

**THE EFFECT OF MACRO-ECONOMIC VARIABLES ON  
FINANCIAL PERFORMANCE OF COMMERCIAL BANKING  
SECTOR IN KENYA**

**SUBMITTED BY:  
TEDDY DONAT OTAMBO  
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## **DECLARATION**

I, the undersigned, declare that this is my original work and has not been presented to any institution or university other than the University of Nairobi for examination.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

**TEDDY OTAMBO**

Reg No. D63/72890/2014

This Research project has been submitted for examination with my approval as the University Supervisor.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

**MS. HELLEN KINYUA**

Lecturer, Department of Finance and Accounting

School of Business, University of Nairobi

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

**DR. MIRIE MWANGI**

Senior Lecturer, Department of Finance and Accounting

School of Business, University of Nairobi

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## **DEDICATION**

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## **ABBREVIATIONS**

<b>ANOVA</b>	-	Analysis of Variance
<b>ATM</b>	-	Automated Teller Machine
<b>CAPM</b>	-	Capital Asset Pricing Model
<b>CBK</b>	-	Central Bank of Kenya
<b>CEO</b>	-	Chief Executive Officer
<b>CMA</b>	-	Capital Markets Authority
<b>CPI</b>	-	Consumer Price Index
<b>EMH</b>	-	Efficient Market Hypothesis
<b>FGLS</b>	-	Feasible Generalized Least Square
<b>GDP</b>	-	Gross Domestic Product
<b>GOK</b>	-	Government of Kenya
<b>KRA</b>	-	Kenya Revenue Authority
<b>MPT</b>	-	Market Pricing Theory
<b>NIM</b>	-	Net Interest Margin
<b>NSE</b>	-	Nairobi Securities Exchange
<b>OECD</b>	-	Organization for Economic Cooperation and Development
<b>ROA</b>	-	Return on Assets
<b>ROE</b>	-	Return on Equity
<b>ROI</b>	-	Return on Investments
<b>ROS</b>	-	Return on Sales

## ABSTRACT

This research was undertaken in order to determine the effect of macro-economic variables on financial performance of commercial banking sector in Kenya. So far, the studies available have arrived at different findings. This study aimed at contributing to determining to what extent macro-economic variables influence financial performance of commercial banking sector in Kenya. The researcher ran a descriptive as well as a correlational study on all the commercial banks in Kenya between January 2006 and December 2015. Data was analyzed using SPSS software version 21 and was presented using graphs and frequency tables. Secondary data on quarterly bank performance was obtained from the individual banks annual financial reports while data on macro-economic variables was obtained from both Central Bank of Kenya and Kenya National Bureau of Statistics and was analyzed through multiple linear regressions. Return on assets was used to measure financial performance while quarterly interest rates, quarterly exchange rates (USD/KSH), quarterly GDP, and quarterly inflation rates were used to measure interest rates, exchange rates, GDP and inflation rates respectively. The results of the study indicated that there is a strong ( $R=0.792$ ) relationship between macro-economic variables and financial performance of commercial banks. The study also recorded an adjusted R-squared value of 0.585. This implies 58.5% of the total variance in financial performance of the commercial banking sector in Kenya can be attributed to macro-economic variables. ANOVA statistics revealed that the regression model was ideal since it had a significance level of 0.001. The study further established that Interest rates and Exchange rates affect financial performance of the commercial banking sector negatively while Inflation rates and GDP affect it positively. The study recommends the commercial banking sector in Kenya should consider macro-economic variables such as rates, interest rates, exchange rates and GDP in their policy formulation to manage their effect on the financial performance of the banking sector. The Kenyan Government through the Central Bank of Kenya should come up with policies that create a conducive environment for commercial banks to operate since it will translate to economic growth.

# CHAPTER ONE: INTRODUCTION

## 1.1 Background of the Study

In Kenya there are various sectors which contribute to economy. In this study we will focus on financial transactions sector (sector in banking) which plays a momentous part in the process of country economy growth by serving intermediary role in the financial process. The strength of financial institutions is very critical in stimulating economic development and growth, foreign and domestic investment poverty reduction and employment creation (Kyalo, 2002). Banking in Kenya and the financial services in general has been identified as a success pillar to attaining Vision 2030 of making Kenya a middle income country by providing a facilitating macro-economic stability for long term development (CBK, 2007). Since banks are such critical entities in an economy the stability and success as going concerns is given a lot of attention by various stakeholders including the national government through the central Bank of Kenya by enacting regulations as mandated.

The interrelation between macroeconomic factors and performance of firms has been a focal point of interest by scholars in the current phenomenon. It is frequently concluded that a firm's performance is as a result of some core variables which are macroeconomic in nature for instance: interest rate, gross domestic product, inflation and exchange rate. Financial media affirmation shows that investing people commonly presume that fiscal rule and macroeconomic events have an impact which is considerable on the unpredictability of earnings. As a result of this the variables in macroeconomic impact

peoples' investment decision and prompt immeasurable investigators to explore the relationship between investment returns and macroeconomic variables (Gan et al, 2006).

The financial sector in Kenya is bank-centered largely since the principal marketplace is yet deemed constricted and light (Ngugi et al, 2006). This sector is controlled by Kenya's banks. This resulting to the methodology of intermediation in the country's financials relies greatly on banks especially commercial ones (Kamau, 2009). There is a link that embraces the country's economy together in the Kenyan banking subdivision as concluded by (Oloo, 2009). Agricultural and manufacturing which are major Segments essentially hinge on this sector for their actual existence and progression. Over a period of last ten years this industry performance (banking industry) has greatly upgraded gradually and only three banks failed to meet the CBK statutory requirement and have been put under it as compared to a large number of banks in the previously same period where 37 bank were put under CBK statutory between 1986 to 1998 (Mwega, 2009).

### **1.1.1 Macroeconomic Variables**

Macro-economic variables refer particularly to factors of overall importance to the position of countries economic mutually at regional or national face. These Factors affect a very large proportion of population. These factors are economic output, unemployment, inflation, savings and investment. They are closely watched and checked by the governments in place since they are major guide of economic activity performance (Khalid et al., 2012). There is a broad area of study in microeconomic especially understanding how these factors relate with one another and their interaction impact on the economy as illustrated by (Fischer, 1993). Whereas macroeconomics is a broad study of

the economy as a whole, microeconomics is concerned with the expounding individual ,group or company level resulting to impact on the decision making process.

Macro-economic variables are majorly closely scrutinized by business, governments, and consumers but due to their influence on the banking sectors they are focal points been observed by commercial. Kwon & Shin (1999) consent that GDP, currency exchange rate, interest rates, inflation and market risk are the most impactful macroeconomic variables. Sharma and Singh, (2011) found out that there is a positive relationship between how they carry out investments over an elongated period of time since the variables stabilize over a period and this become favorable to the banks daily operation and impact them positively.

The largest quantifiable measures of over-all economic occurrences in a nation's is GDP and precisely represents all goods and services monetary worth made over a definite duration inside geographical borders of a country. Escalation in the rate of prices over a period of time is called inflation. Price increase is caused by Constituents which normally affects it which are: fiscal guidelines and policies, the consumer price index, commercial banking, and credit accessibility all which have a playing part in prompting its rise or downfall. Unemployment measures of the number of residents enthusiastically in search of employment but not currently working. Mishkin(2004) states that economic growth areas are majorly influenced by Individual macroeconomic variables. This variables are banking, the Consumer price index, and government regulations changes.

### **1.1.2 Financial Performance**

Financial performance is an independent evaluation of a company efficient utilization of its resources to generate revenues in its primary mode of doing business. The term performance refers to the overall quantifier of a firm's general monetary standing over a certain duration, and it is commonly relied upon in comparing the performance of entities in the same sector or comparison of industries in aggregates. Individual items in the same line such as total income from a firm's daily operational activities, operational cashflow, operating income among others can be used. Furthermore, an interested party such as a financial analyst uses financial statements in carrying out analysis of the growth rates margin and declining debt (Maria et al., 2002).

The common financial indicators of financial performance applied by most commercial banks include: the portion of a company's profit allocated to each outstanding share of common stock (earnings per share), amount of net income returned as a percentage of shareholders equity (return on equity (ROE), yield in sales, profit on investment (ROI), as well as sales growth. The popular ratios that are used to measure the performance of a business organization are summarized as growth and profitability and they include: return on asset (ROA), return on equity (ROE), return on investment (ROI), revenue growth, and return on sales (ROS), market shares, stock price, liquidity, sales growth and operational efficiency. ROE and ROA are usually useful key financial quantifiers in dictating the level of commercial's banks financial performance (Maria et al., 2002).

### **1.1.3 Macro-economic Variables and Financial Performance**

Project financing is highly discouraged by commercial banks high-lending rates trend and

this leads to equally efficient equity financing taking a lead though they are relatively expensive. High-treasury bill rates encourage investments on additional tools of government. They (Treasury bill) contest with stocks, deposits, and bonds towards the investment by shareholders. As the need for demand deposits and stock market instruments reduces, it result to an ultimate decrease in their prices. Anticipated correlation resulting in Treasury bill rates and financial performance is therefore negatively influenced and also has a positive influence with respect to lending rates (Maghyereh, 2002).

Financial reporters' confirmation shows that shareholders mostly conclude that macroeconomic measures and fiscal policy have a big impact continuously leading to the change in financial performance (Muchiri, 2012). Pricing and financial performance is affected by Economic factors that have impact on changing investment opportunities; the pricing policies and factors which affect speculative dividends. As Muchiri (2012) concluded, earlier studies argue that consumer prices index is a particular element made up of a number of macroeconomic variables. This variables are discount rate, price increase and goods market as concluded by (Gan et al., 2006). A study got finding that concluded that negative effect was established among the variables. It is influenced by advanced peril of forthcoming profitability. For instance future productivity maybe reduced as a result of bills rise level which increases overhead production budget. On the other side other believes that positive stock prices may result as a result of increase in price levels because of equity use for confine inflation.

Sharma and Singh (2011) advocate that banks first acquire information about borrowers which is very costly before extending loans to current potential or existing customers, allocation of the available funds is highly affected by variability of economic conditions and the high probability that loan default would have clear positive or negative effects on their lending behavior. A study by Kwon and Shin (1999) extrapolate that during recession banks reduce their lending rate unlike when the economy is on boom where banks make most loans during this period since the level of macroeconomic variability is greatly reduced. The economic environment is a routine risk component that has impact on economy all participant in a country. Economy Performance and progression is calculated in terms macroeconomic aggregates, which include the total amount of goods produced, generally rise in price levels, employment level, supply of money for trading and changes in the exchange rate and industrial capacity utilization.

