables and explanatory variables used in the regression analysis. If an independent variable is an exact linear combination of the other independent variables, then it can say that the model suffers from perfect co linearity problem, and it cannot be estimated by OLS (Brooks 2008). As it can be seen in Table 4.2 Non-debt tax shield, Cash conversion cycle, Debt ratio and growth rate are the most positively correlated variable with ROA with a coefficient of 0.99, 0.23, 0.11 and 0.23 respectively. Which means that when the non-debt tax shield, Cash conversion cycle, Debt ratio and Growth rate increased by 100%, ROA of Sugar manufacturing companies will increase by 99%, 23%,11% and 23% respectively.

In contrast, firm size, growth domestic product, current ratio, inflation, average collection period and inventory conversion period are negatively correlated with return on asset and the figure reveals that there is a weak relation between ROA and the independent variable (firm size, growth domestic product, current ratio, inflation, average collection period and inventory conversion period) over the last twelve years. It also describes that when ROA decrease by 39 %, 24%, 12%, 11%, 8% and 7% the Firm size, growth domestic product, current ratio, inflation, average collection period and inventory conversion period of the Sugar manufacturing companies increased

by 100% respectively this relationship point out that as the stated variable moves upward the profitability of sugar manufacturing companies in Ethiopia move down. Firm size, growth domestic product, current ratio, inflation, average collection period and inventory conversion period variable was positively correlated to each other whereas it was negatively correlated with Non-debt tax shield, Cash conversion cycle, Debt ratio and growth rate.

4.3 Testing assumptions of classical linear regression model (CLRM)

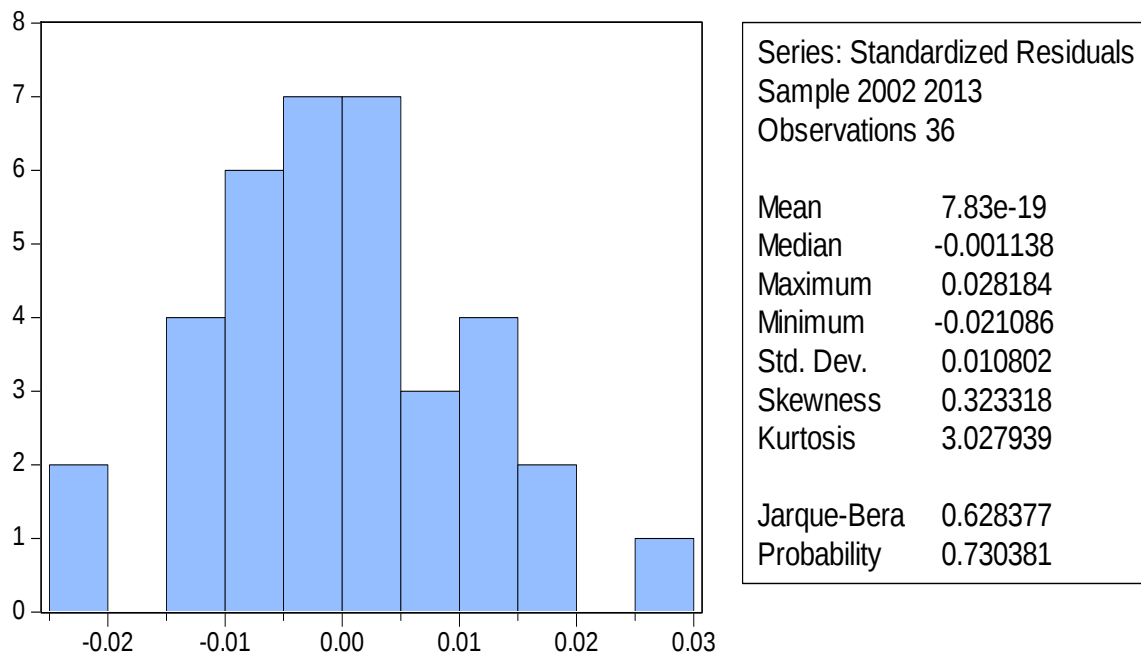
In order to draw correct estimation, using regression model to analyze the data requires certain assumptions to be fulfilled. Under this subsection, the study presented five different results for the tests of CLRM such as tests of normality assumption, tests for multi co linearity, tests for the assumption that errors have zero mean, tests for homoscedasticity and tests for the absence of autocorrelation.

4.3.1 Normality test

Before using OLS regression analysis, normality test was carried out for all independent variables. A normal distribution is not skewed and is defined to have a coefficient of kurtosis 3. Jarque-Bera formalizes this by testing the residuals for normality and testing whether the coefficient of skewness and kurtosis are zero and closer to three respectively. Normality assumption of the regression model can be tested with the Jarque- Bera measure. If the Jarque Bera value is greater than 0.05, it's an indicator for the presence of normality (Brooks, 2008).

Normality test for this study as shown in figure 4.1 the Jarque-Bera statistic is 0.6284 with a p-value of 0.7304. Since the p-value is greater than 0.05, it supports the null hypothesis and presence of normal distribution. In addition, the histogram also signifies that skewness is nearer to zero and kurtosis is 3 implying that the data fulfills normality assumption.

Figure 4.1 Histogram of normality test



Source: Eviews 6 output Based on Annual report of companies from 2002-2013

4.3.2 Multi Collinearity test

Multi Collinearity is the existence of a perfect, or exact, linear relationship among some or all explanatory variables of a regression model. If the explanatory variables were correlated to one another, adding or removing a variable from a regression equation would cause the values of the coefficients on the other variables to change. If an independent variable is an exact linear combination of the other independent variables, then it says the model suffers from perfect Collinearity and it cannot be estimated by OLS (Brooks, 2008).

According to (Churchill and Iacobucci, 2005), when there is multi Collinearity, the amount of information about the effect of explanatory variables on dependent variables decreases. However, there is no clear and single convention about how much correlation causes multi co linearity. For example, (Hair, 2006) argued that correlation coefficient below 0.9 may not cause serious multi co linearity problem.

On the other hand, (Malhotra, 2007) stated that multi co linearity problem exists when the correlation coefficient among variables is greater than 0.75.

