EFFECT OF MACROECONOMIC VARIABLES ON PROFITABILITY OF COMMERCIAL BANKS LISTED IN THE NAIROBI SECURITIES EXCHANGE

BY

LESSAH N. NZIOKA

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DECLARATION

I declare that this dissertation is my original work and has not been previously published or submitted elsewhere for award of a degree. I also declare that this contains no material written or published by other people except where due reference is made and author duly acknowledged.

Student Name: Lessah N. Nzioka Reg. No: KCA/13/00369

Sign: _____ Date: _____

I do hereby confirm that I have examined the master's dissertation of

Lessah N. Nzioka

And have certified that all revisions that the dissertation panel and examiners recommended have been adequately addressed.

Sign: _____ Date: _____

Dr Christine Nanjala

Dissertation Supervisor

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ABSTRACT

Based on vital contribution of the commercial banks to economic progression in Kenya, this study endeavored to establish the effect of macroeconomic variables on the profitability of commercial banks listed in the Nairobi Securities Exchange (NSE) for years 2001 – 2012. Panel data model was used to examine the effects of three major macroeconomic variables which included Gross Domestic Product (GDP), dollar foreign exchange rate, and interest rates on profitability which was measured through return on Assets (ROA). The study correlation findings indicated that real GDP growth rate did not have any significant relationship with financial profitability of the listed commercial banks which was measured using ROA. Further, dollar exchange rate and real interest rate had a significant relationship with profitability of commercial banks. Panel regression results indicated that Real GDP had an insignificant positive effect on profitability of listed commercial banks in Kenya. Further, real interest rates had a significant negative effect on profitability of commercial banks. Dollar exchange rate had a significant positive influence on profitability of quoted commercial banks in Kenya. The findings have implication for the Government, regulatory authorities and the listed commercial banks themselves. The government and regulatory agencies should ensure that these important macroeconomic variables are well managed as they have implications for the growth in the various major industries in the economy. Secondly, rise in interest rates should be managed by applying effective policies and measures by the central bank. Banks also should have effective measures to manage interest rate risks so that their profitability is not affected adversely. Thirdly, though rise in exchange rate was associated with increase in bank profitability in this study, it is a fact that a fast depreciating local currency can create instability within other macroeconomic variables. This necessitates the efforts by the Central Bank of Kenya which is the pivot monetary authority in Kenya to put in place different measures at stabilizing the local currency. The Central Bank of Kenya needs to focus more on macroeconomic policies mostly in areas relating to exchange management with a view to achieving a realistic exchange rate that will aid economic growth and achieve a relative stability in the value of the Kenya shilling against the dollar. However, banks should also have in place risk mitigating strategies to counter foreign exchange fluctuations.

Key words: ROA, macroeconomic variables.

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ACRONYMS AND ABBREVIATIONS

CBK	Central Bank of Kenya
CDS	Central Depository System
EU	European Union
GDP	Gross Domestic Product
GLS	Generalized Least Square
KNBS	Kenya National Bureau of Statistics
NBFI	Non-Banking Financial Institution
NII	Net Interest Income
NIM	Net Interest Margin
NOI	Net Operating Income
NSE	Nairobi Securities Exchange
OLS	Ordinary Least Squares
ROA	Return on Assets
ROE	Return on Equity
SACCO	Savings and Credit Cooperative Organization
SPSS	Statistical Package for Social Sciences
SSA	Sub-Saharan Africa
US	United States
VIF	Variance Inflation Factor
EM	Equity multiplier

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

One driving force of any economy is the interaction of the individual companies within it, both with each other and with financial institutions. Basic to this interaction must be well-founded knowledge as to the relative financial health of these companies (Hall, Kenjegalieva and Simper, 2010). The factors, within which companies operate, however, have an effect on the success or failure of companies within that environment. Effective macroeconomic policies are a prerequisite of an efficient and properly functioning financial sector. It is important for any financial sector to be strong and be well integrated into the economy in today's global economy. Changes in the macroeconomic variables and the integration of the world economy due to globalization calls for more focus on how these factors influence the development of a company.

In Kenya, financial markets still have some reforms to do to make them efficient, competitive and effective in stimulating economic growth through the financial markets are liberalized. This leads to a conclusion that liberalization of the Kenyan financial markets spurred the growth in the financial intermediation sector in Kenya which includes the Non-Banking Financial Institutions (NBFIs) and banks. This growth in the financial sector companies have also led to increased profitability in these institutions and competition in the overall financial industry (Otuori, 2013). In fact, liberalization in Kenya in the near past has seen the government divest its ownership in most of the banks in Kenya and turned the bank ownership to private hands.

1.1.1 Macroeconomic variables affecting profitability of banks

The subject of macroeconomic factors and their effect on profitability of companies have been studied extensively but results lack consensus. The study by Scott and Arias (2011) on large banks in the United States (US) established that profitability of commercial banks in the country was not significantly affected by GDP. Hoffmann (2011) did a study on US banks but used OLS method. The study also found no significant effect of GDP on profitability of commercial banks. A study by Sufian (2011) involving commercial banks in Korea during the 1992-2003 period established that profitability of commercial banks in Korea was negatively affected by growth in GDP.

Further, Damena (2011) did a study in Ethiopia to assess the influence of GDP on profitability of organizations in that country. The study established that profitability of organizations in Ethiopia was positively influenced by interest rates, inflation rates and GDP. Davydenko (2011) did a similar study in Ukraine. The study sought to analyze the influence on financial performance of banks that is brought about by Inflation and GDP. The study used fixed effects estimation technique where it was proven that Return on Asserts (ROA) was positively influenced by inflation and GDP.

A study carried out after the global financial crisis was in Latvia, and it was conducted by Saksonova and Solovjova (2011). The study sought to analyze how growth in real and rates of inflation affected financial performance of commercial banks in that country. This study focused on the five largest commercial banks in that country. This study established that GDP affected profitability of commercial banks positively while inflation had a negative effect on ROA of the surveyed banks.

The following are the macro economic variables that affect financial profitability of listed commercial banks that are discussed in this research. These are the real interest rate, GDP growth rate and the exchange rate. Real interest rate is the cost of borrowed funds to the borrower and is described as the nominal rate of interest after is has been adjusted for inflation. This therefore indicates the real rate that is charged or earned on a particular investment.

GDP is a standard measure of all the goods and services that are produced in a given country measured using past prices in a certain standard year referred to as the base year. When this production is adjusted for inflation, this is referred to as the real GDP. Other macroeconomic factors include inflation which indicates the loss in purchasing power of money, exchange rate which indicates the rate with which local currency is exchanged for foreign currency and the producer price index. Producer price index is the change in value of producer goods used by a country's producers. However, the macro economic variables that were considered in this study were real GDP, real interest rates and exchange rate.

1.1.2 Financial profitability of commercial banks

Various measures can be applied in ascertaining the financial performance of an organization. For commercial banks, various measures can be applied which include Return on Assets (ROA), Return on Equity (ROE), dividend yield, operating profit and many more. In this study, measure of profitability of commercial banks was through ROA. However, a little of ROE is discussed due to the close semblance of the two terms. Return on Equity (ROE) is a measures financial performance by indicating profitability as a ratio between operating profits of the organization and the equity that shareholders of the organization have invested. This value of shareholder equity is derived from a balance sheet of the organization. This therefore measures returns that the organization has from the focus of the shareholders. A business showing a high

ROE has a capacity of adding value to its shareholders investments and generating positive cash flows for shareholders. Higher ROE therefore indicates a firm with high profitability than another with lower ROE (Khrawish, 2011).

ROA on the other hand depicts net profit as a percentage of the total average assets owned by the firm (Khrawish, 2011). This measure of profitability indicates how well a company is using the assets contributed by equity and debt holders to earn. It is a measure that indicates to investors in the company, creditors and potential investors on how well the management of the company is utilizing the assets at the company's disposal to bring in income or returns. It is therefore an efficiency measure on how the assets of the organization are being utilized (Khrawish, 2011). A company with a higher ROA indicates being more efficient than another company with a lower ROA in assets utilization (Wen, 2010). This study applied ROA as a measure of profitability.

1.1.3 Various studies on the topic

The importance of the financial sector in general and particularly the commercial banking sector have been demonstrated in various studies. There has been consensus by various scholars about the contribution of commercial banking sector towards economic development. The role of commercial banks in the economy is undisputed and uncontested. Otuori (2013), for instance, cited the important role that commercial banks play in financial intermediation. They therefore increase financial inclusion and deepening in the economy. A study by Flemini et al. (2009) on commercial banks in Sub-Saharan Africa (SSA) observed that commercial banks in this region appeared very profitable compared with commercial banks in other parts of the world. This was evidenced by the fact that their average ROA was 2% more that what they reported on average 10 years ago.

The study by Flemini et al. (2009) revealed that profitability of commercial banks is a variable which is subject to influences from various factors. In the study, the factors that were indicated to influence profitability of a bank included macroeconomic factors, factors in the banking sector and factors that are specific to the bank. Macroeconomic factors included factors such as GDP and interest rates while industry specific factors included factors such as regulatory requirements and competition in the industry. Bank specific factors included factors such as quality of management and corporate governance practices applied by the bank. However, the study observed that banks had very little to no control on the macroeconomic variables.

The study by Ongore (2013) revealed that factors which made banks in the region to perform better than their peers in other regions included investments in high risk high return projects, high demand in credit facilities which make them raise lending rates, high interest rate spreads and the continued good performance of economies in the region. There was also poor concentration of banks in the regional economies which makes competition in the industry to be low. Ongore (2013) further observed that competition in the commercial banking sector in east Africa is poor with many commercial banks owned by the government having a big share of the market.