#### **1.1.4 Commercial Banks in Kenya**

In Kenya currently we have 42 operating and licensed commercial banks .currently there is only one mortgage finance company. Only 3 commercial banks which the government of Kenya has a controlling ownership, the rest commercial banks and the mortgage finance company are privately owned by individual private investors. Out of the total number 14 commercial banks are foreign owned while 25 are locally owned by the shareholders are citizens in Kenya (CBK, 2015). Deposits in commercial banks mainly come from individual depositors. These banks then lend these funds in form of loans to other customers at higher interest rates thereby earning a profit.



A three phases review expound about financial sector growth and development in Kenya (Athanasoglou et al., 2005). Between early 1970s and 1980s the first phase believed to have taken place by then. Banking sector by then have immensely taken dominance during this time as compared to the financial sector as this sector was characterized by financial repression. In applying unswerving tools of monetary policy the administration in governance has played a great role in allocating credit for investments and extensively brought a turn around on the sector. (Athanasoglou et al., 2005). Late years of 1980s and initial 1990s years there was structural adjustments programmes and liberalization which spearheaded the second phase. This period was characterized by moderation of the rates affecting general price increase and principal accounts controls which remained been observed. A sector initiating slight interest rates which are diverse, upturn obtainability of financial resources over amplified investments, improve effectiveness in credit apportionment hence growth in investments catering for an essence need of reforms in the financial sector.

Monetary policy formulation was also meant to be triggered by encouraging its use through liberalization as an indirect tool. The age of invention in financial sector incorporating developing fiscal instruments characterized its third phase in the late 1990s. Fresh products emerged in the sector comprising of Islamic banking, automatic teller machines (ATMs), plastic money and electronic-money (e-money) midst the rest come up and were witnessed in this sector (Athanasoglou et al., 2005). Kenya's banking industry operates under some Acts , this Acts are the Companies Act, the Banking Act, the Central Bank of Kenya Act and frequently additional provident procedures dispensed out by the

regulator (Central Bank of Kenya) when need arises. The Acts and the guidelines wholly have the rules and controls governing whole banking industry facilitating the controls thriving in the direction of the administration and reasonable facilities (CBK, 2012).

Assets and financial performance growth has continually been experienced in past number of years in Kenya banking sector. This been propelled by expansion strategies and computerization of a great quantity of services in meeting the entire complex needs of the customers. This has resulted to a great progression and expansion of the sector in Kenya and entire East African region. The CBK annual supervision report of 2015 emphasizes that the need of banking institutions coping continuously to the dynamic business environment and a new continuous flood requirement through a strong ICT platform. Consumers though staying sufficiently agile will continue to demand individualized services, and the demand for them will be faster than prior periods. Hence banks will continuously determinely design new innovative products that leverage on ICT to remain competitive. CBK (2015) conclude that through deposit licensing of the microfinance institution there would be experienced a down streaming into retail market segment which is intended to grow gradually.

## **1.2 Research Problem**

The profitability of the banking sector is inevitable in order to encourage economic activities. Large organizational factors made up of gross domestic product, interest rate, exchange rate, inflation and money supply affects the monetary performance of commercial banks in a number of ways. As Levine (1996) revealed, economic growth is affected by intermediation in financial sector and its efficiency. Economies betterment to

endure destructive shocks is the profitability due to their stability in the financial systems (Bashir, 2003). For long run survival, it is very critical for a bank to Identify issues increasing or decreasing banks' returns thus enabling its long term survival and this increases initiatives by increasing its profitability by managing the controlling determinants (Athanasoglou et al., 2005).

Despite a challenging macroeconomic environment the Kenya banking sector has remained resilient. It has been faced by problems negatively affecting it from increasing levels of prices, unpredictability of interest rates and exchange rate. The Kenya Shilling has greatly depreciated against most traded world currencies in the world has been experienced over the last few years in addition to a widening current account deficit. These unfavorable macroeconomic developments may result to great problems in banking industry when the management deeds are far-off reflecting the recurring nature of the economy in its decisions. The probability of mounting stress within the banking system is experienced sometimes extremely unexpectedly due to cyclical fluctuations nevertheless the macroeconomic variables might well deliver good indicators but it's not always the case.

Demirgüç-Kunt and Detragiache (1998) states that analysis of 65 banks in developing countries and already developed one was carried out. Findings indicated that external factors played a significant contribution towards the banking sector crisis, Logit model was applied for the study period 1980-94. Naceur (2003) conducted a sample of 10 major banks using balanced panel data looking for Tunisian banking sector profitability.

Outcome indicated there was no significant impact on inflation annual growth rate and also inflation rate annually. In eight Asian countries fourteen Islamic banks data were evaluated that break in five years period starting year 1993 (Bashir 2003). Variables involved had a very strong positive impact hence proving linear estimation.. Athanasoglou, Delis, and Staikouras (2006) assessed four years starting from 1998 using uneven board of up to 132 European banks by linear regression which were located in the South-Eastern region. The outcome displayed positive returns in high inflation phases without evident outcome on GDP. Wong et al., (2006) dispatched his research by relying on feasible generalized least square (FGLS) method to predict and proving there is a significant impact on asset returns which affects GDP and inflation rate.

Locally, studies done and are available concerning the impact of macroeconomic dynamics on bank financial performance lack consensus. Ongore (2013) recognized that insignificant macroeconomic factors affect bank profitability .The study analyzed data using regression analysis method and concluded that profitability of commercial banks was negatively affected by rise in inflation rates. Nevertheless, the relationship at 5% level was insignificant. Desaro (2012) undertook research on association of macroeconomic factors and the financial performance of Kenya's commercial bank. She established that the ROA was having positive correlation with the GDP, money supply, lending rate and inflation, and negative correlation with exchange rate. Other studies that have been conducted in Kenya have concentrated on selected macro-economic variables. For instance, Wamucii (2010) scrutinized the relation of inflation and monetary performance of Kenyan commercial banks .He established that commercial performance

banks seemed to improve with the increase in inflation. Kipngetich (2011) on his study found out that the connection of interest rates and monetary performance had a positive relationship.

The impact of macro-economic variables on financial performance of commercial banks in Kenya has is yet to be fully explored as seen in the foregoing discussion. Some of the previous studies conducted concentrated on one macro-economic variable and those that focused on several variables arrived at conflicting results. The current study attempts to bridge this research gap by answering the question: what is the effect of macro-economic variables on financial performance of commercial banks in Kenya?

### **1.3 Research Objective**

The overall objective of the research is to find out the impact of macro-economic variables on the financial performance of commercial banking sector in Kenya.

#### **1.3.1 Specific Objectives**

The specific objectives of this study are:

- i. To define consequence of Gross Domestic Product (GDP) on financial performance of commercial banks in Kenya
- ii. To examine the outcome of real interest rates on financial performance of commercial banks in Kenya
- iii. To evaluate the influence of exchange rates on financial performance of commercial banks in Kenya.
- iv. To evaluate the effect of inflation on financial performance of commercial banks in Kenya.

#### **1.4 Value of the Study**

The results of this study would contribute to improvement and understanding of macro-economic variables affecting the Kenyan banking system. The policy makers in the banking business will find the study useful as a benchmark of policy formulation, which can be effectively implemented for better and easier regulation of the banking sector. The government will use the study so as to come up with policies and ways of promoting stability in financial institutions in the country.

The research finding will remain important to commercial banks stakeholders, finance students', researchers', academicians and scholars, finance professionals, government agencies and policy makers. The study will be practically useful to the commercial banks shareholders as they will be aware whether treasury top management tasked with value addition of their investments are making viable decisions based on macroeconomic variables. Moreover, the finding of the research will be of great benefit to management in knowing the correlation between risk-adjusted returns and macroeconomic factors.

To academicians, scholars and researchers, this study will open up to a new area that has not been studied hence arouse curiosity in trying to dig deeper in this field especially for those who may be interested in conducting further research on this area will undoubtedly find this study to be significant point of reference for literature and research gaps. Government agencies such as CMA, KRA and policy makers will find this as a useful basis that can guide them in decision making process especially when formulating policies such as fixing the interest rates and legislations that govern commercial banks operations.

## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Introduction**

This chapter is comprised of five sections, the first segment will cover the theories in the study, the second section will cover the determinants of financial performance, the third section will cover empirical studies, the fourth section covers the conceptual framework and the last section will cover the summary of the theoretical and empirical reviews.

### **2.2 Theoretical Review**

The main purpose of this literature review is identifying and examining what has been done by other scholars and researchers about the effect of macro-economic variables on the financial performance of banks. The theoretical review will provide detailed knowledge of what has been done and form a framework within which the research findings are to be interpreted and also to overcome the shortcomings of earlier studies. The following section will describe and discuss different theories such as Efficient Market Hypothesis, Modern Portfolio Theory and Behavioral Finance Theory.

#### **2.2.1 Efficient Market Hypothesis**

Fama (1970) proposal was an efficient market hypothesis (EMH) dictating that earning due to investors competition following a profit-maximizing behavior high profits would be impossible to be experienced. Fama (1970) differentiated three systems of EMH: the weak one, the semi-strong one and the strong one. The most empirical research has been formed by the semi-strong form of EMH. The EMH presumed actors in economy have everything necessary in regards to facts relating to all fluctuations in macroeconomic variables giving reflection in stock prices.

Source of stock prices changes is determined by Macroeconomic variables such as supply of money in the country, inflation, and exchange rate been expounded by various researchers (Fama, 1981; Chen et al., 1986 and Mayasami and Sims, 2002). EMH enables us to make an inference that changes in these macroeconomic factors definitely have results on the stock prices. The study is therefore geared towards determining the expected connection of the numerous macroeconomic variables and market performance of Kenya's stock.

