Performance Evaluation of Selected Firms of FDRE Metals and Engineering Corporation

A Thesis submitted to

The Department of Accounting and Finance

Presented in Partial Fulfillment of the Requirements for the Degree of Master of Science in Accounting and Finance

By

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Addis Ababa, Ethiopia

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Addis Ababa University

College of Business and Economics

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Id No. GSE/0217/07

Advisor: - Degefa Duressa (Dr.)

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STUDENT DECLARATION

I declare that the thesis for the MSc. degree in accounting and finance at the University of Addis Ababa, herby submitted by me, is my original work and have not previously been submitted for a degree at this or any other university, and all references materials contained therein have been duly acknowledged.

Name: Zemen Arfcho Advisor's Name: Dr. Degefa D.

Signature: ---------- Signature: ----------

STATEMENT OF CERTIFICATION

This is to certify that the thesis prepared by **Zemen Arfcho Ayano** entitled: ***"Performance evaluation of Selected Firms of FDRE Metals and Engineering Corporation"*** submitted in partial fulfillments of the requirements for the Degree of Master of Science in Accounting and Finance complies with the rules and regulations of the university and meets the expected standards with respect of originality and quality.

Signed by the Examining Committee

Examiner_____ Signature_____ Date_____

Examiner_____ Signature_____ Date_____

Advisor _____Signature_____ Date_____

ABSTRACT

This research aims to evaluate the performance of METEC industries/firms with a special emphasizes on METEC manufacturing firms in Addis Ababa, Bushoftu and Adama. This study aimed at assessing performance of the selected FDRE Metals and Engineering Corporation using balanced scorecard as framework. The researcher used quota and convenience sampling methods to select customers and employees as respondents. Based on the developed framework 15 performance indicators categorized under the 4 BSC perspectives. Financial data were used and primary data collected using five scale Likert. The researcher used structured questionnaires and the collected data analyzed using statistical methods. The findings of the study based on FP ratios, the firms ROA and ROE shows that firms do not use their asset and equity efficiently to earn profit. Furthermore, the first three hypothesis result shows BSC perspectives are positively correlated with each other at a statistically significant level and in a sequential way. Results also evidence that the companies that have improved their ROE and ROA had increased their efforts towards characteristics that involve the learning and growth perspective. So, METEC firms/industries suggested paying attention on the use of BSC as a performance measurement tool and also hub to specified performance indicators that needs enhancement.

Key words: - METEC industries, Performance and BSC

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TABLE OF CONTENTS

Title **page No.**

Appendices

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS

ABMI	Akaki Basic Metals Industry
AAI	Adama Agriculture Industry
BSc	Balanced Scorecard
BAI	Bushoftu Automotive Industry
CIS	Clear Institutional Strategy
CWS	Cooperation with Supplier's
CP	Customer Perspective
CS	Customer Satisfaction
CR	Customer Retention
DTO	Debtor's Turnover
ES	Employee Satisfaction
ET	Employee Training
EPI	Ethio Plastic Industry
EPEI	Ethiopian Power and Engineering Industry
FDRE	Federal Democratic Republic of Ethiopia
FP	Financial Performance
HMMBI	Hibret Manufacturing and Machine Building Industry
Hi-Tech	Hi-Tech Industry
IBP	Internal Business and Production Process
ITO	Inventory Turnover
I	Improved
KPI	Key Performance Indicators
LG	Learning and Growth
MR	Market Share
MFI	Metals Fabrication Industry
METEC	Metals and Engineering Corporation
NBD	New Business Development
NFP	Non-Financial Performance

NI	Not Improved
PF	Performance Feedback
ROA	Return on Asset
ROE	Return on Equity
SPSS	Statistical Package for the Social Science

CHAPTER ONE

1. INTRODUCTION

1.1.Background of the Study

The success of any organization is reflected up on its performance which is in turn highly dependent on strategies. The impact of the right strategies will automatically reflect in the results. In the competitive environment of the 21st century, METEC requires substantial financial and non-financial structure, rapid response, efficient management, and high quality of products and services. In the past, manual self-annual reports on financial statements such as income statement and balance sheet would be done and used to examine a company's performance. But, manual and separate data may not be effective in the fast changing information era. Balanced scorecard (BSc), introduced as a superior combination of financial and non-financial measures of performance (Kaplan and Norton, 1992, 1993, 1996a), has gained increasing popularity and attention (Ax and Bjørnenak, 2005; Lipe and Salterio, 2002). It has been suggested that the use of BSc leads to improved financial performance compared to traditional financial performance measures (Davis and Albright, 2004). However, it has been strongly criticized and questioned for its novelty and efficiency (Chenhall, 2005; Nørreklit, 2000).

BSC bases its success on the hypothesis that all four perspectives (learning and growth, internal business and production process, customer and financial) are linked to each other in a cause-and-effect relationship (Aidemark, 2001). In fact, the cause-and-effect logic has been described as the "essence" of the BSc approach, which distinguishes it from other approaches (Kaplan and Atkinson, 1998). According to Kaplan and Norton (1996a), a properly constructed BSc should include measures that correlate with each other. The development and description of these interrelations in the context of a company's strategy (a procedure called "strategic mapping") constitutes one of the main features of BSc (Kaplan and Norton, 2001). The clear statement of these connections provides the opportunity for management to realize how an action classified in one perspective will influence, through chain effects, other dimensions ultimately leading to improved financial results.

Based on literature review, some researcher's studied financial and non-financial indices related to business performance. For example, companies to be competent in a dynamic market situation, one of the crucial requirements is devising appropriate performance measures (Bititci, 1994;

Medori & Sleeple, 2000; Kennerley & Neely, 2003). Performance measures incorporating financial and non-financial indicators are much significant for process management (Franceschini, Galetto & Maisano, 2007; Maksoud & Kader, 2007). According to Neely (1999), organizations of top performers are those balancing financial and non-financial measures; linking strategies with measures of operations.

Although a particular BSC is unique in its nature, some indicators are common to most of the companies' scorecards (Bryant et al., 2004, Kaplan and Norton, 1996). In particular, these are the indicators of the return on investment, customer satisfaction, market share, employee productivity, and new product introduction. Therefore, it can be suggested that the BSC perspectives can be characterized with some common variables for a given sample of firms/industries. The Management accounting system (MAS) practices in less developed countries, Hopper et al., (2009), noted that these studies are rare, this thesis added to the body of knowledge on the BSC framework with specific reference to the METEC firms/industries. This study was expected to provide an empirical test on BSC perspectives on the sample data taken from METEC firms. The result of the study showed the applicability of BSC pillars to evaluate overall performance of METEC manufacturing firms.

1.2.Overview of the Manufacturing Sector in Ethiopia

According to (AACCSA, 2014); Ethiopia's manufacturing sector is among the key productive sectors of the economy identified under GTP I (2010-2015) which can spur economic growth and development because of its immense potential for wealth creation, employment generation and poverty alleviation. The manufacturing sector makes an important contribution to the Ethiopian economy. The sector had about 2,610 manufacturing establishments in the same year and divided into eight broad subsectors and namely food and beverage products, textile and apparel products, leather and leather products, wood and pulp products, chemical and chemical products, rubber and plastic products, other non-metallic minerals products and metal and engineering products industries.

The top two manufacturing subsector; food and beverage and metal and engineering industries accounted for 51% of the sector's GDP and the food and beverage sector alone accounted 38% of the employment in the sector in the year 2012/2013.

The manufacturing sector contribution to the GDP in 2012/2013 was 4.8%. According to (AACCSA, 2014); CSA's quarterly manufacturing business survey, the performance of the sector has been affected by low productivity of workers and use of obsolete technologies which is attributed to the poor state of physical infrastructure, limited access to finance, limited research and development, poor institutional framework, and inadequate managerial technical skills. In Ethiopia the low productivity and hence the competitiveness of the manufacturing industry has been largely attributed to a variety reasons, the major ones being the sector's use of obsolete machinery, lack of skilled man power and application of backward production technology. In order to enhance its productivity, the sector has to address its critical obstacles. From the industry sub-sector, the manufacturing firms in Ethiopia were utilizing only 54.3 percent of their production capacity. In other words, 45.7 percent of the total capacity remained unexploited.

The main reasons for the observed under capacity utilization rate differ from time to time. Nevertheless, shortage of raw materials, lack of demand /market/, increased entry and hence sharing of existing market, interruption of power and water supply are seem to be the main and more persistent reasons for under capacity utilization. Close to 62% of manufacturing establishments reported lack of market demand as a major cause for not operating at their full capacity, while problem with electricity and water was quoted as a reason by 13.9 percent of the manufacturing firms (AACCSA, 2014).

Metal and engineering industries are identified as one of the five priorities for existing industry investment to build capacity and upgrade performance in terms of utilization of capacity. The Ethiopian metal industry sector is classified into two categories: basic metal and engineering industries. As stated in (AACCSA, 2014); Industrial statistical report of CSA for the year 2014 indicates that the total number of establishments under these groups estimated around 433 and of these 390 of them are under private manufacturers while the remaining 43 are under Ethiopian government preferably under METEC (F.D.R.E Metal and Engineering Corporation) management. Though state-owned establishments are few in number, the size of their capacity would put them in a leading position in one way or another.

In the ever growing economy, the importance of industrialization is key for sustainable development. In this regard, technological transformation plays a leading role. Technological transformation is not all about buying and installing factories or machines at home. It goes beyond that. It also involves copying, designing and adopting factory or machine at home. The Metals and

Engineering Corporation (METEC) has taken the initiative and registered remarkable achievement.

The Growth and Transformation Plan (GTP) is paving the way towards industrialization with the goal of elevating Ethiopia to become a middle income country. According to its official website, The Metals and Engineering Corporation (METEC) is one of the institutions established by the Federal Democratic Republic of Ethiopia (FDRE) to enable the realization of the government's Growth and Transformation Plan (GTP) and to accelerate the ongoing transition of Ethiopia into industrialization and becoming a middle-income country. Since the establishment of METEC as a public enterprise by the Council Of Ministers regulation number 183/2002, METEC has been working tirelessly towards the realization of its vision, mission and objectives.

Currently, METEC is comprised of 15 semi-autonomous, and integrated manufacturing companies that are operating in more than nine different sectors. In addition to supporting key stakeholders in the public sector, the METEC companies were established for developing their respective private sector value chains and accelerating the technological capacity of the country. Most of the METEC companies are situated in the Addis Abeba – Adama corridor where higher education institutions, R&D, manufacturing and the supplier ecosystem are forming industry pre-clusters and clusters that are conducive for innovation (METEC official site).

Starting from the time it was established, METEC has been playing a key role for industrial transformation of the country. The corporation has under taken various steps that have a decisive effect for economic transformation of the country. This includes construction of several factories in different parts of the country. What is more, as a part of its mission in area of power generation, METEC has optimized the electric production capacity of GERD from 5, 250 MW into 6,000 MW." (The Ethiopian Herald newspaper, May, 2015)

According to their official site, METEC`s role in saving foreign currency is also another important aspect of the corporation. Ethiopia has saved 50 per cent of its foreign currency by producing city buses locally. And for the last budget year the Corporation has earned not less than 16 billion Birr. Therefore, by considering the above overview, this study will focus on measuring the performance of FDRE Metals and Engineering Corporation mainly based on its annual financial statements and some of non – financial measures specially using Balanced Scorecard.

1.3. Statement of Research Problem

Performance measurement is an integral part of management accounting (Emmanuel and Otley, 1995). The success of any organization is reflected up on by its performance which is in turn highly dependent on strategies. The impact of the right strategies will automatically reflect in the results. METEC is an institution that designs, produces, assemble, erect and commission manufacturing industries. METEC is comprised of 15 semi-autonomous, and integrated manufacturing companies that are operating in more than nine different sectors. In addition to supporting key stakeholders in the public sector, the METEC companies were established for developing their respective private sector value chains and accelerating the technological capacity of the country.

Literature studies related to manufacturing industries performance measurement points out; the increasing relevance of non-financial as well as financial measures in the evaluation of manufacturing industries. The conference board of the Canadian Institute of Chartered Accountants (Sim & Koh, 2001) for instance, recommended that strategically oriented performance measurement systems should measure non-financial as well as financial outcomes. Similarly, a report by the American Institute of Certified Public Accountants (AICPA) revealed that companies should disclose non-financial measures on key business processes such as product quality, cycle time, innovation, and employee satisfaction, customer satisfaction (AICPA, 1994). These all clearly show that the need for the balanced performance measurement such as balanced scorecard, which appears to have all the answers for choosing the most appropriate measures of company performance; and also to assess the performance and competitiveness of organizations in general and Metals and Engineering Corporation industries in particular in today's and tomorrow's changing and competitive business environment.

Balanced scorecard (BSC), introduced as a superior combination of financial and non-financial measures of performance (Kaplan and Norton, 1992, 1993, 1996a), has gained increasing popularity and attention (Ax and Bjørnenak, 2005; Lipe and Salterio, 2002). According to Kaplan and Norton (1996a), a properly constructed BSc should include measures that correlate with each other. The development and description of these interrelations in the context of a company's strategy (a procedure called "strategic mapping") constitutes one of the main features of BSc

(Kaplan and Norton, 2001). The clear statement of these connections provides the opportunity for management to realize how an action classified in one perspective will influence, through chain effects, other dimensions ultimately leading to improved financial results.

The concepts of performance measurement has limited literature and research on the application of these concepts in the context of developing nations. As stated on (Elzinga et al., 2009; Waal, 2007), there is limited research on performance measurement in developing countries with 95 percent of empirical research focused on "institutional theory" in the developed world compared to only 5 percent in the developing country in the past 2 decades.

Based on literature review, limited empirical research has taken place concerning the reliability of the basic hypotheses of BSc. However, some researchers accept that financial measures are the result of controlling other more important measures of non-financial nature (DeBusk et al., 2003; Davis and Albright, 2004). Based on a sample of 66 Australian companies, Hoque and James (2000) found that the use of BSc is linked to improved performance.

On the other hand, different researcher's studied financial and non-financial indices related to business performance. For example, companies to be competent in a dynamic market situation, one of the crucial requirements is devising appropriate performance measures (Bititci, 1994; Medori & Sleeple, 2000; Kennerley & Neely, 2003). Performance measures incorporating financial and non-financial indicators are much significant for process management (Franceschini, Galetto & Maisano, 2007; Maksoud & Kader, 2007). According to Neely (1999), organizations of top performers are those balancing financial and non-financial measures; linking strategies with measures of operations.

Manufacturing industries are one of the youngest sector in Ethiopia and in the other developing countries. According to Industrial Statistical Report of CSA for the year 2014 indicates that FDRE Metals and Engineering Corporation puts in a leading position based on the size of their capacity; which incorporate different manufacturing firms to accomplish various government strategic plan. The researcher believes and observed that there is no reliable data and information on the extent to which non-financial perspectives affect the performance and profitability of manufacturing industries; even though there is a so-called balanced scorecard (BSC). So that these firms/ industries should apply proper framework that will give a complete and balanced overview of the performance and profitability of manufacturing industries.

According to authors like; (Kaplan & Norton, 1992; Ibrahim & Lloyd, 2011; Banker, Potter, & Srinivasan, 2000; Cohen et al. 2008); the BSC model has received worldwide acceptance since this model has successfully been applied across a diverse range of private and public sectors. On the other hand, (Pandy, 2005; Speckbacher et al. 2003; Malmi, 2001; Norreklit, 2003); noted that BSC approach has also their critics. Since there are little research in developing and less developing countries (LDCs) context and since mixed finding are evidenced in earlier studies in developed countries context, further studies in different context in particular developing countries setting is warranted to add rigor or modify the proposition claimed in Kaplan and Norton's (1992) BSC model. As a result, to test the hypothesis, in this study independent variables with similar characteristics were grouped into each non-financial perspective. (Md Habib-Uz-Zaman Khan et al. 2010)

Based on the conflicting findings as reviewed in the literature; this thesis tried to investigate whether the suggested interconnection of the four performance dimensions of BSC can be supported by empirical evidence in the developing countries context. The importance of this survey relies on the fact that it focuses on the analysis of the basic inherent hypotheses of BSc in order to assess whether improvements that relate to customers, learning and growth and internal business and production processes actually contribute to alterations of reported financial performance. Therefore, the researcher aims to investigate interrelationships among the non-financial performance indicators of BSc that can be supported by empirical evidence. In other words, to assess the magnitude of the correlations that exists among the variables that correspond to the learning and growth perspective, the internal business and production process perspective and the customer perspective. The second goal of the study is to assess the influence of efforts towards improvements on the non-financial BSc lead indicators on financial performance.

1.4. Research Questions

The study will address the following specific research questions:

1. How is the interrelation of nonfinancial performance perspectives in METEC industries?
2. How does the non-financial perspectives affect the financial perspectives on the selected METEC industries?

1.5. Research Objectives

1.5.1. General Objectives

The general objective of the study is to assess and evaluate the performance of FDRE Metals and Engineering Corporation (METEC).

1.5.2. Specific Objectives

Based on the research questions and relevant literature reviewed; the specific objectives are: -

- ✓ To analyze the interrelation between nonfinancial BSC perspectives of METEC firms/industries.
- ✓ To test whether the nonfinancial performance perspectives affects the financial performance perspectives of the selected METEC industries.

1.6. Research Hypothesis

According to the model of Kaplan and Norton (1996b), a cause-and-effect relationship exists among the perspectives of BSc in a sequential manner. The study focuses on whether the theoretically grounded interrelationships among the non-financial performance indicators of BSc can be supported by empirical evidence of METEC firms/industries. The conflicting findings on the BSC mentioned in the literature, leads to the first three hypotheses of the study which deal with the interrelation of the non-financial BSC perspectives (Learning and Growth; Internal Business, and Customers). The fulfillments of basic BSC assumptions are considered and the following hypotheses are developed.