In order to identify whether there is multi collinearly problem among the independent variables, Pearson correlation for the variables was calculated as shown on the table 4.3 below. The results in the correlation matrix show that the highest correlation of 0.7383 which is between inventory conversion period (ICP) and firm size (FS) of the firm. For the purpose of this study, there is no correlation above the aforementioned levels. Hence, it is possible to conclude that there is no multi Collinearity problem among the independent variables so that the results can be successfully estimated.

Table 4.3 Multicollinearity Test

Correlation	CR	DR	FS	NDTX	ACP	ICP	CCC	GR	INF	GDP
CR	1									
DR	-0.9017	1								
FS	0.3413	-0.4359	1							
NDTX	-0.1496	0.1234	-0.4144	1						
ACP	0.5062	-0.6153	0.6999	-0.1178	1					
ICP	0.1979	-0.3400	0.7383	-0.1144	0.6535	1				
CCC	0.5664	-0.6921	0.3709	0.2381	0.5629	0.41320	1			
GR	-0.2042	0.0303	0.0863	0.0687	-0.0092	0.00223	0.08785	1		
INF	0.4570	-0.4418	0.4231	-0.0993	0.4038	0.30999	0.62158	0.0669	1	
GDP	0.0655	-0.0925	-0.0583	-0.1630	-0.1908	-0.25388	0.07401	-0.0401	0.1183	1

Source: Eviews 6 output Based on Annual report of companies from 2002-2013

4.3.3 Test for the assumption “Errors have zero mean ((ut) = 0)”

If a constant term is included in the regression equation, this assumption will never be violated (Brooks, 2008). Accordingly, a constant term is included in the regression result of study and this shows that the assumption is not violated.

4.3.4 Test for homoscedasticity (Constant variance of errors) ($\text{Var}(u_i) = \sigma^2 < \infty$)

The assumption of the CLRM states that the variance of the errors is constant or equal is known as homoscedasticity (i.e. it is assumed that $\text{var}(u_i) = \sigma^2$). If the variance of the errors is not constant, this would be known as heteroscedasticity (Gujarat, 2004). This study used white test to identify heteroscedasticity across the range of explanatory variables if any.

The result in table 4.4 shows, three different types of test for heteroscedasticity. Since the p-values of F-statistics, Obs *R-squared and Scaled explained SS, all the three tests are above 0.05. This is a clear indicator that there is no evidence for the presence of heteroscedasticity. Hence the model passes the second test.

Table 4.4 Heteroskedasticity Test: white

F-statistic	1.588665	Prob. F(10,25)	0.1677
Obs*R-squared	13.98793	Prob. Chi-Square(10)	0.1735
Scaled explained SS	6.466345	Prob. Chi-Square(10)	0.4777

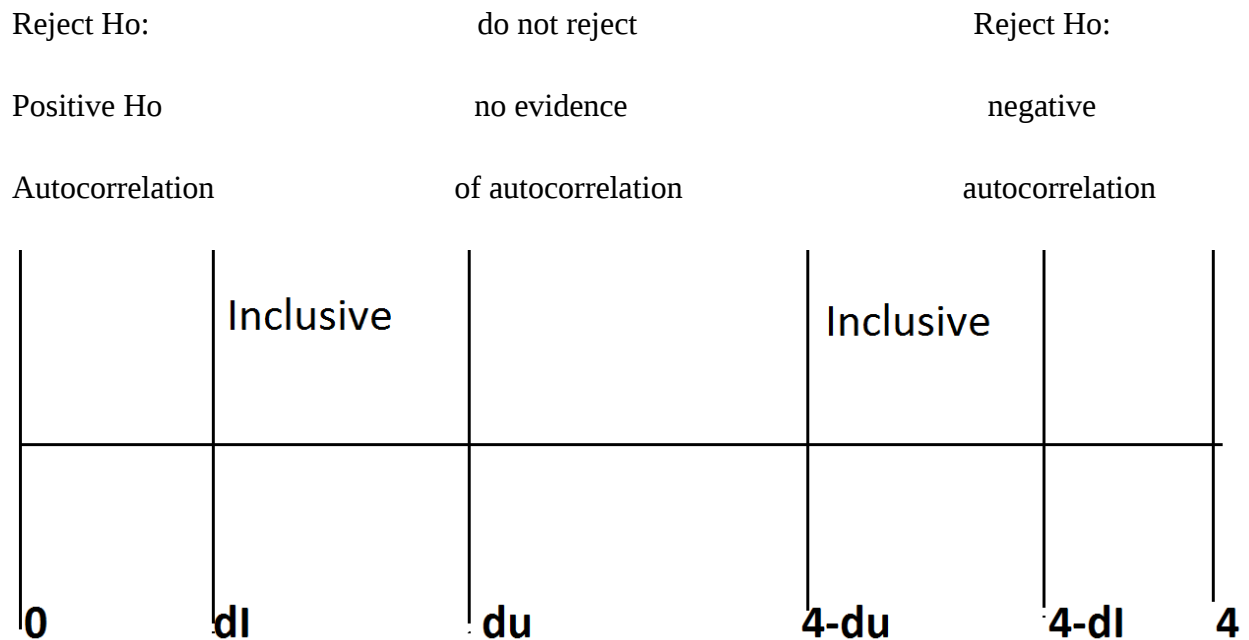
Source: Eviews 6 output Based on Annual report of companies from 2002-2013

4.3.5 Test for absence of autocorrelation assumption

Durbin –Watson test is used to prove the absence of autocorrelation. According to Brooks (2008), DW has 2 critical values: an upper critical value and a lower critical value, and there is also an intermediate region where the null hypothesis of no autocorrelation can neither be rejected nor not rejected.

In this test, the null hypothesis is rejected and the existence of positive autocorrelation presumed if DW is less than the lower critical value; the null hypothesis is rejected and an existence of negative autocorrelation is presumed, if DW is greater than 4 minus the lower critical value; the null hypothesis is not rejected and no significant residual autocorrelation is presumed if DW is between the upper critical value and 4 minus the upper limits; the null hypothesis is neither rejected nor not rejected if DW is between the lower and upper limits, and between 4 minus the upper and 4 minus the lower limit.

