

Addis Ababa University
College of Business and Economics
Department of Accounting and Finance

The Impact of Enterprise Resource Planning (ERP) Systems on Organizational Performance: The Case of Commercial Bank of Ethiopia

A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Science in Accounting and Finance

BY

SHIKUR ERGICHO IUSMAN

APRIL 2021

ADDIS ABABA, ETHIOPIA

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Declaration

This thesis has not previously been accepted for any degree and is not being concurrently submitted in candidature for any degree in any university. I declare that the thesis is a result of my own investigation, except where otherwise stated. I have undertaken the study independently with the guidance and support of my research advisor. Other sources are acknowledged by citations giving explicit references.

Signature: _____

SHIKUR ERGICHO

Approval

The thesis prepared by Shikur Erigecho entitled **"The impact Enterprise resource systems(ERP) on organizational performance : The case commercial bank of Ethiopia"** has been submitted for examination with my approval as an advisor.

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As members of Examining Board of the Final Degree of Maters open Defense, we certify that we have read and evaluate the project prepared by Shikur Erigecho, entitled: **The Impact of Enterprise Resource Planning (ERP) Systems on Organizational Performance: The Case of Commercial Bank of Ethiopia,** and recommend that it be accepted as fulfilling the requirement for the degree of Masters.

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List of Acronyms

CBB Construction and business Bank

CBE Commercial Bank of Ethiopia

CLRM Classical Linear Regression Model

ER Efficiency ratio.

ERP Enterprise Resource Planning Systems

NBE National Bank of Ethiopia

OH Overhead burden ratio

OLS Ordinary Least Square

OX Operating expense

PM Profit Margin

PROD Productivity Ratio

ROA Return on Asset.

ROE Return on Equity

ROIC Return on invested capital for the bank and time period t.

SIZ Bank Size.

Abstract

This study focused on the impact of enterprise resource planning systems on organizational Performance of commercial Bank of Ethiopia. The study adopted a cross section panel data from 2012 – 2019.The secondary sources of data was the audited from financial statements of the CBE collected from of the national bank of Ethiopia and the website of CBE. The collected data was analyzed through paired sample t test, descriptive statistics and simple regression analysis with the aid of SPSS25 in order to identifying whether a significant difference between Pre and Post –ERP financial performance of CBE to achieve integrated organizational performance which was planned as operational and strategic target by visioning 2025 to become one of the world class commercial bank. The research variables are ROA, ROE, ROIC, ER.OHB, PRO, OX, PM, and Bank size. The output revealed that no significance on regression analysis while descriptive statistics and t test confirmed a significant decrease on post-ERP ROA, ROE while a decrease on ROIC was not significant. Post-ERP efficiency has improved but insignificant decrease on OHB and productivity cost while OX has been on a better track of decrease that supporting improvement on operational benefit. Strategic benefits have not being offered because PM was not grown as expected relative to bank size increase. Profitable marketing at lower expense develops integration in CBE.

Key words: *Organizational Performance Financial performance, ERP (Enterprise Resource Planning), Commercial Bank of Ethiopia.*

CHAPTER ONE

INTRODUCTION

1.1. Background of the Study

In today's extremely dynamic business environment, the biggest challenge for the firm is to remain viable and competitive in the marketplace. The major part of extreme dynamism in the business environment has been injected by rapidly improving technology in general and information technology in particular that offers opportunities and threats. A few decades ago the IT could be treated as a tool to achieve competitive advantage but nowadays IT has changed from a tool for achieving competitive advantage into a necessity(Ali I.,2016).The most significant development of the millennium which has substantially influenced business operations globally is the emergence of the information age. Taking advantage of rapid technological progress and financial market development, a number of innovative products have been developed in recent years.

As we live in a world that is driven by information and Information Technology (IT), IT is changing every aspect of human endeavor including business and organization (A. M.Gabriel,2012). The business environment is equally changing dramatically, and in order to stay competitive in the market, organization must improve their business practices and procedures by upgrading their capability to generate and communicate accurate and timely information toward the realization of stated objectives (O'Bren, 2008). The global success of Enterprise Resource Planning (ERP) systems has not only attracted the interest of researchers from the IT discipline, but from all major disciplines in business research including management and accounting.

The emergence of ERP systems has moved the topic "Computerized business information systems" increasingly from IT domain to the business domain; from systems design and programming to business configuration, process mapping and re-engineering. ERP impose their logic on organizations and force employee to think in terms of integrated processes and to change the way they do accounting, management, production planning and control.

All these changes brought about by ERP systems made them very attractive research object of many business disciplines, and management is by nature the one from which we expect an answer to the question which ultimately counts in business: Are those systems worth the investment? (Wieder2006).

Hossain (2002), observe that ERP systems affect organizations and are implemented mostly to enhance organizational effectiveness. The main purpose for deploying ERP systems is to improve control over organizational processes (Hanseth, 2001). ERP systems are information systems packages that are configurable and integrate information and information-based processes within and across functional areas in organization (Gattiker and Goodhue, 2004). ERP systems automate and structure an organization's business process by furnishing reference models and process templates across the enterprise (Allen, 2002). ERP systems are implementations of standard software modules for core business processes and are usually combined with specially tailored customization to provide competitive differentiation. The goal of ERP systems is to provide integration and functionality across multi-functional and frequently multinational organizations. Implementing ERP system involves a change management initiative, which includes a review of processes across the organization, and entails more than just installing stand-alone pre-written software (Skok and Legge, 2001).

The change management initiative almost certainly requires some form of business process reengineering. With respect to the banking sector, the utilization of ERP system as a specific information technology application has increased attention from key players (bankers, customers, policy makers) in the financial services industry. This is partly due to the rapid and significant growth in electronic commerce and the notion that electronic banking and payments such as on-line, real time, automated teller machine, mobile and internet banking etc. will likely advance more in tandem with electronic commerce. Besides, industry analysis outlining the potential impact of electronic banking on costs, savings, revenue growth and increased customer convenience have also generated considerable interest and speculation about the impact of ERP systems as a specific ICT application on the banking industry.

Allen (2002) observe that ERP systems improved decision making speed, enhanced control of operations and costs, reduced costs, and boosted enterprise wide information dissemination. However, the complexity of ERP systems implementations; the drastic organizational, cultural, and human changes; the typical high customization expenses; and implementation problems all contribute to new customers' reconsidering their ERP systems implementation plans.

Hossain (2002) observe that ERP systems implementations are likely to be the largest change project in cost and time that most organizations have taken on in their history. However, inconclusive findings have been reported on the effect and benefit of ERP systems implementations. It is on this premise that various researchers such as Wilson (1993), Furst (2000) and others have been engaged in unending discourse on the positive pay-offs emanating from the utilization of specified information technology in various enterprises. Such academic debates have resulted in the birth of IT productivity paradox which is concerned with appraising the impact of IT on operational efficiency and the productivity of organizations.

Gattiker and Goodhue (2000) observe that ERP systems offer an extra-ordinary level of business integration and related benefits, however, most IT managers identified ERP systems as the most difficult systems to implement. According to Hossain (2002), ERP systems are usually modular in design, utilize a centralized common database management system and have integrated modules so that data flows seamlessly to users through standard interfaces. They further noted that ERP systems are flexible and present best business practices, and require tailoring and configuration set-up for various business functions.

In addition, ERP systems operate in real time, provide online, batch processing capabilities and are increasingly internet-enabled, which are the hallmark of today's banking operations. Robinson and Wilson (2001) observe that ERP systems aim at providing a business advantage by facilitating the management of all organization's activities as a whole in addition to replacing legacy systems and resolving inconsistencies and interfacing problems among individual information systems.

ERP is turning into the business backbone for organizations (such as banking industry) that perform online business transactions. Both practitioners and researchers have

indicated that in order to survive in the emerging electronic-based economy, organizations should adopt ERP systems and use them strategically. Willcocks and Sykes (2000) observe that an ERP is competitively and technically necessary for many organizations. However, there is contradictory evidence in justifying an ERP economically and there is difficulty in rationalizing the associated costs and implementation complexity for achieving lasting business advantage.

According to Nebyou Solomon(2018),"CBE- Enterprise Resource Planning (ERP) Implementation Project" has been done among the consultant called Tech Mahindra Business group which is one of Tata technology group of India and the sponsor of CBE which is the owner with proponent sub process called PMO/project management office. "Automation of the Bank's main Processes" is the project focus area. The period it took was planned 1 year and 2 months started from August 11, 2015 and completed on July, 2017. The Cost incurred for implementation is fixed amount for both software license and implementation. However, in order to adopt ERP systems which are sold by vendors like Oracle on average, cost $15-20 million and implementations take, on average, 21 months to complete (O'Leary et.al. 2000).The ERP system is integrated with the existing core (Centralized online real-time Electronic) banking system of the bank T24 application, Merly CBE's transaction, payments, settlements and taxes are automatically monitored (CBE, 2015).

Even though ERP systems have been used by many organizations for over a decade, there remains dearth of research on the impact of ERP on organizational performance especially in developing economy like Ethiopia. Since researches indicate that ERP systems significantly affect various types of organizations, this study however seeks to measure the impact of ERP systems on the performance of commercial bank in Ethiopia.

ERP is an investment with high costs and high complexity. The firms need to commit significant resources to ERP implementation and face with a great deal of difficulty in integrating ERP with their operations. Those make quantifying the financial benefits of ERP implementation an important research issue. To examine the impacts of ERP implementation on firm financial performance can shed light on the value of ERP systems and provide beneficial guidance on ERP investments. The issue of whether ERP is associated with improved financial performance has been studied by a great

deal of literature, but there is relatively little literature to investigate the relationship between ERP implementation of Ethiopian firms and firm performance using objective financial data. Therefore, this study also contributes to the literature on the impacts of ERP implementation on firm performance in commercial bank of Ethiopia.

1.2. Statement of the Problem

The Vision of CBE is formulated as "To become a world-class commercial bank by the year 2025" and its Mission is stated as "We are committed to best realize stake holders' values through enhanced financial intermediation globally and supporting national development priorities, by deploying highly motivated, skilled and disciplined employees as well as state-of the-art technology. We strongly believe that winning the public confidence is the basis of our success."

Moreover, the corporate values of CBE are Integrity, service excellence, professionalism, empowerment, learning organization, team work, respect for diversity and corporate citizenship. The major strategic objectives of the bank are also: Ensure Sustainable Profitability, Enhance Developmental Financing, Ensure Financial Soundness, Increase Customer Satisfaction, Expand the Customer Base, Enhance Accessibility of Services, Improve process efficiency and effectiveness, Improve Employee Satisfaction and Engagement, Enhance Information Systems, Enhance Human Resource Development, Enhance Communication. (CBE corporate strategy document 2015-2019/20).

In fact, the motive of the bank for ERP implementation is due to realize its Vision "To become a world class commercial bank by the year 2025" and to meet the world's bank standards, CBE has considered ERP adoption as a method of achieving greater integration of its management systems to better manage increasingly complex operations. For these reasons, top managements believed that ERP systems can be very appealing to CBE as a potential route to meeting these standards. Thus, the bank is able to change manual and semi-automated process in to automation. (CBE corporate strategy document 2015-2019/20).

The main CBE ERP project goal is implementation of ERP application that suite at CBE to support its strategic objectives and the standard functionality of the system is able to

maximum possible extent. Within the overall goal stated leads to meet major objectives such as : address the current support organs setback to maintain sustainable, efficient and superior support for the core and support process, Bring bank wide integration on a common system; increase data integrity, validity and reliability, Support sophisticated data analyses by implementing business intelligence tools for better decision making, Integrated work flow, industry best practices, and platform for re-engineering business practices and continued process improvements, Well organize and manage Strategy of the bank, Lower operating costs and expenses and, Improved internal communications and create better information accessibility. (Nebeyou S., 2018).

Benefits to be realized from ERP usage are manifold and can include an improved organizational effectiveness through the integration of business processes and the realignment of corporate strategy with ERP systems possibly offering new opportunities to do business. Similarly to most advantages related to IT investments, benefits from ERP adoption are frequently intangible and difficult to quantify, increasing the complexity to precisely measure the return on an ERP investment (Murphy and Simon, 2002). The fact that most ERP implementations only commence to pay off after a time lag adds to the complexity of assessing ERP benefits (Al-Mashari et al., 2003; Gefen & Ragowsky, 2005).

Commercial bank of Ethiopia put in its Vision "To become a world class commercial bank by the year 2025" and to meet the world's bank standards, CBE has considered ERP adoption as a method of achieving greater integration of its management systems to better manage increasingly complex operations. For these reasons, top managements believed that ERP systems can be very appealing to CBE as a potential route to meeting these standards. Thus, the bank is able to change manual & semi-automated process in to automation. (CBE corporate strategy document 2015-2019/20).

Poor Enterprise Resource Planning System project implementation leads to project failures and losses to the organization. This was attributed to the misalignment between the objectives from the ERP implementation and the strategic organizational and IT goals (Gupta et al., 2004). Such a misalignment exists, it can cause the business to lose the advantages of ERP systems. On the other hand, investing into ERP systems without any

objective other than following the market or industry trend might also because an ERP project to fail (Kang et al., 2008).

ERP failure can be associated to internal or external aspects to the organization. Internally, failure is associated to the insufficient business knowledge, while externally failure is associated to the weak technical skills of the consultants helping in the ERP implementation. Miscommunication between the teams involved can also result into failure (Hitt , 2002). Another issue raised was that resisting activities associated with ERP can lead to ERP project failure or a huge loss of benefits (Velcu, 2007). Insufficient training of end users is also a reason attributed to ERP failures (Gupta et al., 2004; Häkkinen & Hilmola, 2007; Loh et al., 2006).