H1.1: there is positive correlation between learning and growth perspective indicators and internal business and production process indicators

H1.2: there is positive correlation between internal business and production process indicators and customer perspective indicators

H1.3: there is positive correlation between learning and growth perspective indicators and customer perspective indicators

H2: Industries that had improved their financial performance had improved their non-financial perspective factors more than the industries that had worsened their financial performance.

1.7.Relevance of the study

METEC managers can use the result of this study to apply integrated performance measurement tools to obtain the best financial and non-financial information for effective decision making as well as to suit their managerial needs. Stakeholders (mainly government bodies) will be assisted in their understanding of performance measurements from different perspectives and the way in which to determine the progress of the industries. The concerned government bodies like Prime Minister Office, HoF and others will be assisted in determining how well the industries operate, how efficiently resources are utilized, and other similar issues should be handled. Finally, it would be helpful for academic studies on performance evaluation of different industry sector in the country. As well it drops additional insight to the existing literature and it can be utilized by other researchers as a standing point.

1.8.Scope of the study

The scope of this study is performance evaluation of METEC industries by using a balanced scorecard framework for and applying the developed model to analyze selected industry performance. In Addition, this study is limited to showing the performance of the studied industries in general way rather than individual institution level. The first aim was assessing the magnitude of the correlations that exists among the variables that correspond to the nonfinancial perspectives and the second goal of the study is to assess whether improvements in several internal and external firm parameters that can be broadly classified within the three qualitative perspectives of BSc have eventually an effect on its financial status.

1.9.Delimitation of the study

The study has been conducted to cover eight (8) METEC commercial purpose industries which are around Addis Ababa, Bushoftu and Adama. Even though the corporation was incorporated during 2010, the researcher would be limited to study only three years (2013-2015) of financial statement by using financial ratios and other analysis methods. Financial performance is usually assessed through the use of financial ratios. However, the values of financial ratios by itself for a given company are highly influenced by the characteristics of the industry operates with in its life-cycle phase, its size, the level of competitive pressures, the influence of economic environment, etc.Thus, in order to deal with the fact that the researcher would analyses industries that are

heterogeneous in various aspects and as a result they could exhibit different financial ratio values due to their distinctive differences, the researcher decided to compare each industries only to itself.

In other words, the researcher define that a company has achieved improved financial performance in any given financial ratio during the period of analysis, if its financial ratio value at the end of the period was enhanced compared to the ratio value at the beginning of the period. Otherwise, the company is defined as not having improved its financial performance. The researcher then compare industries that have improved financial performance with industries that have not improved their financial performance in terms of their scores in the non-financial BSc perspectives' factors.

Even though METEC have formulated balanced scorecard on its corporate finance and investment structural work flow directive, it was not fully adopted. So that, the researcher investigate some of the nonfinancial performance indicators from learning and growth perspectives, internal business and production process perspectives and customer perspective by preparing close ended questionnaire to implement the balanced scorecard and multi- dimensional measures as a performance measurement and strategic implementation tool to improve their operational performance and profitability.

1.10. Structure of the Study

The presentation of this study takes the following form: The first chapter is introductory which consists of background of the study, statement of the research problem, research question, objective of the study, Relevance of the study research methodology, scope of the study and research delimitation. The second chapter provides the related summary of literature review on the financial and nonfinancial performance analysis. Chapter three presents the research methodology– demographic characteristics of the study population. Chapter four is devoted to the analysis of data and discussion based on data collected. Finally, chapter five concludes the study and provide relevant recommendation.

CHAPTER TWO

2. REVIEW OF THE RELATED LITRATURE

This chapter is composed of two major parts: the theoretical framework and empirical studies. The theoretical framework part presents financial and nonfinancial performance measures, meaning of financial statements, Meaning of Financial Statement Analysis, Objective of Financial Statement Analysis, and Tools for Financial Analysis used in the financial performance evaluation of corporation. The empirical studies part presents various related researches and their results.

2.1.Theoretical Framework

2.1.1. Financial and Nonfinancial Performance Measures

2.1.1.1.Financial Performance Measures

Various traditional financial performance measures are used to evaluate the effectiveness and efficiency by which operating divisions use financial and physical capital to create value for shareholders. They also provide expanded financial information to the interested users through the various components of monthly, quarterly and annual financial reports such as the balance sheet, profit and loss statement, and cash flow statement. There are different types of performances measures that companies can use. The balanced scorecard method from (Kaplan & Norton, 1996a) often serves as a basis for evaluation of CEOs. In general, the Balanced Scorecard, which consists of four different perspectives, consists of two types of measures: financial and non-financial performance measures. Financial performance measures, which can also be classified as accounting-related performance measures, are measures such as firm profit, earnings per share, sales growth or total shareholder return (Ibrahim & Lloyd, 2011). One important disadvantage is that the use of financial performance measures may lead to accrual manipulation. This can be explained by the bonus-maximization hypothesis (Watts & Zimmerman, 1986) which states that managers of firms with bonus plans are more likely to choose accounting procedures that shift reported earnings from future periods to current periods, or vice versa, under certain conditions. When a manager his earnings fall below the required target level, they are likely to manipulate earnings upwards and when the earnings are too much above the required target level,

they are likely to manipulate earnings downwards (Healy, 1985). Another important disadvantage is that financial performance measures instigate managers to focus on the short term.

Financial indicators as one of the main criteria for evaluation of business performance. Hopwood (Hopwood, 1972) believes that financial measures can lead to favorable subordinates' behaviors because of the objectivity and the reduced uncertainty of such measures. Kaplan and Atkinson (1998) consider two main reasons for the widespread use of financial performance measures. First financial performance measures, such as profit, articulate directly with the organization's long-run objectives, which are almost always purely financial. Second, properly chosen financial performance measures provide an aggregate view of an organization's performance. An aggregate financial performance measure, such as corporate or division profitability, is a summary measure of the success of the organization's strategies and operating tactics. In Most Studies financial ratios that were widely used are discussed below.

A. Ratio Analysis

a) **Definition of Ratio**

Ratios has been defined by different authors in many ways:

Hornby A.S. et al (2002) defines ratio as a "relation between two amount determined by the number of times one contains the other".

Another author, Pandey (2005) defines ratio as "the indicated quotient of two mathematical expression" and as "the relation between two or more things". From the researcher's point of view, ratio can be defined as a mathematical expression that has a relationship between two or more accounting figures, which makes the interpretation of financial statements meaningful to the users.

Furthermore, ratios are among the most popular and widely used tools of financial analysis. They provide with clues and symptoms of underlying conditions. A ratio can help us uncover conditions and trends difficult to detect by inspecting individual component making up the ratio. Like other analytical tools, ratio are usually future oriented that they are often adjusted for their probable future trend and magnitude. Usefulness of ratios depends on our skillful interpretation of them, and is the most challenging aspect of ratio analysis. Accordingly, the ratio of cost of goods sold to sales is a significant one in contrast, there is no obvious relation between freight cost and the balance of marketable securities. Diamond (2006)

b) Types and Classification Ratios

Ratios calculated from the accounting data can be grouped into various classes according to its financial activities or their function of evaluation. Short and long term creditors, shareholders and management are the parties that are more interested in financial analysis. The short-term creditor's main interest is in the liquidity position of the company. On the other hand, the long term creditors rely on the solvency and profitability position of the company. Similarly, the shareholders concentrate on the company's profitability and financial condition. While the management is interested in evaluating every aspect of the company's performance, they have to protect the interest of all parties and sees that the firm grows profitably.

Pandey (2005), classifier ratio into the following:

I) Liquidity ratios
II) Leverage ratios
III) Activity ratios
IV) Profitability ratios

Furthermore, according to Hornby (2002), no one of such classes of ratios gives sufficient information by which to judge the financial condition and performance of the firm. Only when the group of ratios are analyzed can reasonable judgments be made. Seasonal character of a business must be taken into account. Underlying trends may be assessed only through a comparison of raw figures and ratios of the same time of the year. Ratio comparisons should not be made between December 31 balance sheet with May 31 balance sheet; rather, it should be compared with December 31 and December 31 balance sheet.

Although the number of financial ratios that might be computed increases geometrically with the amount of financial data, emphasis will be laid on the most important and necessary ones. Thus, the researchers concern will be on:

Liquidity Ratios

This measures the ability of the company to meet its current liabilities (short term obligations) as they fall due, out its current assets (Mabt, 2001). Analysis of liquidity needs the preparation of cash budgets and cash funds flow statements, but liquidity ratios by establishing a relationship between cash and other current assets to current obligations, provide a quick measure of liquidity.

The failure of a company to meet its obligations due to lack of sufficient liquidity, will result in wrong decision making, poor credit worthiness, loss of creditors confidence, or even in legal tangles resulting in the disclosure of the company. Also, a high degree of liquidity is bad because idle assets earn nothing since the company's fund will be unnecessarily tied up in current assets. Hence, there is a need for equal between high liquidity and lack of liquidity. Of the two common ratios which indicate the extent of liquidity or lack of liquidity; the researcher selected only current ratio:-

a) **Current Ratio**: - is calculated as **Current Ratio = Current Assets /Current liabilities.**

The ratio of 2:1 is considered an idle for current ratio and it is a conventional rule. It represents a margin of safety of creditors. The higher the current ratio, the greater the margin of safety: the larger the amount of current assets in relation current liabilities the most the firm's ability to meet its current obligations. However, current ratio should not be followed blind because a company with less than 2:1 ratio may be doing well and the one of high ratio only struggles to meet its obligations because current ratio only measures the quality and not the quality.

Activity Ratios

These are employed to evaluate the efficiency with which the firm manages and utilizes its assets. They are also called the turnover ratios in that they indicate the speed with which the assets are being converted or turned over into sales. Thus, the activity ratio is said to have a relationship between sales and assets. The effectiveness of asset utilization is judged by the calculation of activity ratios.

Activity ratios selected by the researcher are the following:

(i) **Inventory Turnover:** This indicates the efficiency of the firm in producing and selling its products. It is given by dividing the cost of goods sold by the average inventory. In a manufacturing company, inventory of finished goods is used to calculate inventory turnover: **Inventory turnover = Cost of goods sold / Average inventory**
The average inventory is the average of opening and closing balances of inventory.

(ii) **Debtor (Account Receivable) Turnover:** It indicates the number of times debtors turnover each year. Generally, the higher the value of debtor's turnover, the more

efficient is the management of credit. Thus, debtor's turnover can be calculated by dividing total sales by the year and balance of debtors (Pandey, 2005:526)

Debtors Turnover = Sales/ Debtors

Profitability Ratios

These rations indicate the net result of a large number of policies and decisions. They are calculated to measure the operating efficiency of the company. Besides management, creditors, owners and even customers are also interested in the profitability of the company. Usually, profitability ratios are calculated in two major ways:

a) Profitability in relation to investment

b) Profitability in relation to sales Profitability ratio is classified into the following.

Ratios selected by researcher to be studied are listed below;

i. **Net Profit Margin**

This ratio indicates the firm's ability withstand adverse economic conditions. It establishes a relationship between net profit and sales and also indicates management's efficiency in manufacturing, administering and selling of products. Net profit margin ratio is the overall measure of the firm's ability to turn each Naira sales into Net profit, it is measured by dividing profit after tax by sales:

Net profit margin = Profit after Tax/ Sales

ii. **Return on Equity**

This ratio is one of the most important relationships in financial analysis. It indicates how well the company has used the resources of owners. The return on equity ratio is of great interest to the present as well as the prospective shareholders and also of great concern to management, which has the responsibility of maximizing the owner's welfare.

It is given as= **ROE = Profit after Tax (PAT) /Net Worth (Equity) NW**

iii. **Return on Asset**

This ratio is one of the most important relationships in financial analysis. It indicates how well the company has used the resources of stakeholders.

It is given as= **ROA = Profit after Tax (PAT) /Total Asset**

b) Nature of Accounting Ratios

Accounting ratios are used as a benchmark for evaluating the financial position and performance of a firm. There is no meaningful understanding of the performance and financial position of a firm by only reporting the accounting figures in the financial statement. Accounting figures can only give meaning when they are related to some other relevant information, that is, through the use of ratio. Hence, ratio can be defined as the relationship between two amounts determined by the number of times one contain the other (Hornby, 1998). For instance, a certain amount of net profit may look impressive, but the firm's performance can be said to be good or bad only when the net profit figures is related to the company's investment. This relationship between two accounting figures expressed mathematically, is known as a ratio.

c) Uses of Ratio in Analyzing Financial Statement

In order to determine the financial condition and performance of a company, the financial analyst needs certain yardstick. The yardsticks frequently used are a ratio, relating two pieces of financial data to each other. Analysis and interpretation of various ratios should give experienced, skilled analysts a better understanding of the financial condition and performance of the firm than they would obtain from analyzing only the financial data. The essence of the financial soundness of a company lies in balancing its goals, product market choices, commercial strategy and resultant financial needs. Ratio analysis is a very useful analytical tool to raise pertinent questions on a number of managerial issues. Many groups of people in a company are interested in using analyzed financial statements to know the company's operating performance. The use of ratio gives a statement reader a clear idea about items and eliminates some difficulties he/she may have in understanding the significance of the naira amount.

d) **Limitations of financial statement and Using Financial Ratios**

Financial ratios have certain drawbacks in their use and are not meant to be applied as definitive answers. They are usually used to provide additional details in the determination of the results of financial and managerial decisions. They can provide clues to the company's performance or financial situation. However, on their own, they cannot explain whether performance is good or bad. As for the external financial analysis, ratios also play a role of basic indicators, showing just an overview of studying business entity. Ratios have to be interpreted carefully. Some of the limitations about using ratios in financial analysis are (Girmachew2010):

2.1.1.2.**Nonfinancial Performance Measures**

Non-financial performance measures are often used for performance evaluation. They are especially relevant if the available financial performance measures not completely reflect the manager's contribution to the firm's total value. Then, non-financial performance measures serve as an indicator for the firm's long-term performance. Non-financial performance measures are frequently used for performance evaluation; specifically, they are a central element of concepts such as the balanced scorecard (Kaplan and Norton, 1992).

Non-Financial performance measures measure the non-financial aspects of the firm. Examples of non-financial performance measures are measures such as workforce development, product quality, customer satisfaction, on time delivery, innovation measures, attainment of strategic objectives, market share, efficiency, productivity, leadership and employee satisfaction (Datar, Kulp, & Lambert, 2001; Ibrahim & Lloyd, 2011; Ittner, Larcker, & Rajan, 1997). One important limitation of non-financial performance measures is that they may be biased, that their computation may change over time and often differs between firms, which hamper comparison of performance between firms (Eccles & Mavrinac, 1995). Ittner et al. (1997) also argue that these non-financial performance measures are easier to manipulate than the financial measures since they are rarely subjected to public verification. As both financial and non-financial performance measures have advantages and disadvantages, combining both types of measures are often the best option. Said et al. (2003), for instance, find that combining financial performance measures with non-financial performance measures leads to a significant higher mean level of return on assets and a higher level of market return. The three nonfinancial perspectives are explained under:

Learning and Growth Perspective: Under this perspective managers must identify measures to answer the following question: *"To achieve our vision, how will we sustain our ability to change and improve?"* Actually, this perspective is related to the employees of the organization, and it measures the extent to which the organization exerts efforts to provide its employees with opportunities to grow and learn in their domain. Kaplan and Norton acknowledge that the learning and growth measures are the most difficult to select; therefore they suggest the following measures as examples: employee empowerment, employee motivation, employee capabilities, and information systems capabilities.

Internal Business Process Perspective: This is a strategy for producing goods and services in the most efficient and effective methods. Consequently, managers are obligated to offer measures that answer the following question*: To satisfy our customers and shareholders, what business processes must we excel at?* The essential idea of this perspective is the consequences of the internal business processes which lead to financial success and satisfied customers. Commonly used measures for this perspective are: cost of quality, cost of nonconformance, process innovation, time savings etc.

Customer Perspective: This is a strategy for creating value and differentiation from the perspective of the customer. The managers are obligated to produce measures to respond to the following question: *To achieve our vision, how should we appear to our customers?*
Distinctive measures used under this perspective are: customer satisfaction, customer complaints, and customer lost/won, sales from new product, etc.

2.1.2. Role of Performance Measures in an Organization

To function successfully in a business environment, an organization depends upon the decision-making ability of its managers, who in turn, depend upon the availability of usable information (Banker et al., 1997). Information about performance is important in different ways to the various stakeholders within a business. For example, owners and investors are interested in company's performance to insure that their investment decisions are correct, and if not to look for alternative investment opportunities. Managers look at the performance of a company's subunits as a way of prioritizing the allocation of resources (Duusema, 1999; Euske et al., 1993; Lockamy & Cox, 1994).

In a more strategic sense, performance measurement is seen as an important way of keeping a company on track in achieving the company's objectives and as a monitoring mechanism employed by the owners of a company where ownership and management are separated (Baker & Wruk, 1989; Bushman et al., 1995; Delaney & Husekid, 1996; Huselid, 1995).

If measures of performance are to be effective, the measures need to be based on a company's strategic objectives in order for employees to understand and be committed to the achievement of those objectives (Becker et al., 1996; Hronec, 1993; Kaplan, 1983).

Specifically, D'Souza and Williams (2000), Euske et al. (1993), and Kimball (1997) argue that within the contemporary work environment, a good performance measurement system should be:

a. Supportive and consistent with an organization's goals, actions, people/culture, and key success factors
b. Driven by the customer;
c. Appropriate to the internal and external environment;
d. Developed by a combined top-down and bottom-up effort;
e. Communicated and integrated through the organization;
f. Focused more on managing resources and inputs, not just simply costs
g. Committed to providing action-oriented feedback; and
h. Supportive of individual and organizational learning.

Although there is agreement that these types of characteristics will make for better performance measures (Devenport, 2000), how performance is actually measured is still a 'black box' for many organizations (Cross &Lynch, 1992; Frigo et al., 2000;), particularly as performance measures used in one company may not be appropriate for another company facing a different situation or different set of circumstances (Otley, 1980).