### **2.2.2 Modern Portfolio Theory**

Finance theory named as Modern Portfolio Theory (MPT) minimizes a specified amount of holdings risk against holdings expected return for a given period, or equivalently maximizes return rate for a given investment level of risk through considerately choosing the fractions of various assets. In doing portfolio construction, four fundamental steps are used as a guide. The steps are: Allocation in relation to assets, valuation concerning the security, optimization in relation to Portfolio and Performance measurement. According to fact, this models ascertain that return of an asset is a naturally circulated utility (also meaning further fundamentally an elliptically distributed random variable) defining risk as the standard deviation of return and models as portfolio of a weighted assets combination hence assets weighted combination returns is the return of a portfolio. In bringing together assets that are distinct whose returns are not associated ideally positively, MPT pursues to decrease the overall inconsistency of the assortment return. MPT also undertakes that markets are well-organized and investors are balanced (Daniel, Hirshleifer & Subramanyam, 1997).



Portfolio theory also known as MPT theory was presented by Markowitz (1952) "Portfolio Selection," a paper he did and which appeared in a finance journal in the 1952. The paper has become a helpful portfolio selection theory and has highly contributed to financial economics field, this resulted to sharing with Merton Miller and William Sharpe a Nobel Prize in Economics in 1990 after a period of thirty-eight years. Preceding Markowitz's work, investors in creating their portfolios concentrated on evaluating the threats and rewards of individual securities. Advice on Typical venture was to recognize those securities having the greatest advancement chances of gain propelled by the minimum risk and building a portfolio beginning with these. Anyone interested in venturing as an investor may settle on the railroad stocks which all offered risk-reward that are of good features by following this advice and amassing a portfolio entirely. Instinctively, a wrong conclusion would be made out of this. This perception was formalized Markowitz. Particularizing mathematics diversification, anticipation by investor's focuses on selection of choosing ranges been built on those collections' completely characterized by risk-reward in place of basically assembling portfolios from securities that each individually has good-looking risk-reward features. Inventors should select portfolios instead of focusing on particular securities. (Markowitz, 1952).

On treating several securities sole-duration returns as unsystematic variables, allocating them expected values, standard deviations and correlations. Grounded on this fact, computation of the expected return is done and unpredictability of any portfolio created together consistently with the securities. Instability might be treated and the expected return on investment as proxy's for risk and reward. Certain portfolios will optimally

stabilize risk and reward among entirely likely universal portfolios. These encompass frontier of portfolio which are efficient as what was stated by Markowitz. An investor should have good knowledge and choose a venture that is within the well-organized borderline. James Tobin (1958) lengthened Markowitz's theory by totaling exploration of a risk-free asset. Likelihood to influence portfolios on the efficient frontier has been made possible as well as deleveraging the ventures too. Super-efficient portfolio and the capital market line has been brought up as a result of this notions. The capital market line portfolios are able to outperform portfolio through leverage on the efficient frontier (Tobin, 1958).

Capital asset pricing model (CAPM) cautiously was dignified by (Sharpe, 1964). Interesting conclusions are made out of this enormous assumptions. The marketing portfolio relay on the well-organized frontier as advocated entirely by Tobin's super-efficient portfolio. All investors as illustrated by CAPM have to hold the market portfolio, leveraged or deleveraged with it taking shapes in the risk-free asset. Beta was introduced also by CAPM and re-counts an asset's estimated return to its beta. Understanding the connections of methodical risk and reward the portfolio theory offers a context. Through this, it has been possible to shape management of institutional portfolios and inspired the inactive investment techniques use. The portfolio mathematics theory been used in monetary risk administration and was an imaginary antecedent for current's value-at-risk measures.

### **2.2.3 Behavioral Finance Theory**

Behavioral finance deals in studying the impact of psychology comportment of financial

specialists and the succeeding outcome on the overall market's performance. It is an effort to explicate and escalate understanding of the investors patterns by reasoning. This entails both the emotive developments involved and the notch to which they sway the decision making process. The what, why and how of finance and investing is elaborated by behavioral finance from human viewpoint. The traditional theories of finance, the dominant paradigms had centered on expected return and risk on that assortment apportionment; simply the CAPM been risk based asset pricing models and other frameworks having similarity (Athanasoglou et al., 2005).

Hong and Stein (1997) presents evidence that can be inferred using an epidemic model. In this model information is spread about stocks by investors by word of mouth to one another subsequently overlooking the principles of portfolio theory. The investors ruling favoritisms can yield overreaction to certain events and under reaction to others as construed by (Daniel, Hirshleifer and Subramanyam ,1997). The pronouncement era price reaction is inadequate because knowledgeable investors overweigh their former opinions around the stock prices. As additional information in the public domain confirms the one inferred in the occurrence declaration, ultimately the mispricing is completely engaged. The broad-spectrum expectation is momentum for careful events; realization of returns in stock after an event proclamation will incline having similar indication as the announcement period return.

### **2.3 Determinants of Financial Performance**

Factors both internally and externally are the foundations of bank performance. They are random variables determining the final product. Intrinsic factors are characteristics of

each bank individually affecting its performance. Intrinsic factors are principally predisposed by decisions made internally by management and the board. Extrinsic factors includes are the macroeconomic strategy stability, Inflation, Gross National Product, Interest Rate and Political unpredictability (Athanasoglou et al., 2005).

### **2.3.1 Gross Domestic Product**

GDP measures total number of finished goods and services monetary value manufacture in a country in a given duration of time. GDP is measured on yearly basis and it compromises all consumption by private consumers and public consumers, government outlays, investments and exports less imports occurring inside a demarcated borderline. The gross domestic product (GDP) is one key primary indicators of a country's fiscal performance. It is calculated in two methods; one is by tallying up everyone's income during the period, second one is by totaling the worth of all goods and services that are already finished and produced in the country throughout the year (Kadongo, 2011).

### **2.3.2 Interest Rates**

The charge on borrowing money is Interest rates. Percentage is useful in expressing interest rate on the total amount borrowed. Interest rate is the amount of interest charged per unit of time in a given period of time, normally one year. There are a myriad of rates and no one particular rate of interest. Varying interest rates echo the capability and enthusiasm of borrowers to meet their obligations and easiness with which a borrower's promissory note or bond, mortgage, debenture or other indication of indebtedness can be turned into money. The reflection of the quality of the money in which a debt is

denominated is illustrated by the level of interest rates. This is the rate at which the moneylender and debtor are taxed guaranteed by the self-assurance in which investors embrace the pertinent fiscal and monetary establishments. The total borrowed interest rates also show the return on asset like Government bond within an economy (Kadongo, 2011).

Duetsch Bundesbank (2001) noted that interest rate is the earnings a financier anticipates by advancing and valedictory with his/her liquidity. The interest rate is a two phase scenario in that owners of surplus funds will part with some if it is high as they expect higher returns in future. Higher interest rates demoralize borrowing on the other hand. In equilibrium state interest rate is equal to demand, investment and supply and saving in the capital market.

### **2.3.3 Exchange Rates**

Exchange rates have a significant effect on financial performance when the rates of exchange in currency has variations and affect right the import price including the production cost and Consumer Price Index (CPI). Exchange rate discrepancies are transmitted to domestic prices through 3 networks of prices of imported consumption goods, exchange rate movement affects domestic prices directly. The second factor affecting the performance is intermediate imported goods prices influencing exchange rate movement which has effect on production cost of domestically produced goods. The last is domestic goods priced in foreign currency. The magnitude of fluctuations are redirected in the consumer price index (CPI) which rest on the portion of consumption

imports basket (Nwankwo, 2006).

Demand increases for domestic goods when factors affecting prices causes rise in price level of imported goods and services hence reduction in completion is experienced. This shift equilibrium which results pressure mounting on domestic prices and nominal wages as demand increases. Additional rising pressure will be applied on domestic prices as a result of rising wages. Depreciation in the rate of exchange can merely safeguard the local industry as local production cost rises much less than the rate of depreciation as compared to prices of imported equivalent increases by the full amount of the depreciation. This scenario of currency depreciation leads to improved and conducive environment for indigenous industry production. Supplementary, upsurge in rate of exchange lead to foreign currency gains in a well-controlled macroeconomic policy environment by commercial banks which are integrated in their income statements to progress on their performance (Nwankwo, 2006).

#### **2.3.4 Inflation Rates**

Investors usually demand a high price to shelter their acquaintance to inflation risks as long as there is improbability in the market and in turn this leads to reduction in the capacity of investment. In order to bring the inflation permanency rate it is significant to inspire investment (Nwankwo, 2006). Kadongo (2011) has point up macroeconomic policy letdowns as repelling FDI free flows from Africa; he stress on that negligent fiscal and monetary guidelines have produced unmanageable budget discrepancies and inflationary pressures, increasing native production costs, making exchange rate unsteadiness thus resulting to the region becoming risky location for investors. Instability

in the variables as demonstrated by high inflation and extreme budget deficits, restricts the country's capacity to appeal investments opportunities (Kadongo, 2011).

## **2.4 Empirical Review**

Ajayi and Mougoue (1996) researched on the association on prices of stock and rates of exchange. They studied in cooperation the short-term period and long-term period connections in the two variables in eight foremost industrial markets. The outcomes revealed an escalation in local stock prices has as having a destructive short-run effect on the local currency value. Conversely, long term persistent increase in the local stock prices causes a rise in the local currency, owing to the rise in currency demand. Maghyereh (2002) examined the long-term correlation between the Jordanian stock prices and carefully chosen macroeconomic variables, once more by means of Johansen and Juselius (1999) counteraction scrutiny and once-a-month time sequences data for the period of 13 years starting from January 1987. Macroeconomic variables were replicated as indicated by the research in general prices of stock in the Jordanian capital market.

Bourke (1989) discovered a constructive interconnection between general increase in price (inflation) and bank profitability. Higher rate of inflation culminates to increase in amount of rates charged on loan henceforth higher returns generation by the bank. Increase in price has an adverse impact on bank profitability if overhead cost are mounting quicker than the inflation rate. Charles M. and Gautam K. (1996) found adjustments that head maximum economic series have disadvantageous consequence on output and returns expected from real stock in the U.S., Canada, Japan, and the United Kingdom for the duration of the post war period. They complement that, the postwar oil

astonishments look as if to have created instability in the Japanese and U.K. stock markets that is “excess” of what can be described by present coherent models.