Figure 4.2 Rejection and Non-Rejection Regions for DW Test



The DW test statistic value in the regression result was 1.70 which is closer to 2 this is another simple way to judge the absence of autocorrelation. There are a total of 36 observations and 3 regressors' (excluding the intercept) in the regression.

According to DW stat table, the relevant critical values for the test were $dL = 0.711$, $dU = 2.018$, so $4 - dU = 1.58$ and $4 - dL = 3.289$. This indicates that test statistic is between the upper critical value and 4 minus the upper limits implying that the null hypothesis should not be rejected and no significant residual autocorrelation is presumed.

4.4 Selection of Random effect (RE) versus Fixed effect (FE) Models

(Hausman, 1978) suggested a test to check whether the individual effects are correlated with the regressors. The main objective of this section was to select the best model for the study based on the results obtained from Hausmann test. To decide between fixed and random effect run a Hausmann test where the null hypothesis states that the preferred model is random effect and the alternative is the fixed effects (Greene, 2003). The main difference between FE and RE is on the relationship between individual heterogeneity and the regressors. The null hypothesis states that they are systematic and the alternative states they are unsystematic. Meaning in the

null hypotheses the relationship between the heterogeneity and regressors is not systematic, that is RE assumes they are uncorrelated and the alternate hypothesis states the relationship between them is systematic, that is FE assumes there exists correlation between the heterogeneity and regressors (Getachew, 2013).

There are different ways of selecting the best model. According to (Gujarat, 2004), if T (the number of time series data) is large and N (the number of cross-sectional units) is small, there is likely to be little difference in the values of the parameters estimated by fixed effect model/FEM and random effect model/REM. On the other hand, (Brooks, 2008) argued that REM is more appropriate when the entities in the sample can be thought of as having been randomly selected from the population, but a FEM is more plausible when the entities in the sample effectively constitute the entire population/sample frame. Since the sample for this study was not selected randomly, Hausmann test was employed to check preferable model and the result is presented as follows.

Table 4.5 Correlated Random Effects-Hausmann Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	17.011851	10	0.0398

Source: Eviews 6 output Based on Annual report of companies from 2002-2013

As it is shown on the table 4.5, the p-value for the test is 0.0398 (which is less than 0.05). Therefore, by having such evidence the researcher preferred the fixed effect model to examine the relationship between profitability and explanatory variables and random effect model was rejected.

4.5 Results of the regression analysis

The main objective of this section was to examine the association between the dependent variable and explanatory variables. Accordingly, the result obtained by the fixed effect model that explains regression results between the dependent variable (Return on Asset) and explanatory variables is analyzed.

Regression result- Fixed Effect Model

$$\text{ROA}_{i,t} = \beta_0 + \beta_1 \text{CR}_{i,t} + \beta_2 \text{DR}_{i,t} + \beta_3 \text{FS}_{i,t} + \beta_4 \text{NDTX}_{i,t} + \beta_5 \text{GR}_{i,t} + \beta_6 \text{ACP}_{i,t} + \beta_7 \text{ICP}_{i,t} + \beta_8 \text{CCC}_{i,t} + \beta_9 \text{I}_{i,t} + \beta_{10} \text{GDP}_{i,t} + \varepsilon_{i,t}$$

$$\text{ROA}_{i,t} = 0.108600 + 0.029362 \text{CR} + 0.048583 \text{DR} - 0.008148 \text{FS} + 0.377408 \text{NDTX} + 6.44\text{E-}05 \text{ACP} - 1.37\text{E-}05 \text{ICP} - 1.09\text{E-}05 \text{CCC} + 1.35\text{E-}05 \text{GR} - 0.049591 \text{INF} - 0.086236 \text{GDP} + \varepsilon$$

Table 4.6 Regression results- Fixed Effect Model

Dependent Variable: ROA

Method: Panel Least Squares

Date: 05/03/15 Time: 10:55

Sample: 2002 2013

Periods included: 12

Cross-sections included: 3

Total panel (balanced) observations: 36

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CR	0.029362	0.010684	2.748206	**0.0115
DR	0.048583	0.042567	1.141336	0.2655
FS	-0.008148	0.006628	-1.229330	0.2314
NDTX	0.377408	0.008444	44.69713	*0.0020
ACP	6.44E-05	7.13E-05	0.903735	0.3755
ICP	-1.37E-05	2.21E-05	-0.618096	0.5426
CCC	-1.09E-05	1.04E-05	-1.040204	0.3091
GR	1.35E-05	9.33E-05	0.144501	0.8864
INF	-0.049591	0.039811	-1.245664	0.2254
GDP	-0.086236	0.024384	-3.536520	*0.0018
C	0.108600	0.133951	0.810748	0.4258

Effects Specification			
Cross-section fixed (dummy variables)			
R-squared	0.994730	Mean dependent var	0.046018
Adjusted R-squared	0.991981	S.D. dependent var	0.148806
S.E. of regression	0.013325	Akaike info criterion	-5.524116
Sum squared resid	0.004084	Schwarz criterion	-4.952290
Log likelihood	112.4341	Hannan-Quinn criter.	-5.324534
F-statistic	361.8100	Durbin-Watson stat	1.692758
Prob(F-statistic)	0.000000		

Source: Eviews 6 output Based on Annual report of companies from 2002-2013

Level of significance *refers statistically significant at 1%, and** statistically Significant at 5%.

The regression model output was resented in the table 4.6. It shows the coefficient, standard error, t-values and p-values for explanatory variables. And also shows R-squared, Adjusted R-squared, standard error of regression, Probability (F-statistic) for regression, Durbin-Watson statistic and number of observations included in the study. The R-squared statistics and Adjusted R-squared statistics of the model were 99.47 % and 99.20 % respectively. The result of Adjusted R-squared statistics shows that the change on dependent variables (ROA) was explained 99.20 % by the independent variables (Such as current ratio, debt ratio, firm size, non-debt tax shield, average collection period, inventory conversion period, cash conversion period, growth rate, inflation and growth domestic product) or the changing power of independent variables for the change in dependent variables was 99.20 %. Therefore, only 0.80 % of change on dependent variables (ROA) was explained by other factors which are not modeled in this study. The probability (F-Statistic) value of 0.0000 indicates that strong statistical significance, which enhanced the reliability and validity of the model.