Defining performance for an individual company is highly dependent upon the company's business objective and strategy and is therefore quite unique (Fitzergerald et al., 1993, Hoffectker et al., 1994; Kaplan et al., 1992). For many firms however, the main performance indicators would typically include some combination of indicators across two broad categories: financial indicators and non-financial indicators (Hoffectker et al., 1994, D"Souza et al., 2000 Eccles).

2.1.3. Multiple Measures of Performance

Financial measures are considered "lagging" indicators in the sense that they are the results of other former actions mostly of quantitative nature (Cohen, et.al. 2008). Kaplan and Norton (Harvard Business Review, 2008) have created balanced scorecard (BSC), where one of the groups of indicators is financial indicators. BSC method is widely used around the world to evaluate business performance. For example, opportunities to evaluate business performance of small and medium-sized enterprises using BSC are analyzed in the companies of England (Sousa et al.,

2006), organization of manufacturing companies performance (Fernandes et.al. 2006), evaluation of tourism business performance (Phipips, Louvieris 2005), strategic planning of family business (Craig, Moores, 2005).

It is increasingly recommended that managers (and researchers) expand performance measurement systems to include non-financial information, such as productivity and quality data whilst retaining the traditional financial rations (Kaplan, 1983; Kaplan & Norton, 1992) as no one single measure provides consistent evidence of the correlation between all stakeholders" satisfaction and firm performance (Brossy & Balkcom, 1994; Otley, 1980, 1994).

This new emphasis on utilizing both financial and non-financial indicators has led to the development of approaches using multiple measures of performance, such as Benchmarking, Total Quality Management (TQM) and The European Foundation for Quality management department process, or practice within the organization (EFQM), the Balanced Scorecard (BSC) to name few.

Benchmarking can be seen as the systematic comparison of elements of the performance of the company against that of other companies (Peters, 1994; Thor, 1994). Benchmarking can be internal or external. Internal benchmarking compares the internal workings of one department, process, or practice within the organization to another, while external benchmarking compares a firm to its peers, chief competitors, or other organizations (Peters, 1994; Thor, 1994).

Benchmarking is generally based on comparisons of quantitative data that may cover a wide range of financial and non-financial measures, such as return in investment, customer satisfaction and quality performance. Quantitative analysis alone, however, often leads to incomplete analysis alone, however, often leads to incomplete analysis (Jenson, 1995) in the absence of qualitative analysis that explains the importance or relevance of the measures used.

Total Quality management (TQM), as stated by Crosby (1979), Deming (1986), Juran (1981), and many other TQM specialists, involves four important elements, which revolutionized quality in market place. First, the upper management had to make a comment to quantify and ensure that quality was emphasized throughout the organization, second, all levels and all functions were to receive quality training at some specified level of expertise. Third, quality improvement was to be a process as later defined by the Deming wheel. Finally, the customer was to be the most important concern in the quality loop. This emphasis on quality at all levels meant a change

in focus from only financially driven measures to examining factors that influence these measures.

In both the TQM and benchmarking management techniques, there are references to: continuous systematic improvement, meeting customer needs, performance standards, understanding industries" best practices, concurrent engineering, and measure of targets (Swift, Gallwey, & Swift, 1995).

However, one of the most popular approaches which assert the need for multiple performance indicators is the Balanced Scorecard (Kaplan et al., 1992).

2.1.4. The Balanced Scorecard (BSC) Framework

The BSC provides a framework, which encourages the use of both financial and non-financial measures of performance, allowing the organization to point its strategic objectives via balancing four perspectives – financial, customers, internal business processes, and learning and growth- to measure firm performance (Kaplan et al., 1992; Kaplan et al., 1996b). The effectiveness of the balanced scorecard is based on its ability to translate a firm's mission and strategy in to a comprehensive of performance measures (Kaplan et al., 2001).

Introduced by Robert Kaplan of Harvard Business School, and David Norton, of Renaissance Worldwide in 1992, the balanced scorecard (BSC) framework is system that measures both current performance of the firm and drivers of future performance. Specifically, the BSC framework seeks to identify the critical economic activities of the company that generate current and future cash flows and to build a causal model of the company by which the company generates profits by focusing both financial and non-financial indicators of firm performance.

The balanced scorecard approach involves identifying the key components of operations, setting goals for them, and then finding ways to measure progress toward achieving those goals. Taken together, the measures provide a holistic view of what is happening both inside and outside the organization or operational level, thus allowing each constituent of the organization to see how their activities contribute to attainment of the organization's overall mission. The BSC explicitly based on the growing acceptance of two related premises. The first is that future success involves providing superior value to customers, employees, and shareholders. The second is that

attracting shareholder funds, employee talent, and customers are the three fundamentals of sustainable competitive advantage and superior returns to investors (Hoffectker et al., 1994; Ittner et al., 1998a; Johnson, 1998; Kaplan et al, 1996; Maisel, 1992) within the BSC framework, four perspectives- financial, customer, processes and learning and growth- respect the views of four essential stakeholders in any business. All stakeholders have choices-shareholders can sell; customers can buy from another provider; and employees can work for another company. If value is created for each of these essential stakeholders groups, the company will be more likely to produce superior return for investors for a longer period (Lockamy et al., 1994).

2.1.5. The Four BSC Pillars

With the BSC framework, four categories of measures are identified in order to achieve balance between the financial and non-financial, between internal and external and between current performance and future performance (Kaplan et al., 1992). The four perspective: learning and growth, processes, customer, and financial represent the views of four essential; stakeholders in any business.

a) Learning and Growth measures

It represent the employees as part of the four pillars used to measures performance with the BSC framework. The innovation and learning perspective is all about developing the capabilities and processes needed for the future. In the banking industry, for example, for a business to succeed not only must it effective carry out daily transactions but it must also continually improve in terms of the value and cost of its offerings. This innovation process can be measured in a variety of ways. These may include the speed of transactions, or the number of people involved in a particular transaction, etc. Again, the choice depends on what is critical for the success of each particular business (Kaplan et al., 1996). Acknowledging that performance measures relating to learning and growth are the most difficult to select, Kaplan and Norton (1996). Suggest measures of employees‟ capabilities, information systems capabilities, and employee motivation and empowerment as examples.

b) Internal Business and Production process Measures

It relate specifically to the operational processes of the business unit. Internal business processes measures represent the perspective is based on the notion that to satisfy customers and earn a financial return, the business must be efficient and effective at what it does. The internal process measures are typically based on the objective of the most efficiently and effectively producing products or services that meet customers'" needs. For example, such measures may include order conversion rate, on-time delivery from suppliers, cost of non-conformance, and lead-time reduction (Kaplan et al., 1996).

c) The customer perspective

This perspective typically includes several core or general measures derived from the desired successful outcomes of a well-formed and implemented strategy. These core measure may include lost/won, sales from new products, and on-time delivery (Kaplan, 1997, 1998; Light, 1998). Measures related to customers include results from customer surveys, sale from repeat customers, and customer profitability.

The customer perspective is a core any business strategy which describes the unique mix of product, price, service, relationship, and image that a company offers (Kaplan et al., 2001). The customer perspective defines how the organization differentiates itself from competitors to attract, retain, and deepen relationships with targeted customers. The value of the customer perspective is crucial because it helps an organization connect its internal processes to improved outcomes with its customers (Kaplan & Norton, 2001). Of the four BSC perspectives, the customer is at the core of any business and is crucial to long term improvement of the company performance (Kaplan et al., 1992). Heskett et al., (1994) point out the customer-based virtuous circle, whereby investment in employee training leads to improved service quality; which in turn results in higher customer satisfaction leading to increased customer loyalty, which boosts revenues and margins.

d) **The Financial Perspective**

It is the most traditional and still most commonly used measurement tool. Financial measures are valuable in conveying the readily measurable economic consequences of action already taken. Financial measures are typically focused on profitability-related measures (the basis on which

shareholders, in turn, typically gauge the success of their investments), such as return on capital, return on equity, return on sales, etc., (Kaplan et al., 1992; Lipe et al., 2000).

These measures are necessary for any organization trying to measure performance for a number of reasons. First, reporting of financial measures is expected and governed under law. Second, reporting of certain types of financial measures of firm p performance is required by institutional bodies. For instance, in the case of Ethiopia, the national bank of Ethiopia needs each commercial to prepare financial statements and annual reports. Third, reporting of financial measures is expected from all stakeholders and is ingrained in history as way of framing and comparing organizational performance.

2.1.6. Application of the BSC

BSc philosophy has spread rapidly throughout the worldwide business community (Shneiderman, 1999). Over the past decade, hundreds of organizations have implemented the BSc concept in one-way or another. Aidemark (2001) observes that Swedish healthcare organizations have appreciated the BSc philosophy after many years of exclusively focusing on financial measures. Similarly, a European survey showed that firms in Germany, the UK and Italy are familiar with the BSc concept at rates of 98, 83 and 72 per cent, respectively, (Gehrke and Horvath, 2002). Another recent survey of Nordic companies indicates that 27 per cent of those included in the analysis had already implemented BSc while another 61 per cent was expected to use it within a two-year period (Kald and Nilsson, 2000). According to Silk (1998), 60 per cent of Fortune 1000 companies in USA have experimented with BSc. On the contrary, Bourguignon et al. (2004) report limited adoption of BSc in France because of the extensive use of the French Tableau de Board. Also, Speckbacher et al. (2003) estimate that only a minority of 26 per cent of the most important publicly traded firms of Germany, Austria and Switzerland use BSc while most of them appear to use only a limited or incomplete version of it.

Malina and Selto (2001) examined data from a variety of divisions at a large multinational manufacturing company to assess the effectiveness of the balanced scorecard. The study results found support for Kaplan and Norton's contention that the BSC can be an effective tool in developing, communicating and implementing strategy, at least at the company studied. The study found that the BSC had the intended effect of eliciting desired changes in the

behavior of managers in terms of taking actions and utilizing resources in ways that improved performance in the measures contained in the in the scorecard. Perhaps most importantly, managers recognized that improving their BSC performance translated into enhanced efficiency and profitability.

The study conclude that was most likely to gamer support and positive action by managers when it is comprehensive, closely tied to strategy, includes effective measures with appropriate benchmarks, provides meaningful rewards and includes mechanism for effective measures with appropriate benchmarks, provides meaningful rewards and includes mechanisms for effective modifications or improvements.

2.1.7. Limitations of BSC

As discussed above, financial measures alone are seen as having serious limitations, foremost among them being that they are backward-looking. But, many non-financial measures, including elements such as customer satisfaction and employee attitudes, can have similar drawbacks, particularly those non-financial measures, like service error rates, which are lagging indicators (Clarke, 1997). Similarly, the effectiveness of the BSC will suffer if the included non-financial measures are not linked to or aligned with the firm's strategic objectives (Kaplan &Norton., 1996). Kaplan and Norton (1996) concede these potential limitations and argue that "Scorecards built upon lagging, non-strategic indicators represent only a limited application of full power of the BSC".

Gering and Venkatramen (2000) conclude that the BSC can be ineffective or even potentially damaging if it becomes a "scorecards", pitting different and sometimes conflicting indicators against each other and on an equal footing. In extensive criticism of the BSC, Norreklit (2000) also argues that the BSC"s four pillars do not take account of competitor actions, development in technology or, for that matter, any unexpected of event, which makes it static rather than dynamic and thus fails to establish a basis for continuous improvement.

Although the BSC assumes a "cause-effect" relationship between the measures of its four pillars with learning and growth driving the internal business processes, which in turn drives the customer perspective leading to the financial indicators (Kaplan et al., 1996b), this cause- effect

relationship is not a given argues Norrekit (2000). For instance, the relationship between high customer satisfaction and good financial result is tenuous (Geringet al., 2002; Kueng, 2000; Norreklit, 2000). In fact, the causal links between all the four pillars is questioned given the lack of empirical findings (Norreklit, 2000).

Gering and Rosmanrin (2002) in their review of how to correctly use the BSC note that the BSC empowers an organization by operationalsing the strategy discussion and assigning accountability for well-defined results. With targets based on clear financial and non-financial indicators, the BSC helps to identify a transparent strategy that reduces the risks of delegation. But, they caution, if implemented wrongly, it can become a centralist trap. To avoid these pitfalls, they make a number of recommendations. Firstly, use BSC as a centralized control. Secondly, don't try and balance the scorecard as the core of the theory is to use financial measures and to supplement the lag measures with non-financial lead measures and long-term measures consistent with the corporate strategy.

2.2.Empirical Studies of Literature

Almost none Empirical studies in Ethiopian manufacturing sector based on BSC. The empirical literature review provides overview of studies conducted in different developed countries; Traditional systems of performance evaluation were characterized by a prevailing focus on financial evaluation measures. The drawbacks of traditional evaluation systems became increasingly serious in highly competitive environments. In such environments, the focus of attention turned to non-financial evaluation measures and their role in the process of performance evaluation (Kaplan and Norton, 1992).

Non-financial performance measures have several important benefits compared to financial performance measures. First, high performance on non-financial performance measures is positively related with future financial performance. In this way, non-financial performance measures can instigate the CEO to take actions that benefit the firm in the long term (Banker, Potter, & Srinivasan, 2000). Second, non-financial performance measures reduce the amount of earnings management (Ibrahim & Lloyd, 2011).

Non-financial performance measures such as customer satisfaction, product quality, or employee turnover are especially relevant in cases where market-based performance measures showing the total firm value are not available. This is true for the division of a firm, or when the firm is not listed on a stock market. So that, the empirical results by Sloan (1993) shows that the firm can only use accounting-based and non-financial data for performance evaluation.

Analytical results by (Bushman and Indjejikian (1993), KimandSuh (1993), Lambert (1993), Feltham and Wu (1998). Non-financial measures are leading indicators that provide information on future performance not contained in contemporaneous accounting measures. Empirical studies by Ittner et.al. (1997) (quality–growth in profit margin), Ittner and Larcker (1998a) (customer satisfaction–future accounting performance), and Banker et.al. (2000) (Customer satisfaction – future ac- counting earnings) support the role of non-financial performance measures as a leading indicator of future financial results. Such leading indicators are especially necessary for performance measurement.

Some Limited empirical research has taken place concerning the reliability of the basic hypotheses of BSc. However, some researchers accept that financial measures are the result of controlling other more important measures of non-financial nature (DeBusk et al., 2003; Davis and Albright, 2004). Based on a sample of 66 Australian companies, Hoque and James (2000) found that the use of BSc is linked to improved performance. On the other hand, Nørreklit (2003) questioned BSc's hypothesis by arguing that Kaplan and Norton (1996a) do not provide a sufficient description of the assumed causal relationships. Furthermore, according to the same researcher, this relationship cannot be characterized as "causal" but only as "logical".

Moreover, several other aspects are considered problematic in the context of a chain-effects concept. One of them is the time lag, i.e. the period within which an action in the context of one dimension will have an effect on another (Pandey, 2005). This period is not defined by Kaplan and Norton (1992, 1993, 1996a, b, 2001) and in fact, time dimension is not a part of BSc. Another issue is that even though the definition of cause-and-effect relationships is the basis of the BSc success, many organizations seem to use BSc as an aggregation of independent performance measures (Aidemark, 2001). Ittner et al. (2003) found that 76.9 per cent of the companies using BSc give little or no attention to causal models. In their research, Speckbacher et al. (2003) found

that only half of their sample companies using BSc were actually able to formulate cause-and-effect relationships among the different objectives and measures.

A study conducted in Finnish companies showed that most companies appear to have scorecards in which the resulting measures and perspectives are fairly independent, lacking the claimed cause-and-effect interconnections (Malmi, 2001).

Finally, A group of Greek researchers (Cohen, et.al., 2008) has researched interrelations of financial and non-financial indicators and concluded that the volume of financial indicators is determined by the influence of non-financial indicators: innovations and learning positively influence the results of the company's internal performance, which, in their turn, influence the relations between the company and its clients and the quantitative indicator is company's financial indicators. As a result of the research a group of researchers (Cohen, et.al. 2008) concluded that companies, which ROA and ROE have increased during 3 years, have invested more in innovations, modern technologies, cooperation of companies and information exchange in comparison with the companies, which ROA and ROE have decreased. It can be concluded that the non-financial performance indicators positively influence financial performance indicators.

The main relevant challenge to the concepts of performance measurement is the limited availability of literature and research on the application of these concepts in the context of developing nations. Much as there is limited research on performance measurement in developing countries with 95 percent of empirical research focused on "institutional theory" in the developed world compared to only 5 percent in the developing country in the past 2 decades (Elzinga et al., 2009; Waal, 2007).

The conflicting findings on the BSC mentioned in the literature, leads to the first three hypotheses of the study which deal with the interrelation of the non-financial BSC perspectives (being Learning and Growth; Internal Business, and Customers). Setting hypotheses in the developing countries context can be argued and interpreted from the theoretical point of view. Since there are little research in developing and less developing countries (LDCs) context and since mixed finding are evidenced in earlier studies in developed countries context, further studies in different context in particular developing countries setting is warranted to add rigor or modify the proposition claimed in Kaplan and Norton's (1992) BSC model. As a result, to test the hypothesis, in this study independent variables with similar characteristics were grouped into each non-financial perspective.

2.3.Summary and knowledge Gap

In this chapter the literature on the balanced scorecard performance measurement has been explored. An attempt was made to discuss on the need to develop an integrated performance measurement system so that managers might obtain information from all parts of their organization. The balanced scorecard performance measurement frameworks developed by the mentioned authors is a multi-faceted framework, which provide a balanced picture of the business. As it has been already discussed, the BSC system is based on the concept that financial measures alone may not be sufficient to measure corporate performance. It is believed that the BSC may provide an integrated framework to help managers to obtain information from all parts of their organization for better strategic decisions.

Since from many perspectives the goal of making measurements is to permit managers to see their company more clearly and hence to make wiser long-term decisions. The BSC allows managers to look at the business from four perspectives to best represent the factors that lead to improved financial, customer, operational, and employee performance. A comprehensive set of measures or indicators tied to company performance requirements represents a clear basis for aligning all activities with the company's goals.

