

**EFFECTS OF THE EXCHANGE RATE VOLATILITY ON THE
FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN
KENYA**

BY

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DECLARATION

I declare that this research project is my original work and has not been presented for an award of a Degree in this or any other University.

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DEDICATION

I dedicate my dissertation work to my family and many friends. A special feeling of gratitude to my loving parent, Mrs. Esther Kairu and siblings whose words of encouragement and push for tenacity ring in my ears. I also dedicate this dissertation to my many friends who have supported me throughout the process. I will always appreciate all they have done.

Table of Contents

DECLARATION.....	ii
ACKNOWLEDGEMENTS	iii
DEDICATION.....	iv
LIST OF TABLES	vii
LIST OF ABBREVIATIONS.....	ix
ABSTRACT.....	x
CHAPTER ONE	1
INTRODUCTION.....	1
1.1 Background of the Study	1
1.1.1 Exchange Rate Volatility Risk.....	2
1.1.2 Financial Performance	4
1.1.3 Exchange Rate Volatility Management and Financial Performance	5
1.1.4 Commercial Banks in Kenya	5
1.2 Research Problem	6
1.3 Research Objective	8
1.3.1 General Objective	8
1.3.2 Specific Objectives	8
1.4 Value of the Study	9
CHAPTER TWO	10
LITERATURE REVIEW	10
2.1 Introduction.....	10
2.2 Theoretical Review	10
2.2.1 Foreign Exchange Exposure Theory.....	10
2.2.2 The International Fisher Effect	11
2.2.3 Purchasing Power Parity	11
2.2.4 Interest Rate Parity Theory	12
2.3 Determinants of Financial Performance of Commercial Banks.....	13
2.3.1 The Size of the Bank.....	13
2.3.2 Capital Adequacy.....	14
2.3.3 Bank Liquidity Management	15
2.3.4 Credit Risk Management	15

2.3.5 Management Efficiency	16
2.3.6 Inflation.....	16
2.4 Empirical Review.....	17
2.5 Conceptual Framework.....	19
2.6 Summary	20
CHAPTER THREE.....	21
RESEARCH METHODOLOGY	21
3.1 Introduction.....	21
3.2 Research Design.....	21
3.3 Population of the Study.....	22
3.4 Data and Data Collection	22
3.5 Data Analysis	22
3.5.1 Analytical Model.....	23
CHAPTER FOUR.....	25
DATA ANALYSIS, PRESENTATION AND FINDINGS	25
4.1 Introduction.....	25
4.2 Descriptive Statistics.....	25
4.3: Co-relation Analysis	26
4.4 Regression Analysis.....	27
4.5 Diagnostic Test	30
4.6 Summary and Interpretation of Findings	30
CHAPTER FIVE	33
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS.....	33
5.1 Introduction.....	33
5.2 Summary of Findings.....	33
5.3 Conclusions.....	34
5.4 Policy Recommendations.....	35
5.5 Limitations of the Study.....	36
5.6 Suggestions for Further Studies	37
REFERENCES.....	39
Appendix I: List of Commercial Banks	44

LIST OF TABLES

Table 3.1: Operational Definition of Variables	24
Table 4.1: Descriptive Statistics	25
Table 4.2: Co-relation Matrix	26
Table 4.4: Analysis of Variance.....	28
Table 4.5: Regression Coefficients	29
Table 4.6 Variance Inflation Factor	30

LIST OF FIGURES

Figure 2.1 Conceptual Framework.....	20
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LIST OF ABBREVIATIONS

ANOVA	Analysis of variance
CBK	Central Bank of Kenya
FX	Foreign Exchange
GDP	Gross Domestic Product
KES	Kenya Shilling
MFC	Mortgage Finance Company
MFI	Micro-Finance Institutions
ROA	Return on Assets
ROE	Return on Equity
USD	United States Dollar