Determinants of profitability which is measured by (net income to total asset) ROA are presented for sugar manufacturing companies in Ethiopia. Table 4.6 shows that the coefficient of firm size (FS), inventory conversion period (ICP), cash conversion cycle (CCC), inflation (INF) and growth domestic product (GDP) against return on asset (ROA) were negative. This is -0.008148, -1.37E-

05, -1.09E-05, -0.049591 and -0.086236 respectively. This indicates that there was an inverse or negative relationship between the above mentioned independent variables and ROA. This implies that the increase of those variables will cause a decrease in ROA. However, firm size (FS), inventory conversion period (ICP), cash conversion cycle (CCC) and inflation (INF) had no significant impact on the performance of Sugar manufacturing companies in Ethiopia up to 5% significance level. On the other hand the remaining independent variables current ratio (CR), debt ratio (DR), non-debt tax shield (NDTS), average collection period (ACP) and growth rate (GR) had a positive coefficient. Since their respective correlation coefficient shows positive there is a direct relationship between those variables and ROA, Which implies that increasing the values of those assets will cause an enhancement in the profitability of Sugar factory. Or it is possible to conclude that among the statistically significant factors affecting the profitability of sugar manufacturing companies in Ethiopia. However, debt ratio (DR), average collection period (ACP) and growth rate (GR) had no significant impact on the performance of Sugar factory up to 5% significance level.

4.6 Hypotheses testing

The following section provides the results for each explanatory variables and their importance in determining the profitability of sugar manufacturing companies in Ethiopia testing hypothesis.

Hypothesis 1:

H0: There is no relationship between current ratio and profitability of sugar manufacturing companies in Ethiopia.

H1: There is a negative/positive relationship between current ratio and profitability of sugar manufacturing companies in Ethiopia.

The result of the fixed effect model in table 4.6 indicated that there is a significant positive relationship between current ratio and profitability of sugar manufacturing companies but this relationship was found to be significant ($P=0.0115$) at 5% level. Therefore, the null hypothesis was rejected because of positive relationship between current ratio and profitability. The positive relationship between current ratio and profitability indicates that, an increase in current ratio will increase profitability of the sugar manufacturing companies. The finding is consistent with

(Naimulbari, 2012; Azam and Haider, 2011) and suggests that as the company's current ratio increases, the gross operating profitability also increases.

Hypothesis 2:

H0: There is no relationship between profitability and debt used by sugar manufacturing companies in Ethiopia.

H1: There is a negative/positive relationship between debt used and profitability of sugar manufacturing companies in Ethiopia.

The result of fixed effect estimate indicated in the table 4.6 shows that debt ratio have positive relationship (0.048583) with the profitability of sugar manufacturing companies in Ethiopia having (P-value 0.2655) insignificant at 5% level. Therefore, the null hypothesis was rejected in the study because according to the finding of the study, debt ratio has a positive significant impact on profitability. This finding is consistent with, Mohamad and Saad (2010), Gill et al. (2010), Raheman and Nasr (2007), Ching et al. (2011) and Raheman et al. (2010). This direct relation implies that as the debt ratio of the manufacturing companies' increases the profitability increase because lower leverage shows that the cost of financing working capital would be lower. Therefore debt ratio has a greater contribution for the profitability of sugar manufacturing companies in Ethiopia.

Hypothesis 3:

H0: There is no relationship between firm size (FS) and profitability of sugar manufacturing companies in Ethiopia.

H1: There is a negative/positive relationship between firm size (FS) and Profitability of sugar manufacturing companies in Ethiopia.

The results in table 4.6 above show a inverse relationship with firm profitability, which is negative but statistically insignificant with coefficient of -0.008148 and P-value of 0.2314. Thus, any increase in firm size is accompanied with an decreased in profitability. This relationship suggests the presence of economies of scale at sugar manufacturing companies and shows that the larger the size of the firm, it difficult its ability to manage its production factors and thus reduce its

profitability. Then reject the null hypothesis which states, there is a negative relationship between firm size and profitability. Firm size was one of independent variables used and hypothesized in the study as per table 4.6; negative relationship is shown between firm size and profitability. Firm size which is measured by natural logarithm of total assets has insignificant negative impact on ROA.

Hypothesis 4:

H0: There is no relationship between non-debt tax shield and profitability of sugar manufacturing companies in Ethiopia.

H1: There is a negative/positive relationship between non-debt tax shield and profitability of sugar manufacturing companies in Ethiopia.

The beta coefficient of the variable was 0.377408. The beta shows non-debt Tax shield has positive impact in the financial performance of Sugar manufacturing companies in Ethiopia. This variable is significant influence financial performance because its p-value is (0.0020) <1% significant level. Therefore Non-debt tax shield has positive and significant impact on financial performance of Sugar manufacturing companies in Ethiopia. Hypothesis reflecting positive connection between non-debt Tax shield and profitability. Therefore, the null hypothesis is rejected.

Hypothesis 5:

H0: There is no relationship between average collection period (ACP) and profitability of sugar manufacturing companies in Ethiopia.

H1: There is a negative/positive relationship between average collection period (ACP) and Profitability of sugar manufacturing companies in Ethiopia.

The regression output concerning the fourth hypothesis that average collection period have insignificant positive (6.44E-05) relationship with profitability of sugar manufacturing companies in Ethiopia having (P-value = 0.3755). Therefore the null hypothesis was rejected since average collection period positively affected profitability. The positive relationship of average collection

period suggests that an increase in a collection period will result in increased the profitability of the companies by 37.55 percent. This finding is consistent with (Mulualem, 2011; Abraham, 2013 and Deloof, 2003) and suggests that companies can improve profitability by increasing the collection period of account receivable outstanding. This can also be interpreted as the lesser the time it takes for customers to pay their bills, the more cash is available to replenish inventory hence the higher the sales realized leading to high profitability of the company.

Hypothesis 6:

H0: There is no relationship between Inventory conversion period (ICP) and profitability of sugar manufacturing companies in Ethiopia.

H1: There is a negative/positive relationship between Inventory conversion period (ICP) and Profitability of sugar manufacturing companies in Ethiopia.