Several companies have been involved in addressing the challenge of both measuring the performance of their operating systems and using performance results to improve their processes and practices to better meet the expectations of their customers for higher quality, lower cost, and improved service. It was the enormous growth and interest in performance measurement that brought wide spread acceptance of the need for organization to implement the BSC system. Despite some disappointments with organizations to be successful, various surveys estimate that organizations have begun implementing this concept.

According to authors like; (Kaplan & Norton, 1992; Ibrahim & Lloyd, 2011; Banker, Potter, & Srinivasan, 2000; Cohen et al. 2008); the BSC model has received worldwide acceptance since this model has successfully been applied across a diverse range of private and public sectors. On the other hand, (Pandy, 2005; Speckbacher et al. 2003; Malmi, 2001; Norreklit, 2003); noted that BSC approach has also its critics.

Since there are little research in developing and less developing countries (LDCs) context and since mixed finding are evidenced in earlier studies in developed countries context, further studies in different context in particular developing countries setting is warranted to add rigor or modify the proposition claimed in Kaplan and Norton's (1992) BSC model. As a result, to test the hypothesis, in this study independent variables with similar characteristics were grouped into each non-financial perspective (Md Habib-Uz-Zaman Khan et al. 2010).

In case of the Ethiopian manufacturing sector, Literatures on Et hiopian manufacturing sector almost none study documented to assess performances based on BSC and comprehensive research on this tittle using BSc also was not conducted. Having argued the literature of BSC performance measurement, it becomes pertinent to turn to the FDRE Metals and Engineering Corporation performance and investigate by means of survey.

CHAPTER THREE

3. RESEARCH METHODOLOGY

3.1.Introduction

This chapter describes the overall journey of the study. Research approach and different techniques used are based upon the review of theoretical and empirical literatures, and also the research questions were answered through relevant and related literature references, theories and mainly through empirical data that was collected using the research methodology. The researcher believed that the most appropriate tool for the study was focus on the intended BSC performance evaluation framework in order to apply in measuring the performance of METEC firms. Therefore, this chapter starts with a brief overview of the various research methods and then narrows down on the specific methods that were used for this research.

3.2.Research Approach

Research is a systematic inquiry that helps to solve the existing or expected problems or to explain undiscovered facts by giving direction to the solution or by creating new knowledge. The first one in which the investigator often makes knowledge claims based on the multiple meanings of individual experiences, socially and historically constructed meanings, participation in issues, collaboration or change oriented with an intent of developing a theory or pattern (Mertens 1998). The second is quantitative approach and the third one is mixed research approach that gives an opportunity to use both approaches to benefit the study from the advantage of both qualitative and quantitative research approaches.

Quantitative research approach which is adopted in this study is an approach in which the investigator primarily uses postpositive claims for developing knowledge, i.e., cause and effect relationship between known variables of interest (Cresswell 2003). Qualitative research has two strategies of inquiry the first one is survey design which provides a quantitative or numeric description of trends, attitude or opinion of a population by studying a sample with the aim of generalizing about the population and the other experimental design used to test the effect of intervention on an outcome, controlling all other factors which may influence that outcome. In this study, a combination of qualitative and quantitative approaches of doing research was employed, which has been practiced, as recommended by Creswell (2009:203-216).

3.3.Target population

Currently as of Jan 2016 there are 16 firms/industries under METEC operate in different Ethiopian regions; 10 industries operate in Addis Ababa and the selected firms/Industries are 8 (eight). The method of selecting these institutions was convenience and it's based on the availability of their head office in Addis Ababa. Their annual report took from 2013 to 2015 consecutively. The planned respondents were a total of 25 peoples from each of eight selected METEC industries comprising 5 customers and 20 employees. Regarding customer respondents, due to its difficulties on sample selection, the researcher used METEC's report which was on daily visitor's record which is found in Corporate Marketing and Sales Department. The recorded report shows, on average 10 customers visited the firms per day from the year 2013 - 2015. Therefore, because of the firm size and different products, the survey conducted for two weeks and the researcher purposively was limited who has been customers at least for 3 years. Even though the institutional size and structure makes the collection difficult, the data was collected with no variance from the planned one. The studied METEC firms/industries, together with respective respondent of both employees and participants summarized in Table 3.1 below.

Table 3.1 Summary of the studied METEC Industries and respondents

Studied METEC industries	**Employee**	**Clients**
Hibret Manufacturing and Machine Building Industry	20	5
Bushoftu Automotive Industry	20	5
Akaki Basic Metals Industry	20	5
Ethio Plastic Industry	20	5
Hi-Tech Industry	20	5
Ethiopian Power and Engineering Industry	20	5
Adama Agriculture Industry	20	5
New Business Development	20	5
Total	160	40

Source: Researcher's survey data result

3.4.Procedures of Data Collection

At the time of collecting the primary data first managers and employees from METEC firms different departments were asked to give weights for the non-financial perspectives for each performance indicators under the three BSC perspectives. Then, randomly selected employees from each of eight selected institution inquired to fill the questionnaire. The other one is customer satisfaction requisite which comprises 40 customers and was administered by the researcher. It is participants right to participate or not, and nothing was done unethically in addition to ethical aspects as (Copper & Schindler 2006) states participant perception influence the outcome of the research in subtle way. So, no one participate in this study obligatorily or unwillingly. The secondary data source of the study was the annual report of METEC industries for the consecutive three years starting from 2013-2015.

3.5.Survey Design and Instruments

Survey design is a research method that used to collect data from the study participant on some set of manageable and relevant way. This method of data collection is economically wise and helpful to attain rapid turnaround in data collection. Besides, survey have a lot of advantages out of that it is lowest cost option, allow participants to think about the questions, perceived as more anonymous, and it is a rapid data collection (Copper & Schindler 2006). The instruments were designed in such ways that can strength the viability of the study. The questionnaires were designed both in English and Amharic languages. The purpose of translating from English to Amharic language is to utilize those who cannot clearly understand English language so that respond easily.

3.6.Survey Instruments

In this study questionnaires were developed by the researcher based on basic BSC theories and review of related literatures. The respondents were two groups. The first were the staffs of the selected METEC industries and the second were clients/customer's. The questionnaires contains scaling and had only close ended questions and developed using five scale Likert model.

The researcher selects Likert scale method of questing because the responses are comparable across different questions since the same numerical codes assigned. It is also possible with multiple items on the same broad object these codes can be summed or averaged to give an

indication of each respondent's overall positive or negative point of reference towards that object. Above all it is simplicity and versatile.

Initially the questionnaires were prepared in English language but the two questioners which targets customers of METEC firms/industries translated to Amharic language to make it more suitable to the respondents. In addition with the aim of increasing its quality before the survey pilot test was conducted.

3.7.Data Collection

The methodology adopted for this research was a combination of quantitative, qualitative and personally reflective research methods. For the qualitative method, questionnaires were designed to collect data on the non-financial performance of the selected industries using BSC as framework. The officers of the firms/industries that were selected for unstructured interview were the Chief Operating Officer (COO), the Chief Finance and Investment Officer (CFO) and the Head of Human Resources and Chief Marketing Officer (CMO). The reason for selecting these four categories of staff is because they are directly responsible for formulating and implementing strategies, policies and guidelines in connection with the industries financial performance, training and human resource development, and operational procedures and guidelines. This was then followed with a customer and employee survey of the selected firms/industries to collect data on the non-financial performance based on the customer, internal process, and learning and growth perspectives in order to calculate them for the purpose of analysis. This was most specifically targeted at collecting data on metrics under customer perspective, the internal business and production processes and, learning and growth perspectives.

3.8.Formulae for calculating metrics

Employees satisfaction (ES), performance feedback and employee training (ET) are indicators of learning and growth; clear institutional strategy (CIS), productivity improvement (PI) and cooperating with supplier's (CWS) are indicators of internal business process and production; and the customer satisfaction (CS), customer retention (CR) and market share (MS), were calculated from a given sample of customers, employees and managers by computing the average

of those customers' and employees perception ratings based on a five-point scale (Likert Scale) ranging from "strongly disagree" to "strongly agree".

3.9.Sample Selection

A population is the whole group that the research focuses on (Jacobsen, 2002). Sample is the segment of the population that is selected for investigation (Bryman and Bell, 2003). In quantitative research, the need to sample is one that is almost invariably encountered. And sampling constitutes a key step in the research process in social survey research.

Due to the research is studied mainly from customers and employees point of view, the population was expected to involve the people who are consuming the firm's products/services from METEC firms and their employees. However, it is not possible for researcher to get in touch with a big number of samples, as the sample size is a critical question in practice. The decision about the size of the sample needs to consider about time and cost, the need of precision, and a variety of further considerations (Bryman and Bell, 2003). Due to the limit of time, the sample was limited to some of the customers, employees and managers of METEC firms/industries who were voluntary to give the necessary data to the study on hand. The study used quota sampling and convenience sampling techniques to select customers, employees and managers due to the constraint of time and cost, hard to reach nature of population (that is the number of the customers is very large hence it is very difficult to take probability sampling due to time constraint, very large and scattered population, some of the customers and employees were not as such voluntary to fill the questionnaire due to pretext of time.

The population size was rose to 16500 permanent workers in 2016. All METEC Commercial purpose firms that have already started their operation in Ethiopia are considered, which allowed the researcher to get the necessary information for the study at hand, were used as sample size, given the time frame for the completion of the thesis. The eight selected METEC commercial purpose industries were Hibret Manufacturing and Machine Building Industry, Akaki Basic Metals Industry, Bushoftu Automotive Industry, Ethio Plastic Industry, Hi-Tech Industry, Ethiopian power Engineering Industry, Adama Agriculture Industry and New Business Development. A total of 200 employees and customers (20 employees and 5 customers from each industries) were also made to rate their satisfaction level on institutional strategy, payment

policy and working condition of the selected industries as well as productivity improvement, participation and social relationship of the employees of the selected industries via the questionnaires distributed to them.

Data was collected both from primary and secondary sources. The data from the primary sources was collected from the selected industries through the filling of the questionnaires that concentrated on the internal processes, learning and growth perspectives and customer satisfaction. The secondary sources were the industries annual reports. The customers of these selected METEC industries were made to fill the questionnaires by taking a sample size of 40 which is 5 customers from each industries.

3.10. Questionnaire design and Data collection

Yin (1994) has recognized five popular ways of collecting and analyzing empirical data in business research. It includes experiments, survey, and analysis of archival information, histories and case studies. The researcher used survey as the main method strategy to research.

In surveys, data are standardized, and comparison is easy, however it costs much time to do it. In this survey, a self-completion questionnaire with closed questions is developed. The self-completion questionnaire is very similar method of business research, and the research instrument has to be especially easy to follow and its questions have to be particularly easy to answer (Bryman and Bell, 2003). Meanwhile, whether to ask a question in an open or closed format is one of the most significant considerations for many researchers. According to Bryman and Bell (2003), closed questions have some advantages: it is easy to process answers; it enhances the comparability of answers, and makes them easier to show the relationship between variables. It is better than open question for this research.

In this research three different questionnaires were developed and used to gather the relevant data related to non-financial performance of the selected METEC industries. The first questionnaire is about customer satisfaction which was addressed by customers of the industries. The second one is about the internal process (institutional strategy, production process, research development and product quality) by addressing marketing staff employees. The third questionnaire contains the employee satisfaction and training, perceptions and attitudes towards the organization's

motivation factors, organization system and technology. Several items on each construct are developed and adopted from relevant literatures. All of the items were measured by using a five-point Likert-type response scales, anchored at; 1 strongly disagree and 5 strongly agree.

Questionnaires are administrated in different ways: face to face, telephone, postal, e-mail and Web. In this study; because of the characteristics of the firms/industries; customers were made to fill the questionnaires before they were being served via marketing employees/expertise and employees were made to fill the questionnaires while working via the messengers.

3.11. Variable definition and Rationale for the Selection

As shown on the literature review the performance of industries are measured using various performance indicators that show how far an institution achieved its business and social goals. The major aim of this study is to categorize the common performance measures under the four perspectives of BSC in order to evaluate performance in light of the organizational strategy. Thus the variables of the study are performance indicators.

To the best of the researcher's knowledge, this is the first attempt to apply BSC in FDRE METEC industries. Moreover, a few previous studies followed BSC in the context of other countries industries. Thus the categorization of performance indicators depends on few of existing literatures in industries and own judgment made using theoretical BSC literatures by Kaplan and Norton.

So, some of the rational stated below may seems feeble for some group and may look strong enough for the other group. Since the research is a means to build a common ground and a way to create compatible knowledge on the studied issue, the researcher expects that the justifications are fair enough to select both the dimensions and indicators in each category.

3.12. Performance Dimensions

In this study performance dimensions means, where the effect of the aggregate performance indicators or measures had been seen. The selected performance dimensions are supported by most of previously reviewed literatures. These are efficiency and productivity, innovation and

creativity; customer value; and profitability and sustainability. The selected four dimensions for the study are as follows:-

3.12.1. Efficiency and Productivity

Productivity is determined by looking at the production obtained (effectiveness) versus the invested effort in order to achieve the result (efficiency); in other words, if we can achieve more with less effort, productivity increases. Variation in productivity, either across producers or through time, is thus a residual, which Abramovitz (1956) famously characterized as "a measure of our ignorance." Beginning perhaps with Solow (1957), much effort has been devoted to dispelling our ignorance by "whittling away at the residual" (Stone (1980)).

Efficiency is determined by the amount of time, money, and energy – i.e. resources – that are necessary to obtain certain results. Efficiency is measured by comparing observed and optimum cost, revenue, profit, or whatever goal the producer is assumed to pursue, subject, of course, to any appropriate constraints on quantities and prices. In these comparisons the optimum is expressed in value terms, and efficiency is economic. So, this performance dimension is highly valuable to measure the performances of METEC with their intended objective.

3.12.2. Innovation and Creativity

Innovation is the process of creating and implementing a new idea. It is the process of taking useful ideas and converting them into useful products; services or processes or methods of operation. Creativity in the ability to combine ideas in a unique way or to make useful association among ideas. Creativity provides new ideas for quality improvement in organizations and innovation puts these ideas into action.

Creativity and innovation within a well-run companies have always been recognized as a sure path to success. Stimulating creativity and exploring completely new and unknown before territories lead as result to increasing the productivity of the organization. Encouraging the employees to think outside of the box and giving them time and resources to explore new areas for innovative ideas is the key to cost-effective business solutions. Creativity improves the process of solving problems. So this performance dimension is highly valuable to measure the performances of METEC with their intended objective.

3.12.3. Customer Value

Customer value is the satisfaction a consumer feels after making a purchase for goods or services relative to what a customer must give up to receive them. The value the individual consumer places on a product or service becomes the customer value for that offering. The highest-quality product or service does not always provide the highest customer value, since the benefit of each item is measured against the cost. Some consumers are willing to pay a high price for a quality product or a high level of service, but others will make the decision that the same benefits are not worth the price. There are different ways a company can establish customer value to its customer base: two of them are a) Provide the consumer with the best cost and b) Provide the consumer with the best product. In this regard this performance dimension is highly valuable to measure the performances of METEC with their intended objective.

3.12.4. Profitability and Sustainability

It is usually measured based on rations to indicate the net result of a large number of policies and decisions. They are calculated to measure the operating efficiency of the company. Besides management, creditors, owners and even customers are also interested in the profitability of the company. Usually, profitability ratios are calculated in two major ways: a) Profitability in relation to investment and b) Profitability in relation to sales Profitability.

Profitability ratios are a group of ratios, which show the combined effects of liquidity, asset management, and debt on operations. The profit margin on sales, calculated by dividing net income by sales, gives the profit per dollar of sales. Basic earning power is calculated by dividing EBIT by total assets. This ratio shows the raw earning power of the firm's assets, before the influence of taxes and leverage. Return on total assets is the ratio of net income to total assets. Return on common equity is found by dividing net income into common equity. All the above ratios leads to the sustaining the company's business. With this standing point sustainability and profitability is considered as one of the key dimension of the industries performance.

3.13. Performance Indicators

Performance indicators are ratios, numbers and activities which used as a pointer to evaluate performance from different perspectives. The researcher selects performance indicators

according to empirical research literatures in each perspective those have strong power to explain the performance of METEC industries.

3.13.1. Financial Perspective

The financial category often uses conventional big-picture, long-term validate metrics that are traditional for ultimately measuring economic success. Under this perspective the selected five performance indicators are; Return on Asset, Return on equity, current ratio, Inventory Turnover Ratio, Debtors Turnover, Net Profit Margin and Asset Turnover**.**

I) Return on Asset

Return on assets is a measure of profitability that shows how efficiently a company uses its assets to produce income. It is also an overall measure of profitability which reflects both the profit margin and the efficiency of the institution. ROA used in this study are calculated using financial data which is found from the report (Evans, 2004; Ittner et al., 2003).

II) Return on equity

Return on equity is a measure of profitability that relates the amount earned by a business to the stockholders' investment in the business (Needles & powers 2007). The return on Equity (ROE) Ratio provides information on how much net income was earned on the equity of METEC industries. In other words, ROE reflects how much the industries has earned on the funds invested by the stakeholders especially by the government (Evans, 2004; Kaplan and Atkinson, 1998; Kaplan and Norton, 1996a; Kaplan and Atkinson, 1998).

III) Current ratio

This is one of the most commonly cited financial ratios, which measures the firm's ability to meet its short-term obligations. It is calculated by dividing current assets by current liabilities. It indicates the extent to which those assets that are expected to be converted to cash in the near future can cover current liabilities. A relatively high current ratio is an indication that the firm is liquid and has the ability to pay its current obligations in time as and when they become due. On the other hand, a relatively low current ratio represents that the liquidity position of the firm may not be able to pay its current liabilities in time without facing difficulties. An increase in the current ratio represents improvement in the liquidity position of a firm while a decrease in the current ratio

indicates that there has been deterioration in the liquidity position of the firm. However, it should be clear that a high current ratio is not necessarily good.