The above ERP challenges have affected efficiency of financial institutions which in turn affected their financial performance inform profitability, return on investment, return on asset and return equity and loan. These effects have made some banks to be dissolved and others merged in order to promote efficiency (Kayonga, Wareen & Ndabaga, 2016). IT improves the management of customer lifecycle through providing support at each step from awareness to improved customer satisfaction (Bardhan, 2007; Srinivasan & Moorman et.al, 2005).

The improved customer satisfaction will generate loyalty and willingness to pay which finally lead to higher sales growth (Babakus, Bienstock, and Van Scotter et.al. 2004). Mithas et al. (2012) investigate the impact of IT investment, as compared to other discretionary intangible investments such as research and development and advertising, on profitability and they empirically report a significant positive association between IT investment and profitability (Ali, I.et.al. 2016). ERP implementation is accompanied with some integration problems, such as the integration with legacy systems, the integration with internal business process and external partners. These problems may hamper the bank's daily operation and lead to an increase in costs and a decline in financial performance (Arzizeh T. & Joseph U., 2018).Therefore, the study will bridge the gap to find the effects of ERP systems on organizational performance the case of commercial bank of Ethiopia using objective financial metrics which inform the financial performance.

1.3. Research Question

1. What is the impact of the ERP system implementation in post-implementation performance of CBE as compared to pre-implementation period?
2. Does ERPs implementation creates operational benefits for CBE?
3. Does ERPs implementation offers strategic benefits for CBE?

1.4. Objective of the Study

1.4.1. General Objective of the Study

The general objective of the study has identifying the impact of enterprise resource planning systems on the organizational performance of commercial bank of Ethiopia.

1.4.2. Specific Objectives of the Study

The aim of this study has been evaluating the effect of Enterprise Resource Planning (ERP) systems on the organizational performance in the case commercial bank of Ethiopia. In specific terms, the research objectives are:

1. To evaluate the impact of the ERPs implementation in post-implementation performance of CBE as compared to pre-implementation period.
2. To determine the impact of ERPs implementation on operational benefits of CBE.
3. To determine the impact of ERPs implementation on strategic benefits of CBE.

1.5. Research Hypothesis

In order to achieve the above stated objectives and provide answer to the research questions, the researcher has formulated the following null research hypotheses. **H1**: Compared to pre, ERPs implementation has a positive significant impact on CBEs performance in term of return on assets (ROA), return on invested capital (ROIC), return on equity (ROE) in post implementation period

H2a: compared to pre, ERPs implementation has a significant impact on CBEs efficiency(**ER**) in post-ERP implementation period.

H2b: compared to pre, CBE has performed better in overhead burden (**OHB**) and productivity ratio (**PROD**) in post-implementation period.

H2c: compared to pre, the size CBE has increased in post-ERP implementation period.

H2d: compared to pre, ERPs implementation negatively affects CBE's operating expense (OX) in post implementation period.

H3: compared to pre, ERPs implementation has improved a better profit margin (**PM**) of CBE in post implementation period.

1.6. Significance of the Study

This study has sought to evaluate the effect of ERP systems on the organizational performance of commercial bank of Ethiopia. The results of this study will be of much importance from academic research point of view as well as administrative and management point of view. From the academic research perspective, this study will add to the body of knowledge in the area of information technology management and banking finance. From the administrative and management point of view, the findings of this study will be of immense benefits to bankers which influence to increase investments in IT facilities based on noticeable payoffs on performance evaluation. It will assist top management and policy makers with improved decision making strategies and setting ERP systems expectations at the time of acquisition and implementation, It could be a feedback to ERP vendors and manufacturers to improve the quality and functionality of ERP modules for banking industry . Finally the result will assist the commercial banking industry in achieving a new horizon of performance improvement viability and overall efficiency.

1.7. Scope of the Study

The scope of the study has been conducted taking a single-case study to examine the impact of ERP on organizational performance in the case CBE which is the only ERP adopting commercial bank in Ethiopia. The study will identify the extent of ERP implementation and measure the impact of ERP implementation on financial performance of CBE in post ERP implementation period by taking audited financial statements of CBE from the years2012-2019.

1.8. Organization of the Thesis

The study has five chapters. Chapter one deals about a general introduction about ERP systems which includes about background of the study, statement of the problem, general and specific research objectives, research questions, the need or significance of the research, its scope and limitations of the study. Chapter two has discussed about detailed literature review on ERP, the impact of ERP systems on organizational performance and find the potential literature gap. Chapter three has discussed in detail about the methodology of the research, data collection, and analysis techniques. Chapter four has contained details of data analysis, discussion and interpretation of the research findings.. Finally, the last chapter has forwarded conclusions and recommendations based on the study findings for internal and external users.

CHAPTER TWO

REVIEW OF LITERATURE

2.1. Theoretical Review

2.1.1. Information Processing Theory (IPT) Perspective of ERP Systems

According to IPT the key task for organizations is managing uncertainty, such as task complexity and the rate of environmental change (Galbraith, 1973; Galbraith, 1977; Tushman and Nadler, 1978). To do so, organizations must deploy the information processing mechanism (or combination of mechanisms) that is most appropriate for managing the uncertainty that the organization faces. Galbraith (1973; 1977) suggests that simple coordination mechanisms (e.g. standard operating procedures, hierarchical referral) are appropriate for low uncertainty environments. As uncertainty increases, firms must respond with some combination of four more complex modes. In particular, information processing capacity can be increased by facilitating lateral relations between sub-units, implementing an integrated computer information system, such as ERP. The need for information processing can be reduced by creating self-contained tasks or by accepting greater inefficiency or "slack".

Applying IPT to manufacturing plants, Flynn and Flynn (1999) examined a variety of information processing approaches. Their results support the theory for the most part: Uncertainty was associated with lesser performance, but several uncertainty management mechanisms moderated this relationship. Notably however, investments in information technology did not have a positive impact. Benasou & Venkatraman (1995) find support for IPT in the supply chain management arena: Matching the level of uncertainty (complexity, interdependence, variety) in supply relationships with information processing capacity (number of communication channels, scope of IT use, frequency of interpersonal contact, and so on) increases performance-related outcomes. From an IPT point of view, ERP can be conceptualized as a particular type of information processing mechanism. Thus, IPT suggests that the impact of ERP (like the impact of any information processing mechanism) will vary from company to company (or plant to plant) because the relevant uncertainties typically vary from company to company and

plant to plant. Establishing the particular uncertainties that ERP is well suited to handle may help explain some of the varying results practitioners and academics have reported with ERP.

Tushman and Nadler (1978) discuss uncertainty from the perspective of the subunits that make up the firm (e.g. manufacturing plants, marketing, R&D). The researchers suggest three important sources of uncertainty: the nature (e.g. complexity, instability) of the core task that the subunit is responsible for executing, the nature of the environment facing the subunit (a subset the environment of the company overall), and the degree to which the subunit's activities are interdependent with other subunits. Since the interface deals with interactions between organizational subunits (manufacturing, human resource, and marketing), Tushman and Nadler's subunit perspective is potentially quite useful. Numerous studies find that the value of subunits interface increases with the amount of uncertainty faced by the company. This suggests that an integrated information system will be a particularly good solution when various departments within the organization need to coordinate tightly (Goodhue, Wybo and Kirsch, 1992). In other words, since a hallmark of ERP is integrating the data and processes of a company's different business functions, ERP might be a good fit when interdependence between business functions is an important source of uncertainty. McCann and Ferry (1979: 114) define interdependence as "a condition where actions taken within one unit affect the actions and work outcomes of another unit". Interdependence between two units increases the likelihood that changing conditions in one unit require another unit to adjust (Thompson, 1967). As an integrated information system, ERP facilitates this type of adjustment by making each function aware of information about other functions. Thus the central proposition of this theory is: Certainly subunits in the organization always share some degree of interdependence, and, over the last 20 years, this interdependence has often increased as companies have reduced inventories and lead time buffers. Nevertheless, it is reasonable to expect the level of interdependence with sales and marketing to vary from company to company and from plant to plant within a company. For example, plants that produce many product configurations or that serve new markets or that have unpredictable competitors may well need to coordinate manufacturing and marketing decisions tightly. By contrast, a mature market for standard products may

change relatively little from day to day or month to month and thus would not require frequent re-allocations of manufacturing resources based on market conditions. Barua et al (1995) also recommend capturing "intermediate variables" that may lead to the overall effect of the information system. The focus on subunits interface suggests that the appropriate intermediate benefit to examine should be ERP-enabled coordination improvements. We define coordination improvements as the degree to which ERP helps a plant adjust to changing conditions relating to sales and distribution. This suggests that these coordination improvements are an important part of ERP's overall plant level impact. Thus Greater ERP-enabled coordination improvement (in coordination With marketing) is associated with greater overall plant-level ERP benefit.

2.1.2. Theories of Banking

The phrase theory of banking may sound strange to most readers. Surely, one feels, banking is something people do, not something they build armchair theories about. But in fact, theories of banking - abstract arguments dealing with the pros and cons of how banks should and do behave – have been with us for hundreds of years. The reason for this is that for centuries commercial banks have been recognized as institutions occupying a strategic position in the overall functioning of the economy. So important is this position, indeed, that it has long been recognized that we cannot hope to solve many of the major social.

Problems that beset us, such as inflation and unemployment, without some general knowledge of the internal workings of a commercial bank. A bank is not just another business like a furniture store or a lumberyard. The decisions made by bankers quite literally permeate the entire economy, affecting the decisions made by business people, housewives, and government officials. In fact, reduced to its simplest terms, the whole idea behind central banking and monetary policy is that if we can somehow influence the decisions made by bankers, then these decisions in turn will influence the decisions made by everyone else. In this indirect fashion we can control the overall functioning of the economy. In order to implement such a method of control, it is necessary to understand why bankers do what they do – what their motives are and the particular problems they face (Dudley, 2001).It should not be inferred, however, that banking theory is simply a

sort of abstract description of what bankers do. The relationship between banking theory and banking practice is more complex than this. For the decisions of bankers are as much influenced by the prevailing theory of banking as the theory is by current banking practices (Dudley, 2001). The oldest theory of banking is the commercial loan theory, also called the real bills doctrine (the terms are used interchangeably). This theory dates back at least two centuries, and a discussion of it can be found in Adam Smith's Wealth of Nations, first published in 1776. Others are the Shiftability Theory and Anticipated Income Theory. In our modern time, a blend of the three theories of banking called liability management theory has emerged and for now remains the state of the art as far as modern commercial banking is concerned (Dudley, 2001; Herbert, 2009).

2.1.2.1.The Commercial Loan Theory

Stated in its most succinct form, the commercial loan theory holds that banks should lend only on "short-term, self-liquidating, commercial paper". Naturally, each of these terms needs defining. In banking, a short-term loan is a loan maturing in less than one year from when it is first made. Such loans carry the connotation of seasonality; that is, the inference is that they are made to accommodate the seasonal aspects of a business, not for the purpose of furnishing a firm with permanent capital. Self-liquidating means that the loan contains within itself its own means of repayment; that is, the very nature of the loan generates the funds necessary to pay it off. A good example would be a retail toy store that did its peak volume of business in the three months preceding Christmas. Such a store might borrow from a bank to finance the purchase of inventory in September; during October, November, and December, the toys are sold and the bank loan is then repaid out of the proceeds of these sales. The loan is thus self-liquidating in the sense that it has liquidated, or repaid, itself. Commercial paper refers to debts that arise in the course of commerce – the processing, moving, and marketing of goods. The intent here is to emphasize that the loan is solidly based on "real" goods as opposed to loans for speculative or purely financial purposes. The alternative phrase for the commercial loan theory, the real bills doctrine, highlights this aspect of the theory (Dudley, 2001).The commercial loan theory had as its primary objective the stabilization of the banking system. The theory reached its heyday during the nineteenth century, before the

establishment of the Federal Reserve System. At that period, a bank had to remain liquid, solvent, and profitable on its own; there was no government agency charged with the responsibility of bailing it out if it got into trouble. Given the times, the real bills doctrine may well have been the best rule of thumb available for bankers to follow. Nevertheless, the commercial loan theory is flawed by serious misconceptions, both analytical and historical. On a theoretical level, the most basis weakness of the real bills doctrine is that it misconceived the nature of what is and is not "real". It is true, of course, that an inventory of toys is real in the sense that toys are actual things that one can see and touch. But in fact the bank isn't making loans on the goods themselves. Rather, it is lending on the value of the goods, which is quite a different matter altogether. Even had all banks adhered rigidly to the tenets of the commercial loan theory, they would nevertheless have been vulnerable to bankruptcy during the periodic depressions of the nineteenth century (Dudley, 2001; Herbert, 2009). Not only was the real bills doctrine theoretically unsound, it also grew to be fundamentally out of touch with historical reality, particularly in the latter half of the nineteenth century (Hammond, 1934). The commercial loan theory, or real bills doctrine, has been a persistent theory of banking. Vestiges of it still remain in the structure of bank regulatory agencies, bank examination procedures, and the thinking of many bankers. One cannot understand contemporary banking without an understanding of our banking history, and one cannot understand banking history without an understanding of the commercial loan theory (Dudley, 2001).

2.1.2.2.The Shiftability Theory

Beginning roughly at the turn of the twentieth century, a new theory of banking emerged in the banking scene: the so-called shiftability theory of banking. It is necessary to take careful note of the fact that the shiftability theory did not replace the commercial loan theory in the sense that the latter was completely scrapped and held to be invalid. Instead, the shiftability theory took a more general view of the banking business by broadening the list of assets deemed legitimate for bank ownership. The shiftability theory does not say that commercial loans are inappropriate bank assets; it does say that commercial loans are not the only appropriate asset (Harold, 1918; Herbert, 2009).The central thesis of the shiftability theory may be stated very simply. This theory holds that the liquidity of

a bank depends on its ability to shift its assets to someone else at a predictable price. Thus, for example, it would be quite acceptable for a bank to hold short term open market investments in its portfolio of assets.