ABSTRACT

The question of whether there exists a relationship between the volatility of exchange rates and the performance of commercial banks in Kenya was the subject of this research. The general objective of this research was to establish the effects of change in exchange rates on the financial performance of financial institutions. Banks Foreign exchange risk management is complex and banks will go to great lengths to shield themselves from any loss that may result from the changes in exchange rates. Many of the standard tools used to hedge currency risk, such as futures, swaps and options contracts, are either not available in emerging markets or, where available, are traded in illiquid and inefficient markets, making the range of products available extremely limited. This has a great impact on the performance of financial institutions. The research adopted a descriptive research concentration on 43 banks that were operating in Kenya. The study used secondary data collected from the banks' consolidated financial statements as well as Central Bank of Kenya offices. The study also used Statistical Package for Social Sciences Version 21.0 to aid in data analysis. The research findings indicated that there was a weak positive relationship between exchange rate volatility and the performance of commercial banks. The findings also indicated that there was a high volatility of the KES against the USD over the study period which negatively affected the performance of banks. This also had an effect on the stock market performance. The findings also established that the KES had a declining trend against the USD over the study period. The study recommended that since there are several economic implications of these results for both business policy and public policy the relevant authorities such as CBK should come up with adequately measures to safeguard the value of the domestic currency hence ensuring that the exchange rate volatility is kept at the minimum levels.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Roles that banks undertake in the financial system create important question in understanding issues arising in finance. The coherence of the chain of activities where surplus finances are moved into fruitful ventures is paramount for development. Financial institutions facilitate ease of this chain of events (Franklin and Elena,2008). Commercial banks play a crucial role of regulating and mobilizing finances from surplus financial units (holders) to insufficient financial entities (borrowers). They undertake the intercessor function that has uninterrupted consequence on the productivity and financial wellbeing of a country. (Wainaina 2013)

To enable banks, carry out their roles in an economy Allayannis et al (2001) argued that management of risk is a central part in every banks decision involving foreign exchange rate and currency exposure. Determination of balance of trade is based on the variation of shilling rate, where shilling rates as any goods are built on the fair market drivers of demand and supply of foreign money. Local currency supply fluctuates due to a country's fiscal and monetary strategies (Berger & Bouwman, 2010). The request for currency is brought forth by various causes namely: inflation, interests rates, government regulations to mention but a few. Macroeconomic and industry related factors also potentially influence the return on stocks of companies. Increases in the intercountry sale of goods and wealth changes has forced exchange rates a major determinant of business profitability and equity prices (Bradley and moles, 2002). Changes in exchange rates

creates an unsafe environment since existence of reservations about potential profits and outflows. This is particularly manifested in those nations with no financial tools to protect from exchange exposure. This is as evident in Kenya which is a developing country (world bank & MTTI,2006).

1.1.1 Exchange Rate Volatility Risk

Direct or simple nominal exchange rate can be termed to be the cost of a single unit of foreign money in units of the home money (Nydahl, 1999). Foreign exchange risk is referred by Butler (2008) as the peril associated with unanticipated fluctuations in conversion rates. He goes further to mention that exchange exposure is the degree to which unpredicted variations in exchange rates affect the worth of a company's properties and obligations.

Private investment is considerably and adversely affected by improbability and macroeconomic unpredictability as indicated by econometric evidence of investment behavior and conventional factors such as real interest rates, historical advance of economic undertakings and private segment credit (Savedi, 2013). On the same note, (Gilchris, 2013) says that FX changes impacts on the performance of banks whose role in an economy is to allocate economic resources from depositors to investors. However, banks can only undertake this important role if the operational costs they incur during operation is covered through generation of necessary income. There is an association that ensues between rates instability and poor profitability of banks.

Inflation and inflationary expectations can press interest rate upward which affects lending terms resulting to reduced credit demand and lending ability of commercial banks

(Keynes, 2006). Exchange rates affect interest rates and have an indirect impact on profitability through cost of loanable funds. There is an increase of value in commercial banks arising from the sale of foreign currency at a high exchange rate that results to increased profitability. This said, it may explain the contribution of changes and volatile exchange to the debt profile of banks and reduction of profit level of borrowers (Owoeye & Ogunmakin, 2013). Where the cost of the current obligations depreciates, transaction risk occurs. On the other hand, transactional exposure occurs due to future receipts and is experienced when the price of the prevailing commitment is impacted by changes in exchange rates. Where there are unexpected changes in exchange rate, economic risk is experienced characterized by adverse impacts on income of both domestic and foreign operations. Changes in the marketplace situation of a firm owing to impacts of FX changes on charges, call and rivalry is known as operational exposure (El-Masry,2006).

Translation risk refers to risk associated with assets from multinational enterprises while translation exposure is experience due to mismatch of currency and is also related to income from offshore enterprises (Madura, 2003). Foreign exchange risk is brought forth by the disparity on securities owned by a bank and its capital. A negative change in the local currency against the USD results to an upsurge in the interest rates. This leads to the bank being deemed as un-creditworthy and cause loss of revenue (moles ,2012).

In conclusion, the main function of commercial banks is resource allocation, that is creating a conduit of funds from lenders to borrowers. This is done to produce enough income to protection for operating costs incurred during operation. This basically means that banks have to make profits. Going further, their performance is critical and vital to the development of countries. Due to profitability shareholders get rewarded and

increase their finances from outside bringing about growth in the economy, consequently, bad or poor performance will result to a banking crisis which will lead to falling economic growth (Panayiotis et al, 2006).