IV) Inventory Turnover Ratio

The inventory-turnover ratio gives a general view on the inventories of a company. In order to calculate it you should divide the annual sales/cost of sales of the company by its inventory. If the value of the inventory-turnover ratio is low, then it indicates that the management team doesn't do its job properly in managing inventories. A low turnover implies poor sales and, therefore, excess inventory. A high ratio implies either strong sales or ineffective buying. High inventory levels are unhealthy because they represent an investment with a rate of return of zero. It also opens the company up to trouble should prices begin to fall (Banker et al., 2004; Lipe and Salterio, 2002).

V) Debtors Turnover

This is the ratio of net credit sales to accounts receivable. This turnover ratio provides insight into the quality of the firm's receivables and how successful the firm is in its collections. It tells us the number of times accounts receivable have been turned over (turned into cash) during the year. The higher the receivables turnover, the shorter the time between the typical credit sale and cash collection. An alternative means to measure accounts receivable turnover is the average collection period (Banker et al., 2004; Lipe and Salterio, 2002).

VI) Net Profit Margin

This ratio measures the percentage of each birr sale remaining after all costs and expenses including interest and taxes have been deducted. It tells us a firm's net income per Birr of sales. A low profit margin occurs because costs and expenses are too high. High costs and expenses, in turn, generally occur because of inefficient operations. However, low net profit margin is also a result of its heavy use of debt, which brought high interest cost.

3.13.2. Nonfinancial Indicators

Under this performance perspective the three BSC viewpoints are included under each of them performance indicators are stated. These three non-financial measures are leading indicators. Unlike the financial performance indicators the non-financial performance indicators may not be stated as a proxy for one single performance dimensions instead they may create a cause

and effect relationship (Kaplan and Norton, (1996a). For instance, workforce's training leads to their excellence when performing jobs. Superior jobs completed by employees would lead to satisfaction of company's customers and ensure more customer loyalty. This increased customers' loyalty would have subsequent positive effect on the increase of company product sales. Growing sales result in better financial performance of the company. So, the selected performance indicators under this perspective have a power to affect the selected performance dimensions directly or indirectly.

I. Customer perspective (CP)

The customer perspective seeks to understand how the organization interfaces with its customers in achieving its strategy stated with respect the value proposition. The selected performance indicators are as below.

a) Customer Satisfaction

Customer satisfaction is one of the most important and commonly used performance reporting measures under the customer perspective of the BSC. Improved customer satisfaction leads to loyal customers and increased market share, which directly affect the bottom line (BSCI 2002). Customer satisfaction can be seen from different point of view i.e. the accessibility of the institution, product quality, on time delivery, and the like.

b) Customer Retention

Customer retention is the activity a company undertakes to prevent customers from defecting to alternative companies. Successful customer retention starts with the first contact and continues throughout the entire lifetime of the relationship. Customer retention refers to the activities and actions companies and organizations take to reduce the number of customer defections. The goal of customer retention programs is to help companies retain as many customers as possible, often through customer loyalty and brand loyalty initiatives. It is important to remember that customer retention begins with the first contact a customer has with a company and continues throughout the entire lifetime of the relationship. Companies that shift their focus to customer retention often find it to be a more efficient process because they are marketing to customers who already have expressed an interest in the products and are engaged with the brand, making it easier to capitalize on their experiences with the company. In fact, retention is a more sustainable business model that is a key to sustainable growth.

c) Market Share

Market share represents the percentage of an industry or market's total sales that is earned by a particular company over a specified time period. Market share is calculated by taking the company's sales over the period and dividing it by the total sales of the industry over the same period. The significance of market share is a measure of the consumers' preference for a product over other similar products. A higher market share usually means greater sales, lesser effort to sell more and a strong barrier to entry for other competitors. A higher market share also means that if the market expands, the leader gains more than the others. By the same token, a market leader - as defined by its market share - also has to expand the market, for its own growth.

II. Internal Business and production Process (IBPP)

The internal business processes perspective addresses internal operations and the day-to-day details of the business in achieving strategy. Under this perspective the selected indicators are:-

a) Clear Institutional Strategy

Under internal business process which measures the critical internal processes in which the organization must excel, having well developed and applicable institutional strategy is the major one. In some cases strategies may seems ideal but it may not be applicable in realities and also there may be a gap between the group who develop the strategy and the institutions society as a whole. Kaplan & Norton (2001) suggest that successful strategy implementation incorporates the following five strategic management principles. These are: - translate the strategy to operational terms, align the organization to the strategy, make strategy everyone’s everyday job, make strategy a continual process and mobilize change through executive leadership.

Sine internal business and production processes allow managers to know how their business is running and whether its product and services conform to customer requirements, a means of updated know how required. Continuous research and institutional development culture is one and the major. Using research, institutions observe the demand of the market, the satisfaction of their existing clients and also the possibility of further activities or services.

b) Productivity improvement

Productivity is output produced per unit of input. Productivity measures whether the company getting its money's worth from its people and other inputs to the organization. Typically the resources have to do with people, but not always. A straightforward way to normalize productivity measurement across organizations is to use revenue per employee as the key metric. Dividing revenue per employee by the average fully burdened salary per employee yields a ratio. This ratio is the average-per-employee Productivity Ratio" for the organization as a whole. Other productivity metrics might be number of projects completed per employee, number of lines of code produced per employee.

The key to selecting the right productivity measures is to ask whether the output being measured (the top half of the productivity ratio) is of value to the organization's customers.

c) Cooperation with Supplier's

This supplier association is a close long-term relationship between a firm and a small number of suppliers, based on trust, mutual dependence and the continuum exchange of information. Thus both parties work together, even in the initial stages of the design of components and products, and share resources, personnel, facilities, etc. Developing this relationship requires mutual attraction whose elements are expected value, trust and dependence (Hald et al., 2009).

As a result, this relationship is not limited to the mere purchase of the necessary material from the suppliers, but it implies a high degree of involvement by both parties. We can see that it has features that are opposite to those of the competitive model such as the number of suppliers, the selection criteria, the time horizon, the exchange of information, the dependence level and the degree of involvement (Fossas-Olalla et al., 2010).

III. Learning and Growth (LG)

a) Employee Satisfaction

Employee satisfaction describes if an employees is pleased with their job and the employer. Some of the factors that contribute to employee satisfaction include empowerment of the employee, good salary, good benefits and recognizing good performance. In order to retain high quality acquisition professionals, and enhance worker performance, the work environment must be pleasant and include the necessary resources for accomplishment of work. This measure represents the

employees‟ degree of satisfaction with items such as tools provided, working conditions, and reward mechanisms. Since, employees are the means of all activates commonly achievement or failure directly or indirectly related to them and they are expected to use their full effort when they are satisfied with their job and the work environment they are in.

b) Employee Training

Under the learning and growth perspective, the training of employees considered as an important aspect for METEC industries. Some of the operational procedures of successful industries may changeful. Therefore, employees of these industries need to acquire the appropriate special skills in relation to these innovative procedures for the respective industries to operate successfully (Nanayakkara & Iselin 2012). Hence, training of employees to acquire these skills plays a vital role in improving the performance of METEC industries; it is one of the selected performance indicator for this study.

c) Performance Feedback

One of the key foundational concepts of the Balanced Scorecard is that employees are motivated by a clear „line of sight‟ from their activities to the strategy of the organization (Knaap 2001). In order to know both strong and weak performance on responsibility employees need feedback on their performance. And also appropriate comments and reward or recognition is necessary. So having this culture can be seen as one of performance indicator under non-financial category

3.14. Data Analysis and Interpretations

The secondary data that are assembled from the annual reports of METEC firms/industries for the consecutive of three years; used mainly to analyze the financial perspective indicator. In order to test hypotheses of this study, the values of the six selected financial ratios were calculated for both 2013 and 2015 for the 8 industries. For that, the sample companies were divided into two groups; those that have evidenced an increase in the financial ratio (ratio 2015 $\geq$ ratio 2013) and those that have experienced a decrease in the value of the corresponding ratio (ratio 2015 < ratio 2013).

Primary data collected with respect to non-financial performance indicators measured by a five point Likert scale items questioners distributed to employees and clients were checked for

completeness and entered into SPSS (Statistical Package for the Social Sciences) version 23 Software.

The score of non-financial performance indicators to be used in descriptive model of the study were calculated. Descriptive analysis was used to reduce the data in to a summary format by tabulation (the data arranged in a table format) and measure of central tendency (mean and standard deviation. The reason for using descriptive statistics was to compare the different factors. According to Sekaran (2000:401), inferential statistics allows to infer the relationship between two or more variables from the data through analysis and how several independent variables might explain the variance in a dependent variable.

To ascertain whether a statistically significant relationship exists between performance indicators, the Pearson Product Moment Correlation Coefficient was used. According to Duncan C. and Dennis H. (2004:38-41), correlation coefficient can range from -1 to +1. The value of -1 represents a perfect negative correlation while a value of +1 represents a perfect positive correlation. A value of 0 correlations represents no relationship.

Then the comprehensive performance of METEC firms/industries was done by combining both financial and non-financial performance indicators by using T test. The results of the analysis are interpreted and discussed on the basis of literature review and theories. At the time of computing the overall score fractions approximate to the highest and lowest side based on basic mathematical assumption above **.5** approximate to the highest and below **.5** approximate to the lowest.

3.15. Data Reliability Test

Reliability is defined as be fundamentally concerned with issues of consistency of measures. (Bryman and Bell, 2003) There are three prominent factors related to considering whether a measure is reliability: stability, internal reliability and inter-observer consistency. In this study, internal reliability was considered. Bryman and Bell (2003) suggested that a multiple-item measure in which each answers to each questions are aggregated to form an overall score, we need to be sure that all our indicators are related to each other. The researcher used *Cronbach's* alpha method. The result of 0.7 and above implies an acceptable level of internal reliability.

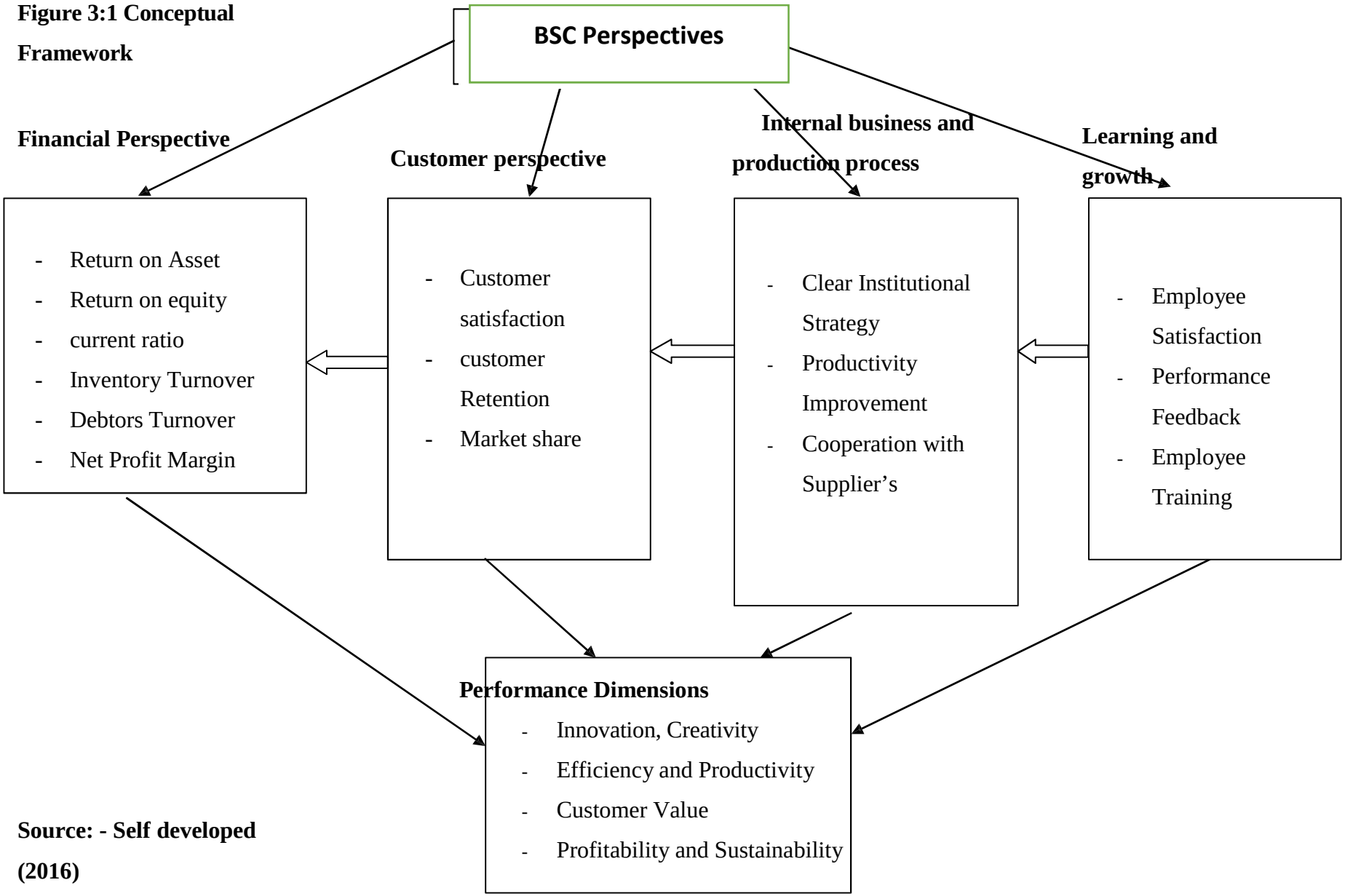
3.16. Conceptual Framework and Hypothesis of the Study

The conceptual framework of this study is as pictured below and it is developed based on theories, different literatures reviewed and the researcher understanding. It is intended to summarize what in detail narrated about the BSC perspective, the performance dimensions and the performance indicators and it will help to show the whole idea of the study in a general form.

As presented in chapter one, the main objective of this study is to evaluate the performance of selected METEC industries using the developed BSC framework. After the intended BSC framework is developed and the performances of METEC industries are analyzed in line with the above conceptual framework, what is left is examining the extent to which the application of BSC in case of METEC industries is successful by looking the fulfillment of the BSC approach assumptions. To do this the following 4 hypotheses are developed based on the cause and effect relationship assumption of BSC and the figure below summarize the cause and effect relationship assumption of BSC.

Figure 3:1 Conceptual Framework

Figure 3:1 Conceptual Framework

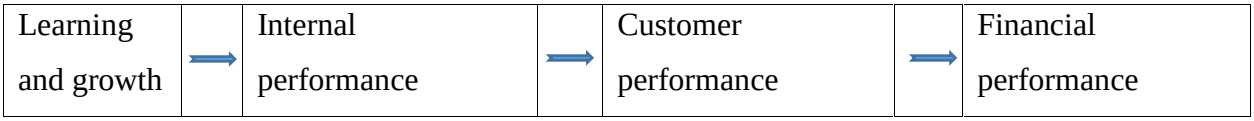


Source: - Self developed (2016)

3.17. Hypothesis Formulation

The model of a cause-and-effect relationship exists among the perspectives of BSc in a sequential manner (Kaplan and Norton (1996b). More specifically, improved performance in the learning and growth perspective will result in ameliorated performance in the internal business and production process perspective that will positively affect company's performance in relation to customers that will eventually influence financial performance (financial perspective).

Figure 3:2 Balanced Scorecard Model



Cause-and-effect concept in BSC *(Cohen, et. al., 2008)*

The researcher conduct the research in two steps that coincide with the research questions. Firstly, the researcher try to analyses the relationships among the non-financial perspectives of the BSc construct; secondly, the researcher assess their influence on financial performance.

H1.1: There is positive correlation between learning and growth perspective indicators (LG) and internal business and production process perspective indicators (IBP).

In this case BSC assume the performance of any organization with respect to learning and growth are the drivers of the performance of the internal business processes perspective. So, if the learning and growth performance of an industries is well; in turn the internal business process of that institution is well.

H1.2: There is positive correlation between internal business and production process perspective indicators (IBP) and Customer perspective indicators (CP).

Like the case of the first assumption BSC assume the performance of internal business processes are the driver of the measures of the customer perspective. So if the internal business process performance of an industries is effective and efficient, in turn the customer perspective performance also will be glowing.

H1.3: There is positive correlation between learning and growth perspective indicators (LG) customer perspective indicators (CP).

The researcher would like to test whether non-financial perspectives that are not supposed to have a sequential relationship exhibit positive correlations.

H2: Industries that had improved their financial performance had improved their non-financial perspective factors more than the industries that had worsened their financial performance.

According to the BSc framework, improvements in the lead factors that are incorporated into the non-financial perspectives will eventually positively affect financial performance. Thus, the researcher last hypotheses is that improvements in the non-financial BSc perspective variables have as a result improved financial performance.

3.18. Descriptive Models of Nonfinancial Perspectives

To analyze the performance of METEC firms/industries using the BSC approach, a descriptive model in which 9 performance indicators categorized under the 3 perspective of BSC. The descriptive models of non-financial perspective (learning and growth (LG) perspective, internal business and production Process (IBPP) and customer perspectives (CP) are constructed using procedures in the following descriptive models.

$$F(LG) = W*ES + W*PF + W*ET \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots e1$$

$$F(IBPP) = W*CIS + W*PI + W*CWS \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots e2$$

$$F(CP) = W*CS + W*CR + W*MS \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots e3$$

Where, f(LG) is the standardized nonfinancial performance score for learning and growth perspective, f(IBPP) is the standardized nonfinancial performance score for internal business and production processes and f(CP) is the standardized nonfinancial performance score for customer perspective, "W" are the average weights of each performance indicators in each of the nonfinancial performance perspectives and finally the overall standardized nonfinancial performance score is modeled in equation 4, that aggregated all the three NFP perspectives.

$$F(NFP) = ß_1 f(LG) + ß_2 f(IBPP) + ß_3 f(CP) \ldots\ldots\ldots\ldots\ldots\ldots e4$$

Where, F (NFP) is the overall standardized nonfinancial performance score, and ß1, ß2, ß3, are the respective weights for customer, internal business process and learning and growth perspectives respectively.