In the early 1900s only a handful of banks made use of the shiftability theory in their management practices. The reason the number of banks was small was primarily the lack of an adequate volume of money market instruments capable of serving as secondary reserves. But World War I in 1917 resulted in a substantial growth in the public debt and the subsequent issuing of Treasury bills by the federal government. Additionally, call loans, secured by stock exchange collateral and repayable on demand, came much into vogue in the 1920s. These two instruments made it possible for virtually all banks to switch to the management practice of shiftability. The defect of the theory was simply this: Although one bank could obtain needed liquidity by shifting its assets, the same thing was not true of all banks taken together. The problem became acute, only in times of crisis. But the crisis – the worst one of them all during that period – finally came in 1929-1933. It is elementary that for every seller there must be a buyer. But in 1929-1933, all the banks wanted to be sellers and none of them wanted to buy. This was a call for an independent agency, indeed, the role for which the Federal Reserve System had been designed (Dudley, 2001). .

2.1.2.3.The Anticipated Income Theory

In the late 1940s a new theory of banking became prominent in much of the advanced economies. This theory came to be known as the anticipated income theory. Properly understood, this theory was a rival only to the commercial loan theory, not to the shiftability theory. It did not question the shiftability view that a bank's most fundamental source of liquidity is its secondary reserves. Rather, it again focused attention on the types of loans appropriate for a bank to make but came to quite a different conclusion than that reached by the advocates of the commercial loan theory. For the anticipated income theory, in contrast with the commercial loan theory, concluded that it was quite all right for a bank to make long-term and non-business loans (Dudley, 2001). According to the anticipated income theory, there is no such thing as a self-liquidating loan. Goods will not sell themselves, nor is there any guarantee that the goods will be as valuable

tomorrow as they are today. Instead, even a "real bill" is repaid out of the future earnings of the borrower, that is, out of anticipated income. But if anticipated or future income is the true source of bank-loan repayment, then there is no reason to confine bank lending to the traditional commercial loan. What is critically the issue is the borrower's ability to repay the loan out of future earnings, nothing more. Thus, under the anticipated income theory, it became acceptable for banks to engage in a much broader range of lending. Specifically, banks began to make long-term loans to businesses, consumer installment loans, and amortized real estate mortgage loans. Today, these three categories constitute well over half of all commercial bank loans (Herbert, 2009; Dudley, 2001).

2.1.2.4.The Liability Management Theory

Several significant developments in banking practices during the 1960s radically changed the traditional view of banking. Out of these new practices emerged a new theory, the liability management theory of banking (Herbert, 2009). Liability management is something of a misnomer. It does not mean that the bank manages only its liabilities and is passive with respect to its assets. Rather, the theory continues to recognize that the asset structure of the bank has a prominent role to play in providing the bank with liquidity. But the theory goes beyond this one-dimensional approach to liquidity and argues that the bank can also use its liabilities for liquidity purposes. How can a bank manage its liabilities so that they actually become a source of liquidity? The short answer is that when the bank needs money, it "just goes out and buys it". But this answer is too short; it does not adequately convey the fundamental nature of the change in banking practices caused by the concept of liability management (Dudley, 2001). A bank is legally required to pay its demand deposits whenever its customers want them, which alone is sufficient to dictate the bank's concern for liquidity. But there is also a second reason why a bank needs liquidity, a reason which, while not a legal necessity, is almost equally as compelling: The bank needs to be able to meet the reasonable loan requests of its customers. Not only are bank loans very profitable, but a bank that won't or can't make loans to its depositors when they need funds is not likely to keep those depositors for very long (Dudley, 2001; Herbert, 2009). As with the theories discussed previously, banking theory and practice interacted with one another in the development of the

liability management concept of banking. Liability management began with the rapid growth of the federal funds market in the late 1950s, but much later in the 1900s for most developing economies in the world (Herbert, 2009).

2.2. Development of Enterprise Resource Planning (ERP)

2.2.1. ERP Systems Modules

According to (Nicolaou, 2004) ERP modules are classified in to three, these are:

The Primary Modules

These are defined as activities that deal with physical creation of products, marketing and delivery of products to customer and their support and servicing after sale. These are generally referred to as value chain modules. This module integrates all basic activities in the organization (such as manufacturing, processing, ordering marketing, sales and services) together to enhance efficient service delivery to customers and clients at all time.

The Support Modules

These are defined as activities that are associated with inputs and infrastructure that permit primary activities. They support the value chain to enhance service delivery. Support activities include human resources, financial management, accounting, business information warehousing, legal work and general management.

The Combined Modules

These are defined in term of primary and support modules. A situation where an organization adopts both primary and support modules at the same time, ERP systems scope has clear impact on firm performance, and implementing these modules in any combination can lead to significant increase in organizational performance (Hitt et al, 2002). However, firms that implemented all ERP modules actually had a slight performance reduction when compared to the firms that had implemented only the primary or support modules. This reduction in performance can be attributed to the complexities associated with implementing additional modules (Nicolaou, 2004; Hilt et al., 2002).

2.2.2. Evolution of Enterprise Resource Planning Systems

Manufacturing enterprises and other types of organizations involved in manufacturing, sales and distribution activities have been using computers for many years to improve productivity, profitability and information flow across the enterprise. ERP system traces its roots commencing from standard inventory control packages to Material Requirements Planning (MRP), and Manufacturing Resource Planning (MRP II). An inventory control system was the software designed handle traditional inventory processes. It was one of the early business applications, which did not belong to the management, finance and accounting area (Wieder et al, 2006:24).In the 1970s, the production-oriented information systems were known by the name MRP.MRP at its core is a time phased order release system that schedules and releases manufacturing work orders and purchase orders, so that subassemblies and components arrive at the assembly station just as they are required. Some of the benefits of MRP are reduction of inventories; improved customer service, enhanced efficiency and effectiveness (Siriginidi, 2000:385; Plossl,1985).

In the early 1980s, MRP expanded from a material planning and control system to a company-wide system capable of planning virtually all the firm's resources. This expanded approach was MRP II. A major purpose of MRP II is to integrate primary functions (i.e. production, marketing and finance) and other functions such as personnel, engineering and purchasing into the planning process to improve the efficiency of the manufacturing enterprise (Chen, 2001:380; Chung and Snyder, 2000:28).Since the 1980s, the number of MRP II installations has continued to increase, as MRP II applications became available on mini and microcomputer (Siriginidi, 2000:386). Like MRP, MRP II focused on the manufacturing process. The next stage of MRP II evolution was just-in-time (JIT) methodology that combined with the plummeting price of computing to create the islands of automation in late 1980s (Vollman et al,1997).

The Gartner Group of Stanford, CT, USA, coined the term ERP in the early 1970s to describe the business software system that is the latest enhancement of an MRP II system. A key difference between MRP II and ERP is that while MRP II has traditionally focused on the planning and scheduling of internal resources, ERP strives to plan and schedule supplier resources as well, based on the dynamic customer demands and

schedules (Chen, 2001).The maturity stage of ERP occurred in the mid-1990s. The scope offered by ERP expanded to include other "back-office" functions such as order management, financial management, warehousing, distribution production, quality control, asset management and human resources management. The evolution of extended- ERP systems has further expanded in recent years to include more "front office" functions, such as sales force and marketing automation, electronic commerce and supply chain management systems. The scope of ERP implementation encompasses what is often referred to as the entire value chain of the enterprise, from prospect and customer management through order fulfillment and delivery. The technological evolution of ERP from MRP has been presented in detail by Chen (2001:380) and Chung and Snyder et al. (2000).

2.3. Organizational Performance: Trends and Framework

Cooper & Jackson (1997) and Howard (1995) observe that organizations and work as a whole are undergoing dramatic changes which have implications for conceptualizing and understanding performance. In this section we focus on five major trends: the importance of continuous learning, the relevance of proactivity, increase in teamwork, globalization, and technology. With the description of these trends we illustrate possible and necessary avenues for future research on organizational performance (Ilgen & Pulakos, 1999).

Continuous Learning: Because of technological innovations and changes in organizational structures and processes, individual work requirements are quickly changing. As a consequence, continuous learning and competence development become increasingly important. Individuals need to be willing and able to engage in continuous learning processes in order to accomplish their present and future tasks successfully. This development has implications for our theorizing on performance. Campbell (1999),Hesketh and Neal (1999) and London and Mone (1999) proposed to incorporate learning into the performance concept. Similarly, Pulakos, Arad, Donavan, and Plamondon (2000) recently suggested 'adaptive performance' as a new performance concept in which 'learning' constitutes a major performance dimension. This development is a profound departure from past conceptualization in which learning was seen as a prerequisite for performance, i.e. learning mattered mostly with respect to future

performance in which the newly acquired skills or knowledge were needed. Now, learning itself is seen as part of the performance concept, which should be measured and rewarded as a performance component (London & Smither, 1999).

One might question whether it makes sense to include organization learning into the core of the performance concept. For example, one might argue that what ultimately counts for an organization is the individuals' performance and not their learning – although learning might help to perform well. This line of reasoning stresses that learning is a highly relevant predictor of performance but is not performance itself. Nevertheless, even if we do not want to go so far as to conceptualize learning as part of performance, permanently changing work requirements and associated demands for learning have an effect on our theorizing about performance. Research on skill acquisition has shown that the predictors of performance differ across the various phases of skill acquisition (Ackerman, 1988; Murphy, 1989). Learning becomes a continuous necessity, the duration and occurrence of the traditional skill acquisition versus maintenance stage changes. Then, skill acquisition is no longer a single event which is completed before the maintenance stage starts. Rather, individuals will go back and forth between the skill acquisition and the maintenance phase. This implies that ability (i.e. general mental ability) becomes increasingly important because it is needed during the skill acquisition phase (Murphy, 1989).

Proactivity: In today's work environments proactivity becomes increasingly important. To perform well it is no longer sufficient to comply with prescribed job requirements but to go beyond what is formally requested (Frese, 1997; Parker, Wall, & Jackson, 1997). This development has consequences for conceptualizing performance and for specifying performance predictors. With respect to the performance concept, proactive behaviours such as personal initiative become an essential part of contextual performance (Frese et al.,1996; 1997). Moreover, personal initiative has been shown to be related to organization performance, particularly in entrepreneurial businesses (Koop, De Reu, & Frese, 2000).One can assume that the relevance of personal initiative and similar behaviours (Morrison& Phelps, 1999) increase further when environmental and global changes become even more dynamic. In addition, this development implies that

proactivity might become an important predictor of task performance. For example, research has shown that a proactive personality is related to job performance in real estate agents (Grant, 1995). Other variables such as role breadth self-efficacy play a similar role (Parker, 1998). .

Working in Teams: Organizations are increasingly implementing teamwork and other group work arrangements (Ilgen, 1999; West, Borrill, & Unsworth, 1998). Therefore, one might argue that organizations become more interested in team performance than in individual performance. However, because teams are composed of individuals, team processes and team performance cannot be completely understood and improved without taking individual performance into account. From the perspective of individual performance, three interrelated aspects are important here. First, which individual difference variables predict individual performance within a teamwork setting? Second, which aspects of individual performance are relevant for team performance? Third, how does individual performance translate into team performance? As an answer to the first question, researchers have suggested that task-related skills and knowledge are not sufficient when accomplishing tasks in a team-work setting. Additionally, interpersonal and self-management skills and knowledge are regarded to be essential for performing well in a team-work setting (Stevens & Campion, 1994). With respect to the second question, individual task performance is necessary for high team performance. Moreover, for a team to accomplish its often interrelated tasks, this will not be sufficient. One can assume that specific facets of contextual performance, particularly helping and altruistic behaviour, are highly relevant here. For example, Podsakoff, Ahearne, and MacKenzie (1997) have shown that helping was positively related to both quantity and quality aspects of group performance in a production setting. The third question of how individual performance translates into team performance refers to the discussion on multiple levels within organizational research (Kozlowski & Klein, 2000; Rousseau, 1985). The question might sound trivial and the answer straight-forward when the tasks to be accomplished are additive and team performance is just the sum of team members' individual performance, e.g. when all team members assemble a product independently from one another – however, then one might question whether this group is a team at all. In many teamwork settings in which tasks are disjunctive and in which members are

mutually dependent on one another, the combination of individual performances into team performance is much more complex (Sonnentag, 1999).

Globalization: 'Globalization' has become a catchword when describing today's business world. Globalization comprises two major developments: first, products and services are produced for a global market and they compete worldwide; second, companies 'workforces become increasingly global, i.e. 'culturally diverse'. With respect to the delivery of global products and services, the consequences of globalizations are most obvious within direct employee-customer interactions. What is regarded as good individual performance in these interactions varies largely between different cultures. When companies ignore these differences and implement globally the identical selection, training, and performance evaluation procedures, they might miss those feature and behaviors which are perceived as the most appropriate in a specific culture, i.e. those which constitute high individual performance. Also the fact that many organizations employ a globally composed workforce is linked to issues of individual performance. For example, individual's culturally diverse teams and expatriates are faced with very specific requirements. Individual performance in these settings is predicted by a complex set of specific variables (Ones & Viswesvaran, 1997).This specific set of variable, however, might be less predictive for individual performance in mono-cultural settings. Moreover, performance appraisal issues differ largely across cultures (Cox & Tung, 1997). Thus, globally operating companies are faced with great challenges when trying to implement an identical performance appraisal system worldwide.