The result in Table 4.6 shows that inventory conversion period have negative relation with profitability of sugar manufacturing companies in Ethiopia but this relationship was found to be insignificant since the p- value is 0.5426. Therefore it is possible to reject the null hypothesis since inventory conversion period and profitability has negative insignificant relationship. The finding is consistent with (Gill, Biger and Mathur, 2012 and Mathuva, 2010) suggesting maintaining sufficiently low inventory levels increase costs of possible interruptions in the production process and loss of doing business due to scarcity of products while investing too much in inventories unnecessarily blocks the funds in working capital that could be invested in revenue generating activities.

Hypothesis 7:

H0: There is no relationship between cash conversion cycle (CCC) and profitability of sugar manufacturing companies in Ethiopia.

H1: There is a negative/positive relationship between cash conversion cycle (CCC) and Profitability of sugar manufacturing companies in Ethiopia.

The result in Table 4.6 shows that cash conversion cycle has negative relation with profitability of sugar manufacturing companies in Ethiopia but this relationship was found to be insignificant since the p- value is 0.3091. Therefore it is possible to reject the null hypothesis since cash conversion cycle and profitability has negative insignificant relationship. The finding is consistent with Sharma and Kumar (2011) and Gill et al (2010) have found in contrary a positive relationship. Their result implies that firms with shorter cash conversion cycle will generate lesser profits and vice versa. But Sharma and Kumar (2011) also state that this positive relationship is not significant. However, Gill et al (2010) found a significant positive relationship between the CCC and the profitability.

Hypothesis 8:

H0: There is no relationship between growth rate (GR) and profitability of sugar manufacturing companies in Ethiopia.

H1: There is a negative/positive relationship between growth rate (GR) and Profitability of sugar manufacturing companies in Ethiopia.

One of the factors to determine sugar manufacturing companies in Ethiopia profitability is growth rate. The beta coefficient of the variable was 1.35E-05. The beta shows growth rate has positive impact in the financial performance of sugar manufacturing companies in Ethiopia. This variable is insignificant influence financial performance because its p-value is >5% significant level. Therefore growth rate has positive insignificant impact on financial performance of sugar manufacturing companies in Ethiopia. Hypothesis reflecting positive connection between growth rate and profitability is not in agreement with the findings of Hoy (1992), as negative correlation is presented. Therefore, the null hypothesis is rejected.

Hypothesis 9:

H0: There is no relationship between inflation (INF) and profitability of sugar manufacturing companies in Ethiopia.

H1: There is a negative/positive relationship between inflation (INF) and Profitability of sugar manufacturing companies in Ethiopia.

Inflation was a macroeconomic (external) variable which is beyond the control of the management of sugar manufacturing companies. As shown from table 4.6, inflation has beta coefficient of -0.049591, which shows that an increase in the inflation at 100% will decrease the profitability performance which is measured by return on asset by 5% by controlling other factors constant. The negative sign of beta coefficient of inflation variable has indicates that inflation has a negative impact on profitability performance of sugar manufacturing companies. However, inflation is statistically not significant even at 10 percent significance level because the p-value of inflation was 0.2254 which is greater than 10%.

This finding not support the argument that inflation makes it very difficult for businesses to decide how much to produce, because businesses cannot predict the demand for their product at the higher prices they will have to charge in order to cover their costs. Therefore, the researcher to reject the null hypothesis because according to the finding of the study, inflation has impact on profitability performance of the sugar manufacturing companies. This finding was consistent with Doma, R. M et al (2014).

Hypothesis 10:

H0: There is no relationship between growth domestic product (GDP) and profitability of sugar manufacturing companies in Ethiopia.

H1: There is a negative/positive relationship between growth domestic product (GDP) and Profitability of sugar manufacturing companies in Ethiopia

Growth domestic product was the other macroeconomic (external) variable which is beyond the control of management of sugar manufacturing companies. GDP variable was used and hypothesized in the study. From the table 4.6 it is shown that GDP has -0.086236 beta coefficient, which shows that if GDP is increased by 100%, return on asset will be decreased by 9% by controlling other factors constant. Since the beta coefficient of GDP has a negative sign, GDP has a negative impact on profitability performance of sugar manufacturing companies which has a proxy of ROA. GDP is statistically significant at 1 percent significant level because the p-value of GDP was 0.0018 which is less than 1%. Therefore, the null hypothesis was rejected in the study

because of that GDP has a negative significant impact on profitability performance. Therefore, GDP has a contribution for the decrease of profitability performance of the sugar manufacturing companies. This finding supports the argument that The GDP decrease is not important for domestic businesses. Automatically, when imports grew more highly than the GDP, this indicates that there is no a new space for purchasing demand and competition in the local market, providing new opportunities to decrease both sale volume and profit. This finding was consistence with the findings of Doma, R. M. (2014) Kosmidou and K. et al (2006) and inconsistent with Rokas Bekeris (2012), Noor, A. M. (2014) and Husni, A. et al (2011).

The result of the regression analysis is summarized as follows;

Table 4.7 Summary of actual and expected signs of explanatory variables on the dependent variables

Explanatory variables	Notation	Expected impact on profitability	Actual impact on profitability
Current Ratio	CR	Positive/Negative	Positive and significant
Debt Ratio	WC	Positive/Negative	Positive and insignificant
Firm size	FS	Positive/Negative	Negative and insignificant
Non debt tax shield	NDTX	Positive/Negative	Positive and significant
Average collection period	ACP	Positive/Negative	Positive and insignificant
Inventory conversion period	ICP	Positive/Negative	Negative and insignificant
Cash Conversion Cycle	CCC	Positive/Negative	Negative and insignificant
Growth rate	GR	Positive/Negative	Positive and insignificant
Inflation	INF	Positive/Negative	Negative and insignificant
Growth Domestic product	GDP	Positive/Negative	Negative and significant

CHAPTER-FIVE

CONCLUSION AND RECOMMENDATION

The purpose of this chapter is to present summary of discussions and analysis in relation to determinants of profitability performance sugar manufacturing companies, and provide possible recommendations based on those findings and conclusions. The chapter is divided in to two sub sections: 5.1 presents conclusions and section 5.2 which provides recommendations based on the results of the study.