CHAPTER FOUR

4. DATA ANALYSIS, RESULTS AND DISCUSSION

To attain the objective of this research, questionnaire were prepared and distributed to relevant respondents. Based on the responses obtained, the following analyses were made.

4.1.Respondent's profile

4.1.1. Customer's (client's) respondent demography

A total 40(100%) respondents were asked in the form of questionnaire. The majority of the respondents 30 (75%) were female. From the total respondents majority 14 (35%) were diploma holder's while 6 (15%) were first degree holder's. The majority of the respondents' Loyalty Duration were found in 1 to 5 year group 18 (45%), followed by greater than 5 year group which accounts 12(30%).

Table 4.1:- Selected socio-demographic, academic characteristics & loyalty of the Respondents, METEC, (n=40).

Characteristic	N	%
Gender		
Female	1=30	75
Male	2=10	25
Academic Status		
1st Deg. And Above	1=6	15
Diploma	2=14	35
Secondary school	3=11	28
Primary school	4=5	13
No education	5=4	
Loyalty Duration		
Below 3 years	1=18	45
Between 3 and 5 years	2=12	30
Above 5 years	3=10	25

Source: survey data results

4.1.2. Marketing and Sales Dep. Employee's respondent demography

A total of 40(100%) respondents were asked in the form of questionnaire. The majority of the respondents 23 (58%) were female. From the total respondents majority 21 (53%) were first degree holder's while 11 (28%) were diploma holder's. The majority of the respondents' work experience

were found in 1 to 5 service year group 23 (65.0%), followed by greater than 5 service year group which accounts 15(35%).

Table 4.2:- Selected socio-demographic, academic characteristics, work experience of the Respondents, METEC, (n=40).

Characteristic	N	%
Gender		
Female	1=23	58
Male	2=17	43
Academic Status		
Masters	1=5	13
Bachelor degree	2=21	53
diploma	3=11	28
other	4=3	8
Work experience		
Below 5 years	1=23	58
Between 5 and 10 years	2=12	30
Above 10 years	3=5	13
Position		
Manager	1=6	15
Supervisor	2=18	45
Other	3=16	40

Source: own computation survey data results

4.1.3. Employee respondent demography

A total 120 (100%) respondents were asked in the form of questionnaire. The majority of the respondents 75 (62.5%) were female. From the total respondents majority 68 (56.7%) were first degree holder's while 42 (35%) were diploma holder's. The majority of the respondents' work experience were found in 1 to 5 service year group 95 (79.0%), followed by greater than 5 service year group which accounts 20 (17%). Almost near to 50% were supervisors.

Table 4.3:- Selected socio-demographic, academic characteristics, work experience of the Respondents, METEC, (n=120).

Characteristic	N	%
Gender		
Female	1=75	62.5
Male	2=45	37.5

Academic Status		
Masters	1=10	8.3
Bachelor degree	2=68	56.7
diploma	3=42	35
other	4=0	0
Work experience		
Below 5 years	1=95	79
Between 5 and 10 years	2=20	17
Above 10 years	3=5	4
Position		
Manager	1=17	14
Supervisor	2=55	46
Other	3=48	40

Source: own computation survey data results

4.2.DESCRIPTIVE STATISTICS

4.2.1. Nonfinancial Performance (NFP)

In this study BSC is stated as the approach applied. This part of the analysis shows the result of the non-financial perspective indicators that are customer, internal business process and learning and growth perspective. As stated in the methodological part the sources are primary. Therefore, before the main analysis presented, the reliability of the data which is examined by Cronbach's Alpha presented below.

4.2.1.1.Data Reliability Test

The researcher tests the reliability of the data three times because of the fact that the sources of the data or the respondents are different in number and group. The first one is to address employees with 25 questions for 120 respondents, and the next to indicate their level of satisfaction which have 8 questions and 40 respondents were participated; the last questionnaire includes customer retention and productivity improvement of NFP variables which have 18 questions and addresses 40 respondents. In all case the Cronbach's Alpha shows acceptable result. As Hair et al., (1995) states the value of 0.70 is a "commonly used threshold for acceptable reliability", and thus, is considered acceptable for research (Page et al., 2000; Sekaran, 2003). As table 4.4 shows, the alpha scores were in the acceptable range which is 0.983, well above the 0.70 cut-off. Similarly the Cronbach's Alpha scores as it is shown in table 4.5, were larger than 0.70 (a level considered "acceptable" in most social science research). Thus, the last group also meets the standard stated

above, which is 0.945.The alpha Reliability for each of three BSC measures is presented in table 4.4 and 4.5 and table 4.6 respectively.

Table 4.4 Reliability test for internal Business and Production Process and; Learning and Growth measures constructs

Case Processing Summary			
		N	%
Cases	Valid	120	100.0
	Excluded	0	.0
	Total	120	100.0

Reliability Statistics	
Cronbach's Alpha	N of Items
.983	25

Source: own computation SPSS results

Table 4.5 Reliability test for constructs of customer perspectives and internal business production process measures

Case Processing Summary			
		N	%
Cases	Valid	40	100.0
	Excluded	0	.0
	Total	40	100.0

Reliability Statistics	
Cronbach's Alpha	N of Items
.975	18

Source: own computation SPSS results

Table 4.6 Reliability for the institution's customer's construct

Case Processing Summary and Reliability Statistics

	N	**%**	**Cronbach's Alpha**
valid	40	100.0	-
Excluded	0	0	-
Total	40	100.0	-
Reliability Statistics			.945

Source: own computation SPSS results

4.2.1.2.Data Validity Testing

The researcher tests the reliability of the data based on the sources of the data and the different respondents group. But here the researcher tests the validity of data by grouping based on BSC

framework. Table 4.7, table 4.8 and table 4.9 show the correlations between the instruments for measuring the constructs. The results indicate that all the instruments for measuring the constructs in this study were related to each other. Table 4.7 shows the correlation between learning and growth (employee) measures; table 4.8 shows the correlation between internal business and production process measures and table 4.9 shows the correlation between the customer measures.

The correlation results between the constructs of the employees' perception toward satisfaction, training and performance feedback in the selected METEC industries indicate that most of the instruments for measuring the construct in this study were significantly related to each other (see table 4.7). Thus, payment, working condition, employee's social relationship and employee's participation were the main contributors for the learning and growth perspective.

Employee satisfaction was highly positively correlated with performance feedback and employee training; their result shows (r=.900, p=.002), and (r=957, p=.000) at 99% and 95% significant level respectively. Performance feedback shows highly correlated with employee satisfaction (r=0.900, p=0.002), and employee training (r=0.826, p=0.012). As shown in the table 4.7, all learning and growth constructs positively correlated with each other.

Table 4.7 Correlation between Instruments for the Constructs of (learning and growth) Employee Measures in this study

		ES	PF	ET
ES	Pearson Correlation	1	.900**	.957**
	Sig. (2-tailed)		.002	.000
PF	Pearson Correlation	.900**	1	.826*
	Sig. (2-tailed)	.002		.012
ET	Pearson Correlation	.957**	.826*	1
	Sig. (2-tailed)	.000	.012	
**. Correlation is significant at the 0.01 level (2-tailed).				
*. Correlation is significant at the 0.05 level (2-tailed).				

Source: Own computation based on data from Questionnaire survey

Table 4.8: Correlation between Instruments for the Constructs of Internal business and production process Measures in this study

		CIS	PI	CWS
CIS	Pearson Correlation	1	.801*	.797*
	Sig. (2-tailed)		.017	.018
PI	Pearson Correlation	.801*	1	.974**
	Sig. (2-tailed)	.017		.000
CWS	Pearson Correlation	.797*	.974**	1
	Sig. (2-tailed)	.018	.000	
*. Correlation is significant at the 0.05 level (2-tailed).				
**. Correlation is significant at the 0.01 level (2-tailed).				

Source: Own computation based on data from Questionnaire survey

The correlation results between the constructs of the internal business and production process towards employees' perception in institutional strategy, productivity and cooperation with suppliers in the selected METEC industries indicate that most of the instruments for measuring the construct in this study were significantly related to each other (see table 4.8).

Production improvement highly positively correlated with cooperation with suppliers (r=.974, p=.000) and clear institutional strategy (r=0.801, p=.017). This indicates that clear short and long plan, good governance, team work and resource allocation was significant.

Clear institutional strategy was positively correlated with employee feedback performance (r=.801, p=.017) and cooperation with suppliers (r=.797, p=0.018). Finally, cooperation with suppliers was highly correlated with institutional strategy (r=0.797, p=0.018), and production improvement (r=0.974, p=0.000).

Table 4.9: Correlation between Instruments for the Constructs of Customer Perspective Measures in this study

		CS	CR	MS
CS	Pearson Correlation	1	.887**	.957**
	Sig. (2-tailed)		.003	.000
CR	Pearson Correlation	.887**	1	.788*
	Sig. (2-tailed)	.003		.020
MS	Pearson Correlation	.957**	.788*	1
	Sig. (2-tailed)	.000	.020	
**. Correlation is significant at the 0.01 level (2-tailed).				
*. Correlation is significant at the 0.05 level (2-tailed).				

Source: Own computation based on data from Questionnaire survey

In terms of correlation between the customer perspective measures, the result indicates that almost all of the instruments for measuring the construct in this study were significantly related to each other (see table 4.9).

Overall customer satisfaction was positively correlated with the degree of retention (r=.887, p= 0.003) and regard with market share (r=.957, p=.000). Customer retention was positively correlated with the satisfaction and market share as stated (r=0887, p=0.003), and (r=0788, p=0.020). Market share also highly positively correlated with overall customer satisfaction (r=0.957, p=0.000) and customer retention (r= 0.788, p=0.020).

4.2.2. Descriptive Statistics of Nonfinancial Measures

The descriptive statistics (mean values and standard deviations) of all non-financial variables that were included in the questionnaire are presented in a cause and effect relationship exists among the perspectives of BSC in a sequential manner.

4.2.2.1.Learning and Growth Perspectives

According to the BSC framework learning and growth are the drivers for internal business and production process and also emphasizes innovation, creativity, competence and capability, and refers to the intangible assets that are important for strategy (Hoque, 2004). The objectives of this perspective are to identify the jobs (human capital); the systems (information capital), and the kind of organizational climate (organization capital) required to support the internal processes. Learning and Growth also focuses on people and their attitude, knowledge, development and ability to learn and improve. The researcher selected performance indicators are: - employee satisfaction (ES), employee training (ET), performance feedback (PF).The results of the descriptive statics on LG perspective, along with performance indicators are presented below.

Table 4.10: Descriptive statistics for LG

	N	Minimum	Maximum	Mean	Std. Deviation
ES_SUM	120	1.50	4.83	3.2083	.92765
PF_SUM	120	1.00	4.80	2.9150	.99466
ET_SUM	120	1.83	4.17	3.2819	.62578
Valid N (listwise)	120				

Source: Own computation based on data from Questionnaire survey (2016)

Model:

F (LG) = 34% (3.21) + 31% (2.92) + 35% (3.28)

F (LG) = 3.14

Based on their mean proportion, the overall performance score of LG perspective from the descriptive statistical model is 3.14, which is the ceiling of average score. All performance indicators of LG perspective are on average score. This indicates that there is questionable performance with respect to LG unlike the other perspective and it requires earnest consideration for the fact it could directly attributed for low performance measures in IBPP, which implicate with measures of CP.

4.2.2.2.Internal Business and Production Process Perspectives

This is the second and most important tools that create and deliver to the customer a value proposition. (Kaplan and Norton, 1996a; Fisher, 1995; Norreklit, 2003 and Cohen et al., 2005). Internal business processes which notice the strategy of producing goods and services in the most efficient and effective methods is the other non-financial perspective. Under this perspective CIS, productivity improvement, and cooperation with supplier' are included as performance indicators. The descriptive statistics result of this perspective is shown in table 4.11.

Table 4.11: Descriptive statistics for IBPP

	N	Minimum	Maximum	Mean	Std. Deviation
CIS_SUM	120	1.38	4.75	3.5240	.96380
PI_SUM	40	1.00	5.00	3.2286	1.13080
CWS_SUM	40	1.00	5.00	3.4500	1.31948
Valid N (listwise)	0				

Source: Own computation based on data from Questionnaire survey (2016)

Model:

F (IBPP) = 35% (3.52) + 32% (3.23) + 34% (3.45)

F (IBPP) = 3.41

By taking the average mean value, the result with regard to IBPP of the sample industries studied using the descriptive statistical model is 3.41. Which is near to medium performance score category of the five scale Likert adopted in this study. The average result of each IBPP performance indicators shows different performance levels. The average score of production improvement is 3.22 which is average performance category and the result suggested that, medium productivity among the studied industries in terms of product improvement, creativity and innovation and it implies that METEC needs to give emphasis with regard to this indicator.

The other two IBPP indicators, namely: CIS and CWS recorded better result. As can be seen from the table above CIS and CWS had an average score of 3.52 and 3.45 respectively. This indicates

METEC industries performed encouraging in developing better business process through having a clear institutional strategy, and cooperation with suppliers, which potentially improve customer perspective through its measured indicators.

4.2.2.3.Customer Perspectives

According to BSC sequential sketch under the non-financial performance, customer perspective is the third and in this study the researcher try to see it from customer satisfaction and market share, which can shows customer value, customer retention as an indication customer loyalty, After sales services as an indication of efficiency through customer satisfaction. The following table summarized results of descriptive statistics computed for each of the indicators under CP.

Table 4.12: Descriptive statistics for CP

	N	Minimum	Maximum	Mean	Std. Deviation
CS_SUM	40	1.00	4.75	3.3969	1.09152
CR_SUM	40	1.00	5.00	3.2286	1.13080
MS_SUM	40	1.00	4.50	3.1625	1.12880
Valid N (listwise)	0				

Source: Own computation based on data from Questionnaire survey (2016)

Model:

F (CP) = 35% (3.40) + 33% (3.22) + 32% (3.16)

F (CP) = 3.27

The result of CP computed by substituting the mean score of each performance indicators under the descriptive statistical model and it shows 3.27. Based on Likert five scale adopted for this study this result failed under the average performance category.

Looking at the average contribution of particular customer perspective performance indicators, CS is the first with a score of 3.4, indicating that the performance of FDRE METEC industries measured by satisfaction level of customers is average and encouraging since it is approaching

to the medium performance category. Market share needs consideration on its reachability. Moreover, creating a linkage between organizational strategy and customer perspective performance indicators can also be achieved if the objectives are clearly identified.

4.2.3. Overall Nonfinancial Performance Perspective Measures

The final performance score of the three non-financial perspectives calculated by merging the three separate descriptive models stated above. This enables to examine extent of achieving non-financial strategic objectives from different point of view.

Model:

$$\text{F (NFP)} = 32\%\ (3.14) + 35\%\ (3.41) + 33\%\ (3.27)$$

$$\text{F (NFP)} = 3.28$$

The average overall non-financial performance score is 3.28, which shows a medium level of attaining non-financial objectives. Nevertheless, the result is not much far from the medium performance, which reveals latent attention for enhancing non-financial performance, specifically in the indicators of LG and CP in which some indicators only scored average and even low performance level.

4.3.Correlation Analysis between Nonfinancial Performance Perspectives

In order to empirically assess the hypotheses formulated in this study, performance indicators of METEC industries which are categorized under the three perspectives of the BSC model exhibit a positive relationship to each other. This means excellence in one perspective will have a positive effect on the other/s, which ultimately enable better attainment of the broad strategic objective.

Pearson's coefficient of correlation is the commonly used measure in case of statistics of variables measured at ratio and interval scales (Kothari 2004). Thus, Pearson Correlation is employed to examine whether the hypothesized relationship between the variables really exists or not. The Pearson correlation coefficient "r" measures the association between variables and shows both the direction and strength of association. One importance of correlation is information on the degrees/strength of the relation between variables. In general the higher the

correlation coefficient means the stronger the relationship. A positive confident of "r" shows a direct relationship; whereas negative value of "r" indicates an inverse or indirect association. The strength of association is also determined by the value of r. According to Dancey and Reidy's (2004) when 0 and 1 is a value of the Correlation Coefficient, it represents the existence of no relationship and perfect relationship respectively. The value between 0 and 1 are categorized as follows: r between 0.7 - 0.9 indicates strong; r between 0.4 - 0.6 indicates a moderate; and r in between 0.1 - 0.3 means a weak association.

The researcher developed performance indicators by categorizing into groups with similar characteristics that fall into each perspective to empirically assess the sequential cause-and-effect relationship among the non-financial perspectives. Then the researcher test the existence of correlations between these indicators hereunder.

H1.1: There is positive correlation between learning and growth perspective indicators (LG) and internal business and production process perspective indicators (IBP).

Table 4. 13: Correlations between LG and IBPP Performance Indicators

		LG	IBPP
LG	Pearson Correlation	1	.785*
	Sig. (2-tailed)		.021
IBPP	Pearson Correlation	.785*	1
	Sig. (2-tailed)	.021	

*. Correlation is significant at the 0.05 level (2-tailed).

Source: Own computation based on data from questionnaire survey (2016)

The result on table 4.13 reveled that learning and growth shows a statistically significant *(P=0.021)* and high positive correlation (*r=0.785*) with internal business process. The direction of association is consistent with theoretical assumption of BSC literatures that states the learning and growth perspective performance of each organization is the driver of the internal business process perspective (Tarigan and Wedjaja 2012). Hence, H1 is accepted. This could suggest improving performance from LG perspective in METEC firms/industries could have positive implication on IBPP performance as articulated theoretically.

H1.2: There is positive correlation between internal business and production process perspective indicators (IBP) and Customer perspective indicators (CP).