Technology: Technology, particularly computer and information systems, play an important role in most work processes. In many jobs, individual work behavior, thus performance, is very closely linked to the use of technology-based systems. This development has implications for conceptualizing and measuring performance. As Hesketh and Neal (1999) have pointed out, the widespread use of technology in work processes threatens traditional views of performance in which performance is conceptualized as behavior which is completely under the control of the individual (Campbell, 1990).Practically, it becomes very difficult to separate the technology's and the individual's contribution to individual performance. Hesketh and Neal introduced a

person by technology (P x T) interaction perspective on performance and suggested that the way an individual uses the technology is an important performance component. Moreover, with the increased implementation of well-designed user interfaces of technically highly sophisticated devices, such as Enterprise Resource Planning (ERP) systems, the relevance of specific skills and knowledge needed in previous work systems decreases while other skills and knowledge become more important in the performance process.

2.3.1. Performance Measurement Frameworks

The Du Pont cousins appear to be widely recognized as the founders of modern performance measurement with their Pyramid of Financial Ratios, according to Neely et al. (2000: 1124) – albeit that theirs was an accounting measurement system – a fact which seems to be supported by the development in 1993 of a similar framework of financial and non-financial performance measures by the Institute of Chartered Accountants of Scotland (ICAS). Neely et al. (2000: 1122-1130), Tangen (2004: 728-735) and Neely, Kennerley and Adams (2007: 144-148) review a number of other performance measurement frameworks, summarized below. .

The Performance Measurement Matrix: Keegan, Eiler and Jone's Performance Measurement Matrix (1989). This matrix combines financial and non-financial elements of the business as well as external and internal factors. Neely et al.'s criticism of this matrix, though, is that it fails to show the relationship between these elements. .

The Results and Determinants Framework: Fitzgerald, Johnston, Brignall, Silvestro and Voss's (1991) results and determinants framework provides an alternative which proposes that performance measurement is based on driving determinants of quality, flexibility, resource utilization and innovation and the resulting financial performance and competitiveness of the business. . .

2.4. Empirical Review

2.4.1. Interaction of ERP Systems and firm Performance

The impact of ERP system use and overall firm performance was provided by Markus et al., (2000) which compare return on assets, return on investments and asset turnover for

ERP users and non-users. Even though, it did not indicate a performance improvement for ERP system users it was found that the financial performance of users has not declined during their test period, whilst the performance of non-users has declined during the same period. (Ahlawat &Punam, 2011)In this section of the study the researcher has empirically explore the relationships between organizational use of ERP applications and its relation with performance from different articles and findings of other researchers.

The association between IT and the performance of an organization has been one of the major topic that concerned researchers for quite a long time. According to Pavlou et al. (2005) earlier18 studies did not conclusively show the positive impacts of IT investments on either firm or process performance. There are number of researchers that believe in the positive relationship of IT and business performance, however there are others arguing that investments in IT (or ERP specifically) do not contribute to improved financial performance.

One could hypothesize, as Elragal and Al-Serafi (2011) do, that "there is a mixed result when analyzing the effect of IT on business performance". Although according to the theory, IT investments are supposed to enhance productivity, first empirical research on the field (between 1980 and 1990) showed that there were no additional productivity gains, for those companies that invested in IT. The phenomenon is called „productivity paradox". However, recent research findings indicate that IT actually can lead to productivity improvements (Sudzina et al., 2011; Maroofi et al., 2011).

Researchers tried to find the root of this problem and identify possible factors, which can lead to a positive relationship between IT and business performance. Such factors were found to be organizational change, innovation and increased employee skills (Pilat, 2004), spurious measurements of output to measure productivity, measurements done before the long payoff time until when returns on IT investments accrue, economy-wide measurements errors due to rearrangements of output, and mismanagement (Hamilton and Asundi, 2008) are possible factors for a negative relationship. Some other factors that can influence the financial performance of adopters are competitive intensity, industry heterogeneity, demand uncertainty, and adoption rate of competitor firms.

On the other hand, the results of Hitt et al. (2002) were capable of showing that during an ERP implementation, the financial performance of a firm increases. According to Madapusi and D"Souza (2012), the more ERP modules implemented by a firm, the more strengthened its performance will be. Empirical investigation by Velcu(2005) shows that successful ERP adopters have a higher financial performance comparing to the less successful ERP adopters. The idea was that a less successful adoption can prevent the efficiency of assets utilization and business processes. Inorder to measure the financial performance, indicators like: ROA, ROI, profit margin, assets turnover, capital turnover, and the ratio wages / total costs were used. The findings showed no significant difference in the financial performance change after implementation between the two groups of firms as far as ROA and ROI are concerned. However, successful ERP adopters seem to have better efficiency benefits than the less successful ERP adopters, in terms of Assets turnover and Capital turnover, during the first two years of the ERPs implementation. Hunton et al.(2002) examines the effect of ERP implementation on firm performance by comparing adopters versus non-adopters .According to these studies finding ,At this stage, researchers proved that firm which had implemented ERP systems had better performance than those which had not.In his other study Hunton et al.,explained that, the difference in firm performance between adopters and non-adopters is due to the fact that the performance of the former remained fixed and the performance of the latter reduced. It seems that the adoption of IT can or cannot enhance performance but in each case "the performance of non-adopters would be expected to deteriorate by comparison in a competitive marketplace".

Njihia and Mwirigi (2014) researched on the effects of ERP systems on a firm's performance and surveyed commercial banks in Kenya. They found that financial resource availability, organizational complexities, employee's perceptions, regulatory requirements, and having top management support all affects the effective implementation of an ERP system which will in turn affect the firm's performance.

A. T. Tapang & J. U. B. Azubike (2018) studied the effects of ERP implementation of financial performance of commercial banks in Nigeria.They founded that ERP may integrate with the bank's daily operation only after a long-term use and the financial

benefits of ERP may show. This indicates that the effect of ERP implementation on financial performance improvement have a time-lagged effect. Based on this, they have recommended that banks should set rational implementation goal before ERP implementation and put more emphasis on managing the implementation process. All banks in Nigeria should implement ERP so as to improve their efficiency and improve their financial performance.

2.4.2. Research on ERP in Ethiopia

ERP Systems have been successfully implemented in many enterprises in Ethiopia. Such as Ethiopian Airlines, Ethiopian telecommunication, Mugher and Derba Cement industries, Mesfine industrial engineering and Ethiopian shipping lines enterprise. Besides this, In Ethiopian banking industry, it is also currently implemented in commercial bank of Ethiopia which is the first bank that applied the new Enterprise Resource planning application called Oracle in Ethiopia. After implementation, ERP Software provides tremendous benefits like quality improvements, optimum utilization of scarce resources and cost reduction in the organization. An ERP Suite plays a critical role in integrating and automating the business processes in an enterprise. ERP in Ethiopia has helped in exposing the Ethiopian enterprise to the best practices and processes adopted internationally and serve as a catalyst to enhance their productivity and efficiency as well. Increasingly Ethiopian enterprises are witnessing and realizing the tremendous benefits a versatile and powerful ERP System brings to an enterprise and the imperative need for them to start their own enterprise automation journey as well with the implementation of a suitable ERP Solution in their enterprise too. As it has been mentioned in the above, those researches have conducted on ERP as follow: Abiot and Gomez (2012) conducted a research on a successful ERP implementation in the case study of Mesfin industrial engineering and its main objective of the study was to examine the implementation of ERP system considering the key technical, business and cultural dimensions. At the last of recommendation was necessary to study and report more ERP implementations in different Ethiopian companies. Secondly, Derese (2013) has made an assessment on successful ERP implementation framework at Ethio-Telecom, a government company. The main objective of the study was to present experiences that were obtained from a

successful ERP implementation project. Hence, the researcher developed a framework and identified CSFs that need to be addressed during reimplementation, implementation and post-implementation phases. Finally, he recommended that more researches should be conducted to identify more contextual factors. Thirdly, Sintayehu (2014) also conducted the research on the success factors for implementation of Enterprise Resource Planning system at Ethiopian Airlines. The objective of the study was to investigate CSFs and sharing experiences to other Ethiopian organizations with similar context and environment. At last, the researcher identified twenty factors that can be critical for the success of ERP system implementation in the context of Ethiopia. These are project planning, top management support, project management and leadership, capability of consultants, change management and communication, organizational readiness and overall knowledge transfer. The researcher also recommended more single and multiple case studies of ERP implementation should be conducted in Ethiopian organizations to strengthen the findings of success factors. The fourth research conducted by Elsa (2015) on ERP post implementation management framework on Ethiopian Airlines. The Main objective of this study was to investigate technical, organizational, and operational issues of ERP post-implementation success in the context of Ethiopian airlines. The study has indicated a high-level ERP post implementation management framework.

The fifth one was Kibebework (2015) who also conducted research focusing on the challenges and current status of ERP implementation, the case of Mugher and Derba cement industries. The main objective of this study was to assess the challenges and current status of ERP implementation in both companies. The researcher has found factors that affect ERP implementation, namely; disregarding organizational, people and strategy factors that encompass top management support, users training and education, effective project management, user involvement, suitability of software and hardware communication and data accuracy creates great challenge for the success of an ERP implementation. The researcher also found that, there is an explicit linkage between critical success factors and ERP implementation stages. Knowing such relation and determining which critical success factor are best needed in which ERP implementation stage may enable organizations to successfully implement an ERP. Foziya, A. (2017) has conducted research on “Factors Affecting the Implementation of Enterprise Resource

Planning at Commercial Bank of Ethiopia", her study findings were technological, organizational and people or individual factors affect ERP implementation into the CBE. The other research conducted on CBE, on the logistics point of view Shewit E.(2009)the research discusses the critical success factors of ERP implementation and its impact on organizational performance with the aim of assessing the relationship between ERP system implementation and performance. The study had objectives of finding out how organizations gained from the use of ERP, the critical success factors impact on implementation of ERP, the major variations observed in the fundamental objective of implementing ERP and their impact on organizational performance and assess if overall business activity was integrated and successful after implementation of ERP and which of the critical success factors lead to effective implementation of an ERP system which in turn will affect the firm's performance. The study found that factors that were considered critical to successful implementation of ERP were found critical and companies using the software should give emphasis on those factors considered critical to succeed while implementing ERP. Areas like education and training, top management support, considering organizational diversity and fit between organizational culture and ERP are among the factors that need high attention. Increase in overall firm performance is gained due to implementation of ERP and Cost of operations has been reduced, improvement in efficiency of resources has been effected, and reduced cycle time and more accurate and prompt data are found because of implementation of ERP.

2.5. Summary of the Review of Related Literature

Enterprise Resource Planning (ERP) systems, similar to other business solutions, are implemented to address specific needs and conform to the business characteristics of an organization. ERP systems might be suitable under many situations but less so under others. Benefits of ERP systems could include better coordination among subunits and administrative efficiencies. The more interdependent the sub-units in an organization are the more benefits will accumulate.

Empirical research (as opposed to user perception) on the impact of ERP systems on organizational performance includes studies by Poston and Grabski, et al (2001:272). Hunton(2003:174) and Nicolaou et al.(2004:82). These three studies used the same

methodology by sampling public firms that adopted ERP and compared their financial performance with the performance of a matching group of non-adopting firms. Various financial indicators were used to measure organizational performance for the ERP adopting firms and their matching non-adopting firms. These three studies resulted in contradictory conclusions and thus called for more research in the area of performance effects associated with the implementation and use of ERP systems in different industrial sectors and tailoring such study to different economies or country study (Ajao,Mayoa Gabriel,2012).

Even though ERP systems have been used by many organizations for over a decade, there remains dearth of research on the impact of ERP on organizational performance especially in developing economy like Ethiopia. Since researches indicate that ERP systems significantly affect various types of organizations, this study however seeks to measure the impact of ERP systems on the performance of commercial bank in Ethiopia. ERP is an investment with high costs and high complexity. The firms need to commit significant resources to ERP implementation and face with a great deal of difficulty in integrating ERP with their operations. Those make quantifying the financial benefits of ERP implementation an important research issue. To examine the impacts of ERP implementation on firm financial performance can shed light on the value of ERP systems and provide beneficial guidance on ERP investments. The issue of whether ERP is associated with improved financial performance has been studied by a great deal of literature, but there is relatively little literature to investigate the relationship between ERP implementation of Ethiopian firms and firm performance using objective financial data. Therefore, this study also contributes to the literature on the impacts of ERP implementation on firm performance in commercial bank of Ethiopia.

2.6. Conceptual Framework of Enterprise Resource Planning (ERP) Systems

ERP system is a specific form of information technology and business management systems that comprises integrated sets of comprehensive software which can be used when successfully implemented, to manage and integrate all the business functions within an organization. These sets usually include a set of mature business applications and tools

for financial and cost accounting; sales and distribution, materials management, human resource, production planning and computer integrated manufacturing, supply chain and customer information (Boykin et al, 2001; Chen et al, 2001). Hossain et al, 2002 Davenport (1998:125) notes that the main contribution of ERP systems is to provide management with direct access to real-time operating information, which can be turned into productivity gains for many organizations. He further observed that the best practices offered by ERP systems resulted in efficient operations for some companies while it worked against other organizations' best interests. The large investments involved with ERP systems deployment should be weighed against the final savings that these systems will generate, especially for organizations that compete on cost instead of product differentiation and customer service. Organizations that considered ERP systems strategically and in organizational terms would reap the most benefits from their systems (Aderet, 2002).

ERP is now considered to be the price of entry for running a business, and at least at present, for being connected to other enterprises in a network economy to create "business to business" electronic commerce (Boykin, 2001:106). Furthermore, many organizations restrict their business to only those firms that operate the same ERP software with them. It is a fact that ERP is for big firms and smaller firms have to adjust their business model and approach according to the practices and software adopted by the big firms. With the opening up of the economy, small to medium sized enterprises (SMEs) have found the going very difficult. Since they do not have the robustness associated with large companies, SMEs have to tap the power of information technology (IT) and an integrated information system to stay competitive and customer oriented (Kalakota and Robinson, 2001). ERP is often considered the answer for their survival (Rao, 2000:86). Therefore, the ERP software market has become one of today's largest IT investments worldwide, and it will continue to be one of the largest, fastest-growing and most influential players in the application software industry in the future (Adam and O'Doherty, 2000:310).Skok and Legge (2001:189) stress that ERP systems are implementations of standard software modules for core business processes and usually are combined with specially tailored customization to provide competitive differentiation.