Bank profitability has been observed to be affected by major shocks in the macro economic environment. Factors which have been shown to contribute to these shocks include credit risk of borrowers, interest rates, growth of the economy, inflation rates and regulatory requirements by the central bank. Other factors which affect performance of financial sector players include intensity of competition in the sector and level of financial deepening and inclusion in the economy. The various monetary policy variables such as supply and demand of

money, exchange rate, GDP, inflation and interest rates determine productivity and performance of organizations in a given economy.

According to Asimakopoulos, Samitas and Papadogonas (2009), financial sector institutions can establish challenges that face firms in the financial system and design financial strategies to mitigate such challenges and in so doing enhance performance of firms in the economy. It therefore applies that a strong commercial banking sector is required in an economy for the firms in that economy to thrive and grow. It is therefore imperative for commercial banks to attain a certain standard of performance to enable perform their functions effectively.

One of the major objectives of any commercial entity is to make profit and have good return on investments for its shareholders. For organizations to be competitive and sustainable in the long run, they need to achieve a certain level of acceptable profitability. It is therefore important to establish those factors that affect profitability so that firms can devise various strategies and plans to counter those factors and remain profitable and competitive. As Kenya is dominated by Commercial Banks, it was of vital concern to associate their profitability with country's progress, and hence, a study to identify the influence of macro economic variables on the commercial bank's profitability would contribute towards the strategies devised in the interest of the institutions' development. This research therefore had the purpose of assessing how profitability of commercial banks in Kenya is influenced by macroeconomic variables.

1.2 Problem Statement

Knowledge of the factors affecting profitability of any organization is important to enable it devise effective strategies and action plans to manage or mitigate effects from the different environmental factors (Podder, 2012). All stakeholders need to be concerned on profitability of their banks since the major objective of any firm is to maximize shareholder wealth. These

stakeholders include employees and investors who directly affect operations of the banks and the customers, creditors and the public who require banks to have a reasonable profit level for sustainability.

The profitability of banks gives directions to the stake holders in their decision making. As outlined by Podder (2012), it provides investors and debtors with information to be used in deciding where to invest their finances profitably. It also provides management of a bank with information on which areas are performing well and the ones performing poorly where they can have corrective actions. Regulatory authorities like central bank of Kenya need information on performance of banks and the factors affecting performing to have effective policies and regulations to have the desired effect.

Various studies have been conducted on the effect of macroeconomic variables on profitability (Ongore and Kusa, 2013; Kanwal and Nadeem, 2013; Shaher, Kasawneh, and Salem, 2011). However, there are few studies on the effect of macroeconomic variables on bank profitability in Kenya and globally. Further, available studies lack consensus on the effect of macroeconomic factors on bank profitability. A study by Ongore and Kusa (2013) for instance, revealed that macroeconomic variables have an insignificant influence on profitability of commercial banks.

A study by Kanwal and Nadeem (2013) in Pakistan established that there was a strong positive relationship of real interest rate on ROA. The study further established that GDP had a significant positive relationship with ROA. However, Athanasoglou et al (2006) on the other hand found that exchange rates and GDP positively influenced profitability while interest rates had a negative influence on profitability. Further, a study by Alper and Anbar (2011) on Turkish banks revealed that GDP and interest rates had insignificant effect on profitability of banks in

that country. Further, a study by Shaher, Kasawneh, and Salem (2011) revealed that GDP is significantly and positively correlated with organizational profitability.

Another study in Jordan revealed that GDP and inflation had a negative influence on profitability of the commercial banks studied (Khrawish, 2011). Lastly, the study by Alper and Anbar (2011) on commercial banks in Turkey revealed that profitability of commercial banks in that country was not significantly affected by interest rate and real GDP. This lack of consensus of various studies indicate that to establish how these factors affect company profitability in Kenya, a study needed to be carried out. This therefore justifies why the current study was of significance.

1.3 Research Objectives

This study had the purpose of establishing the effect of macroeconomic variables on profitability of commercial banks in Kenya.

The specific objectives of this study were to;

i. Determine effect of real Gross Domestic Product (GDP) on profitability of commercial banks listed in the Nairobi Securities Exchange.
ii. Establish the effect of real interest rates on profitability of commercial banks listed in the Nairobi Securities Exchange.
iii. Evaluate the effect of exchange rates on profitability of commercial banks listed in the Nairobi Securities Exchange.

1.4 Research Questions

The research questions were:

i. What is the effect of real GDP on profitability of commercial banks listed in the Nairobi Securities Exchange?

ii. How do real interest rates affect profitability of commercial banks listed in the Nairobi Securities Exchange?

iii. What effect do exchange rates have on profitability of commercial banks listed in the Nairobi Securities Exchange?

1.5 Significance of the Study

The findings from this study will be of value to investors, management of banks, policy makers and financial analysts. Prediction of future earnings is of interest to investors, analysts, management, and auditors. Investors are assumed to make their investment decisions on the basis of their assessment of future earnings. Analysts advise clients on a range of valuation relevant matters including investments, new issue valuation, and takeover valuation. Management is vitally concerned with future earnings prediction for budgetary and control purposes while auditors would benefit form profit forecasts in their analytical reviews of client's financial statements. These reasons are part of the motivation for this research into factors that that may affect profitability of banks.

1.6 Limitations of the Study

This study investigated whether macroeconomic factors have any bearing on the profitability of commercial banks in Kenya. The study was in regard to Kenyan commercial banks and the macroeconomic variables in play at the country. This study's findings therefore may not be generalizable to other countries outside Kenya. This is because other countries have macroeconomic variables and contexts different from the conditions in Kenya and hence specific

studies need to be carried out to establish the link between macroeconomic variables and profitability of banks in such countries.

The study results may also fail to illustrate how macroeconomic factors affect profitability of other sectors in Kenya. This is because the other sectors are very different in how they relate to the macroeconomic factors and how they are linked to each other. This study's generalizability therefore is limited. Another limitation is that the methodology used may not exhaustively control for extraneous variables.

1.7 Basic Assumptions

This study made the following assumptions. First, the data that was collected from the central bank of Kenya, Kenya national bureau of statistics and any other secondary sources for the purpose of this study was deemed to be accurate. Secondly, the model selected to analyze the data was assumed to be adequate to provide results that were used to answer the research questions adequately.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents the review of literature on effects of macroeconomic variables on financial profitability of organizations. First, financial profitability of firms is discussed and how it was measured in this study. The various factors relating to macroeconomic variables such as GDP, interest rates and exchange rates and the effect they may have on profitability of firms is reviewed.

2.2 Theoretical Review

This study was based on the theory of production by Koutsoyianis (2003). The proponents of this theory observe that in any production process, the producer has to combine various inputs to come up with a usable product as the output. These inputs, referred to as factor inputs can be in form of capital, land, labour or management. The process of producing goods or services according to Koutsoyianis (2003) follows a technical function where the combination of the different factor inputs determines whether the producer is efficient or not. The production of goods and services is also influenced by other exogenous variables which determine the efficiency with which the producers combine the different factors to come up with output. As applied to this study, the production theory holds that macroeconomic variables - factor inputs would influence bank profitability (factor output), thus there is a form of relationship between profitability of commercial banks and macroeconomic variables.

2.3 Empirical Literature Review

This part discusses the effects of macroeconomic variables on profitability of firms. The variables that are of focus in this study include real GDP, real interest rates and inflation rates. Past studies that dwell on the influence of these factors on profitability of firms are discussed.

2.3.1 Financial profitability of firms

In this study, financial profitability of banks was measured through return on assets (ROA). ROA on the other hand depicts net profit as a percentage of the total average assets owned by the firm (Khrawish, 2011). This measure of profitability indicates how well a company is using the assets contributed by equity and debt holders to earn. It is a measure that indicates to investors in the company, creditors and potential investors on how well the management of the company is utilizing the assets at the company's disposal to bring in income or returns. ROA measures how the bank management has utilized the assets owned by the bank to earn returns. ROA is therefore a measure of how efficiently the bank utilizes the assets at its disposal to add value to the portfolio of the shareholders. It is further, a pointer towards value of management as agents of the shareholders in bringing value to the principals of the bank who are the shareholders (Khrawish, 2011). A company with a higher ROA indicates being more efficient than another company with a lower ROA in assets utilization (Wen, 2010).

2.3.2 GDP and bank profitability

A study by Staikouras and Wood (2003) focused on European Union (EU) banks and tested the factors that influenced profitability of those banks. The study used ordinary Least Squares (OLS) regression method and used data from the banks from 1994 to 1998. Fixed effects panel regression method was applied in the study. The results from the study revealed

macroeconomic factors such as GDP, employment levels and exchange rates had a significant influence on profitability of commercial banks surveyed. Heffernan and Fu (2008) examined the factors determining profitability of commercial banks in three major categories. The categories of interest in this study included commercial bank in the city, those in the rural areas, those commercial banks that are owned by the government and those banks that are jointly owned by the government and private entities. This study established that listing of commercial banks and increase in efficiency of banks affected profitability of commercial banks positively. Further findings from the study indicated that both unemployment rate and real GDP growth rate had a significant influence on bank profitability which was positive.