The chain of relationship in BSC links IBP to CP. The internal business process in the context of METEC is designed to include indicators showing efficiency and effectiveness of the business process which is believed to affect customer satisfaction, which underpins better service and benefit of target clients, which in turn drive the double bottom line. The correlation statistics with respect to IBP and CP is presented on table 4.14

Table 4. 14: Correlations between IBPP and CP Performance Indicators

		IBPP	CP
IBPP	Pearson Correlation	1	.934**
	Sig. (2-tailed)		.001
CP	Pearson Correlation	.934**	1
	Sig. (2-tailed)	.001	

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Own computation based on data from questionnaire survey (2016)

The result on table 4.14 shows a high positive correlation (*r=0.934*) between IBP and CP. The correlation is also statistically significant at 0.01 level on a 2-tailed test. The result is consistent with the general theory of BSC. Thus, it is safe to accept the H2 hypothesis.

H1.3: there is positive correlation between learning and growth perspective indicators (LG) and customer perspective indicators (CP).

Table 4. 15: Correlations between LG and CP Performance Indicators

		LG	CP
LG	Pearson Correlation	1	.584
	Sig. (2-tailed)		.129
CP	Pearson Correlation	.584	1
	Sig. (2-tailed)	.129	

Source: Own computation based on data from questionnaire survey (2016)

At last, the analysis of the correlations among the customer perspective indicators and the learning and growth perspective indicators does not exhibit statistically significant relationships with the exception of the positive moderate correlation (r = 0.584) between the customer perspectives indicators and the learning and growth perspective indicators; which is consistent with the study of (Cohen; 2006). By analyzing the variables that constitute learning and growth perspective indicators, it is evident that customers appreciate innovation and technology initiation. This finding is indicative that the theoretical sequential model shown in Figure 2 could exhibit somehow similar.

4.4.Analysis of FP indicators with respect to nonfinancial performance indicators

4.4.1. Analyzing the financial performance of the selected METEC industries

This objective were addressed by collecting financial statement of METEC selected firms/industries using ratio analysis. As stated in (Cohen et al., 2008), the values of financial ratios by itself for a given company is highly influenced by the characteristics of the industry operates within, its life-cycle phase, its size, the level of competitive pressures, the influence of economic environment, etc.…

The researcher analyses firms/industries that are heterogeneous in various aspects and as a result they could exhibit different financial ratio values due to their distinctive differences, the researcher decided to compare each industries only to itself. In other words, the researcher define that a company has achieved improved financial performance in any given financial ratio during the

period of analysis, if its financial ratio value at the end of the period was enhanced compared to the ratio value at the beginning of the period. Otherwise, the company is defined as not having improved its financial performance. The researcher then compare industries that have improved financial performance with industries that have not improved their financial performance in terms of their scores in the non-financial BSc perspectives' factors. The compiled result of industries/firms financial performance listed below in table 4.16. *Refer the detailed of ratio comparison in appendix 5.*

Table 4.16 Condensed Financial Ratios with respect to Industries/Firms

	HMMBI	**BAI**	**ABMI**	**CPI**	**MFI**	**HI-TECH**	**EPEI**	**NBD**
CR	NI	NI	NI	NI	NI	I	NI	I
ITO	I	I	I	I	NI	I	I	I
DTO	I	NI	I	NI	NI	NI	I	I
NPM	I	I	I	NI	NI	NI	NI	I
ROA	NI	I	I	NI	NI	NI	NI	I
ROE	NI	I	I	NI	NI	NI	NI	I
NOTE: "I" stands for Improved and "NI" stands for Not Improved								

Source: Own computation based on the given financial data

As clearly depicted in the table 4.16, only two industries of current ratio improved their financial performance. But in the inventory turnover ratio only one industry is found that do not improve its financial performance between the given periods.

In the case of net profit margin and debtor's turnover ratio, from the given data 50% of the selected industries improved their financial performance. About 62.5 % of the given industries do not improve their financial performance in terms of return on asset and return on equity.

Based on the above result, about 75% of the given industries were declined their ability to meet their short term obligation. But the inventory turnover ratio indicates that, most of the given industries were managed properly. Half of the given industries net profit margin shows not improved. This implies that, industries uses high cost and expenses for administration and selling which is inefficient operation. On the other hand, due to heavy use of debt, which brought high

interest cost. From the given data, the industries debtor's turnover ratio shows collection of receivable improved. This implies that at the end of the period availability of cash increased.

The last two ratios, return on asset and return on equity shows that they do not use their asset and equity efficiently to earn profit respectively.

4.4.2. The effect of Nonfinancial performance on Financial indicators

H2: Industries that had improved their financial performance had improved their non-financial perspective indicators more than the industries that had worsened their financial performance.

The second hypotheses for this study tested whether the three non-financial BSC perspectives affect the fourth perspective, i.e. financial performance. To test this, the selected firms/industries financial ratios were compared at the end of the reporting period to the start to test for statistically significant differences on whether financial performance had improved. Six ratios chosen in the present study have been widely used as a measure of financial performance in prior studies as stated on (Cohen; 2006). *Refer Appendix - 6 for detailed statistical Results of t-test for Financial Performance and nonfinancial performance Indicators*

Table 4.17 Condensed statistical results of T-test *p-value* for financial and nonfinancial performance

	CR	ITO	DTO	NPM	ROA	ROE	
ES	.040	.000	.001	.001	.002	.002	
PF	.039	.000	.001	.001	.004	.004	
ET	.038	.000	.000	.000	.002	.002	
CIS	.043	.000	.000	.000	.002	.002	
PI	.128	.000	.004	.004	.016	.016	
CWS	.108	.000	.004	.006	.021	.021	
CS	.092	.000	.001	.002	.016	.016	
CR	.128	.000	.004	.004	.016	.016	
MS	.086	.000	.002	.004	.028	.028	

Source: Own computation based on financial and nonfinancial data

In addition, in order to test hypotheses H2 of this study, the values of the six selected financial ratios were calculated for both 2013 and 2015 for the 8 firms. For that, the sample firms were divided into two groups; those that have evidenced an increase in the financial ratio (ratio 2015 $\geq$ ratio 2013) and those that have experienced a decrease in the value of the corresponding ratio (ratio 2015 < ratio 2013). One sample t-tests were used to analyze the information, and the results are summarized in Table 5 by individual ratios.

As stated **in the table 4.17,** the industries that had increased their current ratio (CR) from 2013 to 2015 had improved their "learning and growth perspective indicators" significantly more than the firms/industries that had experienced a decrease in this ratio. That is employee satisfaction, performance feedback, and employee training (p = 0.002) (p = 0.004) (p = 0.002) respectively. The same conclusion can be made regarding Inventory Turnover, Debtor's turnover, Net Profit Margin, the Return on Equity and Return on Asset. The results also show that the companies that had increased their ITO, DTO, NPM, ROA and ROE had improved their Internal Business and production process perspective indicators and Customer perspective indicators. That is from IBPP clear institutional strategy (p = 0.000, .000, .000, .002, .002); and from CP Customer Satisfaction (p = 0.000, .001, .002, .016, .016) at 95% and 99% significant level more than the companies whose ITO, DTO, NPM, ROA and ROE for the same time period was worsened. Therefore, H2 is supported; which is consistent with the study of (Cohen; 2006); exceptionally the analysis did not find any statistically significant differences between companies that had improved their current ratio in terms of internal business production process indicators and customer perspective indicators.

CHAPTER FIVE

5. CONCLUSION AND RECOMMENDATION

This chapter concludes with the findings of the research and makes the appropriate recommendations for better adoption. It also highlights the limitations of the research and the need for further work in the selected area.

5.1.Conclusion

The study was focused on performance evaluation of FDRE METEC firms/industries by applying BSC approaches as tool in a ways that performance indicators are viewed in light of their contribution to the achievement of the broad strategy of METEC, which blends both nonfinancial and financial objectives. This study confirmed the use of balanced scorecard which have high potential in showing a comprehensive performance of METEC. In this study, the researcher used a structured questionnaire and gathered data from 8 METEC firms/industries in relation to the progress they have experienced during a three-year period regarding various activities that can be broadly classified as aspects of the three qualitative perspectives of BSc. The researcher also calculated financial ratios for all the sample firms for the given time period on the basis of their financial statements.

From the analysis done so far in the preceding chapter, it can be inferred that using the balanced scorecard to assess performance of METEC firms/industries will give a more holistic view than using just the financials. From the data given in the study, it is clear that financially well performing industries may not necessarily the best in the industry sector when other perspectives or dimensions are taking into consideration. The sustainability of such performance may largely be dependent on certain practices that are not geared towards customer satisfaction and efficient business processes or practices in order to create superior returns and long term growth based on customer satisfaction and high product quality.

Therefore, it is very clear from the study that the customer perspective, learning and growth perspective, and internal business processes perspective affect the assessment of the performance of METEC firms/industries and to a very large extent in Ethiopia. The results that have been gathered through this research recommends that any stakeholder who wants to know and evaluate

about the performance and competitiveness of these METEC industries will be better informed with multi-dimensional measures in terms of customer perspective, internal business processes perspective (operational structures and controls), and learning and growth perspective (systems and leadership development); all of which affect the long term performance and survival of the industries than just looking at their financials alone. Therefore, for a business to be able to create sustainable growth and profit, that business must be able to aggressively recruit new customers and retain them through efficient service delivery with product quality and customer service. That is because if new customers are registered and they are not satisfied with the product/services of the organization they may exit early and it will cost a lot more to the business to recruit to replace the lost customers in order to stay in business. The balanced scorecard could also assist in the performance of industries to a large extent if implemented as a strategic tool.

The empirical data verified that most lead BSc perspectives are correlated with each other at a statistically significant level (Hypothesis 1.1 and 1.2). The evidence generally supports the theoretical base of BSc that there is a sequential dependency among the non-financial BSc perspectives. Furthermore, the relation between customer perspective indicators and internal business and production process perspective indicators seems to be stronger than the relation between learning and growth perspective indicators and internal business and production process perspective indicators. However, the relation between customer perspective indicators and learning and growth perspective indicators (Hypothesis 1.3) (i.e. the perspectives that are within the BSc framework are not modeled sequentially) exhibit limited statistical significant relationships.

The researcher also found supportive evidence for the companies that have improved their financial indicators have increased their efforts towards business activities more than the companies that have not (hypothesis 2). More specifically, companies that have increased ITO, DTO, ROA and ROE during the three-year period from 2013 to 2015 have invested more in innovation, new technologies and intra company cooperation and information exchange compared to the companies that had their ITO, DTO, ROA and ROE values decreased.

The study also indicates that a lead-lag relationship hypothesis can be supported from empirical data. Management accounting literature advocates the use of non-financial performance measures as a tool in order to support and overcome deficiencies attributed to financial measures. The

proponents of Balanced Scorecard (BSC) claim that lead factors interrelate and their improvement ultimately leads to increased financial performance (Kaplan and Norton, 1996a).

In conclusion therefore, the balanced scorecard framework can be implemented to assess performance of manufacturing industries in Ethiopia. The BSC framework can also assist by providing additional information using measures in several dimensions such as customer perspective, internal business processes perspective and learning and growth perspective to the stakeholder's managers, and other interested parties regarding the performance of the METEC industries in Ethiopia. This will enable manufacturing/service industries focus on the core strategies in order to create and deliver superior value and returns to their stakeholders. This additional information that the BSC framework can provide reveals the non- financial inputs that went into achieving the financial results and whether the results being reported by the manufacturing industries are sustainable in the long run. This information can be very useful to both stakeholders and management of the manufacturing industries which can help them fine tune the execution of their strategies.

5.2. Recommendations

From the results, the study recommends the following:

The use of BSC will give the management of any organization a comprehensive view on the financial and non-financial performance. So, the management of METEC should enhance introducing and studying the use of BSC in measuring their respective performance. Thus, these firms should implement the balanced scorecard and multi- dimensional measures as a performance measurement and strategic implementation tool to improve their operational performance and profitability. Lessons about the role and importance of the multi-dimensional performance measures for industries should be given for finance and investment staff personnel's in reasonable depth.

The researcher used the BSc framework as a general structured model in order to assess the relationships between non-financial parameters and financial performance. The researcher conclusions that are based on a sample of heterogeneous industries, indicate that a lead-lag relationship hypothesis can be supported by empirical data. Thus, companies should attempt to validate the causal links between lead and lag factors.

There is the need to place emphasis on the fact that, when implementing this framework, industries must follow a well-planned methodology and the advice that was given in different academicians and practitioners in order for them to reap the full benefit of their investment.

From the study results shown all nonfinancial performance indicators are on average. This leads FDRE METEC to make adjustment on the learning and growth perspective which needs to be a prime focus; for its positive relationship with internal business process improvement and customer perspective, which is the basic objective of the sector. The LG perspective indicators are demanding immense management attention since LG is the starting point of performance based on BSC. So, industries/firms expected to improve the LG perspective performance through offering interesting benefit, motivating employees using consistent and on the job and off job value adding training which can empower them with appropriate performance feedback and reward. And also creating modern (computerized, networked) and innovative work environment could improve the LG perspective.

Similarly, under internal business and production process, the measured level of cooperation with supplier's and production improvement has the lowest performance indicators, which show special concentration should be given on handling supplier's, distribution channels, and operational efficiency and effectiveness. Other options such as enhance modernizing the business and production process is worthy.

Accordingly, some customer related performance indicators, customer retention and market share were on the average score. So, METEC firms/industries needs to see their performance with regard to delivering reliable and quality products/service to the loyal customers and in addition to that, it would better to look at large beyond fulfilling the government bodies needs to enhance its financial performance for investment opportunity.

Finally, the result of this study has a number of implications and has increased our knowledge of the management accounting practices of a developing country such as Ethiopia. To begin with, the study has shown that METEC firms/companies which implement and improve their nonfinancial perspectives ultimately benefit from increased financial performance.

This then provides management/managers with greater motivation to adopt various learning and growth factors, internal business process factors and customer factors. In today's rapidly changing business environment, this would ultimately result in the company better coping with competition. This study also has implications for customers, who by their spending habits influence company performance. The results show that companies which initiate and increase their customer focus improve financial performance.

5.3.Limitation and further research

Due to its largeness, just a few of the metrics were selected for each of the four main perspectives to demonstrate performance of firms/industries in the balanced scorecard approach. In the event of a more corroborative research work between the academia and industry, the number of metrics under each perspective could be increased.

This study is exploratory in its nature and given that no previous studies tried to apply BSC approach in evaluating performance of METEC firms/industries, the researcher recommend studies focused on advancing the developed BSC performance evaluation framework in the context of more detailed analysis by using complex statistics models to determine the extent to which non-financial perspectives affect financial performances of organizations or institutions with a much bigger sample size. A further research work could also be done in manufacturing and other industries such as merchandize, retailing and profit and non-profit institutions to help drive the implementation and measurement of their strategies.

The researcher tried to study the attitude and opinion of clients, staffs and management at the head offices level of METEC industries with the objective of showing the performance of the studied industries in generalized way than individual institution level, but further studies that incorporate different operating segments both in urban and rural areas, clients from different economic level, and deep investigation to a single institution could find out better result in which institutions could see their own performance rather than the generalized result.

Another limitation of the study relates to the selection of the time period (three-years) that has been used in order to evaluate the influence of non-financial factors on financial performance. The application of an alternative time period could possibly weaken or strengthen our results.

This research would serve as a starting point for an analysis of the magnitude of the casual links between non-financial measures and financial performance for companies that operate in specific industries or apply specific business strategies. The study of the influence of strategy on the formulation and the cause and effect relations within the BSC framework as well as its subsequent effect on performance could constitute an interesting research area.

Moreover, consistent with Cohen et al. (2006) the study made no attempt to see whether sample firmed actually integrates strategy with balanced scorecard linkage. Finally, a further limitation that can be inferred here is that the survey questionnaire essentially measures belief not actions. The Management accounting system (MAS) practices in less developed countries, Hopper et al., (2009), noted that these studies are rare, so this thesis will add to the body of knowledge on the BSC with specific reference to the developing country of Ethiopia.

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Appendices

Appendix: 1 - Questionnaire to the Managers and Staff employees of METEC Industries

Addis Ababa University

College of Business and Economics

Department of Accounting and Finance

Dear participant this questioner is intended to conduct a research on the "**Performance Evaluation on F.D.R.E Metals and Engineering Corporation Selected Industries: A Balanced Scorecard Approach"** for the partial fulfillment of MSc. degree in Accounting and Finance in Addis Ababa University. Firstly, I want to assure you the information you will provide in this questionnaire will not be utilizes for any other purpose and its confidentiality will be maintained surly so, keep in mind this I ask you to be honest as much as possible in reflecting on the issues raised. The selected staff members are requested to evaluate the performance of his/her institutions with respect to the developed questions below.

If there is any uncertainty regarding any questions or issues please feel free to contact me using the details below:

Zemen Arfcho

Phone no. - 0911546798

Email:-zamzemayet@gmail.com

Thank you in advance for your cooperation!