5.1. Conclusion

This study was conducted based on 3 sugar manufacturing companies in Ethiopia to determine the profitability performance of sugar manufacturing companies. The data used in the study was obtained from financial statements of respective companies for the period 2002-2013.

Data was analyzed by descriptive statistics and balanced fixed effect panel regression model. As observed from the regression result, the explanatory power of the independent variables is shown in R^2 is 99.47%. From this the researcher can conclude that the model is suitable for the study.

The results of descriptive statistics indicated that that maximum time taken by the company to collect their receivable was 62.45 days while the minimum was 0.020 days. However, the average value for this purpose shows 17.63 days with a standard deviation of 17.19 days. The maximum and minimum time taken by the company to pay their suppliers was 41.81 and 1.192 days respectively while the average was 19 days with a standard deviation of 10.60 days. When compared with the maximum value, the maximum average collection period is higher than that of average payment period. This analysis showed that the company has poor collection policy as well as payment policy. Similarly, descriptive statistics for all variables was analyzed in the study.

And secondly fixed effect regression model was used to examine the relationship between dependent variable and independent variables. Before running regression, CLRM assumptions such as normality test, Multicollinearity test, and test for assumption of zero error mean, test for homoscedasticity and test for autocorrelation were tested and all tests fulfilled the assumption. In

order to select appropriate regression model, Hausmann test was used and accordingly fixed effect regression model was selected.

Results of regression analysis revealed that current ratio (CR), Non debt tax shields (NDTX) and growth domestic product (GDP) has significant impact on profitability of companies. In this regard, and current ratio and non tax debt shield have positive and significant impact whereas average growth domestic product was negatively and significantly related with profitability. The level of significance for the variables, non debt tax shield and growth domestic product was at 1% where as current ratio is significant at 5%. The negative relationship between cash conversion cycle and profitability indicated that companies with shorter cash conversion cycle will generate lesser profits and vice versa. On the other hand, firm size, inventory conversion period, inflation and profitability showed negative and insignificant relationship while growth domestic product has negative and significant relationship with profitability at 1% significance level.

In addition, the result of fixed effect model shows that non debt tax shield, growth domestic product and firm size are the most important determinants of profitability performance of the sugar manufacturing companies in Ethiopia respectively in order of their degree of influence.

5.2 Recommendation

Based on the conclusions done above the researcher put the following possible recommendations: Liquidity has positive and significant effect on sugar manufacturing companies in Ethiopia. This implies the presence of high liquidity assets. So, sugar manufacturing companies those have high liquidity asset should have effective and efficient liquidity management system. If not, the cost of short term borrowing may affect profitability negatively for future.

The results from the study showed that there is a positive impact of debt ratio on profitability. This implies that as the debt ratio of the sugar manufacturing companies increases the profitability increase , therefore it is advisable to the managers to hold appropriate amount of debt so as to increase profitability by increasing the source of financing.

The results from the regression showed that ICP has a negative impact on profitability. This implies that as the number of days for inventory conversion decrease the profitability of the

companies is also increased and this protects the companies against cost fluctuation. However investing too much in inventories unnecessarily blocks the funds in which that could be invested in revenue generating activities. As per the results from the study, the researcher recommends that because excessive stocks can place heavy burden on cash resource of a business and also insufficient stock can result in lost sales, delays for customers, the firm should look over the proper ways of inventory control techniques like economic order quantity (EOQ) by identifying fast and slow moving stock with the objective of establishing optimum stock levels for each category and there by minimize cash tied up in stocks.

The study revealed that non-debt tax shield has positive and significant impact on financial performance. Non tax shield means of reducing income tax payments by deducting depreciation from the taxable income. Depreciation tax shield is computed as the amount of depreciation multiplied by the tax rate. Therefore, the management of sugar manufacturing companies must strongly manage and follow up the depreciable asset from registration to Proper calculation of Depreciation. To manage the fixed asset properly the organization may use appropriate soft ware (like NetSuite ERP). Because, it enables to supports detailed asset management, including maintenance schedules and insurance, while providing tight accounting integration so that your fixed asset information is always presented accurately on the financial statements.

From macroeconomic variables, inflation is the determinant factor of profitability performance of the sugar manufacturing companies in Ethiopia. Higher rate of inflation appears to have a negative and insignificant impact on profitability performance. Inflation is increased when there is fall in effective demand(consumption, investment, public expenditure and exports of domestically produced goods). Hence, an increased inflation disables national producers (including the sugar manufacturing companies) do not meet the quality/price requirements of buyers and decrease their profitability. Therefore the beer companies should produce much and benefit from an increasing effective demand.