In US, Goddard et al. (2001) conducted a study which aimed at establishing whether economies of scale, GDP growth rate and efficiency of a bank have any significant influence on profitability. This study focused on data from 1989 to 1996. The study findings indicated that economic growth rate, and efficiency of a bank have a significant positive effect on profitability whereas size was observed to be negatively correlated with profitability. The study further established that size of the bank is negatively related to profitability of commercial banks in US. The study by Williams (2003) on commercial banks in Australia established that GDP growth had a positive influence on profitability of a bank. This finding indicates that GDP growth in Australia has the effect of increasing profitability of banks in the country.

A study by Kanwal and Nadeem (2013) in Pakistan, sought to establish the effect of macroeconomic variables on commercial banks' profitability. This study focused on GDP, interest rates and inflation. The study established that real GDP had an insignificant positive effect on ROA, but an insignificant negative impact on ROE and EM.

2.3.3 Interest rates and bank profitability

In Hong Kong, Peng, Lai, Leung and Shu (2003) conducted a study with the aim of determining the effect of changes in interest rates on commercial banks' profitability. The study established that a rise in the Hong Kong central bank lending rate to commercial banks would signify a narrowing spread between what the bank offered on deposits and loans. Rise in lending arte was revealed to have an influence on banks' profitability due to its effect on quality of assets held by the commercial banks and the effect it has on interest income.

The study by Kanwal and Nadeem (2013) in Pakistan established that real interest rate had a strong positive influence on ROA of commercial banks in that country. The study further established that inflation rate was negatively related with all the three studied measures of profitability used in the study which were ROA, ROE and EM. However, the study findings revealed that the studied macroeconomic factors did not have a significant influence on profitability of commercial banks.

The effect of interest rates on a company's operations manifests itself when interest rates lead to a rise in the company's cost of capital. When a country's central bank increases its base lending rate, this causes the bank's cost of capital to rise thus increasing its cost of production. This means that a company in a high interest rate regime environment needs to work harder so that revenues earned are able to cater for profits and also the high interest rates. Moreover, high interest rates discourage firms from borrowing when returns from the targeted projects have less return than the interest rates. The lower cash inflows and lower profits that emanate from the high returns required by shareholders means that value of the company's stock is diminished. High interest rates also make many companies unable to pay their debt obligations thus making returns from borrowed assets diminish this in effect causes returns to banks suffer (Sangmi and

Tabassum, 2010). Lastly, high interest rates regime affects the economy of a country negatively as it signifies a period of low investments and savings. This in effect causes the economy to slow down which reduces the earnings of all the companies in the economy.

A study by Ngumo (2012) on Kenyan Saccos sought to establish the effect of base lending interest rates on profitability of SACCOs. The study used a causal research design which relied on control factors. The audited annual reports of the Saccos which include statements of financial performance were used as the major source of data for the study. The profitability of the SACCOs was analyzed using the net interest income, the net operating income and the return on equity. The profitability of SACCOs for five years was compared against the annual average commercial lending rates as set by the Central Bank of Kenya. This study revealed that lending rates as set by the CBK does not influence the financial profitability of SACCOs. This was explained by the fact that there was no significant change in the Saccos financial profitability that was due to the changes in the base lending rate as set by the CBK.

A study by Ongore and Kusa (2013) on the Kenyan commercial banking sector investigated the factors that affected financial performance. Among other findings, the study established that profitability of commercial banks had a significant negative correlation with rate of inflation. This indicated that a rise in inflation would lead to a fall in profitability of commercial banks. The current study is different from this study as it only included quoted banks. This study by Ongore and Kusa (2013) also used data between 2001 and 2010 while the current study included more recent data up to 2012.

Naceur and Goaied (2008) in a study on Tunisian commercial banks assessed the influence of the financial industry structure, studied the impact of the financial industry, commercial bank characteristics and macroeconomic factors on the profitability of the

commercial banks between 1980 and 2000. This study revealed that the studied macroeconomic factors such as industry structure, characteristics of banks and had no e results revealed that macroeconomic factors which were interest rates, unemployment and bank characteristics had no significant influence on profitability of the commercial banking sector.

Kimani and Mutuku (2013) studied the inflation dynamics on the overall stock market profitability with a focus on NSE in Kenya. The study focused on the effects of exchange rate, interest rates and GDP on profitability of organizations that are listed in the NSE. Study findings revealed that interest rates had a significant negative influence on profitability of firms that were quoted in the NSE. These findings therefore pointed to an effect where a rise in interest rates is expected to lead to reduced profitability by quoted firms while a reduction in interest rates is expected to lead to improved financial performance.

2.3.3 Exchange rates and bank profitability

Adler and Dumas (1984) observed that a firm can experience foreign exchange risk due to unforeseen changes in exchange rates. There are four general ways that foreign exchange risk exposure can afflict firms. First is through transaction where the firm's future cash flows or returns from an organization's investments are affected due to changes in foreign exchange rate. Another form of foreign exchange risk exposure is translation exposure. Translational exposure occurs when there is mismatch in turning or translating earnings or payments from one currency to another. This occurs when a firm has dealings in foreign currency but reports in local currency (Madura, 2003). Further, another form of foreign exchange risk exposure is operational exposure. This occurs where the position of the firm in the market in relation to competition, demand and prices changes due to exchange rate changes. Last form of foreign exchange risk

emanates from revaluations that are required into a firm's liabilities due to liability obligations arising from the future.

Changes in exchange rates do not only afflict companies with off shore operations. Foreign exchange rate changes also affect companies operating domestically due to its effect on output costs, input costs and affecting competition of domestic companies due to its effect on availability and demand of substitute imports. This means that even companies with no foreign operations are affected indirectly by changes in foreign exchange rates. Changes and fluctuations in exchange rate affects multinational corporations with offshore operations, importers or exporters of goods and even individual investors who own investments in different countries denominated in different currencies. Firms which do not have international operations are also affected in the different trading activities when they require services which are denominated in foreign currency. These effects also affects commercial banks in their many dealings locally and internationally.

A study by Joseph (2002) in the United Kingdom (UK) focused on establishing how profitability of firms in the pharmaceutical, chemical, engineering and electrical industries is affected by exchange rates. This study was focused on the period from 1988 to 2000 and revealed that profitability of firms is influenced by changes in exchange rates, though it found that changes in interest rates had more significant effect. The study further established that short-term changes in foreign exchange rate had a negative effect on profitability of 28.3% of the firms surveyed. The study also revealed that foreign exchange fluctuations affected profitability of firms and the effect was related to the sector the firm was in.

Bartram and Karolyi (2006) investigated the influence of exchange rate risk exposure on firms in Europe, Japan and the US. The study established that exchange rate risk had minimal

influence on profitability of firms in these surveyed countries. This indicated that change in exchange rates had minimal effect on profitability and value of these companies. A study by Doidge et al. (2006) on firms in the major continents of the globe including Asia, North America and Europe establish that exchange rate risks has minimal effect on profitability of companies in the different sectors. Very few firms in this study revealed to be significantly affected by shocks in exchange rate. This study had findings which agreed with a previous study by Griffin and Stulz (2001) which had revealed very insignificant effects of exchange rate changes on financial performance of firms.

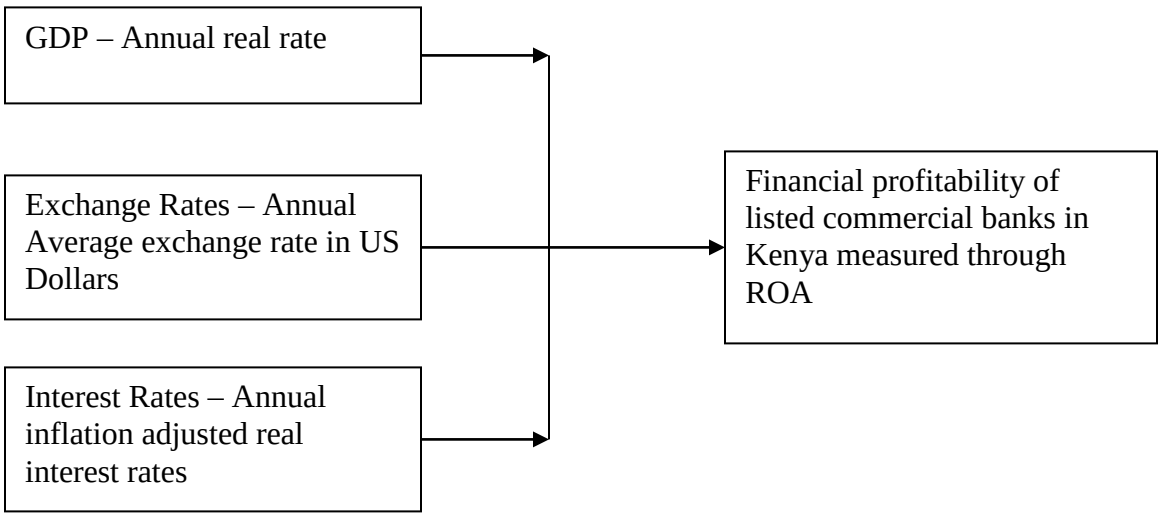
Muriuki (2013) studied the influence of foreign exchange rate fluctuation on the financial profitability of listed companies in Kenya. This study revealed that since foreign exchange losses and gains are posted in income statements of companies, this has an effect on the profitability of the company as they can boost or be detrimental to profits. The study also had findings indicating that firms quoted in the NSE had reported massive growth in dealings that are denominated in foreign currency. These dealings were mostly involving imports and exports. This increase in imports and exports exposes a firm to exchange rate risk which can in turn affect its profitability. Changes in foreign exchange were indicated in this study to affect profit and loss and balance sheet items such as account receivables, import costs, revenue from exports and accounts payables. This in turn had the effect of influencing the net profit of these companies.