Put a tick mark (✓) inside the box provided next to each alternative

Section 1: Demographic background

1. Gender: Female ☐ Male ☐
2. Academic level

   Master's degree and above ☐ Bachelor's degree ☐

Technical/vocational certificate (diploma) ☐ Others_____

3. Work experience

Less than 5 years ☐ 5 to 10 years ☐

More than 10 years ☐

4. Position in the organization: Manager ☐ Supervisor ☐ others _____

Section 2

You are expected to put **a tick mark (✓)** sign on the performance level of change that your institution achieves in each perspective. *(For the period of 2013-2015)*

Where: - 5= strongly agree/substantially increased 4= agree/increased 3= don't know/no change 2= disagree/decreased 1= strongly disagree/substantially decreased

No.	Rate	**5**	**4**	**3**	**2**	**1**
1	The institution has clear short and long term plan					
2	The plan of the institution is distributed to all departments and it allows employees to understand their own mandates					
3	The plan of the institution includes the measurements of the implementation of the plan					
4	Good governance of the institution makes me to respect my job					
5	Team work of the institution makes me to respect my job					
6	Resources are allocated effectively to perform your duties					
7	Employees Properly utilize their material/technology					
8	Employees are familiar/updated on the technology (it might be machine, IT applications, software's…) they are using it					
9	The institution has employee performance evaluation system					
10	Consistent evaluation and performance feedback are the culture of the institution					
11	The institution has appraisal and feedback system					
12	The institution rewards for high performance achievers for their performance					
13	The institution give constructive comments to low performance achievers					
14	communication between you and your coworkers/ team and supervisor/manager is good					
15	Leadership skills of the supervisor/manager motivates employee					
16	Opportunity to develop leadership skills and professional competence					
17	The institution give opportunity to develop creativity					
18	Comfort of the work space/suitability of work place					

19	Employee of this institution satisfied with their salary and other benefits					
20	Employees are not exposed to overloaded duties on their positions and it makes them to do their job effectively with pleasure					
21	Anyone can get basic information of the institution from internet					
22	Continuous and value adding an employee training is the culture of the institution					
23	The institution has job related training in different methods					
24	Employees are good in social relationships					
25	The institution made assessments on the training needs					

Appendix: 2 - Questionnaire to the Marketing and Sales Staff of METEC Industries

Addis Ababa University

College of Business and Economics

Department of Accounting and Finance

Dear participant this questioner is intended to conduct a research on the "**Performance Evaluation of F.D.R.E Metals and Engineering Corporation Selected Industries: A Balanced Scorecard Approach"** for the partial fulfillment of MSc. degree in Accounting and Finance in Addis Ababa University. Firstly, I want to assure you the information you will provide in this questionnaire will not be utilizes for any other purpose and its confidentiality will be maintained surly so, keep in mind this I ask you to be honest as much as possible in reflecting on the issues raised. The selected staff members are requested to evaluate the performance of his/her institutions with respect to the developed questions below.

If there is any uncertainty regarding any questions or issues please feel free to contact me using the details below:

Zemen Arfcho

Phone no. - 0911546798

Email:-zamzemayet@gmail.com

Thank you in advance for your cooperation!

Put a tick mark (✓) inside the box provided next to each alternative

Section 1: Demographic background

1. Gender: Female ☐ Male ☐
2. Academic level

   Master's degree and above ☐ Bachelor's degree ☐

   Technical/vocational certificate (diploma) ☐

Others_____

3. Work experience

Less than 5 years ☐

6 to 10 years ☐ More than 10 year ☐

4. Position in the organization: Manager ☐ Supervisor ☐ other _____

Section 2

The respondents are required to put a tick mark (✓) sign and expected to rate the level of change that your institution achieves in each perspective. *(For the period of 2013-2015)* based on the numbers representation as follows;

5. Strongly agree/substantially increased
4. Agree/increased
3. Don't know/no change
2. Disagree/decreased
1. Strongly disagree/substantially decreased

	Rate	5	4	3	2	1
1	Customers are satisfied in terms of quality products/services					
2	Customers are satisfied On-time delivery of goods and services					
3	Customers are satisfied on after sale services					
4	The institution Meets customer's expectations					
5	Responsiveness to customer complaints is satisfactory (based on the institution percentage complaint)					
6	Customer retention is satisfactory (based on the institution percentage of lost customers)					
7	The institution made survey on customer needs					
8	The culture of the institution motivates innovation					
9	The institution gives focus to investment in information system just like investment in other areas					
10	The product of the institution is expanding through time					
11	The institution has Product competitiveness ability					

12	The institution products market share is increasing compared with competitors					
13	The institution rework and rejected products rate is appreciable (based on the organization percentage defaults)					
14	Product order is dispatched in time effectively (in terms of specification, delivery time, and price)					
15	The institution has multiple product distribution channels					
16	The institution has research and development/ similar task oriented departments to obtain critical technology					
17	Co-operation with suppliers is interesting					
18	The institution manufacturing process efficiency is improving					

Appendix: 3 - Questionnaire to the Customers of METEC Industries

Addis Ababa University

College of Business and Economics

Department of Accounting and Finance

Dear participant this questioner is intended to conduct a research on the "**Performance Evaluation of F.D.R.E Metals and Engineering Corporation Selected Industries: A Balanced Scorecard Approach"** for the partial fulfillment of MSc. degree in Accounting and Finance in Addis Ababa University. Firstly, I want to assure you the information you will provide in this questionnaire will not be utilizes for any other purpose and its confidentiality will be maintained surly so, keep in mind this I ask you to be honest as much as possible in reflecting on the issues raised. The selected staff members are requested to evaluate the performance of his/her institutions with respect to the developed questions below.

If there is any uncertainty regarding any questions or issues please feel free to contact me using the details below:

Thank you in advance for your cooperation!

Put a tick mark (✓) inside the box provided next to each alternative

Section 1: Demographic background

1. Gender: Female ☐ Male ☐

2. Academic level

Master's degree and above ☐ Bachelor's degree ☐

Technical/vocational certificate (diploma) ☐ Secondary School

Primary School Others_____

3. Loyalty Duration

Less than 3 years ☐

3 to 5 years ☐ More than 5 years ☐

Section 2

The respondents are required to put a tick mark (✓) sign and expected to rate the level of change that your institution achieves in each perspective. *(For the period of 2013-2015)* based on the numbers representation as follows;

5. Strongly agree/substantially increased
4. Agree/increased
3. Don't know/no change
2. Disagree/decreased
1. Strongly disagree/substantially decreased

	Performance and satisfaction level	5	4	3	2	1
1	Customers can easily access services from the institution because of the place advantage					
2	The institution bureaucracy clear and simple					
3	The institution provides after sales service properly					
4	On time Delivery based on the agreement					
5	The institution has a system on any customer complaint					
6	The institution resolves any complaints on product/service defects					
7	Employees of the institution has friendly approaches and they are open to cooperate with us					
8	The institution provide products not found in another firms; and I am happy with it					

Appendix-4: Questionnaire to the Customers of METEC Industries (Amharic Version)

አዲስ አበባ ዩኒቨርሲቲ

ቢዝነስና ኢኮኖሚክስ ኮሌጅ

<u>አካዉንቲንግና ፋይናንስ ት/ክፍል</u>

<u>ለተቋሙ ተገልጋዬች የተዘጋጀ የጽሁፍ መጠይቅ</u>

በቅድሚያ ለሚደረግልኝ ቀና ትብብርና ለሚሰጠኝ ትክክለኛ ምላሽ እያመሰገንኩኝ ይህ የአካዉንቲንግ ና ፋይናንስ ማስትሬት ድግሪ ማሟያ የሚዛናዊ ዉጤት ተኮር አሰራርን በመጠቀም የኢፌድሪ ብረታብረትና ኢንጂነሪንግ ኮርፖሬሽንና በተመረጡ ኢንዱስትሪዎች የስራ አፈጻጸም ምን ይመስላል (Performance Evaluation of Selected FDRE Metals and Engineering Corporation: A Balanced Scorecard Approach) በሚል ርዕስ ሊሰራ ለታሰበዉ የምርምር ጽሁፍ የሚሰበሰብ ግብአት ነዉ፡፡ በዚህ መጠይቅ ላይ የሚሰጡት መረጃ ለሌላ ለምንም አይነት አገልግሎት የማይዉልና ሚስጥራዊነቱ የተጠበቀ መሆኑን ማረጋገጥ እወዳለሁ፡፡

ለሁሉም ጥያቄዎች በሰንጠረዡ ወይም በሳጥኑ ዉስጥ ✓ ምልክት እንዲያደርጉ አጠይቃለሁ፡፡

<u>ክፍል፡- 1</u>

1. ጾታ፡- ሴት ☐ ወንድ ☐
2. የትምህርት ደረጃ፡-

   የመጀመሪያ ዲግሪና ከዚያ በላይ ☐

   ዲፕሎማ ☐

   ሁለተኛ ደረጃ ያጠናቀቀ ☐

   የመጀመሪያ ደረጃ ያጠናቀቀ ☐

   መደበኛ ትምህርት ያልተማረ ☐
3. በተቋሙ ለምን ያህል ግዜ ተገልግለዋል?

   ከ 1-2 ዓመት ☐ ከ3 – 5 አመት ☐ ከ 5 አመት በላይ ☐

ክፍል 2

ይህ የጥያቄ ክፍል እርስዎ በተቋሙ በሚያገኙት አገልግሎት ምን ያህል ደስተኛ እንደሆኑ ለመገምገም የተዘጋጀ ሲሆን ባመኑበት የአፈጻጸም የለውጥ ደረጃ ላይ ምልክት ያድርጉ፡፡ (ከ 2005-2007) የቁጥሮቹም አወካከል እንደሚከተለዉ ይሆናል፡-

5 = በጣም እስማማለሁ/በጣም ጨምሯል

4 = እስማማለሁ/ጨምሯል

3 = በከፊል እስማማለሁ/ለውጥ የለውም

2 = አልስማማም/ቀንሷል

1 = በጣም አልስማማም/በጣም ቀንሷል

ተ/ቁ	ዕይታዎች	5	4	3	2	1
1	ተቋሙ ያለበት ቦታና አከባቢ አገልግሎቱን ለማግኘት የሚያስችልና አመቺ ነዉ፡፡					
2	አገልግሎቱን ለማግኘት በተቋሙ ዉስጥ ያለዉ የቅድመ ሁኔታ ወይም አሰራር ለመከተል ቀላልና ግልፅ ነዉ፡፡					
3	ተቋሙ ለተገልጋዮቹ/ደንበኞቹ ከሽያጭ በኃላ ልዩ ልዩ አገልግሎትና ክትትል ያደርጋል					
4	የተመረተው ምርት በተገባው ስምምነት መሰረት በወቅቱ ይጓጓዛል					
	ተቋሙ የተለያዩ ቅሬታዎች የሚያስተናግድበት ሲስተም አለው					
6	ተቋሙ የሚቀርቡበትን የምርት ወይም የአገልግሎት መጓደሎችንአቤቱታ በተገቢው መንገድ ያስተናግዳል፤ ይፈፀማል፤					
7	የተቋሙ ሰራተኞች ጓደኛዊ አቀራረብ አላቸዉ፣ የምንጠይቀዉን አገልግሎት ለመስጠትተባባሪና ቀና ናቸዉ					
8	ከሌሎች ተቋማት ማግኘት ያልቻልኩትን ምርት በተቋሙ አገኛለሁ፤ በዚህም ደስተኛ ነኝ					

አመሰግናለሁ!

Appendix 5 - Selected Financial Ratios

Current Ratio

Year	HMMBI	BAI	ABMI	EPI	AAI	Hi-Tech	EPEI	NBD
2005	10.06	4.69	1.47	1.16	11.91	0.83	47.85	0.92
2006	3.65	5.75	1.23	3.89	2.36	0.86	1.99	0.89
2007	1.68	1.24	1.22	1.01	0.77	1.23	2.81	0.99
Performance	NI	NI	NI	NI	NI	I	NI	I

Inventory Turnover Ratios

Year	HMMBI	BAI	ABMI	EPI	AAI	Hi-Tech	EPEI	NBD
2005	0.11	1.05	0.16	0.58	1.75	0.04	0.10	7.34
2006	0.24	1.14	0.20	0.62	0.14	0.13	7.64	39.23
2007	0.48	1.07	0.23	2.98	0.08	0.14	0.51	26.44
Performance	I	I	I	I	NI	I	I	I

Debtor's Turnover Ratios

Year	HMMBI	BAI	ABMI	EPI	AAI	Hi-Tech	EPEI	NBD
2005	1.41	3.38	0.63	2.97	2.77	0.42	0.37	0.57
2006	2.20	2.49	0.37	3.98	0.23	0.38	1.67	2.16
2007	3.55	0.37	0.87	2.38	0.19	0.34	1.01	2.01
Performance	I	NI	I	NI	NI	NI	I	I

Net Profit Margin Ratio's

Year	HMMBI	BAI	ABMI	EPI	AAI	Hi-Tech	EPEI	NBD
2005	0.06	0.03	0.10	0.06	0.22	(1.18)	0.39	0.02
2006	0.16	0.09	(0.72)	0.07	0.03	0.27	0.09	0.38
2007	0.07	0.20	0.14	0.03	0.04	0.02	0.03	0.06
Performance	I	I	I	NI	NI	NI	NI	I

Return On Asset Ratio's

Year	HMMBI	BAI	ABMI	EPI	AAI	Hi-Tech	EPEI	NBD
2005	(0.02)	0.00	0.02	0.01	0.04	(0.02)	0.07	0.00
2006	0.02	0.01	(0.06)	0.02	0.00	0.03	0.02	0.14
2007	0.01	0.02	0.02	0.01	0.00	0.00	0.01	0.01
Performance	NI	I	I	NI	NI	NI	NI	I

Return on Equity Ratio's

Year	HMMBI	BAI	ABMI	EPI	AAI	Hi-Tech	EPEI	NBD
2005	(0.02)	0.00	0.02	0.01	0.04	(0.02)	0.07	0.00
2006	0.02	0.01	(0.06)	0.02	0.00	0.03	0.02	0.14
2007	0.01	0.02	0.02	0.01	0.00	0.00	0.01	0.01
Performance	NI	I	I	NI	NI	NI	NI	I

Appendix-6 statistical Results of t-test for Financial Performance and nonfinancial performance Indicators

CURRENT RATIO (2013-2015)					
	2013 ≥ 2015	**2013 < 2015**	**Diff.**	**t-value**	**p-value**
Employee Satisfaction	3.545	3.228	0.317	15.756	.040
Performance Feedback	3.580	3.130	0.450	16.273	.039
Employee Training	3.690	3.347	0.343	16.773	.038
Clear Institutional Strategy	3.680	3.367	0.313	14.720	.043
Productivity improvement	3.730	3.063	0.667	4.908	.128
Cooperation with supplier's	4.100	3.233	0.867	5.857	.108
Customer Satisfaction	3.840	3.253	0.587	6.857	.092
Customer Retention	3.730	3.063	0.667	4.908	.128
Market Share	3.700	2.983	0.717	7.400	.086

INVENTORY TURNOVER RATIO (2013-2015)					
	2013 ≥ 2015	**2013 < 2015**	**Diff.**	**t-value**	**p-value**
Employee Satisfaction	3.300	3.360	(0.060)	25.795	.000
Performance Feedback	3.277	3.000	0.277	22.911	.000
Employee Training	3.427	3.470	(0.043)	31.725	.000
Clear Institutional Strategy	3.440	3.560	(0.120)	34.061	.000
Productivity improvement	3.271	2.940	0.331	13.529	.000
Cooperation with supplier's	3.486	3.200	0.286	13.338	.000
Customer Satisfaction	3.414	3.300	0.114	18.148	.000
Customer Retention	3.271	2.940	0.331	13.529	.000
Market Share	3.171	3.100	0.071	15.013	.000

DEBTOR'S TURNOVER RATIO (2013-2015)					
	2013 ≥ 2015	**2013 < 2015**	**Diff.**	**t-value**	**p-value**
Employee Satisfaction	3.378	3.238	0.140	15.278	.001
Performance Feedback	3.408	3.078	0.330	15.775	.001
Employee Training	3.465	3.400	0.065	17.765	.000
Clear Institutional Strategy	3.503	3.388	0.115	19.918	.000
Productivity improvement	3.468	2.993	0.475	8.300	.004
Cooperation with supplier's	3.650	3.250	0.400	7.981	.004
Customer Satisfaction	3.628	3.173	0.455	12.459	.001
Customer Retention	3.468	2.993	0.475	8.300	.004
Market Share	3.350	2.975	0.375	10.217	.002

NET PROFIT MARGIN RATIO (2013-2015)					
	2013 ≥ 2015	**2013 < 2015**	**Diff.**	**t-value**	**p-value**
Employee Satisfaction	3.398	3.218	0.180	15.777	.001
Performance Feedback	3.418	3.068	0.350	16.187	.001
Employee Training	3.480	3.385	0.095	18.112	.000
Clear Institutional Strategy	3.523	3.368	0.155	20.724	.000
Productivity improvement	3.310	3.150	0.160	7.821	.004
Cooperation with supplier's	3.450	3.450	-	7.207	.006
Customer Satisfaction	3.435	3.365	0.070	10.545	.002
Customer Retention	3.310	3.150	0.160	7.821	.004
Market Share	3.100	3.225	(0.125)	8.141	.004

RETURN ON ASSET (2013-2015)					
	2013 ≥ 2015	**2013 < 2015**	**Diff.**	**t-value**	**p-value**
Employee Satisfaction	3.577	3.146	0.431	21.170	.002
Performance Feedback	3.560	3.052	0.508	16.160	.004
Employee Training	3.640	3.308	0.332	24.195	.002
Clear Institutional Strategy	3.653	3.320	0.333	23.809	.002
Productivity improvement	3.583	3.018	0.565	7.841	.016
Cooperation with supplier's	3.733	3.280	0.453	6.841	.021
Customer Satisfaction	3.503	3.338	0.165	7.778	.016
Customer Retention	3.583	3.018	0.565	7.841	.016
Market Share	3.133	3.180	(0.047)	5.841	.028

RETURN ON EQUITY (2013-2015)					
	2013 ≥ 2015	**2013 < 2015**	**Diff.**	**t-value**	**p-value**
Employee Satisfaction	3.577	3.146	0.431	21.170	.002
Performance Feedback	3.560	3.052	0.508	16.160	.004
Employee Training	3.640	3.308	0.332	24.195	.002
Clear Institutional Strategy	3.653	3.320	0.333	23.809	.002
Productivity improvement	3.583	3.018	0.565	7.841	.016
Cooperation with supplier's	3.733	3.280	0.453	6.841	.021
Customer Satisfaction	3.503	3.338	0.165	7.778	.016
Customer Retention	3.583	3.018	0.565	7.841	.016
Market Share	3.133	3.180	(0.047)	5.841	.028