The goal of ERP systems is to provide integration and functionality across multi-functional organizations. Implementing an ERP system involves a change of management initiative, which includes a review of processes across the organization. ERP packages touch many aspects of a company's internal and external operations. Consequently, successful deployment and use of ERP systems are critical to organizational performance and survival (Markus, et al, 2000). Potential benefits include drastic declines in inventory, breakthrough reductions in working capital and ability to view and manage the extended enterprise of suppliers, alliances and customers as an integrated whole (Chen, 2001). Nah et al, (2001) and Soh, et al, (2000) state that among the most important attributes of ERP is its abilities to automate and integrate business processes across organizational functions and locations; enable implementation of all variations of best business practices with a view towards enhancing productivity; share common data and practices across the entire enterprise in order to reduce errors; and produce and access information in a real-time environment to facilitate rapid and better decisions and cost reductions.

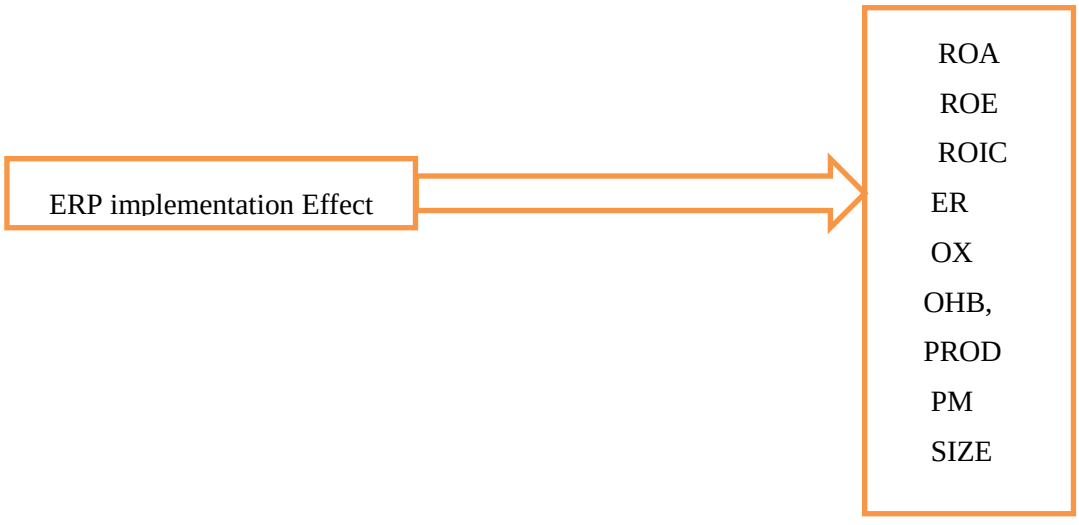
The various modules of ERP including engineering data control (bill of materials, process plan and work center data); sales, purchase and inventory; material requirement planning (MRP); resource flow management (production scheduling, finance and human resource management). Also, the model of ERP includes areas such as finance, logistics, human resources and workflow (integrates the entire enterprise with flexible assignment of tasks and responsibilities to locations, positions, jobs, groups or individuals) (Siriginidi,). Studies have illustrated that an ERP system is not just a pure software package to be tailored to an organization but an organizational infrastructure that affects how people work and that it "imposes its own logic on company's strategy, organization, and culture" (Davenport et.al., 1998; Lee and Lee et.al., 2000). Since ERP systems and packages are attracting increasing attention from both academic and industrial communities, a review of the recent development of ERP is needed to make decisions concerning ERP selection and implementation and to aid in guiding more research. All organizations, regardless of whether they are large or small, profit seeking or nonprofit, use some combination of resources to achieve their goals. These resources, or inputs, are generally obtained from the organization's environment. Some of these resources are human, financial, physical,

information etc. For combining and coordinating these resource to achieve organizational goals Managers are responsible.

Hunton et al., 2003 empirically tested the performance of ERP adopting (three years before and after adopting ERP) and non-adopting firms and found a diminished performance of non-adopting and unchanged performance of adopting firms. In this case, the benefit of ERP can be measured through peers' performance review of firms without ERP thus the benefit may be equal to the difference between the stagnant performance of firm with ERP and declining performance of firms without ERP. Contrary to this De Andres, Lorca, and Emilio Labra (2012) empirically investigated the impact of ERP implementation on the profitability of big firms in Spain and found a significant reduction in the profitability of ERP adopters as compared to non-adopters. This may be because of many reasons such as disturbance during ERP implementation, time lag before realizing ERP benefits, not considering whole life of ERP.

Figure 2.6.1. Conceptual frame works for determining the pre to post ERP implementation impact.

(Adopted from Ali I. (2016))



CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Introduction

\This chapter consists the research design and method descriptions that are going to in the study, such as deciding on data collection method for the study, uses of both primary and secondary types of data decision making, types of the research and sampling techniques.

Research Paradigm: Guba (1990) defines research paradigm as an interpretative framework guided by "a set of beliefs and feelings about the world and how it should be understood and studied." Even if there are three main types of research paradigms commonly used in the field of study: positivist, interpretive and Realists (critical), here in this paper, the researcher used both positivism and realism to answer the questions what, when and how for well describe the quantitative analysis.

3.2. Research Design and Approach

Pragmatic Research

Infract, by using pragmatism, researchers can focus on quantitative versus qualitative data from the mix of subjective and objective approaches to answer the research questions. Furthermore, Tashakkori and Teddies' (2003) explained that pragmatic paradigm contains deductive and inductive approaches that aim to clarify the truth of a particular phenomenon. In pragmatism, answering the research questions is more essential than the research method that is employed. With pragmatic paradigm, researchers have the freedom to choose procedures, methods and techniques of research that best suit their research requirements and objectives (Creswell, 2003). Therefore, the researcher focused on quantitative and qualitative data from the mix of subjective and objective approaches to answer their research questions and inductive approach also used.

3.2.1. Quantitative and Qualitative Research

As it can be observed from the research objective this study tries to show the effects of ERP systems on the organizational performance of CBE. The research approach can be either qualitative or quantitative or mixed approach. However, in order to achieve the broad objective of the study the mixed research method used. The mixed research method involves collecting and analyzing quantitative and qualitative data, which enables researchers to achieve a comprehensive understanding of the research. The rationale of using such a mixed approach in this study is to gather data that could not be obtained by adopting a single method (Creswell, 2003).

Accordingly, both qualitative and quantitative methods applied so as to present facts in a reasonable way. The qualitative method enables surveys to collect primary data or uses already collected or processed data called secondary. Denzin and Lincoln (2011) explain that qualitative approach uses a variety of techniques including detailed interviews, observation and document analysis.

Following this, the quantitative method was applied to support the quantitative findings in order to gain additional insight about the bank performance issues against ERP implementation. This quantitative portion of the study will be the major source of data input which involved a statistical analysis of data collect from financial statements of CBE from the years of 2012/13 -2019/20GC.That is three years before implementation (2012/13-2014/15GC), four years after implementation(from2016/17-2019/20). Pinsonneault and Kraemer (1993) state that quantitative research attempt to answer questions of ‘what’, 'how much' or 'how many'. Quantitative approach requires the collection of data or numerical objective that can be processed statistically to obtain a map, graph or tabulation as a basis for analysis.

3.2.2. Deductive and Inductive Approach

Deductive reasoning is described as a top-down, theory-testing process which is initiated by the analysis of the existing knowledge. The results are generalized. The generalized results contribute to new knowledge while the ultimate aim of deductive reasoning is a quest to uncover the truth and elements such as culture, language, knowledge and previous experiences, the researcher has a non-negligible influence on data collection.

Furthermore, the inductive research reasoning is described as a bottom-up approach with the focus on theory generation, as opposed to theory testing. Here Concepts, themes and logical argumentation are derived through detailed analysis of the raw data and interpretation of the empirical observations. Propositions are derived based on the observations and interpretations which are then developed in a theory (Blaikie, 2009). Accordingly, for this research paper inductive approach has been used to identify the effects of ERP systems on organizational performance of CBE, the researcher has derived through detailed analysis of the raw data and interpretation of observation, comes to conclude generally.

According to Yin (2003), the types of the study can be exploratory, descriptive, or explanatory. Exploratory studies are practical if one wish to clarify his/her understanding of a problem. It describes exploratory studies as a method of finding out "what is happening; to seek new insights; to ask questions and to assess phenomena in a new light". Whereas Explanatory studies are useful when one wish to establish causal relationships between variables. The emphasis in this sort of study is to examine a situation or a problem in order to explain the relationships between variables (Saunders, Lewis and Thornhill, 2000). Descriptive studies are appropriate when one wish to describe phenomenon such as events, situations or process.

3.3. Population and Sample Size

To the better understanding the effects of ERP on organizational performance of CBE, this paper has examined the financial performance before and after implementation periods. In order for the analyses ,this paper has selected return on asset(ROA),return on invested capital(ROIC),return on equity (ROE),efficiency ratio(ER),operating expense(OX),overhead burden(OHB),productivity ratio PROD, profit margin(PM)and bank size(SIZ) over which to measure the performance impacts. And this study used a purposive sampling method for the years CBE audited financial statements this study purposively sampling the financial performance of the case study CBE, for the years 2012/13-2019/20.

3.4. Types and Sources of Data

To make the study complete and meaningful the researcher used secondary data collection methods. The major source of secondary data was audited financial statements of CBE from the years of 2012/13-2019/20GC (that is three years before implementation or pre implementation (2012/13-2014/15GC), and post implementation performances (from2016/17-2019/20). The method used to collect data was Observation of the system, document review and CBE audited financial statements for the years 2012/13-2019/20 from the National Bank of Ethiopia.

3.5. Methods of Data Collection

For the success of this study, secondary data collection method was used. The secondary data collection was from various sources including books, annual reports, internet, magazine and ERP related documents in the library of commercial bank of Ethiopia and mainly from National Bank of Ethiopia (financial statements of CBE from the years of 2012/13 -2019/20GC.That was three year before implementation (2011/12-2013/14GC), and four years after implementation (from2016/17-2019/20)). Yin et al. (2003) argues that evidence from case studies may arise from six different sources, namely, interviews, archival records, documentation, direct or participant observations, and physical art facts.

3.6. Data Analysis and Presentation

To test the hypotheses of the study and achieve their goals of measuring the effects of ERP system implementation on organizational performance of Commercial bank of Ethiopia, SPSS25 was utilized to analyze the study data, where these methods were used as a Statistical Package for Social Sciences: paired samples T-test, descriptive statistics methods, standard deviations, multiple regression analysis test, and normal distribution test which were obtained from the audited financial statements of the commercial bank of Ethiopia on national bank of Ethiopia.

3.7. Model Specification

In order to investigate formulated research questions and hypothesis two approaches would use. Firstly, panel data methodology will be applied to test hypothesis. Secondly,

test for means equality will be applied in order to test the performance issues raised on the research questions. The nature of panel data model and test for means equality clearly discussed as follows:

3.7.1. Panel data model

The nature of data used in this study enables the researcher to use panel data model which is deemed to have advantages over cross section and time series data methodology. Panel data involves the pooling of observations on a cross-section of units over several time periods. A panel data approach is more useful than either cross-section or time-series data alone. As Brook et al. (2008) stated the advantages of using the panel data set; first it can address a broader range of issues and tackle more complex problems with panel data than would be possible with pure time-series or pure cross-sectional data alone. Second, it is often of interest to examine how variables, or the relationships between them, change dynamically (over time). To do this using pure time-series data would often require a long run of data simply to get a sufficient number of observations to be able to conduct any meaningful hypothesis tests. But by combining cross-sectional and time series data, one can increase the number of degrees of freedom, and thus the power of the test, by employing information on the dynamic behavior of a large number of entities at the same time. The additional variation introduced by combining the data in this way can also help to mitigate problems of multicollinearity among explanatory variables that may arise if time series are modeled individually. Third, by structuring the model in an appropriate way (fixed or random effect), we can remove the impact of certain forms of omitted variables bias in regression results and it can allow controlling for individual unobserved heterogeneity among the cross sections. A Simple linear regression was performed in SPSS25 to test if there is any ERPs implementation impact on post implementation financial performance of CBE.

$$A = \beta 0 + \beta 1 PreERP + \varepsilon$$

A = average during and post ERP performance as measured by performance over time t0 to t+3 for all the variables in table. β0 is constant whereas β1 shows the coefficient for Pre-ERP adoption performance as average of performance over time t-3 to t-1 and t+1 to t+4 in before and after periods respectively like other studies such as Hunton et al.

(2003), Etezady et al.(2008) ,In order to maintain the study more robust and reliable. Therefore the averages of the performance over time t-3 t-1 has been regressed over the averages of performance over time t+1 to t+4 to compare the post-implementation impact of ERPs on the financial performance CBE .

Thus, the general form of the panel data model can be specified as:

$Yit = \beta 0 + \beta\ Xit + \varepsilon$

In this equation, Yit represents the dependent variable, which is the firm's performance and Xit contains the set of explanatory variables in the model. The subscripts i and t denote the cross -sectional and time - series dimension respectively. Also β0 is taken to be constant over time t and specific to the individual cross-sectional unit i. In the light of the above model and on the base of selected variables the current study used econometric model as shown below.