2.4 Conceptual Framework

This study conceptualized that GDP, inflation and interest rates can all have an influence of the operations of commercial banks and thus influence their financial profitability.

The conceptual framework is depicted in Figure 1.

FIGURE 1
Conceptual Framework



2.5 Measurement of Variables

Profitability of banks was measured through ROA, GDP, exchange rates and interest rates were measured through yearly average figures from KNBS, CBK and World Bank.

TABLE 1
Dependent Variable And Its Measurement

Variable	**Notation**	**Measurement**
Return on assets	ROA	Net income/total assets

ROA measures the net profit as a ratio of net assets. ROA reflects the efficiency of banks' management to earn profits using financial and real resources commanded by the bank.

TABLE 2
Independent Variables and Their Measurement

Variable	**Notation**	**Measurement**	**Expected Effect**
Gross domestic product	GDP	Real GDP per annum GDP = C + I + G + (X − M)	Positive
Exchange rate	ER	Average annual Exchange rate of Kenya shilling to US dollar	Negative
Real interest rate	RIR	1 + nominal rate) = (1 + real interest rate) (1 + inflation rate) (Average Market lending rate)	Negative

C = consumption, M = imports, G = Government spending, I = Investments and X = Exports.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the overall methodology that the researcher used to carry out the study. This includes the research design, target population, sample design, and data collection procedure. Data analysis procedure and presentation is also presented in this chapter.

3.2 Research Design

The researcher employed descriptive research design. A descriptive study is the kind of study where data is collected from the population of interest on the situation as is, without affecting or influencing the environment or population of interest in any way. The purpose of a descriptive study is therefore to give an account of the situation as it is. A descriptive study is conducted majorly to test relationships or association between variables of interest in the natural environment of the population under study. In this study available data from the macroeconomic variables of interest was related to profitability of commercial banks to establish how these variables related to profitability. This study was based on secondary data that was obtained from Kenya National Bureau of Statistics, Central Bank of Kenya and the commercial banks themselves.

3.3 Target Population

The 10 listed commercial banks in the NSE formed the population of interest in this study. Data from 2001 to 2012 on profitability of these banks was used for analysis where comparable data for the same period on interest rates, exchange rates and GDP was used to facilitate an analysis on the relationship that exists. This study utilized panel data analysis where

data for each of the 10 banks on ROA for each year for 12 years was related to the macroeconomic variables. Baltagi (2008) observes that using panel data is important as it enables observation of certain variables for different entities over time. This formed 120 observations in total. This helped in studying the cause and effect relationship between the macroeconomic variables on one hand and financial profitability measures on the other.

3.4 Sampling Design and Sample Size

Due to the small size of the population, no sampling was done. A census of all the listed commercial banks at NSE was done. These commercial banks were used since their information is publicly available and they are controlled by both the Central Bank of Kenya (CBK) and Capital markets Authority (CMA).

3.6 Data Collection, Analysis and Presentation

Secondary data used to attain the study objectives were sourced from the World Bank database, KNBS, the 10 commercial banks and the CBK. Collected data was edited before entering it into an excel worksheet. The data was then coded into statistical package for social sciences (SPSS) which was used for analysis through regression analysis and correlation. The panel data model was used for analysis. Presentation of data from the regression analysis was through tables. Relationship between the different variables under study was facilitated by correlation analysis.

3.7 Model Specification

The current study employed descriptive statistics, Pearson's correlation analysis and panel data regression model. The random effect model and the fixed effect model were used.

However, before data analysis, a Hausman test was performed to establish the best model to use for the data between fixed effects model and random effects model. The fixed effects model of the panel analysis method assumes that all or some of the explanatory variables are correlated and hence assumes that there are effects that are time independent which may have correlation with one or all of the independent variables or regressors. This therefore assumes different intercepts for each entity but constant gradient for each regression line for all the entities under consideration. However, the model assumes that though the intercept for the different entities may be different, the intercepts do not vary significantly over the study period.

Conversely, the random effects model allows for individual effects. It assumes that the independent variables in the model are independent and are not correlated with each other or with the dependent variable. This model therefore has random effects which are indicated as unique errors in the output model.

The equation for the fixed effects model becomes:

Equation I

$Y_{it} = \beta_i X_{it} + \alpha_i + u_{it}$

Where

- α_i (i=1….10) intercept for each entity.
- Y_{it} is the dependent variable (ROA) where i = bank and t = time.
- X_{it} represents independent variables (that is, Real GDP, Exchange rate and real interest rates).

- B_i is the coefficient for the IV,
- u_{it} is the error term

The equation for the random effects model becomes;

Equation II

$Y_{it} = \alpha + \beta X_{it} + u_{it} + \varepsilon_{it}$

Where

- α is the unknown intercept for all banks.
- Y_{it} is the dependent variable (ROA) where i = bank and t = time.
- X_{it} represents independent variables (that is, Real GDP, Exchange rate and real interest rates).
- B is the coefficient for the IV,
- u_{it} is the between-entity error
- ε_{it} is the within-entity error

Assumption that there was linear relationship between dependent and independent variables was due to the fact that change in independent variables is expected to have a proportionate change in the dependent variable. Before the linear regression was performed, linearity of the model was tested. To test nonlinearity a comparison was done between the plots of observed values against the plot of predicted values. The standard measure is that for linearity to exist there should be symmetrical distribution of points around the diagonal line with the variance being constant. The data satisfied all the assumptions.

CHAPTER FOUR

FINDINGS AND DISCUSSION

4.1 Introduction

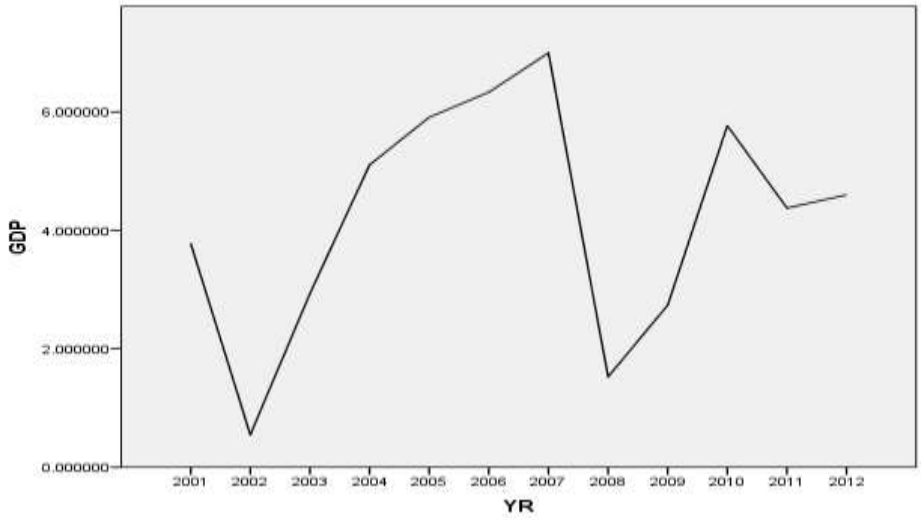
Presented in this chapter are the findings from the study after a secondary analysis of the data on ROA, GDP, real interest rates and exchange rates concerning 10 banks that are listed in the Nairobi Securities Exchange. Presented first are descriptive characteristics of the data. After descriptive analysis, diagnostic analysis of the data is presented. This entails test of heteroscedasticity, normality and multicollinearity. Correlation analysis findings are also presented followed lastly by the panel data analysis which establishes the effect of the three independent variables on return on assets.

4.2 Descriptive Data Analysis

Descriptive analyses of the data were done and here in below the results are provided. Data analysis began with exploration of the study data. Results in Appendix II presents a trend analysis of the ROA of the 10 banks over the 12 years study period. The within firm behaviour of ROA was assessed and the figure provides an empirical indication of the trend of ROA in the 10 banks over the study period. The results presented in Appendix II indicate that ROA among the 10 banks generally grew over the 12 years except for bank 3 which showed generally constant trend over the 12 years. The other banks however showed a sustained growth in ROA over the study period.

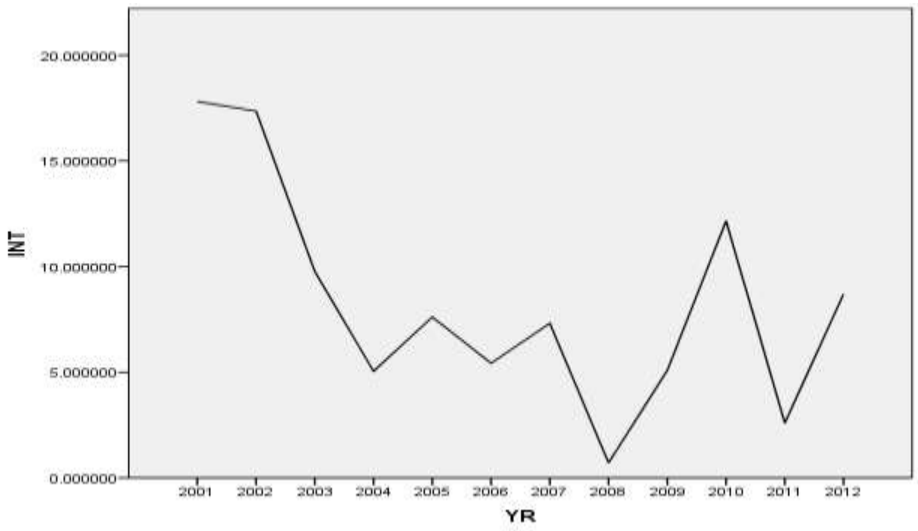
Further, the trend of the real GDP over time was analyzed. Results in Figure 2 indicate that GDP shows a growing trend although there were slumps in years 2002 and 2008 this was triggered by political influence and post election violence. However, the growth from 2001 and 2012 was stable.