1.1.2 Financial Performance

It's an evaluation of a company's reports done for given period where there is comparison of firms across the same industry. According to Murthy and Sree (2003), financial performance refers to the ability to leverage operational and investment decisions and strategies to achieve a business' financial stability. It's used as a bar to measure the achievements of a bank's financial goals guided by its financial objectives and benchmarks. The paramount objective of any firm is to make profits. There are a number of ratios for measuring profitability such as; Net Interest Margin, ROA and ROE.

The ROA ratio evaluates the easiness and efficiency of a company's asset management capabilities and how they in turn use this to make profits. It measures the profit earned against investments on total assets. Calculation for this is: $\text{Net Income} / \text{Total Assets}$ (Brealey et al, 2008). External and internal factors are also crucial to the performance of commercial banks (Al-Tamimi 2010; Aburime, 2005). Internal factors are basically bank precise factors or the bank characteristics that generally touch on the internal decisions made by the management board. External factors on the other hand are sector or industry wide factors beyond a firm's control. The banking sector is the single sector highly affected by the key macroeconomic variables which include interest rates, inflation and economic growth measured by GDP and therefore their financial performance will mostly depend on macroeconomic stability. Macroeconomic steadiness is the backbone of prosperous efforts to lead to an increased development and economic growth in the

private sector. Research across board has shown that investment growth and profitability positively affect macroeconomic stability (Easterly, Islam & Stiglitz, 1999).

1.1.3 Exchange Rate Volatility Management and Financial Performance

Changes in currency exchange rates can generate significant gains or losses and they could end up in the income statement resulting to a distorted impression of what is happening to the financial institution concerned (Watkins, 2014). There are three ways in which exchange rate fluctuations affect the domestic prices: first and foremost is by import prices, which directly impacts on the local prices, secondly, is by the intermediate imports prices which impacts the local production costs. Finally, is via the prices local commodities in a foreign currency (Gatobu, 2013).

More so unrealized foreign exchange gains/losses according to Gatobu (2013) have impact on incomes of transnational companies in reserves. Foreign exchange variations involve the companies' import of inputs, creditors, international sales and debtors which affects its income hence affecting reserves. Carter et al (2003) argued that alterations in FX rate can determine a company's present and impending anticipated cash flows and eventually, share prices. The course and extent of modifications in FX rate on firm's worth are a role of a company's company hedging strategies which illustrates if the company applies operational hedges and financial hedges.

1.1.4 Commercial Banks in Kenya

Commercial banks have been doing very well in Kenya in terms of profitability. Most banks have been having a good performance but a few have been realizing losses. Failures in this industry in the developed countries have therefore led Kenyan authorities

to take precautionary and mitigating measures in a bid to understand how the performance of banks and the macroeconomic factors influences bank profits in accordance to the CBK (2011) Supervision Report, 30 banks out of 43 are locally held while the others are owned by foreigners. 35% of bank assets are owned by the foreign owned banks.

In 2010 the Kenyan shilling exceedingly depreciated losing value against the major world currencies, for example against the USD it averaged 101.270 in Oct 2011 from 81.029 in Jan 2011. Commercial banks took a course of action by diversifying their revenue streams in order to increase their profitability (Macharia, 2013). Recently, many developing countries have embarked on reforming their financial systems, changing their institutions into efficient intermediaries as well as providing viable financial services to sections of the population on a sustainable basis (Seibel, 2011).

1.2 Research Problem

Jamal and Khalil (2011) exchange rate fluctuations are a paramount foundation of risk for banking institutions where huge exchange losses result to banks failure besides causing huge burdens on banks' profitability, foreign rates volatility has negatively affect bank performance posing a challenge to commercial banks' managers in their core function of credit management and profitability (Baum, Mustafa, and Neslihan, 2009).

The rate fluctuations in Kenya over the years varies resulting to the sudden devaluing of KES against other world currencies which has in turn adversely affected the Kenyan economy. This has seen the exchange rate against the USD get to as high as Ks 106 making it difficult for the banks to predict the future rate with precision. This has greatly

affected the performance of commercial banks as they seek to provide adequate currency to promote international business by hedging their transactions against foreign exchange losses (Majok, 2015).

Many researches touching on impacts of FX fluctuation based on the performance financially in other nations have been done. For example, Elhiraika and Ismail (2006) based their research on the monetary division policy and poverty decrease in Sudan. They looked at how poverty alleviation has been per the investment in Sudan. Restructurings in the financial area should be heightened in order to develop a pro-poor financial structure which in this case involves both Islamic and conventional microfinance programs. Adam (2012) also examined exchange rate options for South Sudan.