Demirguc-Kunt et al( 1998) did a variables comprehensive study of those not under the regulation by bank administration and may cause noteworthy influence on bank performance caused by external variables: inflation rate, GDP per capita, GDP per capita progress, taxation level, total financial structure, different legal and institutional dynamics. Optimistic relationship was established through a study done using 80 countries in a period of 7 years culminated by the period ended 1995 between inflation and profitability. This possibly will indicate (1) about increase in level of profits gained by banks under the condition of inflationary environment from float; (2) The same reasons causes lower bank expenses which tend to lower profits of the bank due to inflation effects. No any association detected between GDP per capita growth and bank profitability. Particular indication of positive relationship between GDP per capita index and profitability was noted. Bank profitability was discovered been more substantial in countries yet developed and industrialized as a result of effect caused by organizational and influential factors.

Gastanaga et al., (1998) used Colombo in Sri Lanka to test the impact of macroeconomic variables on stock market equity values. Entirely Share price index represented the stock market and the money supply, the treasury bill rate which acted as a assessor of interest rates, the consumer price index as a assessor of inflation and the rate of exchange as macroeconomic variables with once-a-month data for the 17-year duration era from January 1985 and engaging the normal battery tests, which composed of unit roots, co



incorporation surveyed the long-term and short-term relationships depicted by the stock market index and the economic variables. Backing sentiments concerning the consumer price index, the money supply and the Treasury bill rate which partake an important impact on the stock market having lagging values of macroeconomic variables.

Patra and Poshakwale (2006) studied the active short term changes and the long term ones affecting the equilibrium relationships caused by variables such as economies of scale and financial performance for a nine year period (1990 -1999). The results arrived at showed equilibrium relationship in short term and long term occurred among inflation, money supply and trading volume and the stock prices in the Athens stock exchange. The exchange rate and company performance equilibrium association was not established either in short term period or long term period of time.

Demirguc-Kunt and Huizinga (2000) and Olsson (2008) endeavored to ascertain likely recurring bank's profitability activities - the level bank profits are linked to the occupational rotation. Conclusions recommended such relationship preexists though the variables in use were not controlling the business cycle directly. Demirguc Kunt and Huizinga (2000) relied on the GDP annual growth rate and GNP per capita recognizing existence of such a relationship, whereas Olsson (2008) used GDP, unemployment rate and interest rate having variations which were a few quantity of macroeconomic variables which were insufficient. .

Mamatzakis and Remoundos (2003) tested the grounds for a period of 11 years (1989-

2000) the performance of commercial banks in Greece. Profitability was measured by use of the ratios of return on assets (ROA) and return on equity (ROE) in these commercial banks. Both internal factors and external factors were considered like management policy decisions economic environment respectively in explaining the profitability of the banks. The outcomes recommended correlation between the variables and the management decisions affirming the main impact on the profitability of Greek commercial banks.

Naceur (2003) explores banks characteristics effect for a period of 17 years(1983-2000) ultimate on bank structure and the finding points out that how impactful are these factors on banks net interest margin and profitability in Tunisian Banking Industry . Extraordinary margin in net interest and inclination of profit related with banks leads to clenching comparatively high amount of capital with enormous overheads. Naceur discovers inflation rates that have negative and stock market development has positive impact on profitability and net interest margin.

Pasiouras and Kosmidou (2007) observed local and non-local commercial banks performance in 15 EU countries within a period of six years (1995-2001). They discovered that profitability of domestically and non-local banks is affected by bank definite tenets and also by financial market arrangement and macroeconomic conditions. The effects propose all variables to have substantial connection with bank profitability regardless of whether their influences and relation is constantly unchanging for domestic and foreign banks. There are innumerable researchs that have been carried out in Kenya on the relationship of macroeconomic variables and financial performance and their

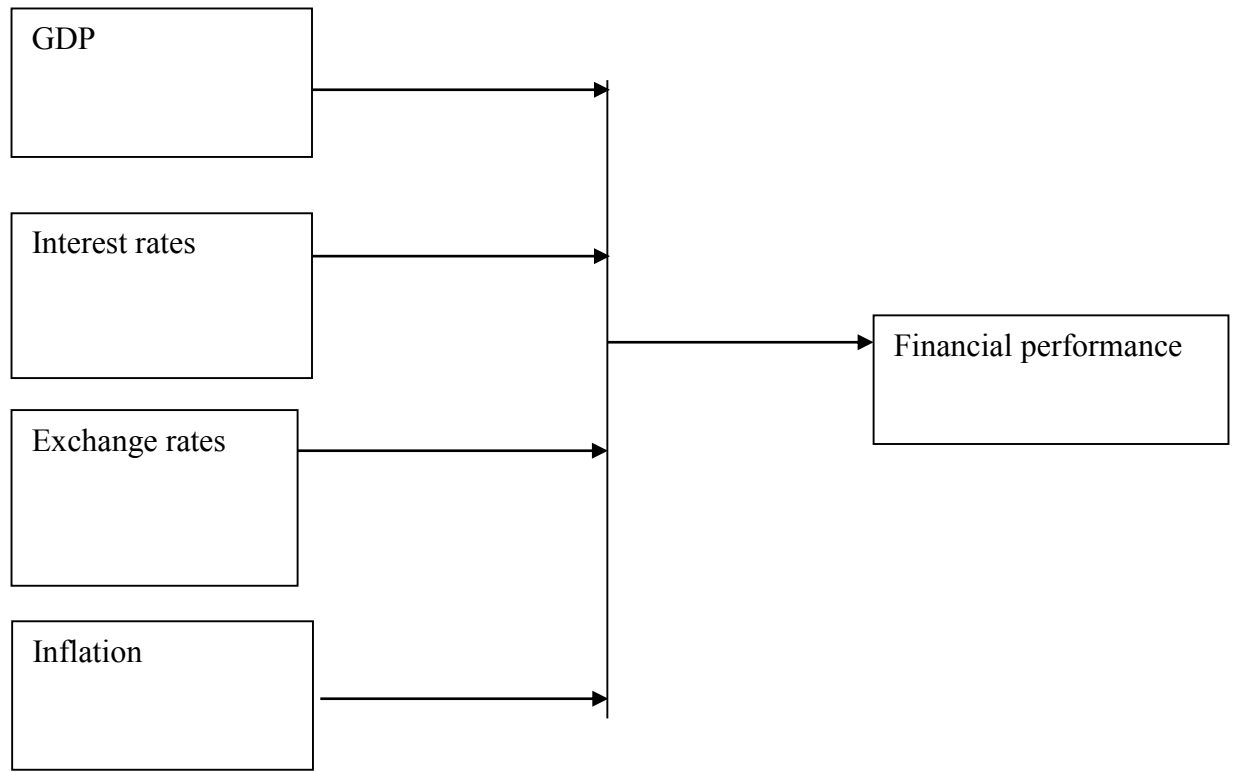
findings variables are diverse; Kipngetich (2011) in his study on the affiliation between interest rates on commercial banks financial performance in Kenya found out that a constructive relationship between interest rates and financial performances of commercial banks. Thus companies should therefore prudently manage their interest rates to improve their financial performance. Interest rate was found to have harmful relationship with the profitability of companies in aviation industry.

Desaro (2012) through his study focusing on the effect of macroeconomic variables on financial performance of commercial banks in Kenya and found out that the ROA was negatively correlated with the exchange rate and positively correlated with the GDP growth and inflation. Nyamwange (2009) did a study on the relationship between financial performance for multinational corporations in Kenya and exchange rates instability and found that Sterling 2 3 Pound. United States Dollar, Euro exchange rate and Japanese Yen exchange rate influence the financial performance of Multinational Corporation.

Mwangi (2013) undertook a research in non-financial sector a study to confirm whether there was any relationship that exists between macroeconomic variables and financial performance of aviation industry in Kenya. The study concluded that it influenced the financial performance of companies in the aviation industry in Kenya at 20% significance level, (5%) of the study also concluded that ROA has a feeble positive irrelevant correlation with GDP .It further conclude that there is a negative weak correlation among ROA and rate of exchange, annual average lending rate and annual inflation rate.

According to Njuguna (2013) who undertook a relationship study between macroeconomic factors and MFIs financial performance measured by ROA ,the research concluded that ROA is highly a function of macroeconomic factors and more specifically GDP, Interest rates ,inflation and the three variables can be credibly used to predict MFIs expected ROA. This revelation offers regulators and those responsible over macroeconomic variables, vital information that if MFIs are to operate profitably and encourage growth in the sector, then; they have to offer favourable economic variables. That is, they should ensure high economic growth (GDP) and have low inflation and interest rates in the economy which will instead boost MFIs performance and therefore creating room for higher economic growth.

## 2.5 Conceptual Framework



**Independent variables**

**Dependent variable**

**Figure 1: The relationship between macro-economic variables and financial performance**

Macro-economic variable is the independent variable and it comprises of four measures. The four measures are: GDP, real interest rates, exchange rates and inflation. Financial performance as response variable will be evaluated in terms of the ratio of annual net income to average total assets return on assets (ROA).

## 2.6 Summary of Literature Review

After reviewing the effect of macroeconomic variables literature on financial

performance, it is clear that different researchers have studied different macroeconomic variables with respect to the financial performance of the stock markets. These macroeconomic variables include lending rates, GDP, exchange rates, Treasury bill, money supply etc. The results for these researches have been different. The empirical results indicated that macroeconomic variables relationship with financial performance can either be positive, negative or none at all. For example the findings of the studies done by Desaro (2012) among others showed subsistence of a relationship between the macroeconomic variables and stock market indices while study done by Patra and Poshakwale (2006) revealed there is no correlation found between the selected macroeconomic variable and financial performance.

Since the reviewed studies give different results depending on the variables included in the study as well as the state of industrialization of the country of study and the method of analysis employed, it's advisable therefore that more studies need to be done for harmonized results. Studies done in Kenya have not taken into consideration different macroeconomic variables and those that have studied more than one variable have conflicting results. As a result of this facts this study carries out research on the impact of some selected macroeconomic variables on financial performance of commercial banks in Kenya.

## **CHAPTER THREE: RESEARCH METHODOLOGY**

### **3.1 Introduction**

This chapter provides information on the research design, the population and sample that was selected for the study. We will also discuss the data assortment means, methods of data analysis and data presentation techniques that to be used in this section.

### **3.2 Research Design**

Mugenda and Mugenda (2003) conclude that a research design is a frame of methods and procedures for acquisition of information that is needed. It forms the entire backbone of the project that specify the information that is to be collected and by what procedure from the source.