FIGURE 2
Trend of Real GDP Growth



Further, the trend of interest rates over the study period was assessed. The results which are presented in Figure 3 indicate that interest rates from 2001 and 2012 shows a decreasing trend with the lowest real interest rates being recorded in 2008 this was due to the aftermath of post election violence which was an exogenous shock to the economy.

FIGURE 3
Real Interest Rates Trend



Further, an analysis was done to establish how the exchange rate against the US dollar changed with time. The results are presented in Figure 4 where the trend shows a growth of the exchange rate though there is a slump in 2007.

FIGURE 4
Exchange Rate Against US Dollar

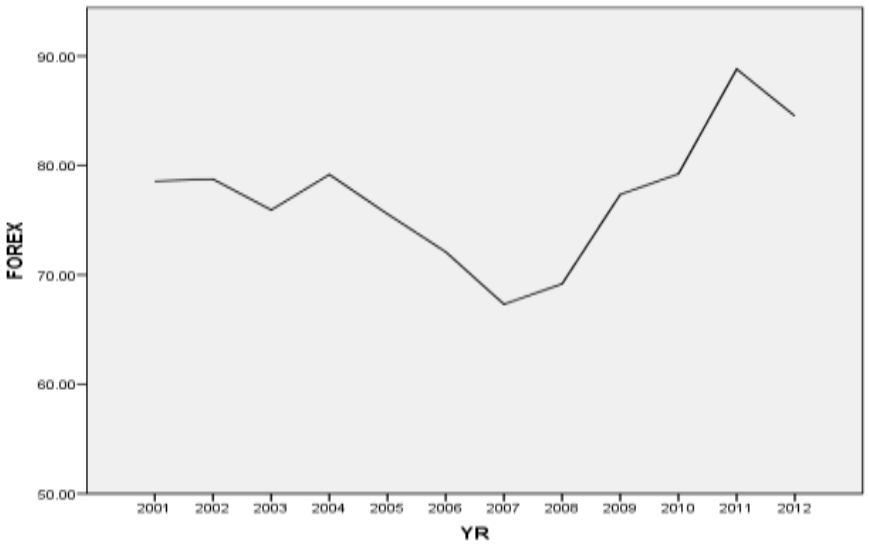
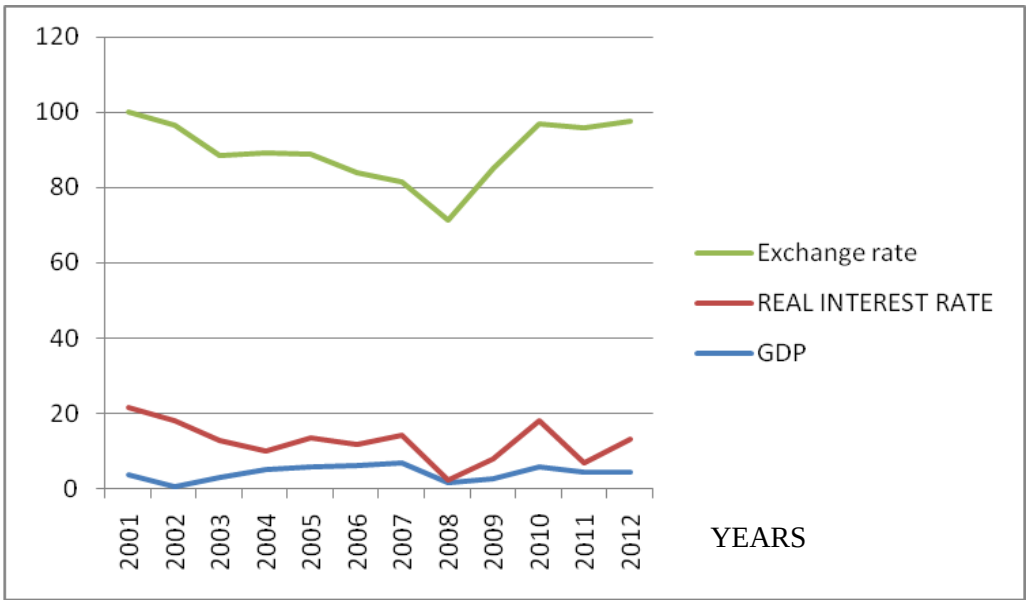


FIGURE 5
Plot of Forex, Real Interest Rate & GDP for the 10 Banks



Further in comparison the exchange rate showed some stability but in the year 2008 there was a slump because the exports where less than imports and this was caused by post election violence which affected the kenyan economy as a whole, even for the other factors intrest rate and GDP. In the year 2002 GDP experienced a slump. This could have been trigered by investors shying away from investing in kenyan economy due to the fear of political instabilty due to elections this led to decreased economic growth thus the banks raised their lending rates.

4.3: Correlation Matrix of the Study

To establish the linear relationship of the different under study a correlation analysis was conducted. The study results presented in Table 3 indicate that real GDP growth rate ($r = 0.139$; $p > 0.05$) and US Dollar to Kenya shilling exchange rate ($r = 0.167$; $p > 0.05$) were positively correlated with ROA but the relationship was weak and not significant. This finding indicates that an increase in exchange rate and real GDP growth rate have a relationship which is positive

but insignificant increase in profitability of banks as measured through ROA. However, real interest rates had a moderate negative correlation with ROA ($r = -0.337$; $p < 0.05$). This finding reveals that an increase in real interest rates has a relation on the reduction on bank's return on assets. This is because when interest rates are high investors runaway from commercial banks and borrow from Sacco's Ngumo (2012). However real interest rates had a negative correlation with GDP($r = -0.188$; $p < 0.05$) this is because when GDP is low the economic growth is stagnated hence less money circulating in the economy hence banks increase their lending rates. The results further point to the fact that there was no problem of multicollinearity as no two independent variables had a correlation of more than 0.3 between them.

TABLE 3
Correlation Matrix of the Study Variables

		ROA	GDP	Interest rates	Exchange rate
ROA	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	120			
GDP	Pearson Correlation	.139	1		
	Sig. (2-tailed)	.131			
	N	120	120		
Interest rates	Pearson Correlation	-.337**	-.188*	1	
	Sig. (2-tailed)	.000	.040		
	N	120	120	120	
Exchange rate	Pearson Correlation	.167	-.113	.141	1
	Sig. (2-tailed)	.068	.218	.125	
	N	120	120	120	120

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

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

4.4 Diagnostic Analysis

Presented in this section are the diagnostic tests that were carried out on the panel data. The errors that were used for diagnostic test were generated using generalized least squares

regression. First, the Breusch-Pagan LM test was used to test for heteroscedasticity. Results presented in Table 4 reveal that chi-square value for the model was significant ($p < 0.001$). This therefore indicated that there was heteroscedasticity. To deal with the violation of the heteroscedasticity assumption, the researcher used the weighted least squares method which minimized the weighted sum of squared residuals. This made the error terms which had large variances to get a smaller weight than those error terms with a small variance.

TABLE 4
Chi-Square Values for the Breusch-Pagan LM Test

Model	**Dependent variable**	**χ^2- value**	**p-value**
1	Return on Assets	431.67	0.000

It is assumed in any multiple linear regression that the residuals (predicted minus observed values) follow the normal distribution. Even though most tests (specifically the F-test) are quite robust with regard to violations of this assumption, it is always a good idea, before drawing final conclusions, to review the distributions of the major variables of interest. The normality of residuals was tested using Kolmogorov-Smirnov-Test and the results presented in Table 5. All the residuals were deemed to be normally distributed ($p > 0.05$) and hence panel model regression was appropriate.

TABLE 5
Test of Normality

		ROA	GDP	INT	EX
N		120	120	120	120
Normal Parameters	Mean	3.2863333	4.21626394	8.29831741	77.20793503
	Std. Deviation	1.88635611	1.903701165	5.108217263	5.748285960
Most Extreme Differences	Absolute	.049	.125	.137	.196
	Positive	.041	.088	.137	.196
	Negative	-.049	-.125	-.129	-.137
Kolmogorov-Smirnov Z		.535	.873	.700	.643
Asymp. Sig. (2-tailed)		.937	.196	.422	.671

Further, a test was conducted to examine autocorrelation. Durbin-Watson-Test was used as indicated in Table 6. The Durbin-Watson was approximately 2 in this case and hence the model did not have any systematic relationship among the errors associated with different observations.

TABLE 6
Test Results for Autocorrelation

Model	**Dependent variable**	**Std. Error of the Estimate**	**Durbin-Watson**
1	Return on Assets (ROA)	1.74101672	1.889

Lastly, a test was done to establish whether there were any time related fixed effects that affected ROA of the different banks. Presence of time related fixed effects would necessitate dummy variables to be included in the model to cater for the effects or the application of a two-way random effects model. Results as presented in Table 7 indicate that there were no significant fixed effects ($p > 0.05$) that affected ROA of the different banks and hence no need of catering for fixed effects.