Locally, Maina (2010) did a study on the electric power sector in Kenya and the impact exchange rate variability has on it. His findings show that investments were high in the power subsector when the exchange rates were stable as compared to times of high fluctuations. Njenga (2014) analyzed real FX volatility on Kenya's economic growth where he established that GDP is positively influenced by exchange rate volatility but is not significant in affecting GDP growth rate. Ramos (2013) studied Kenya's impact due to FX changes on retail prices.

Oduori (2012) conducted a study touching on the methods used by banks to combat arising operational, strategic and credit risks while Mutua (2013) studied FX risk management strategies and how they impacted Kenya's foreign owned bank performance. Cherop (2010) conducted an analysis on FX instabilities on earnings resulting from tea export among small scale tea processing industries in Kenya where she

established that the exchange rate fluctuations greatly affected the earnings of smallholders at tea factories. During the time of depreciating local currency, the export earnings were higher even with low export quantities while export earnings reduced when the currency was appreciating.

From the analysis of previous studies above, the existing studies looked at FX fluctuations and company performance targeting different sectors. With an increase in transaction of goods and services using foreign currency there is a substantive increase in foreign exchange risk, therefore FX risk management eventually influences the monetary performance of the bank. However, their findings may not be applicable for the banking sector due to macro-economic variables. Hence this study sought to solve the research questions, namely: what are the effects of the exchange rate volatility and foreign exchange risk on commercial banks performance in Kenya?

1.3 Research Objective

The objectives of this research were as indicated below:

1.3.1 General Objective

This study had the general objective establishing the effects of the exchange rate volatility (appreciation, stability and depression) on financial performance of commercial banks in Kenya.

1.3.2 Specific Objectives

(a) the specific objective of the project was to determine the effects of exchange rate volatility on banks performance in Kenya.

(b) It also sought to investigate whether bank characteristics such as bank size and inflation have any intervening effect in the relationship in (a) above.

1.4 Value of the Study

With the recent collapse of several commercial banks in Kenya, this study will be of benefit to several key people: for commercial bank managers, it will shed more light on the outcomes of the recent fluctuation of the KES currency against the other currencies in the world for instance the US dollar and the pound. It will also provide more insight on exchange rate loss mitigation policies and strategies.

For the Government of Kenya, the findings of this study would inform the formulation of policies and regulations for a strong and resilient banking industry. It will further provide insight on ways of curbing the depreciation of the Kenyan shilling against the major world currencies.

This study is important to various stakeholders in the financial sector because it will provide an insight into the implications of risk management strategies on banks. This will assist them to better advise the financial institutions on the best hedging practices to undertake to limit their exchange risk exposure.

Finally, the study will be useful to scholars as it will provide information that can be used as a basis of other researches. It also proposes further research areas which will be very important to researchers who will easily get to know what needs to be done in this particular area of scholarly.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter provides a basis for topic under study and its concepts. It further centers on the review of empirical studies, theoretical framework and general literature review. It also highlights theories guiding the study, determinants of financial performance and thereby illustrating the research gap after which it presents the conclusion on the empirical literature.

2.2 Theoretical Review

Various theories have been discussed presenting arguments that guided this study. These theories include: interest rate parity theory, foreign exchange exposure theory, the international fisher effect and purchasing power parity theory.

2.2.1 Foreign Exchange Exposure Theory

Contemporary foreign exchange exposure as put by Shapiro (2003) argues that exchange rate variations should impact on the value of a MNC mainly through foreign receipts and foreign sales which should be in the local currency of the parent company. In spite of this study, early empirical studies on the topic say that focusing on firms with a substantive amount of foreign operations fail to show a considerable effect on variabilities in exchange rates on the stock value of MNC (Levi, 2009; Jorion, 2009; Amihud, 2009). Recent studies have indicated that rate changes through their impact on net assets and sales values are a paramount influence in influencing a company's value (Jongen et al., 2006).

2.2.2 The International Fisher Effect

This theory indicates that the variance in returns between two nations is equivalent to the difference in inflation rates (Shapiro, 2007). The nominal risk free interest rates encompass a real rate of return and predictable inflation. Thus, if all financiers from the different republics want the similar return then interest rate differentials amongst nations will be the outcome of differential in the anticipated inflation (Staikouras & Wood, 2004).

There is substantive and crucial variation in the relationship between inflation rate differential and exchange rate as argued by (Adler & Lehman, 1983). On the other hand, Hakkio (1986) indicated that relationships between inflation rates differentials and exchange rates even wasn't picture-perfect in the long run rather recognized the usage of inflation differentials in forecasting exchange rates long run changes.