The study employs descriptive as well as correlation research designs. Time series empirical data was used by the researcher on the variables to find out the relationship among particular macroeconomic variables i.e GDP, lending interest rate, exchange rate and inflation rate by establishing either constructive or destructive correlation coefficients of the variables and the financial performance of commercial banks as measured by ROA.

### **3.3 Population**

A population simply refers to whole group of individuals, events or objects having joint noticeable features among them (Mugenda & Mugenda, 2003). The selected target sample

for this study was all the 42 Kenyan commercial banks that were operational for the period between 1<sup>st</sup> of January 2006 and 31 December 2015. This target population provides data that is useful in answering the research questions raised by the researcher on how macro-economic variables affect Kenyan commercial financial performance.

### **3.4 Data Collection**

The study used secondary data on macroeconomic variables in getting data for analysis Gross Domestic Product (GDP) growth, Lending interest rate, Exchange rate (Kenya Shilling and US Dollar) and used Consumer Price Index for inflation. The data on inflation (CPI) and GDP growth was obtained from KNBS while data on exchange rate (USD and Kenya Shilling) was obtained from the CBK. The data is public data as it is published in the websites of the relevant government agencies including CBK and KNBS. The data on Lending Interest Rates and ROA of the individual banks on the sample was obtained from quarterly published financial statements. Lending interest rate was obtained by dividing the net advances by interest on advances. The period of study for which data was obtained focused on a ten year period between January 2006 and December 2015.

### **3.5 Data Analysis**

Data Analysis is the task of methodical using arithmetical and rational methods to define, demonstrate, condense, review and assess data. This task is developed to deal with manipulation of the information that has been gathered so as to present the evidence (Singleton et al., 2003). The study made use of computer software 'e-views' version 7.0 to data analysis. The research relay on various regression techniques in evaluating the correlation between the selected macro-economic factors and the financial performance of



commercial banks in Kenya given that the study model is multivariate. The analyses involved figuring out of the various coefficients of correlation in the model to determine the connection

### **3.5.1 Analytical Model**

The researcher used a multiple regression in carrying out analysis in finding out the outcome of macro-economic variables on financial performance of commercial banks in Kenya. A responsive variable was Financial Performance of commercial banks while the Predictor variables were the macro-economic variables. The analytical model used in analyzing the interrelation of the predictor variables on the response variable was:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e$$

Where;

Y = Financial performance of commercial banking sector as measured by ROA

$\alpha$  = Constant Term (Total Assets)

$\beta_i$  = Beta Coefficient of variable i which measures the change Y to change in i

$X_1$  = GDP growth rate in a quarterly basis

$X_2$  = Average quarterly interest rates charged by lenders

$X_3$  = Average quarterly exchange rate between USD and Ksh.

$X_4$  = average quarterly inflation rate

e = Error term

### **3.5.2 Test of Significance**

Correlation Coefficient (r) was determined to be useful to evaluate the strength and direction of the connection of the response variable (Financial performance) and each of the predictor variables. Coefficient of determination (R square) was used to measure the

inconsistency proportion in the response variable that can be explained by predictor variables. If F calculated will be less than the table value, then the decision will be there will be no statistical evidence of correlation at 5% level of significance. T test was used in testing the importance of the association between dependent and each of the independent variables.

In order to test the analytical model significance, the researcher used the Analysis of Variance (ANOVA). According to Larson (2008), ANOVA is a statistical technique that examines the variation in a dependent variable as measured by classification variables. The results of this test go to show whether there is a statistically significant variation between the groups.

## **CHAPTER FOUR: DATA ANALYSIS, FINDINGS AND INTERPRETATION**

### **4.1 Introduction**

This chapter presents the findings of the analysis and interpretation of the secondary data gathered from the Central Bank of Kenya (CBK) and the audited financial statements of the Commercial Banks operating in Kenya for the study period 2006-2015. Analysis was done with the help of Statistical Package for Social Science (SPSS) version 21 and Microsoft's Excel (2016). Descriptive statistics such as means and standard deviations were used to analyze the performance of commercial banks and the effect of macroeconomic variables. Correlation analysis and regression analysis was used to establish the impact of macroeconomic variables on the performance of commercial banks. Analysis of variance (ANOVA) was used to test the goodness of fit and reliability of the regression model,

### **4.2 Descriptive Statistics**

#### **4.2.1 Financial Performance**

In this section, the study sought to establish the quarterly financial performance of commercial banking sector for the period 2006-2015. The financial performance of the commercial banking sector was measured using Return on Asset (ROA). Results of the analysis are shown in Table 1.

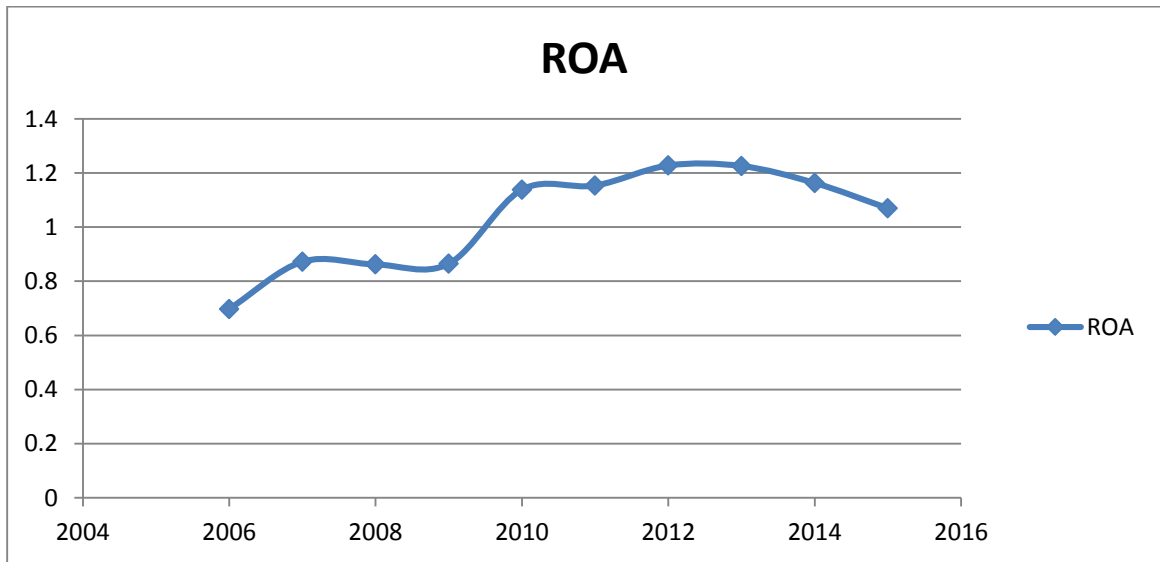
**Table 1: Return on Asset (ROA)**

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
ROA	0.6975	0.8725	0.8625	0.8650	1.1383	1.1538	1.2279	1.2259	1.1633	1.0698
Std. deviation	0.1237	0.0070	0.0017	0.1933	0.0109	0.0523	0.0013	0.0442	0.0660	0.1945
		7	6	1	1	9	8	9	9	7

**Source: Research Data (2016)**

The study established that the financial performance of commercial banks had been improving over the study period 2006-2007 then followed by a decrease in performance in the year 2007 -2009. From the year 2012, banks recorded decrease in their performance as evidenced by the standard deviations recorded. Figure 2 indicates the trend of financial performance for the commercial banking sector.

**Figure 2: Return on Assets**



**Source: Research Data (2016).**

#### 4.2.2 GDP Growth Rate on a Quarterly Basis

The study lastly sought to establish the GDP growth rate in a quarterly basis. The results of the study are as shown in Table 2

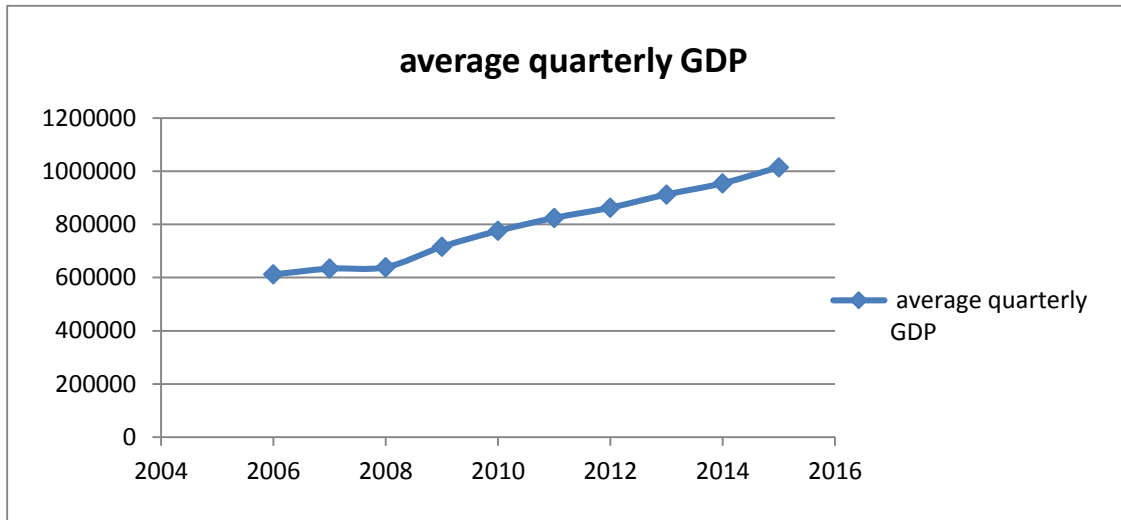
**Table 2: GDP Growth Rate on a Quarterly Basis**

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
average	612226	633953	639367	715916	775584	824267	862880	912315	954534	101462
quarterly GDP	.3	.7	.5	.3	.3	.5	.3			0
std. deviation	15363. 6	3828.1 58	54128. 14	42191. 65	34424. 26	27303. 34	34955. 65	29853. 34	42486. 86	43935. 73

**Source: Research Data (2016).**

The results of the study indicated that GDP growth rate in a quarterly basis has been on the rise over the study period (2006-2015). GDP growth rate increased from a low of Kshs. 612226.3 in 2007 to a high of Kshs. 1014620 in 2015. The standard deviations recorded indicate that there were variations in GDP growth rate over the study period. The trend of GDP growth rate in a quarterly basis over the study period is as shown in Figure 3.