TABLE 7
Test Results for Time Fixed Effects

Model	Dependent variable	F-value	p-value
1	Return on Assets (ROA)	1.385	0.186

4.5 Panel Data Analysis

The data set in this study contained 12 years time series data and cross sectional data for 10 banks. The panel regression model was applied for the study. However before deciding whether to use the fixed effects (FE) model or random effects (RE) model a Hausman test was performed. This test was used to determine the estimator that was more reliable and consistent for the data between the FE estimator and RE estimator. The outcome of the test is presented in Table 8. The chi square was 429.34 and it was significant ($p < 0.05$). The findings indicated that fixed effects model provided more consistent and reliable coefficient estimates as per the data under review.

TABLE 8
Hausman Test Results

Model	Dependent variable	Chi^2	Prob > Chi^2
1	Return On Assets (ROA)	429.34	0.0000

The panel data had both time series and cross sectional data. Cross sectional was from the 10 banks listed on NSE while time series data related to 12 years under observation in the current study. Fixed effects panel data model was applied to establish the effect of the macroeconomic factors under consideration on ROA. The results of the fixed effects panel regression are presented in Table 9.

TABLE 9
Fixed Effects Panel Regression on Return on Assets

				Number of observations = 120		
Source	SS	df	MS	Number of groups = 10		
Model	71.830	3	23.943	Observations per group = 12		
Residual	351.612	116	3.031	F = 7.899		
Total	423.442	119	3.558	p = 0.000		
					95% Confidence Interval	
Return on Assets	Coefficient	Std. Error	t	p > t	Lower Bound	Upper Bound
GDP	.097712	.085700	1.140	.257	-.072028	.267451
Interest Rate	-.129319	.032052	-4.035	.000	-.192801	-.065837
Forex Rate	.074702	.028156	2.653	.009	.018935	.130469
Constant	-1.820101	2.232646	-.815	.417	-6.242137	2.601935

The analysis of variance indicated that the model was significant in explaining the change in profitability of listed commercial banks ($f = 7.899$; $p < 0.05$). In the model, Real interest rate is seen to have a significant negative effect ($\beta = -.129319$; $t = -4.035$; $p < 0.05$) on Return on assets. The effect of exchange rate on return on assets was positive ($\beta = .074702$; $t = 2.653$; $p < 0.05$) and significant, however, real GDP growth rate did not have any significant effect on return on assets of the banks ($\beta = .097712$; $t = 1.140$; $p > 0.05$). however the findings indicated that real GDP growth rate would have a positive but insignificant effect on a bank's return on assets.

This established that there was no significance influence of GDP on performance of the surveyed banks. This can explain why there was not a significant effect of growth of real GDP on performance of banks. A 1% improvement in real GDP growth is expected to result to a 9.77% improvement in profitability of banks. However, this effect was not significant at 5%. This can also be explained by the fact that though while investment is an important factor in a

nation's GDP growth, even more important is greater respect for laws and contracts. The business environment, regulation and laws concerning conduct of business are important for companies to thrive.

The findings of insignificant positive relationship between bank profitability (ROA) and economic growth (real GDP) in Kenya is consistent with the findings of Rao and Lakew (2012), Ramadan et al. (2011) and Ongore (2013). These previous researchers established that economic growth measured using Real GDP did not have any significant influence on profitability of commercial banks. However, all these previous studies had established a positive influence of real GDP growth rate on profitability of banks though the effect was insignificant. These study findings also consistent with results from a study by Scott and Arias (2011) that studied profitability of five largest banks in United States and revealed that GDP did not have a significant influence on profit level of commercial banks in US. The study by Hoffmann (2011) who used pooled OLS model and GMM estimation approach on US banks indicated that both regression models showed no significant association between GDP and profitability is also consistent with findings from this study.

However, the findings from the current study are in contrast to a study by Sufian (2011) who empirically tested the effect of GDP on profitability of Korean commercial banks for the period beginning in 1992 and ending in 2003. The results established that GDP had a negative effect on profitability of banks which was measured using ROA. Like the current study, Davydenko (2011) used panel regression model to test the effect of GDP on profitability of banks and revealed that ROA of Ukrainian banks was positively influenced by GDP. Further, a study by Saksonova and Solovjova (2011) on large Latvian banks revealed that GDP growth had positive contribution to ROA. Though these studies have similar results with the current study on

positive effect of GDP on profitability, they disagree with the current study on the significance of that effect since these two studies found a significant positive relationship.

The results also indicated that real interest rate has a significant negative effect (β = -.129319; t = -4.035; $p < 0.05$) on profitability of banks as measured using return on assets. This effect is due to the fact that interest rates influence business borrowing. Accepting deposits from surplus units and lending to deficit units is the primary business of banks. Revenue from interest from loans is the chief revenue source of banks. In times of rising interest rates, businesses often need to take out loans to make up for investments and shortfalls in payroll or other expenses, so higher interest rates make such shortfalls more costly, since the businesses will have to pay more interest back to bank lenders. High interest rates also affect companies in that it affects cost of repayment for any long term debt. This therefore makes companies to postpone taking debt when interest rates are rising and they seek other avenues of financing their projects. Rising interest rate thus make lesser and lesser businesses and individuals to take loans from banks which thus reduces revenues that banks get from loan interest. This therefore affects profitability of banks negatively. The study results further indicated that a 1 unit increase in interest rates would lead to a decrease in ROA by 12.9% ceteris paribus. This also indicates that increase in interest rates would have an opposite effect on profitability.

High interest rates also have a negative effect on plans and strategies of businesses. Since the goal of any profit maximizing entity is to make profit, the business does an analysis to establish whether the returns from a business are more than its cost of capital. This is done to ensure that no project is undertaken that brings less than it consumes. Rising interest rates tend to make new ventures less attractive and they make repayments of loans more costly since banks in a rising interest rate economy offer loans on adjustable rates. This makes loan repayments

expensive and can lead to an increase in non-performing loans. This therefore can have a detrimental impact on loan repayments and revenue from loan interest. This eventually affects profitability of the bank. These findings are in contrast with findings from a study by Kanwal and Nadeem (2013) whose findings revealed that real interest rates had a significant positive effect on performance measured using ROA.

The current study also does not concur with findings from a study by Ngumo (2012). Ngumo (2012) sought to establish the effect of the lending interest rates on the financial profitability of SACCOs in Kenya. The study used a causal research design which relied on control factors. The study used secondary sources of data from published audited annual reports of accounts for the selected SACCOs. The profitability of the SACCOs was analyzed using the net interest income, the net operating income and the return on equity. The profitability of SACCOs for five years was compared against the annual average commercial lending rates as set by the Central Bank of Kenya.

However, the current study findings agree with findings by Sangmi and Tabassum (2010) who observed that rise in interest rates is related to lower profits, lower cash inflows and a higher required rate of return for investors which all translate into depressed fair value for the company's stock. The findings from this study also agree with findings from a study by Ongore and Kusa (2013). The study established that inflation had significant negative relationship with financial profitability of commercial banks in Kenya. It had -0.055, -0.0291, -0.0412 coefficients of parameters with ROA, ROE and Net Interest Margin (NIM) with 95%, 90% and 95% significance level respectively. This relationship was negative indicating that rise inflation rates affected profitability of commercial banks negatively. However the relationship was not significant at 5% level. The current study is different from this study as it will only include

quoted banks. This study by Ongore and Kusa (2013) also used data between 2001 and 2010 while the current study included more recent data up to 2012.

The study established that foreign exchange rate for Kenya shilling against US dollar had a significant effect on performance of banks (β =.074702; t = 2.653; $p < 0.05$). The study results revealed that a 1 unit increase exchange rates leads to 7.4% ROA. This can be explained by many factors. First, currency fluctuations may adversely or favorably affect the prices in production, importation and consumer prices. Fluctuations in exchange rate affects prices of domestic products through import of raw materials, prices of finished goods for consumption and foreign currency denominated imports. The extent to which these changes are reflected in the consumer price index (CPI) depends on the magnitude of imported goods or raw materials in the general consumption basket used to derive the CPI. If depreciation of currency results in higher prices for imported goods, the demand of domestic goods which generally compete with imported goods will increase. Rise in demand of domestic goods will in turn provide an upward pressure on prices of domestic goods and wages which will eventually lead to pressure on revenues by local firms. This will eventually result to reduced earnings and profit. Rising wages will exert further upward pressure on domestic prices. The bank's profitability is due to the lower buying prices of foreign currency and the higher selling prices of foreign currencies.

The results are inconsistent with the findings of Babazadeh and Farrokhnejad (2012) who had established that depreciation of local currencies as compared to foreign currencies had a negative effect on profitability of local companies. The results also disagree with findings from a study by Bartram and Karolyi (2006). Bartram and Karolyi tested the foreign exchange exposure risk to firm sin Europe, Japan and the US. The study established that effect of exchange rate risk

on profitability of firms in these surveyed countries was minimal. This indicated that change in exchange rates had minimal effect on profitability and value of these companies.

The findings however agree with results from a study by Muriuki (2013). Muriuki (2013) studied the effect of foreign exchange rate fluctuation on the financial profitability of listed companies in Kenya. This study revealed that since foreign exchange losses and gains are posted in income statements of companies, this has an effect on the profitability of the company as they can boost or be detrimental to profits. The study also had findings indicating that firms listed in the Nairobi Securities Exchange (NSE) had reported massive growth in dealings that are denominated in foreign currency. These dealings were mostly involving imports and exports. This increase in imports and exports exposes a firm to exchange rate risk which can in turn affect its profitability. Generally, the study findings agree with theory of production by Koutsoyianis (2003). The findings revealed that the processes of commercial banks in Kenya are affected by various factors some of them macroeconomic in nature such as exchange rate changes.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

Presented in this chapter is the discussion of results and conclusion. The discussion and conclusion relates to the three macroeconomic variables (Real GDP, real interest arte and exchange rate) and their resultant effect on performance of banks that are listed on the NSE. The discussion entails comparing and contrasting the findings from the study with empirical findings from other studies done previously.