2.2.3 Purchasing Power Parity

This theory states that identical goods should have one price in an ideal market as brought forth by Gustav (1918). It basically puts the idea of goods costing the same in different countries after countering in the exchange rates into practice. When the deposits of all the currencies provide an equal return rates, then the foreign exchange market is taken to be at equilibrium. Exchange rate fluctuations tend to be explained by nominal interest rate differentials between two countries, this is the International Fisher effect as explained by Giddy & Dufey (2007). It's closely related to the Fisher effect as put forward by Irving Fisher.

Increase in the price level causes devaluation of the FX rate comparative to other nations thus ensuring the relative value of similar goods the is similar across different nations. The theory proposes that FX rate fluctuations were balanced by comparative prices indices as one price law would hold. The one price law suggests that in competitive markets, alike goods will trade for the similar amount when one currency is used to value them.

2.2.4 Interest Rate Parity Theory

This parity condition was developed by Keynes (1923) to link the exchange rates, interest and inflation. It's basically a condition that explains how disparities in rates of interest in two different nations is harmonized and matched by the changes in their monetary FX (Huang, 2009). It goes on further to say that it harmonizes rates of interest, and FX rates and spot FX rates (Roll and Yan, 2000).

Hacche and Townsend (1981) and Meese and Rogoff (1983) show that other plausible economic theories such as purchasing power parity and the monetary model add little to random walk forecasts of exchange rates, at least at horizons of less than a year. The research reported strong rejection of uncovered interest rate parity. Other studies done later have confirmed these results. More to this is an active theoretical literature that attempts to determine if the failure of uncovered interest rate parity is as a result of risk aversion or market segmentation as opposed to market inefficiency. In contrast, Roll and Yan (2000) argue that forward exchange rates are unbiased predictors of subsequent spot rates and there is really no forward premium puzzle

2.3 Determinants of Financial Performance of Commercial Banks

An organization's performance can be determined by a number of factors; these factors are either internal or external. Factors that impact on the management of the board of directors are internal factors and affect the organization's profitability and are bank specific variables. Internal factors differ from one bank to the next and are within a bank's scope of manipulation. These comprise of information technology, capital size, labor productivity, deposit liabilities, management quality, credit portfolio, interest rate policy, bank size and ownership. External factors affecting the performance of a bank are mainly GDP, macroeconomic policy stability, Inflation, Political instability and Interest rate (Athanasogluo et al 2005).

2.3.1 The Size of the Bank

The bank size possesses a very crucial role on bank's performance which cannot be ignored. Large banks exploit the economies of scale and thus have more efficiency as compared to small organizations (Wild, & Han, 2010). The bank's size generally affects the market share which in turn affects profitability, the larger a firm's market share, the more the sales thus if commercial banks basing ourselves on this point banks increase loans and have better interest rates hence better profits. Market share of banks basically captures probable economies or diseconomies of scale.

The size of the bank affects its financial performance in many ways (Ahmed & Ahmed, 2010). Large banks can exploit economies of scale and scope and thus being more efficient compared to small firms (Wild & Han, 2010). Size can be determined by net premium which is the premium earned by a bank after deducting the reinsurance ceded.

The premium base of insurers dictates the quantum of policy liabilities to be borne by them (Teece, 2009).

2.3.2 Capital Adequacy

Capital is a key element that affects profit of banks. It is the amount shareholders' equity that can be used during adverse situations. (Athanasoglou, 2005). Most banks with a higher capital perform way better than their undercapitalized peers, as put forward by George and Dimitrios (2004). A positive association exists between profits and equity among EU financial institutions (Staikouras and Wood (2003).

Goddard Molyneux and Wilson (2004) support the prior finding of positive relationship between capital/asset ratio and bank's earnings. Again the direction of the relationship between bank capital and bank profitability cannot be unanimously predicted in advance. Pasiouras and Kosmidou (2007) identify that the performance of domestic and foreign commercial banks in 15 EU countries during the period 1995-2001. They find that profitability of both domestic and foreign banks is affected by bank specific characteristics. The results suggest that capital adequacy, credit risk, bank size, liquidity risk have significant relationship with bank profitability, although their impacts and relation is not always uniform for domestic and foreign banks. Chirwa (2003) studied the relationship between market structure and profitability of commercial banks in Malawi using of data of time series during the years 1970-1994. The results of research show that there is a negative relationship between profitability and capital adequacy ratio and gearing ratio.

2.3.3 Bank Liquidity Management

For commercial banks to smoothly mediate between deficit and surplus households then an adequate liquidity as to be available. As such, managers must look for optimal liquidity balances (Ubindi ,2006). When liquidity is on the downside, then banks borrow at penal rates from fellow banks or from the central bank. High liquidity leads to a loss in profitable opportunities (Waheed, 2009).