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APPENDIXES

Appendix I: Ratio Data

Year	ROA	CR	DR	FS	NDTX	ACP	ICP	CCC	GR	Inf	GDP	CMP.
2002	0.1184	1.2760	0.5905	19.8753	0.2853	18.1705	114.285	-209.019	5.4526	0.0163	-0.1057	WSSF
2003	0.2300	1.2654	0.5577	19.8169	0.6770	25.7023	135.090	-169.325	1.8839	-0.0210	0.1092	WSSF
2004	0.2982	1.4226	0.5377	19.7914	0.7860	23.1838	101.511	-80.7299	21.828	0.1173	0.0735	WSSF
2005	0.1190	1.4935	0.5064	19.8386	0.3606	47.8202	167.630	86.1148	-6.5795	0.1264	0.0613	WSSF
2006	0.0915	1.3040	0.5299	19.8942	0.3088	63.5784	99.6573	90.6552	18.058	0.1154	0.1058	WSSF
2007	0.0566	1.8501	0.3643	20.1352	0.2193	124.401	88.7879	134.968	19.482	0.1179	0.1582	WSSF
2008	0.0301	1.3955	0.5317	19.8206	0.2153	26.9512	80.0858	34.2953	-12.022	0.1119	0.2530	WSSF
2009	0.0529	1.3658	0.5001	19.9613	0.2468	19.5946	119.07	41.0034	27.199	0.1004	0.3640	WSSF
2010	-0.1226	1.5345	0.4410	20.0340	-0.2883	16.7970	130.03	-19.8211	30.303	0.1057	0.0280	WSSF
2011	-0.1463	1.5548	0.4446	20.0865	-0.3684	17.1474	87.2748	-106.809	35.737	0.1128	0.1810	WSSF
2012	-0.1722	2.2697	0.3046	20.0451	-0.4448	25.5249	41.6285	-132.197	7.7057	0.0884	0.3410	WSSF
2013	-0.1962	3.3233	0.1804	20.2514	-0.5678	65.9885	57.0462	-273.920	-46.442	0.0966	0.1350	WSSF
2002	0.1547	1.5698	0.5074	19.8914	0.3458	84.7643	502.454	251.744	-28.294	0.0163	-0.1057	MSF
2003	0.3958	1.5194	0.4713	19.8207	1.0186	31.7800	249.751	183.264	50.843	-0.0210	0.1092	MSF
2004	0.4806	1.3821	0.5381	19.9558	1.2074	70.4366	366.773	351.611	4.4980	0.1173	0.0735	MSF
2005	0.1797	1.2110	0.6098	20.1338	0.5070	58.3862	466.895	315.538	-8.4305	0.1264	0.0613	MSF
2006	0.2003	1.2048	0.5812	20.0778	0.5678	21.1865	118.963	61.1647	28.862	0.1154	0.1058	MSF
2007	0.1023	1.3044	0.5363	20.0883	0.3394	12.6307	383.680	171.244	35.482	0.1179	0.1582	MSF
2008	0.0886	1.3247	0.5032	20.1992	0.3184	21.8711	274.068	108.109	14.732	0.1119	0.2530	MSF
2009	0.0019	1.2555	0.4924	20.3633	0.1325	21.9193	320.538	94.2042	31.873	0.1004	0.3640	MSF
2010	0.0892	0.8352	0.6232	20.5890	0.3287	12.1599	314.073	-104.264	14.682	0.1057	0.0280	MSF
2011	-0.0771	0.8251	0.6149	20.7391	-0.1331	12.8119	221.516	-13.6262	12.859	0.1128	0.1810	MSF
2012	-0.0611	0.7809	0.6833	20.8058	-0.0865	12.3307	262.739	4.6250	-16.984	0.0884	0.3410	MSF
2013	-0.0993	0.8102	0.8589	21.0815	-0.2546	17.8639	218.025	-142.254	-5.5466	0.0966	0.1350	MSF
2002	-0.1285	0.3792	0.7321	21.0045	-0.3960	66.3542	776.538	-1536.50	-13.066	-0.1057	0.0163	FSF
2003	-0.0815	0.3869	0.7874	20.8217	-0.2321	31.6197	280.803	-656.837	123.53	0.1092	-0.0210	FSF
2004	-0.0493	0.4774	0.8516	20.7499	-0.1213	50.0094	421.314	-761.206	-15.246	0.0735	0.1173	FSF
2005	0.0299	1.6116	0.2752	20.7303	0.1116	52.0677	653.024	679.500	-7.8707	0.0613	0.1264	FSF
2006	0.0542	1.5259	0.3152	20.7078	0.1511	51.8816	491.505	539.771	39.488	0.1058	0.1154	FSF
2007	0.0281	1.3845	0.3908	20.8004	0.0899	105.430	501.285	517.612	27.627	0.1582	0.1179	FSF
2008	0.0298	1.7554	0.3271	21.0526	0.0921	173.931	489.813	655.423	5.5245	0.2530	0.1119	FSF
2009	0.0002	1.9423	0.3039	21.3050	0.0153	135.539	865.509	984.553	31.327	0.3640	0.1004	FSF
2010	-0.0055	2.0258	0.2694	21.7292	-0.0028	203.483	761.387	882.325	59.351	0.0280	0.1057	FSF
2011	-0.0113	2.0732	0.2047	22.2820	-0.0336	255.662	672.263	722.745	1.2702	0.1810	0.1128	FSF
2012	-0.0088	3.4684	0.0804	22.5175	-0.0248	142.666	916.435	859.533	-4.3460	0.3410	0.0884	FSF
2013	-0.0160	2.4072	0.1004	22.6364	-0.0483	139.284	517.995	499.311	33.071	0.1350	0.0966	FSF

Appendix II: regression result for dependent variables

Dependent Variable: ROA

Method: Panel Least Squares

Date: 05/03/15 Time: 10:55

Sample: 2002 2013

Periods included: 12

Cross-sections included: 3

Total panel (balanced) observations: 36

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CR	0.029362	0.010684	2.748206	**0.0115
DR	0.048583	0.042567	1.141336	0.2655
FS	-0.008148	0.006628	-1.229330	0.2314
NDTX	0.377408	0.008444	44.69713	*0.0020
ACP	6.44E-05	7.13E-05	0.903735	0.3755
ICP	-1.37E-05	2.21E-05	-0.618096	0.5426
CCC	-1.09E-05	1.04E-05	-1.040204	0.3091
GR	1.35E-05	9.33E-05	0.144501	0.8864
INF	-0.049591	0.039811	-1.245664	0.2254
GDP	-0.086236	0.024384	-3.536520	*0.0018
C	0.108600	0.133951	0.810748	0.4258

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.994730	Mean dependent var	0.046018
Adjusted R-squared	0.991981	S.D. dependent var	0.148806
S.E. of regression	0.013325	Akaike info criterion	-5.524116
Sum squared resid	0.004084	Schwarz criterion	-4.952290
Log likelihood	112.4341	Hannan-Quinn criter.	-5.324534
F-statistic	361.8100	Durbin-Watson stat	1.692758
Prob(F-statistic)	0.000000		