5.2 Summary of Findings

The study results indicated that economic growth (real GDP) has an insignificant positive effect on bank profitability at 5 % level of significance. This study therefore does not reject the null hypothesis that economic growth (real GDP) does not affect bank profitability in Kenya with banks that are quoted in the NSE as the focus.

The second objective of the study was to determine the effect of real interest rates on profitability of listed commercial banks in Kenya. The study established that real interest rates had a negative and significant effect on profitability of listed commercial banks in Kenya.

The third objective of the study was to establish effect of exchange rate on commercial banks' profitability in Kenya with a focus on the banks that are listed in the NSE. Study results indicate that exchange rate has a significant positive effect on bank profitability at 5 % level of significance.

5.3 Conclusion

The present study aimed at establishing the effect of macro-economic variables on profitability of listed commercial banks in Kenya. The macroeconomic variables that were considered in this study included real GDP, real interest rates and exchange rate (US dollar/Kenya shilling).

The study concludes that though real GDP is a measure of economic growth in the country, its increase had no significant effect on commercial banks' profitability. Rise in GDP depicts a growing economy and a growing economy is expected to fuel growth and development of firms in a given country. GDP is a method of calculation of value of economic activity in a country by accounting for the total production done within a country's borders by those residing in that country irrespective of nationality. However, the study findings conclude that growth in Kenyan GDP is not significant in influencing profitability.

Secondly, the study concludes that real interest rates have a significant negative influence of profitability of quoted commercial banks in Kenya. This indicates that a rise in real interest rates results to reduction in bank profitability and vice versa. Rise in interest rates could cause loans to be expensive thus reducing loan demand and eventually affecting interest revenue to banks. Further, rise in interest rates causes rise in loan repayments which can increase default rates by bank customers which negatively affects profitability.

Lastly, the study concludes that rise in exchange rate influences a rise in bank profitability (ROA). Increase in exchange rate of Kenya shilling against the US dollar has the effect of improving exports by the country's firms and therefore improves revenues from outside the country. On the other hand, imports while the local currency is depreciating become expensive which lowers unnecessary imports to the country. Further rise in exchange rate would

mean an increase in foreign exchange earnings and gains by banks which improves their profitability.

5.4 Recommendations

The following recommendations are made. First, though real GDP growth revealed no significant effect on profitability of commercial banks in this study, the government and regulatory agencies should ensure that this important macroeconomic variable is well managed as its growth lead to development and growth in the various major industries in the economy. The growth in the various industries in the country brought about by the economic growth would have a multiplier effect which would eventually cause big leaps in the country's growth and growth of its various industries.

Secondly, rise in interest rates should be managed by applying effective policies and measures by the central bank. Banks also should have effective measures to manage interest rate risks so that their profitability is not affected adversely. Banks and the central bank should make use of the various interest risk management instruments and policies to ensure that rise in interest rates are well managed.

Thirdly, though rise in exchange rate was associated with increase in bank profitability in this study, is a fact that a fast depreciating local currency can create instability within other macroeconomic variables. This necessitates the efforts by the Central Bank of Kenya which is the pivot monetary authority in Kenya to put in place different measures at stabilizing the local currency. The Central Bank of Kenya needs to focus more on macroeconomic policies mostly in areas relating to exchange management with a view to achieving a realistic exchange rate that will aid economic growth and achieve a relative stability in the value of the Kenya shilling

against the dollar. However, banks should also have in place risk mitigating strategies to counter foreign exchange fluctuations.

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APPENDICES

APPENDIX I

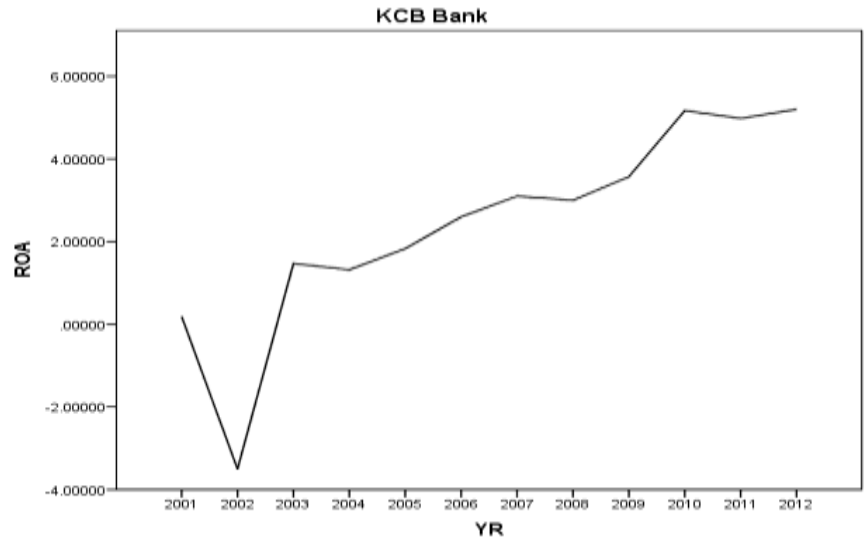
Commercial banks that are listed at NSE

1. Barclays Bank of Kenya
2. CFC Stanbic Holdings
3. I & M Holdings
4. Diamond Trust Bank Kenya Ltd
5. Kenya Commercial Bank
6. National Bank of Kenya
7. NIC Bank
8. Standard Chartered Bank
9. Equity Bank Ltd
10. Co-operative Bank of Kenya

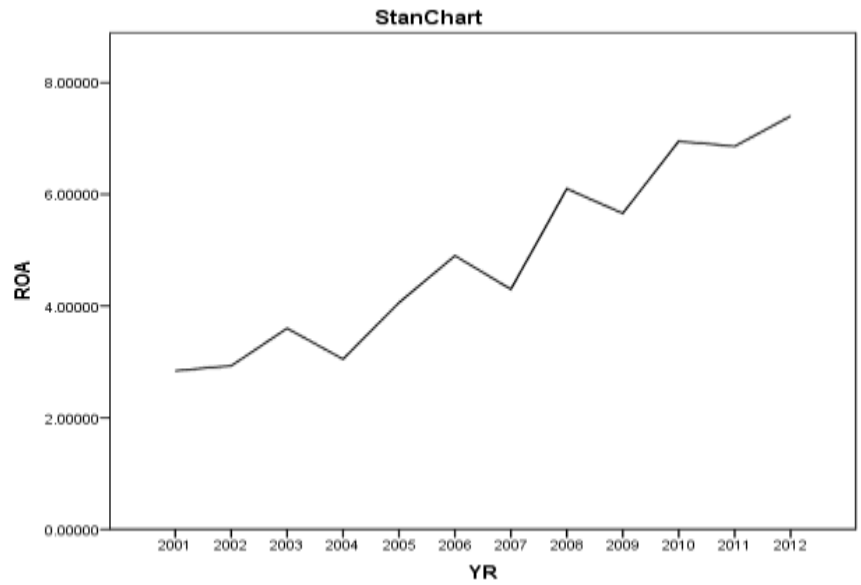
APPENDIX II

Trend line of different banks

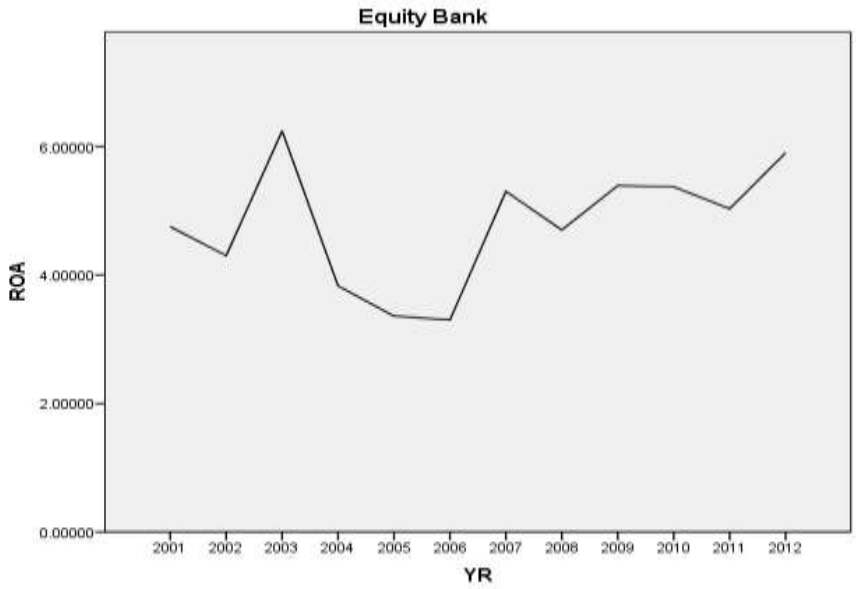
ROA Trend line for KCB Bank



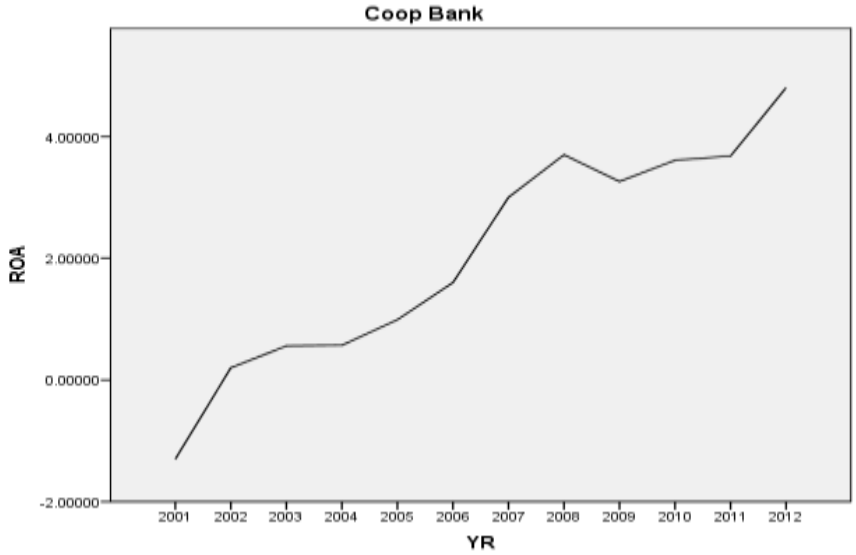
ROA Trend line for Stan Chart Bank .