Tabari, Ahmadi and Emami (2013) indicate that liquidity risk arises from the inability of a bank to accommodate decreases in liabilities or to fund increases in assets. An illiquidity bank means that it cannot obtain sufficient funds, either by increasing liabilities or by converting assets promptly, at a reasonable cost. In periods the banks don't enjoy enough liquidity, they cannot satisfy the required resources from debt without converting the asset into liquidity by reasonable cost (Wamukhoma, 2014). Under critical conditions, lack of enough liquidity even results in bank's bankruptcy. Bourke (1989) examined the performance of banks in twelve European, Northern American and Australian countries. Using of international data for 1972-1981, he found that both ratios of capital and liquidity have a positive relationship with the profitability.

2.3.4 Credit Risk Management

This is a structured risk assessment approach of managing uncertainties by using strategies to control it. Strategies involved are: insurance, reducing the negative effects of the risk, risk avoidance and risk acceptance. Credit risk management involves two-step process which entails: identify the risk source and quantify the risk by means of mathematical models (Tabari & Emami, 2013).

Credit risk management is a structured approach to managing uncertainties through risk assessment, developing strategies to manage it, and mitigation of risk using managerial resources. The strategies include transferring to another party, avoiding the risk, reducing the negative effects of the risk, and accepting some or all of the consequences of a particular risk. The process of risk management is a two-step process (Tabari, & Emami, 2013). The first is to identify the source of the risk, which is to identify the leading variables causing the risk. The second is to devise methods to quantify the risk using mathematical models, in order to understand the risk profile of the instrument.

2.3.5 Management Efficiency

This is another key element in determining a bank's profitability. It's assessed through ratios e.g. loan growth rate, earnings growth rate and total asset growth. Management systems qualification of staff and control systems are some parameters used to gauge the management performance.

Financial ratios assist in measuring the ability of management to channel resources to the most profitable ventures. One of these ratios is the operating profit ratio used in measuring management quality (Rahman, 2009).

2.3.6 Inflation

Financial performance and inflation rates are inversely linked. Therefore, price level increase reduces value of money and encourages portfolio shift. A higher inflation rate leads to people sifting their wealth from money and financial assets to real assets. This basically means that high rates of inflation lead to lower money demand in an economy. Research carried out in developing countries based on empirical work has shown a

substantial and steady coefficient for inflation resistances than for income resistances (Vong ,2009).

As a general rule, a country with a consistently lower inflation rate exhibits a rising currency value, as its purchasing power increases relative to other currencies. During the last half of the twentieth century, the countries with low inflation included Japan, Germany and Switzerland, while the U.S. and Canada achieved low inflation only 19 later. Those countries with higher inflation typically see depreciation in their currency in relation to the currencies of their trading partners. This is also usually accompanied by higher interest rates (Bergen, 2010).

2.4 Empirical Review

Research carried out in Nigeria during a twenty-year period (1986-2005), put forward by Opaluwa, Umeh and Ameh (2010) argued that exchange rate adversely impacts outputs in manufacturing industries. The Nigerian manufacturing sector was depended on importation of inputs which were affected by unstable exchange rates. The methodology adopted was empirical and regression analysis. Bradley and Mole (2002) rightly put it, Cash flows and success of a firm are not reduced by volatile exchange rates and risk management strategies are critical.

Addael, Nyarko-Baasil and Tetteh (2014) also had a look at the Ghanaian banks particularly on the exchange rate sensitivity of some listed banks on the Ghana Stock Exchange(GSE) between the years 2005 and 2010. Qualitative and quantitative approaches were adopted while undertaking this study as well as econometric models.

The study results showed that the banks under review engaged traded through forex and reported profits on those trading.

Bodnar and Gentry (1993) discovered business differences in foreign exchange exposure, noting that economic theory can be explained by exposure direction and levels. The data for this study was from US, Canada and Japan. Exchange rates play a huge role in strategic decisions and towards the firm profitability.

Rutto and Ondioek (2014) did a study on the influence of exchange rate volatility on Kenya's tea exports. They looked at the contribution of tea exports earnings to Kenya's economy and draw policy recommendations emanating from empirical findings for enhancing tea exports. Johansen and Julius Multivariate co-integration technique was applied to annual time series data from 1970-2008 in order to recognize the short term versus the long term behavior of the variables in the study. Co-integration and error technique (ECM) developed by Engle and Granger was used. Phillips, Perron (PP) on the first difference was adopted to test stationarity in their first difference and co-integration feasibility. The results indicate that exchange rate volatility, negatively affects performance of tea exports in the country. This paper recommends periodic monitoring of the exchange rate so as to reduce its impact and drawing of monetary and fiscal policy that would make FX rate manageable.