Financialratio=f(PreERP)+ε

$ROAt=\beta 0 + \beta 1(PreERP)it+ \varepsilon$……..... (1)

$ROEt = \beta 0 + \beta 1\ (Pre\ ERP)it + \varepsilon$..... (2)

$ROIC= \beta 0 + \beta 1\ (Pre\ ERP)it + \varepsilon$..... (3)

$ER= \beta 0 + \beta 1\ (Pre\ ERP)it + \varepsilon$..... (4)

$OX= \beta 0 + \beta 1\ (Pre\ ERP)it + \varepsilon$……..... (5)

$OH= \beta 0+ \beta 1\ (Pre\ ERP)it + \varepsilon$..... (6)

$PROD= \beta 0 + \beta 1\ (Pre\ ERP)it + \varepsilon$..... .(7)

$PM= \beta 0 + \beta 1\ (Pre\ ERP)it\ + \varepsilon$..... .(8)

$SIZ= \beta 0+ \beta 1\ (Pre\ ERP)it\ + \varepsilon$..... .(9)

Where: t denote years ranging from 2012 to 2019 (time-series dimension).

Dependent Variables;

Financial Ratio= post ERP performance as measured by performance over time t1to t+4 for all the variables.

ROAt = Return on Asset for bank and time period t.

ROEt = Return on Equity for the bank and time period t.

ROIC= Return on invested capital for the bank and time period t.

OH = Overhead burden ratio for the bank and time period t.

ER = Efficiency ratio for the bank and time period t.

PROD = Productivity ratio for the bank and time period t.

PM = Operating profit margin for the bank and time period t.

SIZt = Bank Size for the bank and measured as the log of total assets at time t0.

Independent Variable

(Pre ERP)it = Pre-ERP adoption CBE performance as average of over time t-3 to t-1 .

3.7.2. Test for Means Equality

The main goal of this study is discovering the effects of ERP on organizational performance of CBE. ROA, ROE, ROIC, ER, OHB, PROD, PM, size of the bank are chosen to test whether significant differences between pre ERP and post ERP financial performance of CBE. Test for means equality are designed to compare two experimental conditions or means i.e. pre ERP and post ERP financial performance of CBE. This statistical technique tests the population mean of a variable is the same for two groups of cases. In addition, it defines a confidence interval for the difference between the population means of the respective groups.

3.8. Definition of Variables

A key benefit of ERP is that all the enterprise data are collected immediately during the initial transaction, stored and processed centrally and updated in real time. This ensures that the employees can share information and the managers can acquire more comprehensive, accurate and timely information to support their decision making. Therefore, this improves the decision-making quality and the firm's capability to take advantage of market opportunity. Information transferring costs and opportunity costs due to poor decision-making are reduced and the profitability is improved. Second, ERP

realizes the standardization and automation of business process and tracks down the employees' responsibility electronically. This facilitates the governance of the firm, reduces human errors and the monitoring costs, increases the efficiency and makes the management process more transparent. Further, ERP can be integrated with the firm's e-business and supply chain management systems. The integration with other systems automates the purchase and order management process, reduces the order cycle time, the transaction costs and the inventory holding costs, quickens the response time to customer demand and improves customer satisfaction. Taken together, ERP systems can reduce the firm's costs and boost the profitability (Lill, L, Miao. R. Li. C. 2007). This study tries to show the effect of ERP on the organizational performance of CBE with the help of performance measurement variables, because it's the biggest bank in Ethiopia and committed to implement ERP since 2015.The researcher have developed hypotheses about the expected behavior of selected variables in this study. The justification has also been given from literature to hypothesized change in variables.

3.8.1. Independent variable

We selected ERP implementation status of the firm as an independent variable (Pre-ERP adoption CBE performance as average of over time t-3 to t-1) following (Eteady, 2008).

3.8.2. Dependent Variables

Schryen (2013) reviewed more than 200 research papers on business value of IS and argued that most of the studies on financial performance impact of ERP could consider the profit ratios as compare to very low number of studies that include the cost ratios and turnover ratio. To fill in such an important gap a decent number of variables have been identified for an in depth analysis of performance effect of ERP. By in depth analysis means it is being tried in this study to find what actually leads the change in any of profitability variables. We got the help from literature in identifying the different variables.

3.8.2.1.ERP and Profitability

ERP investment promises the sale growth and cost reduction, hence it increases the adopting firms' profitability. However, the empirical results of the ERP impact on firm

performance are mixed. It is worth to note as Hitt et al. (2002) observed the reduction in firm performance immediately after the completion of ERP implementation, but the empirical study by Hunton et al. (2003) is suggesting that this decline in performance is temporary and company started to regain performance in a two-year post implementation period. Amid et al. (2012) argue that higher cost and complexity associated with ERP systems frequently leads to serious failure. Kwahk and Lee (2008) report that estimated failure rate of ERP system is higher than 60 percent. It is not the ERPs system software that brings the benefits for companies but the changes associated with ERP system that offer benefits (Donovan, 2000). However, these changes have frequently proven overwhelming in many firms that resulted in ERP project failure (Maguire, Ojiako, & Said, 2010). While reporting the Spanish firms' performance after ERP implementation de Andres, Lorca, and Labra (2012) find a negative impact of ERP system implementation on firm performance. The major concern of ERP system is its failure rate in term of time, budget and expected benefits however many recent studies empirically report the significant positive performance effect of ERP system either through cost reduction or through revenue growth. Hitt et al. (2002) empirical investigate the pre and post ERP implementation impacts on firm performance and find the significant positive effect of ERP on post-implementation performance. Hunton et al. (2003) investigated the effect of ERP system adoption on firm performance of adopting and non-adopting peers and empirically found significant positive effects on ROA, ROI and ATO for ERP system adopters as compared to that of comparable non-adopters. While investigating the impact of enterprise systems such as ERP, SCM and CRM, Hendricks et al. (2007) find not only statistically significant and strong positive relationship between ERP and firm performance but also they confirm no negative relationship between any enterprise system and firm performance. Mithas et al. (2012) empirically report the positive relationship between ERP system implementation and firm performance which is triggered by sale growth instead of cost reduction. Rozenes, Kukliansky, and Vitner (2014) investigated the impact of successful implementation of ERP system on financial performance and find a positive correlation between ERPs implementation and firms' performance. We have observed that a huge number of studies report a significant positive impact of ERP on firm performance. In more recent studies

they include (Anderson et al., 2011; HassabElnaby et al., 2012; Kallunki et al., 2011; Kouki, 2015; Lunardi, Becker, Maçada, & Dolci, 2014; Voulgaris et al., 2015).

Return on Assets=Profit After Tax/Total Assets

Return on Equity = Profit After Tax/ Total Equity

3.8.2.2.ERP and Cost Reduction

Real-time information and automation help the firms to reduce the cost in numerous ways. ERPs enable simultaneous access to a central database that keeps the different departments alert to react at the same time to certain tasks hence it creates efficiency in the organization.

IT investment, if handled properly, generates dual effects. It can not only facilitate higher sales as mentioned above but also it decreases the costs. IT investments have evidenced efficiency through supporting the lean transformational process of operational and supply chain management within and across the firms (Ilebrand, Mesoy, & Vlemmix, 2010). ERPs deployment injects the efficiency through reducing coordination cost by ensuring the tighter coordination among the departments that allows firms to react simultaneously to certain condition (Banker et al., 2006; R. Kohli, 2007; S. Mithas & Jones, 2007; Whitaker, Mithas, & Krishnan, 2010). ERPs facilitate the firm to reduce the costs associated with firms IT infrastructure by replacing ERPs for the scattered legacy systems (Shang & Seddon, 2002). Improved reaction time triggered by ERP implementation to fulfill the customers' orders facilitates the firm to reduce the inventory stock which results in enhanced inventory turnover. Holding less volume of inventory requires fewer workers to deal with thus reducing the labor cost as well as monitoring cost required to supervise the activities of decreased number of workers. If sometimes firm is facing unusual condition such as fulfilling a big order which demands more workers for a temporary time, timely information through ERP's central database allows the HR department to hire the laborers at competitive market price thus decrease labor cost. IT investment helps the firms to reduce the agency costs in two ways. First, Real-time data and automation and tight integration make it difficult for managers to manipulate accounts to show the larger profits and higher company performance at the end of fiscal year. Hence, deployment of ERPs can pacify the agency conflict between managers and

stockholders. Second, reduction in costs requires less capital to support firms' operations thus firm can reduce the borrowed amount or it can be used for additional productive activities. Therefore, ERPs implementation mitigates agency conflict between shareholder and creditors of the firm. There is consensus in literature that economies of scale and synergies arise up to a certain level of size. Beyond that level, financial organizations become too complex to manage and diseconomies of scale arise. The effect of size could therefore be nonlinear; meaning that profitability is likely to increase up to a certain level by achieving economies of scale and decline from a certain level in which banks become too complex and bureaucratic. Hence, the expected sign of the coefficient of bank size is unpredictable based on empirical literature. This study uses the natural logarithm of total asset to capture the potential non - linear effect of size similar to Athanasoglou et al. (2008) and Sastrosuwito & Suzuki (2011).In addition ,James E. Hunton, Barbara Lippincott, Jacqueline L. Reck, (2002) found that a significant interaction between size and health for three of the financial measures (ROA, ROI, and ROS). Their results suggest that large/unhealthy adopters experience better ROI than large/healthy adopters. Therefore the researcher expected significant positive/negative relationship between the size of a bank and the bank's performance.

Operating Efficiency =Total operating Revenue/Total Operating Expenses

Overhead burden ratio= non-interest expense –other income/net interest income

Productivity ratio = non-interest expense / net interest income + other income

3.8.2.3.ERP and Revenue Growth

Investment in information technology enables sales growth through on time delivery, new advertising, marketing and sales channels, improved customer service and better management of customer life cycle. ERP has been well recognized globally as a system that is providing real-time data. The access to real time data diminishes the time period required to fulfill the order thus improving the on-time delivery and customer satisfaction. Information technology allows the firms to better understand the customer's need through disseminating information and one on one communication.

Better knowledge of customer's need and diminished order processing time enabled by IT systems such as ERP, CRM etc. facilitate the firms to offer new customized product and services as a result, this will lead to improved customer response (Ansari & Mela, 2003) and better one to one marketing effectiveness (Mithas, Almirall, & Krishnan, 2006). Velcu (2007) reports that ERP adopters provide more accurate price by diminishing the mistakes in invoiced price may lead to growth in revenue (Kallunki et al., 2011).

Information Technology enables the firms to develop new marketing, advertising and sales channels for making their existing and potential customer better aware about their products and services offerings. The new IT-enabled channels such as emails, web advertising, websites, short messaging system and targeted database allow the firms to target the potential customers thereby improve the firm revenue (Mithas et al., 2012). IT improves the management of customer lifecycle through providing support at each step from awareness to improved customer satisfaction (Bardhan, 2007; Srinivasan & Moorman, 2005). The improved customer satisfaction will generate loyalty and willingness to pay which finally lead to higher sales growth (Babakus, Bienstock, & Van Scotter, 2004). Mithas et al. (2012) investigate the impact of IT investment, as compared to other discretionary intangible investments such as research and development and advertising, on profitability and they empirically report a significant positive association between IT investment and profitability. Furthermore, they argue that return on IT such as ERPs is higher than that of other discretionary investments. The only source of higher return on ERPs investment was sales growth. Reduction in time required for producing goods and services can bolster timely fulfillment of an order that can reduce the customer complaints, strengthening the customer relationship and it can, in turn, increase the revenue of the firm. Profit margin is a function of three factors sales generating capacity (sales volume), pricing strategy, and cost controlling strategy . Profit margins significantly lower than the industry average indicates that the firm's sales prices are relatively lower or that its costs are relatively high.

Table 3.1. Research variable

Proxy variables.		
Variables	**Definition**	**Expected sign**
ROAt =Return on Asset	Profit After Tax / Total Assets	+/-
ROEt =Return on Equity for the bank	Profit After Tax/ Total Equity	+/-
ROIC=Return on invested capital	Operating income/noncurrent liab. + Equity	+/-
Ox=Operating expense	Total operating Expense/interest income noninterest income	+/-
OH = Overhead burden ratio for the	non-interest expense –other income/net interest income	+/-
ER = Efficiency ratio	Total operating Revenue/Total Operating Expenses	+/-
PROD = Productivity ratio	non-interest expense / net interest income + other income	+/-
PM = Operating profit margin	Net income after tax/ Interest income noninterest income	+/-
(Pre ERP)it = Pre **ERP** performance	pre-adoption performance, as measured by performance in the in time t-1	+/-
SIZt = Bank Size for the bank and measured as the log of total assets at time t^0	natural log of total assets at time t^0	+/-

3.9. Validity and Reliability

Validity and reliability are important aspects of the research methodology to get a better explanation of the world. Validity determines whether the measuring method truly measures what it was intended to measure or how truthful the research results are. To measure the validity of results, we consider the theory and the measuring instrument. Validity can be measured by factor Analysis. Data Triangulation, Methodological Triangulation and Analysis Triangulation are critical to measure the validity of research findings. (Here, Triangulation means a technique in surveying in which distances & directions are estimated from an accurately measured baseline.).According to Singleton and Straits (2005), the quality of conceptualization of an operational definition and its relevance for empirical examination is demonstrated with a valid and reliable measurement model. Data validity refers to how variables (questions) are able to measure what the researcher actually wishes to measure. On the other hand, data reliability

demonstrates the consistency and stability of the data collected. Data reliability refers to accuracy and precision of measurement.

3.10. Ethics and Confidentiality

The research has performed on financial organization, ethical and confidential data collections were maintained, similar for documents, and the researcher used a formal authenticated cover letter.

CHAPTER FOUR

DATAANALYSIS AND DISCUSSION

4.1. Empirical Results and Discussion

4.1.1. Random Versus Fixed Effect Model

It is necessary to determine whether the fixed effect (FE) or random effect (RE) model is appropriate. A common practice in finance is to make the choice between both approaches by running a Hausman test. To conduct a Hausman test the number of cross-section should be greater than the number of coefficients to be estimated. So, in this study the numbers of coefficients are lower than the number of cross-sections as a result it is possible to conduct a Hausman test. According to this test null hypothesis says that random effects model is appropriate than the fixed effects model (Brooks, 2008, p.509).