**Figure 3: GDP Growth Rate on a Quarterly Basis**



**Source: Research Data (2016).**

### **4.2.3 Average Quarterly Interest Rates charged by Lenders**

The study further sought to establish the Average quarterly interest rates charged by lenders between the years 2006 and 2015. The results of the study are as shown in Table 3.

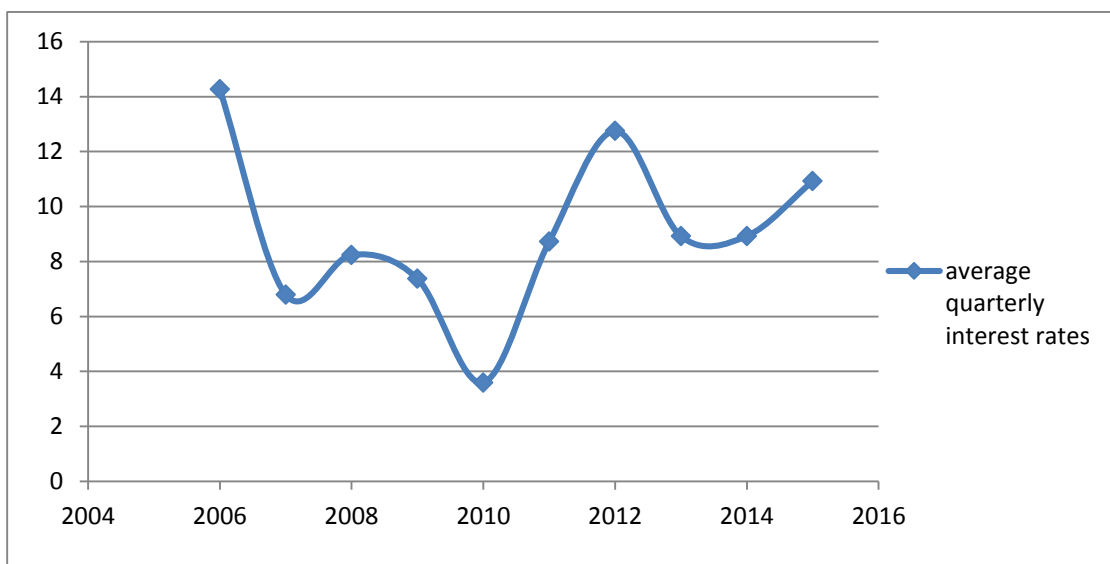
**Table 3: Average Quarterly Interest Rates charged by Lenders**

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
		7						3		
Average quarterly interest rates	14.273	6.8	8.243	7.3766	3.5991	8.7308	12.755	8.92	8.9308	10.927
	33			67	67	33	83	5	33	5
Std. deviation	5.284	1.02	0.612	2.671	3.628	2.846	2.708	0.00	1.411	6.564
		0						4		

**Source: Research Data (2016).**

The results of the study found out that interest rates charged by lenders gradually decreased over the period (2006-2010). The amount of interest rates charged started to increase in the year 2010 from Ksh 3.599 to Ksh 12.75583 in year 2012 followed by a decrease in the year 2013. From the year 2014, the average quarterly interest rates charged has been on the increase. The trend in average quarterly interest rates charged during the study period is as depicted in Figure 4.

**Figure 4: Average Quarterly Interest Rates**



**Source: Research Data (2016).**

#### **4.2.4 Average Quarterly Exchange Rate Between USD and Ksh.**

The study further sought to establish the average quarterly exchange rate between USD and Ksh. The results of the study are as shown in Table 4.

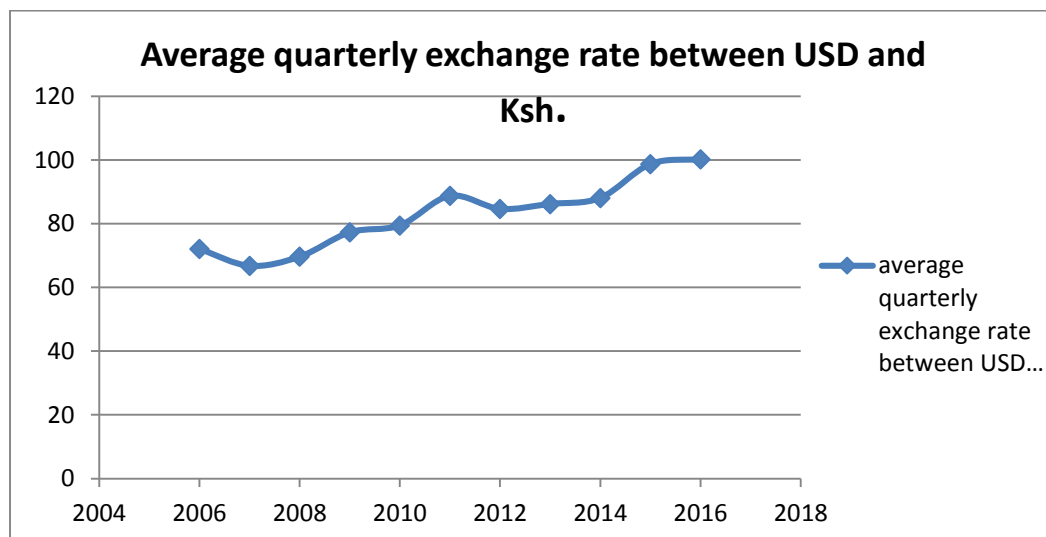
**Table 4 Average Quarterly Exchange Rate between USD and Ksh**

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Average quarterly exchange rate between USD and Ksh.	72.053	66.797	69.646	77.302	79.469	88.727	84.654	86.201	88.075	98.696
Std. deviation	3.716	2.014	5.413	1.532	6.54	2.880	1.093	1.325	7.510	1.094

**Source: Research Data (2016).**

The study found out that the average quarterly exchange rate between USD and Ksh. has been on a steady rise over the study period (2006-2015). The results of the study indicated that the highest average quarterly exchange rate was in the year 2015 (98.696) while the lowest (Kshs. 66.79) was transacted in the year 2007. These figures indicate that average quarterly exchange rate between USD and Ksh. is steadily increasing. This trend is as shown in Figure 5.

**Figure 5: Average Quarterly Exchange Rate between USD and Ksh**



**Source: Research Data (2016).**



#### 4.2.5 Average Quarterly Inflation Rate

In this section, the study sought to establish the Average Quarterly Inflation Rate from the year 2006-2015. The results of the study are as shown in table 5.

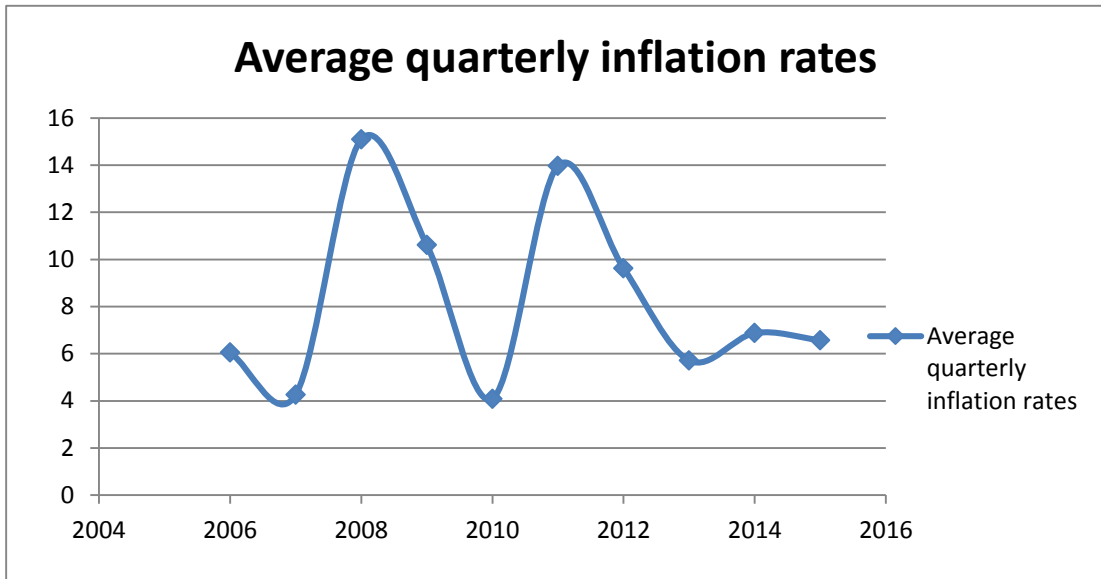
**Table 5: Average Quarterly Inflation Rate**

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Average quarterly inflation rates	6.055	4.26	15.09	10.61	4.095	13.97	9.630	5.715	6.880	6.576
	083	056	485	866	511	788	329	872	602	059

**Source: Research Data (2016).**

The study found out that the average quarterly inflation rate decreased from 6.055 in 2006 to 4.26 in the year 2007. This was followed by a steady increase in average quarterly inflation rate of 15.09 in 2008 followed by a decrease of 10.62 and 4.09 in year 2009 and 2010 respectively. This was followed by an increase in the average quarterly inflation rate in the year 2011 of 13.97 followed by a gradual decrease in year 2012, 2013, 2014 and 2015. This implies that the Quarterly Inflation Rate has been on the decline. The trend of the average quarterly inflation rate over the study period is as shown in figure 6.

**Figure 6: Average Quarterly Inflation Rate**



**Source: Research Data (2016).**

### 4.3 Inferential Statistics

#### 4.3.1 Model Summary

The general findings of the study are as shown in the model summary Table 6.

**Table 6: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.792	0.628	0.585	0.12108
a. Predictors: (Constant), Average quarterly interest rates charged by lenders, GDP growth rate on a quarterly basis, average quarterly inflation rate, Average quarterly exchange rate between USD and Ksh.				

**Source: Research Data (2016).**

The model summary findings indicated that there is a strong ( $R=0.792$ ) relationship between macro-economic variables and financial performance of commercial banks. The study also recorded an R-squared value of 0.628. This implies 62.8% of the total variance in financial performance of the commercial banks in Kenya can be attributed to the macro economic variables. Therefore, this means that other factors not included in the research model contribute 37.2% of the financial performance of commercial banks.