Wanjau; researcher (2014) scrutinized the correlation between real income, exchange rates and current account balances. His study was founded on 2 main theories: BOP (balance of payment) constrain and the neoclassical elasticity approaches. The study first aimed at identifying the impact in Kenya that current account balances and real exchange

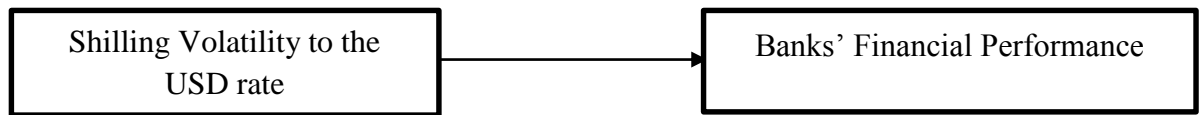
rate changes have on the country. The study was also conducted to identify the consistence of imports growth rate if Kenya was experiencing a stable growth in her economy. A regression analysis was first conducted for the first objective between the trade balance and real exchange rate, level of transparency and government expenditure, foreign income and comparative prices. To determine whether the Marshal-Lerner condition was viable, the signage and importance of real exchange rate coefficient was put to test.

Pundo, Musyoki and Pokhariyal (2012) thoroughly examined the impact of real exchange rate unpredictability of economic growth using Kenyan statistics. The study revealed RER was very volatile during period under review. The RER of Kenya mostly revealed appreciation and volatility in its trend, suggesting that generally, Kenya's international competitiveness was deteriorated all through the study period. The volatility in RER revealed it had a negative impact on the Kenyan economic growth rate

2.5 Conceptual Framework

A conceptual framework comprises of expansive ideologies and doctrines derived from appropriate areas of examination and aimed at structuring a succeeding demonstration (Kombo and Tromp, 2009). It's a research tool aimed to help scholars to come up with familiarity and understanding of a phenomenon under evaluation and to present it. If it is well expressed, it is a good instrument to enable a scholar to come up with a clear meaning of subsequent findings. It is important to scrutinize negotiations, verify them, review and restructure them as outcomes of enquiry and it simplifies the probable relations among the variables (Smyth, 2004).

Figure 2.1 Conceptual Framework



2.6 Summary

This chapter has reviewed literature relevant for this study. It specifically reviewed the theories guiding the study and the unbiased forward rates which all explain how foreign exchange rates affect organizations engaged in international trade. The study further reviewed empirical studies done both from international and local perspectives. The empirical studies (Addae1, Nyarko-Baasi1 and Tetteh, 2014; Adam, 2012; Bodnar and Gentry, 1993 and Bartov & Bodnar, 1996) were done on international setting in countries whose findings may not apply to Kenyan banks. The studies done locally (Maina, 2010; Cherop, 2010; Gachua, 2011; Ambunya, 2012; Wanjau, 2014; and Rutto and Ondiek, 2014) focused on other aspects of foreign exchange rate fluctuations and not bank performance. Therefore, this study sought to fill the research gap by determining the effects of shilling volatility; depreciation, stability and appreciation on the banks performance in Kenya.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The chapter highlights methods that were put in place by the study to attain the objectives of the study. It looks at; the research design, target population, sample population, data and data collection procedures and data analysis method used.

3.2 Research Design

Descriptive research design was adopted. Glass & Hopkins (1984) define a descriptive research design as the mode of gathering data that outline happenings and then systematizes, tabularizes, illustrates, and explains the data collected and frequently uses graphic assistances e.g. charts and graphs to aid the users in appreciating the data dissemination. Similarly, Mugenda and Mugenda (2003) defines descriptive research as an organized and realistic probing where investigator holds no control of independent variable since its occurrence has already happened and cannot be influenced.

Descriptive research considered traits like the size of sample in relation to the target population, the study variable, the methodologies to the research, and the methods that were engaged in data collection. For these reasons descriptive research design was more suitable since the study sought to analyze at the effects of the Kenya shilling (KES) volatility against bank performance

3.3 Population of the Study

A population is a precise group of persons, services, elements, and occurrences or households under scrutiny. The marked population consisted of all 43 banks in Kenya at the end of Dec 2015 (Appendix I: List of Commercial Banks). For this study, all the 43 banks were included since the target population wasn't large and the data was easily accessible from the Central Bank of Kenya.

3.4 Data and Data Collection

Secondary data which was obtained from banks' consolidated financial statements and from Central Bank of Kenya offices was used. Secondary data assessed included the ROA of all the entities as at the end of 2015 for fourteen years starting 2002 when the KES Exchange rate started fluctuating. Data on the foreign exchange rate fluctuations was collected for the period 2002 to 2015. Semiannual data was used. The semiannual inflation rates were also collected from the CBK and the information on bank size was also collected and used as the control variables for the study.