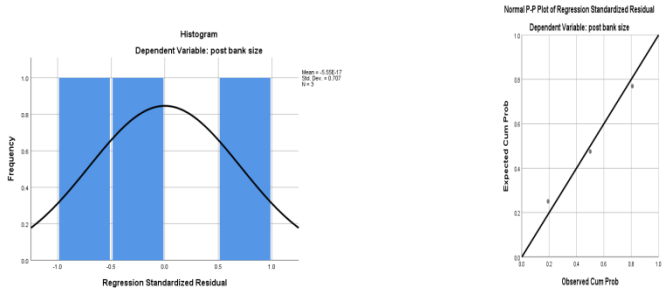
4.2. Classical Linear Regression Model (CLRM) assumption and diagnostic test

Before going further in to panel data econometric procedures, the second issue is test the assumption of classical linear regression model (CLRM). These are checked by testing each assumption. As noted in Brookset.al. (2008) there are basic assumptions required to show that the estimation technique, OLS, had a number of desirable properties, and also that hypothesis tests regarding the coefficient estimates could validly be conducted. If the Classical Linear Regression Model (CLRM) assumptions hold, then the estimators determined by OLS will have a number of desirable properties, and are known as Best Linear Unbiased Estimators. Therefore, for the purpose of this study, diagnostic tests are performed to ensure whether the assumptions of the CLRM are violated or not in the model. In this study as mentioned above diagnostic tests were carried out to ensure that the data fits the basic assumptions of classical linear regression model. Consequently, this section presents the test for the assumptions of CLRM namely hetroskedasity, autocorrelation, normality and multicollinearity test, providing evidence in favor of a RE model.

4.3. Normality, linearity, Homoscedasticity, Multicollinearity

These all refer to various aspects of the distribution of scores and the nature of the underlying relationship between the variables. These assumptions can be checked from the residuals scatter plots which are generated as part of the regression procedure. Residuals are the differences between the obtained and the predicted dependent variable (DV) scores. The residuals scatter plots allow us to check Normality where the residuals should be normally distributed about the predicted DV scores, Linearity the residuals should have a straight-line relationship with predicted DV scores and Homoscedasticity when the variance of the residuals about predicted DV scores should be the same for all predicted scores. The graphs and the respective histograms for all variables prove that the multiple linear regression of this study met the assumption described above. For example the first assumption is that normality and histogram of unstandardized residuals of ROA examines whether they are normally distributed or not. Here, the residuals are normally distributed.

Fig: 4.1. Normal plot regression unstandardized residual of ROA



From this graph ,we can conclude that the data appears to be normally distributed as it follows the diagonal line closely and does not appear to have a non-linear pattern and have the same variance (homoscedasticity) are met ,the normality graph is dome shaped. SPSS recommends Kolmogorov-Smirnov and Shapiro-Wilks tests if the sample size is less than 50 (Elliott & Woodward et. al., 2006). In this study the number of observations in sample dataset is less than 50 thus we can use it.

The final test which is conducted in this study is the multicollinearity. To test the independence of the explanatory variables or to detect any multicollinearity problem in

regression model the study used a correlation matrix of independent variables. The problem of multicollinearity usually arises when certain explanatory variables are highly correlated. Usually, as noted by Hair et al. (2006) correlation coefficient below 0.9 may not cause serious multicollinearity problem. In contrary to this, Cooper and Schindler (2009) argued that as any correlation coefficient above 0.8 could cause a serious multicollinearity problem leading to inefficient estimation and less reliable results. But in this study there is no correlation coefficient that exceeds or even close to 0.8 (see table 4.1. below). Accordingly, in this study there is no problem of multicollinearity which enhanced the reliability for regression analysis.

Table 4.1. Correlation matrix of explanatory variables (Multicollinearity test).

	PrROA	PrROE	PrROIC	PrEFR	PrOHB	PrPRO	PrPM	PrOX	PrBS
PROA pears. Corr.	0.341	0.217	0.598	0.485	0.165	0.054	0.119	-0.977	-0.988
sign	0.778	0.861	0.592	0.678	0.894	0.966	0.924	0.137	0.101
PROE pears. Corr.	0.448	0.329	0.687	0.583	-0.279	-0.062	0.233	-0.995	-0.963
sign	0.704	0.787	0.518	0.604	0.82	0.96	0.85	0.063	0.175
PROIC pears. Corr.	-0.385	-0.501	-0.103	-0.235	0.546	0.716	-0.585	-0.574	-0.834
sign	0.748	0.666	0.935	0.849	0.632	0.492	0.603	0.611	0.373
PEFR pears. corr.	0.881	0.813	0.98	0.944	-0.781	-0.628	0.751	-0.871	-0.631
sign	0.313	0.396	0.127	0.213	0.429	0.57	0.459	0.328	0.565
POHB pears. Corr.	-0.98	-0.945	-0.996	-0.999	0.927	0.822	-0.908	0.694	0.383
sign	0.129	0.212	0.057	0.029	0.245	0.385	0.275	0.512	0.75
PPRO pears corr.	-0.985	-0.999	-0.892	-0.945	1	0.974	-0.999	0.378	0.014
sign	0.112	0.029	0.298	0.212	0.201	0.144	0.034	0.753	0.991
PPM pears. corr.	0.581	0.471	0.791	0.702	-0.424	-0.216	0.381	0.998	-0.909
sign	0.605	0.688	0.419	0.505	0.721	0.861	0.751	0.036	0.274
POX pear. Corr.	-0.655	-0.747	-0.41	-0.529	0.781	0.899	-0.81	-0.288	-0.618
sign	0.545	0.463	0.731	0.626	0.429	0.289	0.399	0.814	0.576
PBS pear. Corr.	-0.81	-0.879	-0.606	-0.708	0.903	0.975	-0.922	-0.063	-0.423
sign	0.399	0.317	0.585	0.499	0.283	0.143	0.253	0.96	0.722

Table 4.2. Descriptive Analysis of the variables PostERP-implementaton & priERP-implementaton of the system with their mean difference

	Pre ERP		**Post ERP**		
	mean	St.devi	Mean	St.devi	difference b/n pre to post-ERP means.
ROA	3.49	.46	1.60	0.42	1.90
ROE	72.73	5.03	31.06	20.55	41.67
ROIC	50.66	15.24	21.82	4.61	28.84
ER	177.99	62.18	36.39	27.43	141.60
OHB	9.04	22.01	51.24	10.13	-42.20
PRODR	32.18	7.95	57.75	5.35	-25.57
PM	43.18	4.07	23.22	7.43	19.96
OX	12.65	1.80	19.18	4.82	-6.53
BSIZ	13.72	2.67	16.36	7.31	-2.64

4.4. Descriptive Analysis for the Study Variables

When comparing the values of the study variables in the previous tables, it is concluded that: the result of paired sample T-test tests shows there is no significant difference among all performance indicators, between post and pre ERP implementation periods except a few, this study results are consistent with the study results of Ali I.(2016).

There is a no significant difference between the averages of ROA for the periods, as the arithmetic mean of ROA was 3.49 in the pre-ERP implementation period, the difference is only 1.09. We have observed a decline in banks' ability to generate profits through ROE by41.67 in post-ERP implementation period as the arithmetic mean of ROE was 72.73 in the pre-ERP implementation period and 21.47 post-ERP implementation period.There has been a 28.84 decline in CBE's ability to generate profits through returns in long term investments in post implantation of the ERP system, as the arithmetic mean of the ROI was 50.66 in the Pre-ERP implantation period, and 21.82 on Post-ERP implementation,

There has been a decline in CBE's efficiency ratio in post the implantation of the ERP system, as the arithmetic mean of the ER was 177.9 in the pre-ERP implantation period, and 36.39 post-ERP implementation period ,Here we have seen the great improvement on the efficiency of financial performance after ERP systems implementation. There has

been very large increase on the CBE's over head burden ratio in post ERP implementain period, as the arithmetic mean of the overhead burden of 9.04 in the pre-ERP implantation period, and 51.24 post-ERP implementation period with has increased by 42.20 in the average performances of post ERP implementation periods. There has been very large increase on the CBE's productivity or cost income ratio in post ERP implementing period, as the arithmetic mean of the productivity or cost income ratio was 32.18 in the pre-ERP implantation period, and 57.75 post-ERP implementation period which creates a cost increase of 5.35.There has been an increase in CBE's OX in the post implementation periods on average, the arithmetic mean of the OX had 12.65 in the period prior-implantation was increased to 19.18 in post-ERP implementation, which created an increase of operating expense by 4.82. .

There arithmetic mean of Pre-ERP profit margin ratio of CBE was 43.18 and the Post-ERP arithmetic mean ratio of 23.22, this has been decreased by 19.96.There has been an increase on CBE's BSIZ for the two periods, as the arithmetic mean of the BSIZ was 12.65 in the period Pr-ERP-implantation, and 16.36 post-ERP implementation which has been increased by 2.64.

Table 4.3. "T-test" results of VARIABLES prior- and post-implementation of the ERP system in CBE

	Pre-ERP Performance			Post-ERP Performance			
	mean	St.devi		Mean	St.devi	T-Statistic	sig.
ROA	3.4900	.4629	.	1.590	0.5178	5.828	0.028
ROE	72.730	5.031		21.47	9.021	10.127	0.010
ROIC	50.664	15.244		19.75	2.530	3.409	0.076
ER	177.99	62.185		26.11	22.237	6.290	0.024
OHB	9.041	22.007		54.017	10.377	-5.996	0.027
PRODR	32.176	7.945		60.06	3.287	-10.06	0.010
PM	43.183	4.068		20.87	7.034	5.812	0.028
OX	12.650	1.799		20.437	5.035	-2.319	0.146
BSIZ	13.720	2.672		17.88	8.150	-0.751	0.531
Valid N (listwise)							

4.5. Result analysis for Pre to Post-ERP paired sample T test

There is a significant difference on CBE's ROA in Post-ERP implementation, the t test resulted a significance of p-0.028 which is less than 5%.Therefore ERP systems implementation creates a financial performance difference on the average of post ERP periods ROA.There is a significant difference in banks' ability to generate profits through ROE in post-ERP implementation period as the arithmetic mean of ROE was 72.73 in the pre-ERP implementation period and 21.47 post-ERP implementation period, the p value in paired sample t test 0.010.There is a decline in banks' ability to generate profits through in long term investments in post the implantation of the ERP system, as the arithmetic mean of the ROI was 50.66 in the Pre-ERP implantation period, and 21.82 Post-ERP implementation, but the results of paired t statistical significance value is 0.076 which is more than 5% .Therefore no significant difference between the two periods on ROI. The results of t-test are consistent with the findings of (Etezady et. al, 2008; Hunton et. al. 2003), Ali I.,(2016) and (Al-Nimer M., Omush A. and Almasarwah A. ,2017) but in contrary with the study results of Barakat et. al. (2011).

There is an improvement in CBE's efficiency ratio in post the implantation of the ERP system, as the arithmetic mean of the ER was 177.9 in the pre-ERP implantation period, and 36.39 post-ERP implementation periods. The paired sample t test has shown the significant difference in the two period's efficiency of CBE which is p 0.024. There is very large increase on the CBE's over head burden ratio in post ERP implementing period, as the arithmetic mean of the overhead burden was 9.04 in the pre-ERP implantation period, and 54.24 post-ERP implementation period, this significant difference is supported by results of paired t test statistical significance value is 0.027 which is less than 5% level. This reflects that the none interest expenses net of other income accounted only54.24% of net of interest income of CBE, indicating that most of the none interest expenses were taken by other income which would enable the bank to compete effectively and by aggressive marketing strategy. There is very large increase on the bank's productivity or cost income ratio in post ERP implementing period, as the arithmetic mean of the productivity or cost income ratio was 32.18 in the pre-ERP implantation period, and 57.75 post-ERP implementation period. The results of paired t test supports a significant difference between the performances of the two periods with a

statistical significance value is 0.010 which is less than 5% level. Therefore it reflected that the cost for bank's admin. ,staff and others to income is very increasing .This means in other way to produce one birr spend 57.75 cents in post-ERP implementation periods which will probably contributed to a decline on ROE on post-ERP implementation period. There is a no significant alteration between the averages of OX for the two periods as p value of paired sample t test is 0.146 which is greater than 5%significance level, from the results of descriptive statistics the arithmetic mean of the OX was 13.72 in the period prior-implantation, and 19.18 post-ERP implementation, which shows no improvement in operating expense since ERP implementation .

There arithmetic mean of Pre-ERP profit margin ratio of CBE was 43.18 and the Post-ERP arithmetic mean ratio 23.22, the paired sample T test result p=0.028 which is less than 5%.There fore implementation of ERP created a significant decline in profit margin in Post-ERP CBE financial performance .There is a significant alteration between the averages of BSIZ for the two periods, the results of descriptive statistics shows that the arithmetic mean of CBE's BSIZ was 12.65 in the period Pr-ERP-implantation and 16.36 post-ERP implementation, which shows improved size of CBE.

4.6. Results of Regression out Put

The result of regression analysis of all study variables has not shown any significant difference on Pre and Post-ERP financial performance of CBE. This will give a clue that the researcher cannot observe the impacts of ERP implementation on post organizational performance CBE. This is consistent with the regression analysis of results of Ali, I. (2016), Hunton et.al. (2003).

For the table below, the two section of this vertically formatted table shows the results of Pre and Post-ERP implementation comparative analysis of financial performance indicators and the components of the main performance indicators. The letter V in column one shows the selected variables in both sections of this table .Bo are intercept terms and B1 are unstandardized coefficients for Pre-ERP implementation value .Letter t, two sided p-value in various columns of this table represents t-statistics and statistical significance level in regression analysis respectively. Last column of this able is providing an adjusted R square value.