#### 4.3.2 Coefficients of Determination

Regression co-efficient indicate the direction of the relationship between dependent and independent variables. The results of this study are as shown in Table 7.

**Table 7: Coefficients of Determination**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.368	0.180		2.041	0.049
	GDP growth rate in a quarterly basis	0.256	0.152	1.250	1.6842	0.063
	average quarterly inflation rate	0.007	0.006	0.179	1.335	0.190
	Average quarterly exchange rate between USD and Ksh.	-0.009	0.005	-0.473	-1.743	0.090
	Average quarterly interest rates charged by lenders	-0.004	0.008	-0.070	-0.500	0.020
a. Dependent Variable: ROA						

**Source: Research Data (2016).**

At 95% confidence level, Average quarterly Inflation rates ( $t=1.335$ ,  $p= 0.190$ .), Average quarterly interest rates charged ( $t= -0.500$ ,  $p= 0.020$ ), Average quarterly exchange rate ( $t= -1.743$ ,  $p= 0.090$ ) and GDP growth rate in a quarterly basis ( $t= 1.6842$ ,  $p= 0.063$ ) produced statistically significant values for this study with p-values less than 0.05. Constant = 0.368 shows that if the independent variables (Inflation rates, Interest rates ,Exchange rates and GDP) were rated zero, the financial performance of commercial banks would be 0.368. A unit increase in Inflation rates would lead to increase in ROA by 0.007 while a unit increase in Interest rates would lead to decrease in ROA by -0.004. A unit increase in Exchange rates would lead to decrease in ROA by -0.009 while a unit increase in GDP rates would increase financial performance by 0.256. The equation for the regression model is expressed as:

$Y = a + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4$  which now becomes:

$$Y = 0.368 + 0.256X_1 - 0.004X_2 - 0.009X_3 + 0.007 X_4$$

Where:

$X_1$  = GDP growth rate in a quarterly basis

$X_2$ = Average quarterly interest rates charged by lenders

$X_3$ = Average quarterly exchange rate between USD and Ksh.

$X_4$ = average quarterly inflation rate

### 4.3.3 Analysis of Variance (ANOVA)

The study further ought to establish the goodness of fit of the regression model using ANOVA statistics. The results of the study are as shown in Table 8.

**Table 8: Analysis of Variance (ANOVA)**

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	.866	4	.216	14.762	.000 <sup>a</sup>
Residual	.513	35	.015		
Total	1.379	39			

a. Predictors: (Constant), Average quarterly interest rates charged by lenders, GDP growth rate in a quarterly basis, average quarterly inflation rate, Average quarterly exchange rate between USD and Ksh.

b. Dependent Variable: ROA

**Source: Research Data (2016).**

The study established that the regression model had a significance level of 0.000% which is an indication that the regression model is ideal for predicting the future financial performance of the commercial banking sector in Kenya given alternative the macro economic variables. This is because the significant value (p-value) was far much less than 5% which was used as an indicator of statistical significance.

#### **4.4 Discussion of Research Findings**

The objective study was to examine the effects of macro-economic variables on financial performance of commercial banking sector in Kenya. Financial performance of the commercial banking sector was measured using Return on Asset. The macro-economic variables considered were GDP growth rate in a quarterly basis, Average quarterly interest rates charged by lenders, Average quarterly exchange rate between USD and Ksh. and

average quarterly inflation rate. The results of the study indicated that there is a strong ( $R=0.792$ ) relationship between macro-economic variables and financial performance of commercial banking sector. The study also recorded an adjusted R-squared value of 0.585. This implies 58.5% of the total variance in financial performance of the commercial banks in Kenya can be attributed to macro-economic variables. ANOVA statistics revealed that the regression model was ideal since it had a significance level of 0.001. The study further established that GDP growth rate in a quarterly basis and average quarterly inflation rate affect financial performance of the commercial banking sector positively, Average quarterly interest rates charged by lenders and average quarterly exchange rate between USD and Ksh affect it negatively and in a statistically significant way. The findings were in line with the findings of Mamatzakis and Remoundos (2003), Naceur (2003), Pasiouras and Kosmidou (2007), Desaro (2012), Mwangi (2013) and Njuguna (2013).

The findings of this study are in line with Bourke (1989) who discovered a constructive interconnection between general increase in price (inflation) and bank profitability. Higher rate of inflation culminates to increase in amount of rates charged on loan henceforth higher returns generation by the bank. Increase in price has an adverse impact on bank profitability if overhead costs are mounting quicker than the inflation rate.

The study findings also agree with Kipngetich (2011) who on his study on the affiliation between interest rates on commercial banks financial performance in Kenya found out that a constructive relationship between interest rates and financial performances of commercial banks. Thus companies should therefore prudently manage their interest rates to improve

their financial performance. Interest rate was found to have harmful relationship with the profitability of companies in banking sector.

Pasiouras and Kosmidou (2007) observed local and non-local commercial banks performance in 15 EU countries within a period of six years (1995-2001). They discovered that profitability of domestically and non-local banks is affected by bank definite tenets and also by financial market arrangement and macroeconomic conditions. The effects propose all variables to have substantial connection with bank profitability regardless of whether their influences and relation is constantly unchanging for domestic and foreign banks. This study confirms the previous research findings.

## **CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS**

### **5.1 Introduction**

This chapter presents a summary of the research findings, the conclusion drawn based on the study objectives and the recommendations for policy change and suggestions for further research as well as limitations of the study.

### **5.2 Summary of Findings**

The objective study was to examine the effects of macroeconomic variables on the financial performance of commercial banking sector in Kenya. The study was a census where all the commercial banks were considered. The study used 10 year (2006-2015) data for analysis. Analysis was done with the help of Statistical Package for Social Science (SPSS) version 21 and Microsoft's Excel (2016). Descriptive statistics such as means and standard deviations were used to analyze the GDP growth rate in a quarterly basis, Average quarterly interest rates charged by lenders, Average quarterly exchange rate between USD and Ksh. and average quarterly inflation rate. Regression analysis was used to establish the effects of macroeconomic variables on the financial performance of the commercial banking sector in Kenya. Analysis of variance (ANOVA) was used to test the goodness of fit of the regression model to the data collected.

The results of the study indicated that there is a strong ( $R=0.792$ ) relationship between macroeconomic variables and the financial performance of commercial banks in Kenya.



The study also established that 58.5% of the total variance in financial performance of the commercial banks in Kenya can be attributed to macroeconomic variables. The remaining 41,5 % of the variance in financial performance can be attributed to other determinants of financial performance which were not the subject of this study. ANOVA statistics revealed that the regression model was ideal since it had a significance level of .001. The study further established that inflation and GDP affects financial performance of the commercial banking sector positively and Interest rates and exchange rates negatively and in a statistically significant way. The findings were in line with the findings of Mamatzakis and Remoundos (2003), Naceur (2003), Pasiouras and Kosmidou (2007), Desaro (2012), Mwangi (2013), Njuguna (2013).

### **5.3 Conclusion**

The study concludes that there is a strong relationship between macroeconomic variables and financial performance of commercial banks and that 58.5% of the total changes in financial performance of the commercial banking sector in Kenya can be attributed to changes in the macroeconomic variables. The study also concludes that GDP growth rate in a quarterly basis, Average quarterly interest rates charged by lenders, Average quarterly exchange rate between USD and Ksh. and average quarterly inflation rate affects financial performance of the commercial banking sector and in a statistically significant way. From the ANOVA statistics, the study concluded that the regression model derived is reliable and has goodness of fit.

The study showed that macroeconomic variables combined influenced the performance of the banking sector as measured by ROA. It was found that ROA was correlated with the

individual macroeconomic variables, as it was negatively correlated with the interest rates and exchange rates. It was positively correlated with the GDP growth rates and the inflation rates. The study main objective which was to establish the effect of the macroeconomic variables on the financial performance of the banking sector was thus established. Thus the banking sector highly depends on the changes in the macroeconomic factors that will affect its financial performance in both the short and the long run.

#### **5.4 Recommendations**

The study established that inflation rates, interest rates, exchange rates and GDP have an impact on the financial performance of commercial banking sector in Kenya. As a result, the study wishes to make the following recommendations for policy change:

Commercial banking sector in Kenya should consider macro-economic variables such as rates, interest rates, exchange rates and GDP in their policy formulation to manage their effect on the financial performance. The Kenyan Government through the Central bank should come up with policies that create a conducive environment for commercial banks to operate in since it will translate to economic growth of the country.

#### **5.5 Limitations of the Study**

The study was mainly dependent on the secondary data available at the Central Bank. This implies that the accuracy of the study findings is dependent on the data that was available. The researcher cross-checked the data available on individual commercial banks website as a way of ensuring reliability and validity of the data.

The study was based on a ten year study period from the year 2006 to 2015 since this is the latest period and thus availability of data that is more applicable to the current economic situation. However, a longer duration of the study would have captured periods of various economic significances such as booms and recessions. This would have probably given a longer time focus hence given a broader dimension to the problem.

Further, academic studies are usually subjected to tight academic deadlines. If more time was available, the researcher could be in a position to make more detailed conclusions and observation on how macroeconomic variables influences financial performance of commercial banking sector.

## **5.6 Suggestions for Future Studies**

The macro economic variables namely inflation rates, interest rates, exchange rates and GDP contribute to 58.5% of factors affecting financial performance of commercial banking sector. In future, a similar study should be carried to establish the other factors influencing performance of commercial banking sector in Kenya. An inquiry into the challenges facing the commercial banks should be done. This will explain help to reveal how best the challenges can be overcome hence promoting efficient implementation, monitoring and evaluation of commercial banks. Finally a research aimed at benchmarking the performance of commercial banks against other international banks should be done. This will serve to highlight the differences between them and also identify the best practices that can be borrowed from them.

The study concentrated on the last ten years since it was the most recent data available.

Future studies may use a range of many years e.g. from 1970 to date and this can be helpful to confirm or disapprove the findings of this study. Finally, due to the shortcomings of regression models, other models such as the Vector Error Correction Model (VECM) can be used to explain the various relationships between the variables.