Appendix III: correlation result

Covariance Analysis: Ordinary

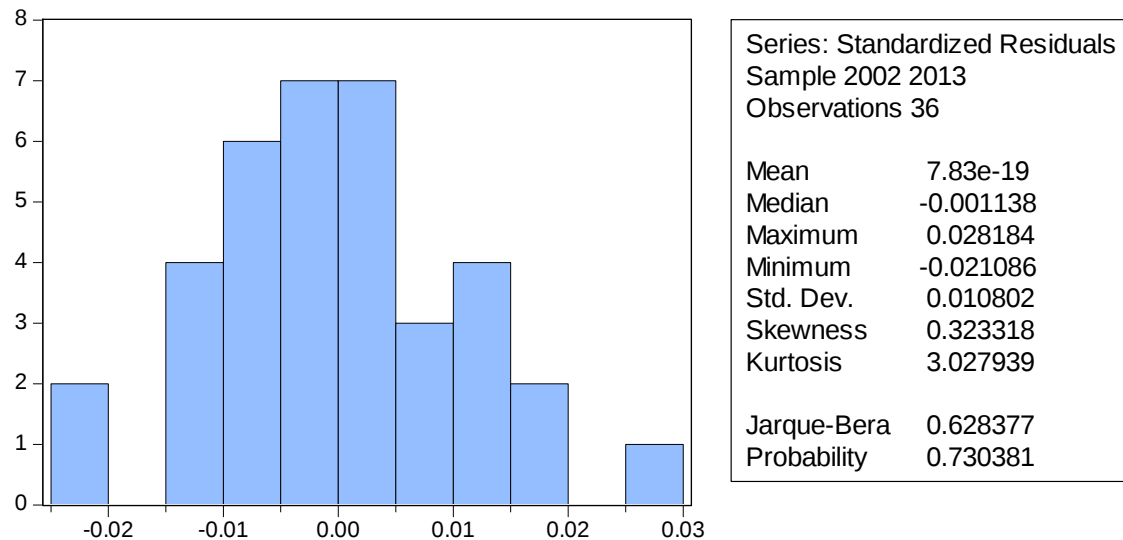
Date: 05/20/15 Time: 10:53

Sample: 2002 2013

Included observations: 36

Correlation	CR	DR	FS	NDTX	ACP	ICP	CCC	GR	INF	GDP
CR	1									
DR	-0.902	1								
FS	0.341	-0.436	1							
NDTX	-0.150	0.123	-0.4144	1						
ACP	0.506	-0.615	0.6999	-0.1178	1					
ICP	0.198	-0.340	0.7383	-0.1144	0.65345	1				
CCC	0.566	-0.692	0.3709	0.2381	0.56294	0.41320	1			
GR	-0.204	0.030	0.0863	0.0687	-0.00918	0.00223	0.08785	1		
INF	0.457	-0.442	0.4231	-0.0993	0.40381	0.30999	0.62158	0.06691	1	
GDP	0.065	-0.093	-0.0583	-0.1630	-0.19079	-0.25388	0.07401	-0.04012	0.11831	1

Appendix IV: Normality Test



Appendix V: heteroskedasticity Test Result

Heteroskedasticity Test: White

F-statistic	1.588665	Prob. F(10,25)	0.1677
Obs*R-squared	13.98793	Prob. Chi-Square(10)	0.1735
Scaled explained SS	6.466345	Prob. Chi-Square(10)	0.7747

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 05/20/15 Time: 11:31

Sample: 1 36

Included observations: 36

White Heteroskedasticity-Consistent Standard Errors & Covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.000201	0.000600	-0.334401	0.7409
CR^2	-4.25E-06	1.41E-05	-0.302637	0.7647
DR^2	1.38E-05	0.000140	0.098855	0.9220
FS^2	6.08E-07	1.58E-06	0.385190	0.7034
NDTX^2	0.000425	0.000202	2.109373	0.0451
ACP^2	-1.85E-11	2.78E-09	-0.006659	0.9947
ICP^2	1.19E-10	2.41E-10	0.493830	0.6257
CCC^2	-8.80E-11	7.44E-11	-1.182212	0.2482
INF^2	0.000239	0.001019	0.234293	0.8167
GDP^2	0.000869	0.000883	0.983612	0.3347
GR^2	-6.99E-09	7.32E-09	-0.954052	0.3492
R-squared	0.388554	Mean dependent var		0.000142
Adjusted R-squared	0.143975	S.D. dependent var		0.000200
S.E. of regression	0.000185	Akaike info criterion		-14.10524
Sum squared resid	8.56E-07	Schwarz criterion		-13.62138
Log likelihood	264.8942	Hannan-Quinn criter.		-13.93636
F-statistic	1.588665	Durbin-Watson stat		2.450534
Prob(F-statistic)	0.167710			

Appendix VI: Descriptive Statistics Result

Variables	Observations	Mean	Median	Maximum	Minimum	Std. Dev.
ROA	36	0.046018	0.029853	0.480641	-0.196161	0.148806
CR	36	1.48656	1.390016	3.468412	0.37923	0.666671
DR	36	0.476304	0.504782	0.858884	0.080388	0.190807
FS	36	20.54537	20.22529	22.63636	19.7914	0.769563
NDTX	36	0.147839	0.122007	1.207373	-0.567847	0.392743
ACP	36	62.80357	39.80006	255.6624	12.15993	60.12209
ICP	36	340.8177	277.4355	916.4345	41.62847	246.9442
CCC	36	112.8556	88.385	984.5529	-1536.505	485.4183
GR	36	14.38467	13.77048	123.5327	-46.44181	29.4251
INF	36	0.107798	0.110556	0.364	-0.105722	0.08575
GDP	36	0.124909	0.110556	0.364	-0.105722	0.110288

Appendix VII correlation result all dependent and Independent variables

Corr.	ROA	CR	DR	FS	NDTX	ACP	ICP	CCC	GR	INF	GDP
ROA	1										
CR	-0.1209	1									
DR	0.1061	-0.9017	1								
FS	-0.3858	0.3413	-0.4359	1							
NDTX	0.9916	-0.1496	0.1234	-0.4144	1						
ACP	-0.0765	0.5062	-0.6153	0.6999	-0.1178	1					
ICP	-0.0719	0.1979	-0.3400	0.7383	-0.1144	0.6535	1				
CCC	0.2275	0.5664	-0.6921	0.3709	0.2381	0.5629	0.413203	1			
GR	0.0594	-0.2042	0.0303	0.0863	0.0687	-0.0092	0.0022	0.0878	1		
INF	-0.1153	0.4570	-0.4418	0.4231	-0.0993	0.4038	0.3100	0.6216	0.0669	1	
GDP	-0.2444	0.0655	-0.0925	-0.0583	-0.1630	-0.1908	-0.2539	0.0740	-0.0401	0.1183	1