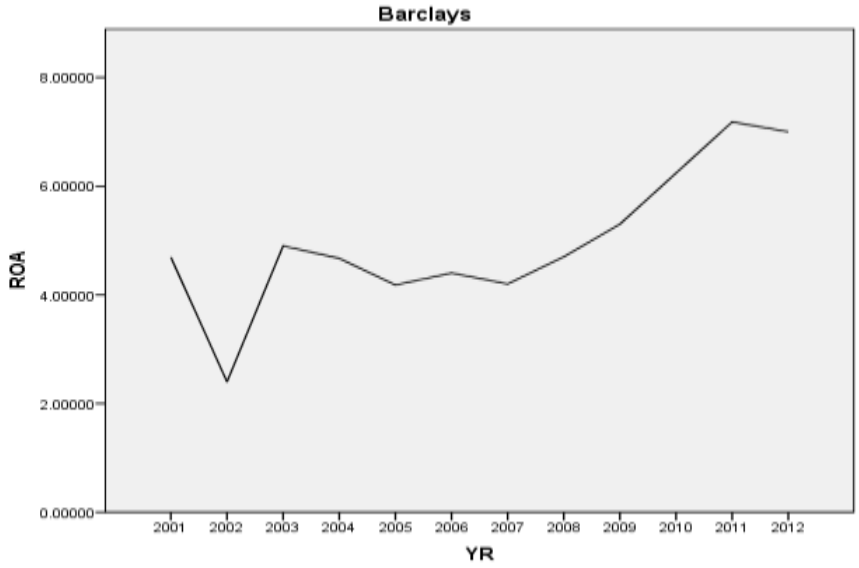
ROA Trend line for Equity Bank.



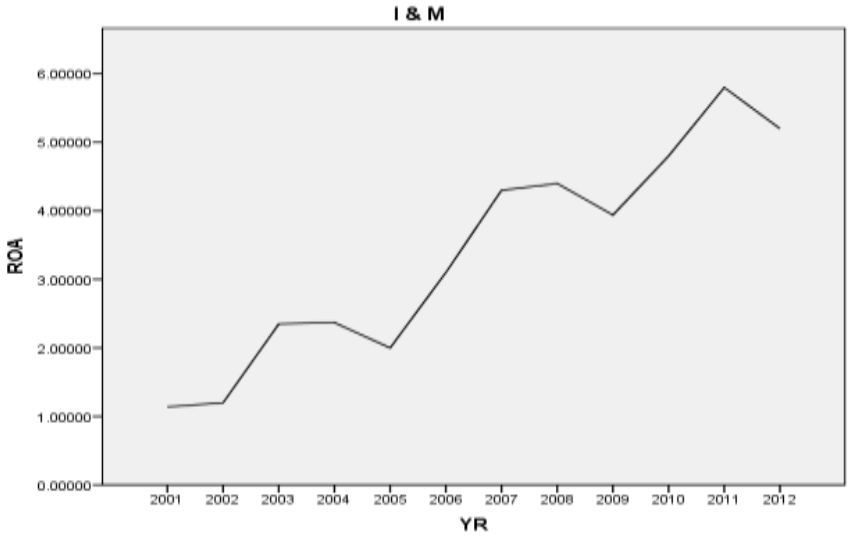
ROA Trend line for co-operative Bank.



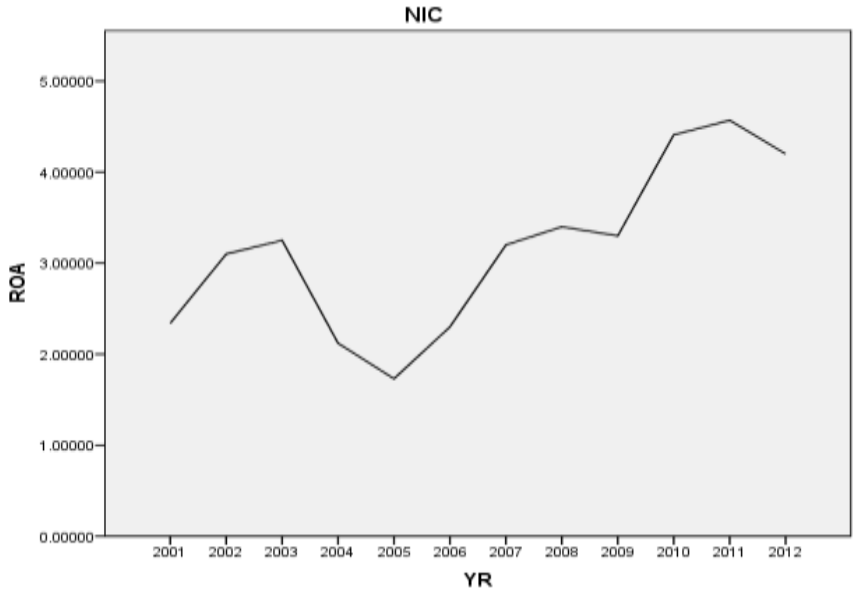
ROA Trend line for Barclays Bank.



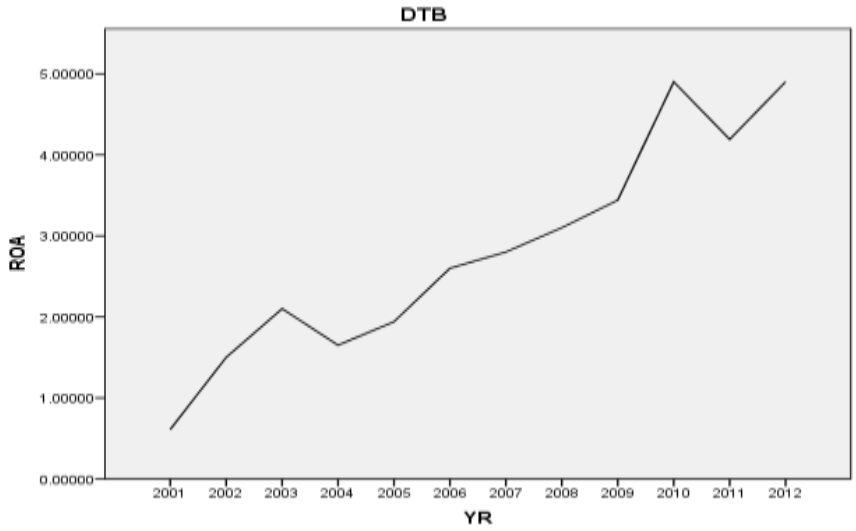
ROA Trend line for I&M Bank.



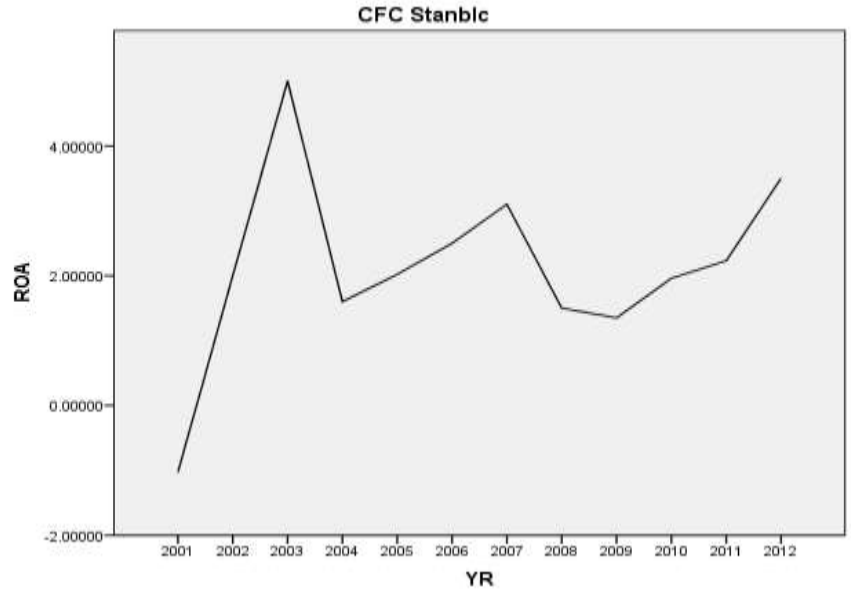
ROA Trend line for NIC Bank



ROA Trend line for DTB Bank



ROA Trend line for CFC Stanbic Bank



ROA Trend line for NBK Bank