## REFERENCES

- Ajayi R.A., & Mougou M. (1996). On the dynamic relation between stock prices and exchange rates. *Journal of Financial Economics*, 19, 193-207.
- Athanasoglou, P. P., Delis, M. D., & Staikouras, C. K. (2006). Determinants of Bank Profitability in the South Eastern European Region. *Journal of Financial Decision Making*, 2, 1-17.
- Athanasoglou, P., Brissimis, S., & Delis, M. (2005), Bank-Specific, Industry-Specific and Macroeconomics Determents of Bank Profitability, *Bank of Greece*, No. 25.
- Bashir, A.-H. M. (2003). Determinants of Profitability in Islamic Banks: Some Evidence From The Middle East. *Islamic Economic Studies*, 11(1), 32-57.
- Bourke, P. (1989). Concentration and other Determinants of Bank Profitability in Europe, North America and Australia. *Journal of Banking and Finance*, 13, 65-66.
- Central Bank of Kenya (2012). Risk Management on Kenya's Banking Sector. Retrieved on 5<sup>th</sup> Jan, 2016 from [www.centralbank.go.ke](http://www.centralbank.go.ke)
- Central Bank of Kenya, (2006). *Prudential guidelines for institutions licensed under the Banking Act*. [Online] Central Bank of Kenya. pp. 27-48. Available: <http://www.centralbank.go.ke>
- Chen, N., Roll, R., & Ross, S. A. (1986). Economic Forces and the Stock Market. *Journal of Business*, 59,383-403.

- Cushman, D.O. (1988). Exchange Rate Uncertainty and Foreign Direct Investment in The United States, *Weltwirtschaftliches Archive (Review of World Economics)* 124(2), 322–334.
- Daniel, K., Hirshleifer, D. & Subrahmanyam, A. (1997). A theory of overconfidence, self-attribution, and security market conditions of risk.' *Journal of Finance* 19:425-442.
- Demirguc-Kunt, A. & Huizinga, H. (1999). Determinants of Commercial Bank Interest Margins and Profitability: Some International Evidence. *World Bank Economic Review*, 13,379-408.
- Demirguc-Kunt, A., & Detragiache, R. (1998). Bank-based and market-based financial system: cross-country comparisons. *Development Research Group, The World Bank mimeo*.
- Desaro, A. I. (2012). *The effect of macroeconomic factors on financial performance of commercial banks in Kenya*. Unpublished MSC Project, University of Nairobi.
- Fama E. F., & Schwert, W.G. 1977. Asset returns and inflation. *Journal of Financial Economics* 5: 115-146.
- Fama, E. (1970). Efficient capital markets: a review of theory and empirical work. *Journal of Finance*, 25, 383-417.
- Fama, E. F. (1981). Stock returns, real activity, inflation and money. *The American Economic Review* 71(4), 45-565.

Fama, E., and French, R. (1996). Multifactor explanations of asset pricing anomalies.

*Journal of Finance*, 51, 55-84

Fischer, S. (1993). The Role of Macroeconomic Factors in Growth, *Journal of*

*Monetary Economics*, 32(3) 485-512.

Gan, C., M. Lee, H. Yong & J. Zhang, 2006. Macroeconomic variables and stock

market interactions: New Zealand evidence. *Int. Manage. Financ. Innov.*, 3(4): 89-101.

Gastanaga V, Nugent J, Pashamiova B. (1998). Host Country Reforms and FDI

Inflows: How Much Difference Do They Make? *World Development* 26(7), 1299-1314.

Hong, H., & Stein, J. (1997). *A unified theory of underreaction, momentum trading,*

*and overreaction in asset markets.* Unpublished Working Paper. Sloan School of Management, Massachusetts Institute of Technology.

Johansen, S., and Juselius, K. (1990). Maximum likelihood estimation and inference on

cointegration with applications to the demand for money. *Oxford Bulletin of Economics and Statistics*, 52, 169-210.

Kadongo, C.O. (2011). *Foreign Exchange Risk and the Flow of International Portfolio*

*Capital: Evidence from Africa's Capital Markets.* Unpublished PhD thesis, Witwatersrand: University of the Witwatersrand.

- Kamau, A.W. (2009). *Efficiency in the Banking Sector: An Empirical Investigation of Commercial Banks in Kenya*. A thesis submitted in partial fulfillment of the Requirements of Nairobi University for the Degree of Doctor of Philosophy. Nairobi: University of Nairobi.
- Khalid, Z., Iqtidar, A. S., Muhammad, M., K., Mehboob, A., (2012) Macroeconomic factors determining FDI impact on Pakistan's growth, *South Asian Journal of Global Business Research*, 1 (1), 79 – 95.
- Kipngetch, K. M., (2011). *The relationship between interest rates and financial performance of commercial banks in Kenya*. Unpublished MBA project, University of Nairobi, 2011.
- Kwon, C. S., & Shin, T. S. (1999). Cointegration and causality between macroeconomic variables and stock market returns. *Global Finance Journal*, 10(1), 71–81.
- Kyalo, P. (2002). *Allowing for Risk Choices in Financial Intermediation*. Working Paper 98(4). University of Mannheim.
- Levine, R. (1997). Financial Development and Economic Growth: Views and Agenda. *Journal of Economic Literature*, 35, 688-726.
- Maghyereh, A. I. (2002). Causal relations among stock prices and macroeconomic variables in the small, open economy of Jordan. Available at <http://ssrn.com>.
- Mamatzakis, E.C. & Remoundos P.C. (2003), Determinants of Greek Commercial banks profitability, 1989 - 2000, *Spoudai*, 53 (1), 84-94.



- Maria, G., Florica, B. & Catalina, R. (2002). Modern instruments for measuring organizational performance. *Journal of Auditorial performance and Economics* 1(2), 13-15.
- Markowitz, H.M. (1952). *Portfolio Selection*. New York: John Wiley and Sons.
- Mishkin, F.S. & Eakins, S. (2009). *Financial Markets and Institutions*. (6<sup>th</sup>ed.). Pearson Prentice Hall.
- Muchiri, H. G. (2012), The impact of macroeconomic variables on the performance of the Nairobi securities exchange. Unpublished MBA project, University of Nairobi.
- Mugenda, O. M. & Mugenda, A. G., (2003), *Research Methods; Quantitative and Qualitative Approaches*. Nairobi, Kenya: Acts Press.
- Mwangi, F.K, (2013). *The effect of macroeconomic variables on financial performance of aviation industry in Kenya*. Unpublished MSc Project, University of Nairobi.
- Mwega, W. (2009), *Global Crises and its Effect on Policy on Financial Institutions in Kenya* Unpublished MBA Project: University of Nairobi.
- Naceur. S. B. (2003). The Determinants of the Tunisian Banking Industry Profitability: Panel Evidence. Universite Libre de Tunis Working Papers.
- Ngugi, R., Amanja, D., & Maana, I. (2009). Capital market, financial deepening and economic growth in Kenya. *Journal of Finance*. Nairobi, Kenya.

- Njuguna, P.N, (2013). *The effect of macroeconomic factors on financial performance of deposit taking microfinance institutions in Kenya*. Unpublished MBA Project, University of Nairobi
- Nwankwo, A. (2006). *The Determinants of Foreign Direct Investment Inflows (FDI) in Nigeria*. 6<sup>th</sup> Global Conference on Business & Economics.
- Nyamwange, C. (2009). *The relationship between real exchange rates and international trade in Kenya*. Unpublished MBA project. University of Nairobi.
- Oloo, O. (2009). Determinants of Bank Profitability in a Developing Economy: Empirical Evidence from Philippines. *Asian Academy of Management Journal of Accounting and Finance*, 4(2), 91-112.
- Olson, M. (2008). *The rise and decline of nations: Economic growth, stagflation, and social rigidities*. Yale University Press.
- Ongore, V.O (2013). Determinants of Financial Performance of Commercial Banks in Kenya. *International Journal of Economics and Financial Issues*, 3, (1), 237- 252
- Pasiouras. F. and Kosmidou. K. (2007). "Factors influencing the profitability of domestic and foreign commercial banks in the European Union", *International Business and Finance*, 21, 222-237.
- Patra T., & Poshakwale S. (2006). Economic variables and stock market return; evidence from the Athens stock exchange. *Applied Financial Economics*. 6, 993-1006.

- Sharma, G. D., Singh, S., & Gurvinder Singh. (2011). *Impact of Macroeconomic Variables on Economic Performance: An Empirical Study of India and Sri Lanka*. Rochester, New York.
- Sharpe, W.F. (1964). 'Capital asset prices: A theory of market equilibrium under conditions of risk.' *Journal of Finance* 19:425-442
- Singleton, R., Straits, B., & Straits M. (1993). *Approaches to Social Research*. Oxford University Press: London.
- Tobin, J. (1958). Liquidity preference as behavior towards risk, *The Review of Economic Studies*, 25, 65-86.
- Wamucii. J. C., (2010). *The relationship between inflation and financial performance of commercial banks in Kenya*. Unpublished MBA Project, University of - Nairobi, 2010.
- Wong, J., Wong, E., Fong, T., & Choi, K. F. (2006). Competition in Hong Kong's banking sector: a panzar-rosse assessment. 2, 1-22.

## **APPENDIX I: LIST OF COMMERCIAL BANKS**

1. ABC Bank (Kenya)
2. Bank of Africa
3. Bank of Baroda
4. Bank of India
5. Barclays Bank of Kenya
6. CfC Stanbic Holdings
7. Chase Bank Kenya (In Receivership)
8. Citibank
9. Commercial Bank of Africa
10. Consolidated Bank of Kenya
11. Cooperative Bank of Kenya
12. Credit Bank
13. Development Bank of Kenya
14. Diamond Trust Bank
15. Ecobank Kenya
16. Equity Bank
17. Family Bank
18. Fidelity Commercial Bank Limited
19. First Community Bank
20. Giro Commercial Bank
21. Guaranty Trust Bank Kenya
22. Guardian Bank
23. Gulf African Bank
24. Habib Bank
25. Habib Bank AG Zurich
26. Housing Finance Company of Kenya
27. I&M Bank
28. Imperial Bank Kenya (In receivership)
29. Jamii Bora Bank
30. Kenya Commercial Bank
31. Middle East Bank Kenya
32. National Bank of Kenya
33. NIC Bank
34. Oriental Commercial Bank
35. Paramount Universal Bank
36. Prime Bank (Kenya)
37. Sidian Bank
38. Spire Bank
39. Standard Chartered Kenya
40. Trans National Bank Kenya
41. United Bank for Africa
42. Victoria Commercial Bank