Table 4.4.Results of simple regression analysis for Pre- and Post-implementation of the ERPs in CBE

Results of Regression Analysis (4 after) V	**Intercept** B0	T	P value	st.erorr	**Pre-adoption value** B1	T	P value	st.error	AdjR2
ROA	0.258	0.07	0.956	3.691	0.382	0.363	0.778	1.051	-.76
ROE	-21.403	-0.173	0.891	123.367	0.59	0.348	0.787	1.694	-.78
ROIC	20.66	2.393	0.252	8.614	-0.017	-0.103	0.935	0.165	-.97
EFR	-34.004	-1.564	0.362	21.748	0.338	2.874	0.213	0.117	-.78
OHB	50.068	14.063	0.045	3.56	0.437	2.468	0.245	0.177	.71
PRO	47.09	15.433	0.041	3.051	0.403	4.336	0.144	0.093	.89
PM	-7.585	-0.11	0.931	69.244	0.659	0.412	0.751	1.599	-.70
OX	30.641	0.898	0.534	34.15	-0.807	-0.301	0.814	2.679	-.83
BS	35.578	0.927	0.524	38.397	-1.29	-0.467	0.722	2.764	-.64

4.7. Results and Discussions

Hypothesis H10: the results of the regression analysis describes an increase on ROA in post implementation periods a rate of 38.2% ,but this increase is not significant for the post implementation periods of CBE financial performance Therefore more time is required to get the benefit of ERP implementation to enhance a significant growth on ROA.As shown from the above table the post-ERP results of ROA was B1=0.382 sign=0.778 and adjusted R squared value is 0.76, this is different from paired T statistic result. The next profitability variable is ROE,the post- ERP average regression result shows B1=0.59 sig.=0.787 T statistics of 0.348 and the adjusted R squared value of 0.78 ,there for the post-ERP ROE value increase does not create a significant difference on post-ERP financial performance of CBE .which is quite different from the results of paired T statistics. .

But when we came to ROIC the post-ERP regression result depicts a difference from other two main profitability variables .A unit increase on the averages of Pre –ERP ROIC will results 0.017 decrees on Post-ERP results of ROIC. This is supported by the previous descriptive paired T test result.These three profitability variable results supports the alternative hypothesis, significant difference of ERP implementation on organizational

performance of CBE. This result is supported by the study of de Andres et al (2012). They found that the average performance of ERPs adopters declines over time in one, two and three years after ERPs implementation. They also confirmed the significant performance impairment for adopters such as ROA in one year after and significant deterioration of profit margin (PM) and sales in each of three year after implementation as compared to their pre performance level. A four years length after ERP implementation may not enough to recover the financial performance of adopted organization as argued by Etezady et.al. (2008).This is supported by , Brynjolfsson and Hitt et. al. (2003) that IT investment contribution to enhance organizational performance may takes three to seven years, the cause of this length of time depends on ERP decision by competitors in the same industry.

Hypothesis HO2a : As shown from the above table the post-ERP results of efficiency ratio was B1=0.338 sign=0.213 and adjusted R squared value is 0.78 , here the regression result represents a CBE's passion is found below the standard 0.5 and relatively in a good position of efficiency after post ERP implementation but the difference is not significant, previously as we have seen efficiency improvement from the results of descriptive statistics and paired sample t test ,Therefore we rejected the null hypothesis.

Hypothesis HO2b:post- ERP average regression result of overhead burden of CBE was B1=0.437 sig.=0.245 T statistics of 2.874 and the adjusted R squared value of 0.78 ,there for no significant difference post-ERP of overhead burden regression result which is against with results of descriptive statistics and paired T statistic. Therefore fail to reject the null hypothesis. **The** post- ERP average regression result of productivity(cost) of CBE was B1=0.403 sig.=0.144 which is greater than 0.05 , T statistics of 4.336 and the adjusted R squared value of 0.89 ,there for no significant difference between Pre and Post-ERP of productivity regression result on CBE'S financial performance but quilt different from descriptive and T test result which is a significant increase on Post-ERP of overhead burden and productivity costs. Therefore we reject the null hypothesis.

Hypothesis HO2C: there is a significant alteration between the averages of BSIZ for the two periods, as the arithmetic mean of the BSIZ was 12.65 in the period Pr-ERP-

implantation, and 17.88 post-ERP implementation, which shows improved size of CBE.Therefore we rejected the null hypothesis

Hypothesis HO2d : there is no significant alteration between the averages of OX for the two periods. The p value of paired sample t test is greater than 5%, the arithmetic mean of the OX was 13.72 in the period prior-implantation and 20.44 post-ERP implementation, but the negative sign represents a decrease on Post-ERP operating expense.. In the simple regression result B1= -0.807 has represented the decrease in Post-ERP operating expense but still not significant. Therefore we fail to reject the null hypothesis.

Hypothesis HO3 ; There arithmetic mean of Pre-ERP profit margin ratio of CBE was 43.18 and the Post-ERP arithmetic mean ratio 23.22, the paired sample T test result p=0.028 which is less than 5%.Therefore, implementation of ERP created a significant decline in profit margin of CBE . The simple regression results of CBEs profit margin showed no significant difference in the Post-ERP period. There for we reject the null hypothesis, the profit margin is significantly decreased in post ERP implementation periods.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1. Introduction

This chapter presents summary of the findings, conclusions and recommendations that were drawn based on the results of descriptive statistic, paired sample t test on the audited financial statement of CBE for the respective years and the documents reviewed. It has four parts; the first part presents summary of present's summary of findings and then followed by the conclusions that made for the study as a second part. The last part of this chapter highlights the constructive recommendations that were supposed to curve the findings of this study and followed by the possible future research areas that related to the topic under study.

5.2. Summary of Major Findings

The results of this study are partially consistent with that found by (Hendricks et al., 2007; Hunton et al., 2003). ERPs investment generates both strategic and operational effect on Post-ERP organizational performance. dual effect: CBE has not meet its strategic target because the results address an increase on overhead and productivity cost this has been hindering improvement on profit margin while ERP provide the operating benefit through reduced operating expense in Post-ERPs implementation period. But this study limited identifying the impact of ERP on each and specific year.

5.3. Conclusions

This study focused on identifying the effects of ERP implementation on organizational performance in the case of CBE which is the largest in size and age in the banking industry while it's the state owned bank planning to become multinational bank by 2025GC.Through this path CBE tries to take action like merged with CBB, hold the most share of Commercial nominees and Bole printing enterprise, a branch in South Sudan and Djibouti ,more than 60% of market share holder of the industry and in order to manage its activity and achieve its missions and objectives CBE implemented ERP.

This study applying financial measurement variables in order to identify post implementation effects on the organization's operational and strategic performance.

For the purposes of answering the research questions, the study examined the research hypotheses, Taking the audited financials statements of CBE from National bank of Ethiopia, the controlling body, comparing the aforementioned financial measurements before and after implementing the ERP system in the bank since 2011/12-2019/2020 G. C. fiscal years respectively .The study reached several important results and conclusions that could enrich and enhance the literature and theories related to the subject of the study. Moreover, the researcher hopes that the results of this study would lead to a range of important decisions for the Ethiopian commercial banks in general and CBE in particular.

The main results of t-test and multiple linear regression analysis show no clear difference between pre and post ERP financial performance of CBE. The main limitation for the study result could be the span of time after implementation of ERP was four years, which had been expanded for longer period than four years of time to get the insight for ERP impact on post implementation period. The in depth analysis of data reveals that ERP implementation generates a dual effect which not only produces the operational financial benefits but also strategic financial benefits. From this study we have not get a support from a regression analysis ,It may be small size of our sample and this will limit the research findings, for example the researcher has not find the effects of ERP on a specific fiscal years improvement(deterioration) of profitability or a positive(negative) ERP effects on expense variables .These findings will help the organizations whether they are(not)met their planed strategic and operational performances. This study should got forward a step as conducted by Hunton et al., 2003 and de Andres et al., 2012 etc. Davenport (2007) has indicated that the ERP system has a positive relation with statistical significance on the performance of financial companies. This study result is against with the study results of (Poston & Grabski, et.al 2001).

5.4. Recommendations

Commercial bank of Ethiopia should disseminate the benefit of implementing ERP systems through the company. Expand the level of ERP implementation to the highest possible degree and including all departments to achieve its planned strategic and operational benefits at a significant level. CBE should develop the efficiency of information technology department to create a better impact on financial performance while considering increasing customer satisfaction during the process of their banking service. Post-ERP efficiency has improved but OHB and productivity cost decreased insignificantly while OX has been on a better tracks of decrease that supporting improvement on operational efficiency. In contrary PM growth has not been enough as expected to offer strategic benefit, while the bank size has increased significantly. Profitable marketing at lower expense develops integration.

5.5. Future Research

It will be interesting to compare post ERP implementation effect of two groups of companies in the same industries that is the one group adopted ERP while the other is not.

In order to examine the long term ERP implementation impact of ERP on financial performance a longer than four years interval should be taken in post implementation period and to get deep understanding of which component causes change in operating and strategic performances of an organization by adding external factors. Finally the researchers recommend testing the cost of not investing in ERP.

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Appendix

1. Normality and histogram graph of variables.

Fig: Normality and histogram graph of bank size

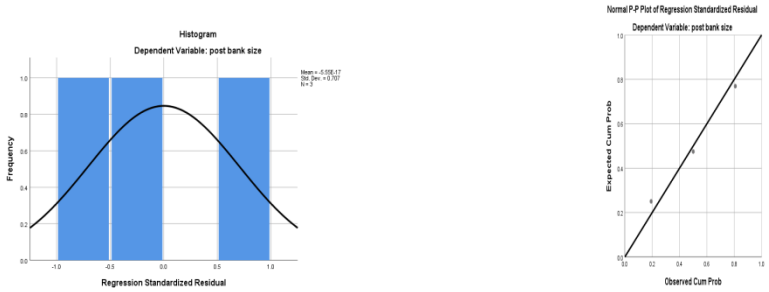


fig: Normality and histogram graph of efficiency ratio

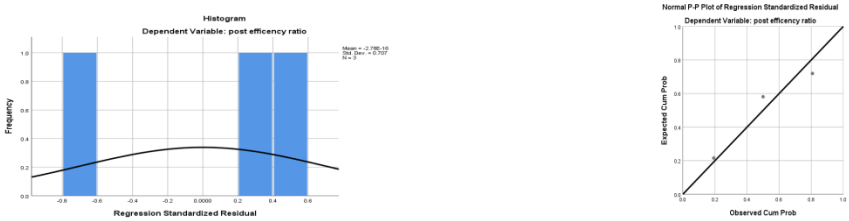


Fig: Normality and histogram graph of overhead burden ratio

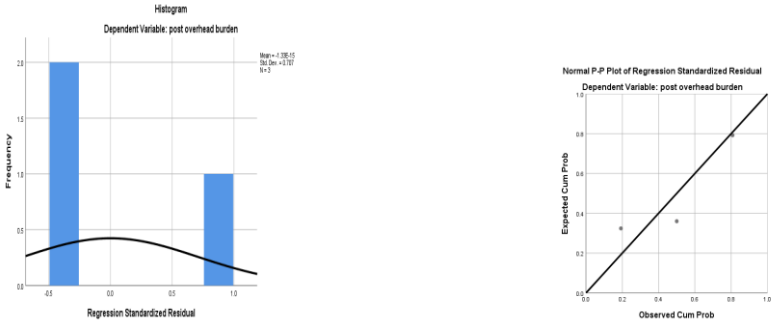


Fig: Normality and histogram graph of operating expense ratio



Fig: Normality and histogram graph of profit margin ratio

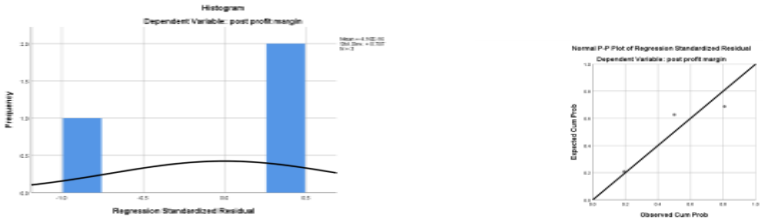


Fig: Normality and histogram graph of return on asset ratio

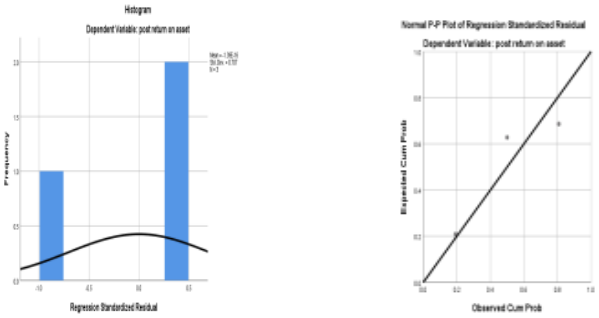


Fig: Normality and histogram graph of return on equity ratio

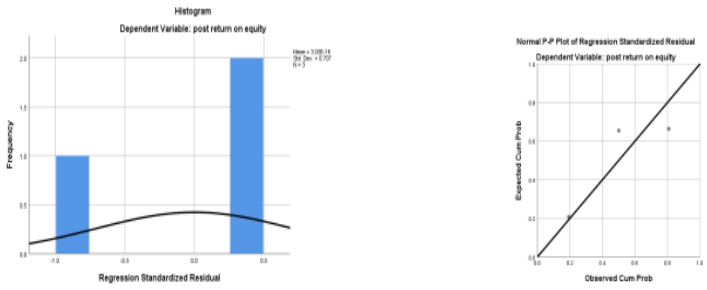


Fig: Normality and histogram graph of return on invested capital ratio