3.5 Data Analysis

Analyzing data encompasses scrutinizing it in ways that will disclose the patterns, trends and relationships that are identifiable in it. This means subjecting it to statistical processes that will tell the level of trust the answers one is getting, in addition to the relationships that seem to exist among the variables (Milstein & Wetterhall, 2013).

The method for analyzing data involves the application of the correct analytical methods to address the research questions of the study. SPSS V21.0 was utilized in analyzing

obtained data. Frequency tables, charts, correlations and regressions helped in the investigation. Application of multiple linear regression analysis to scrutinize the impact of independent variable on the dependent one was done. The analysis was conducted at a 0.05 level of significance.

3.5.1 Analytical Model

To obtain the impact of the shilling volatility and achieve the objective, the researcher carried out a multiple regression analysis by means of ensuing analytical model.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon$$

Where: Y = Financial performance/Profitability of banks (Semiannual Return on Assets –

Dependent Variable)

β_0 = Constant (y-intercept)

X_1 = Average Semiannual shilling volatility (Standard deviation of the FX rate changes against United States Dollar)

X_2 = Inflation (Average Semiannual Change in Consumer Price Index)

X_3 = Bank size (Natural log of Total Assets)

ϵ = Error term

To assess the significance of the association between the effects of shilling volatility and achieve the sought objectives, the study carried out an Analysis of Variance. After coming up with the ANOVA statistics, the investigator considered the F-values calculated. 95% confidence level was considered while significant level was at 5%. If the

F- calculated figures were lesser than 2.4 (critical values) the researcher considered the model significantly adequate to explained the underlying relationship.

Table 3.1: Operational Definition of Variables

Variable	Definition	Measurement
Y	Return on Assets - ROA	This was measured using the banks ROA ratio, this was used as the measure of financial performance.
X ₁	Shilling Volatility	This was measured using the Std. deviation of the changes in KES FX rate against USD exchange rate.
X ₂	Inflation	This was measured using the average semiannual Change in Consumer Price Index
X ₃	Bank Size	This was evaluated by the Natural log of Total Assets

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND FINDINGS

4.1 Introduction

This chapter contains the findings on the on the research topic. With the objective of determining effects of exchange rate volatility on commercial banks financial performance in Kenya, this study looked at the effects of shilling volatility, inflation rates and size of the banks on the performance of banks in Kenya from 2002 to 2015 measured and averaged semiannually. The chapter indicates the analysis, presentations and discussions of the study findings.

4.2 Descriptive Statistics

Table 4.1: Descriptive Statistics

	Minimum	Maximum	Mean	Std. Deviation
Return on assets (Billion)	0.12	0.64	0.0412	0.01123
Shilling Volatility (%)	0.019	0.125	0.0231	0.03295
Inflation Rates (%)	2.72	21.18	8.5218	5.1526
Bank Size (Billion)	9.77	22.92	15.015	3.896

From the table 4.1 above; the return on assets had a min. of 0.12, a max. of 0.64 and an average of 0.0412. The std. deviation was 0.1123. It indicated that there was a reduction of the banks return on assets over the period under study. The shilling volatility had a minimum of 0.019, a max. of 0.125 and a mean of 0.231. the std. deviation of the shilling volatility was 0.03265. The minimum for inflation rate was 2.52 while the maximum was 21.18. The mean on the inflation rates was 8.5218 with a standard deviation of 5.1526

which indicated inflation increased a lot during the period under review. The bank size had a minimum of 9.77, a maximum of 22.92 and a mean of 15.015. The standard deviation was 3.896 which indicates an increased growth in the size of banks. A depreciating trend on exchange volatility of the KES against the USD was evident with short periods of appreciation and stability over the entire period under review.

4.3: Co-relation Analysis

The Pearson (r) correlations coefficient was used to investigate the kind of relationships among the study variables. This Correlation coefficient assisted in understanding the inter-relationships between the study variables. This relationship was either positive or negative subject to the trends that occur within the data that was collected from the financial statements of banks. Table 4.2 clearly indicates the correlation analysis of the study variables.

Table 4.2: Co-relation Matrix

		Return on assets	Shilling Volatility	Inflation Rates	Bank Size
Return on assets	Pearson Correlation	1			
	Sig. (2-tailed)				
Shilling Volatility	Pearson Correlation	-.293	1		
	Sig. (2-tailed)	.118			
Inflation Rates	Pearson Correlation	-.041	-.148	1	
	Sig. (2-tailed)	.946	.261		
Bank Size	Pearson Correlation	.007	-.398	.046	1
	Sig. (2-tailed)	.864	.031	.934	

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

Zero correlation values indicates existence of zero association between dependent and independent variables. Correlation values of ± 1.0 indicates existence of a complete positive or negative relationship (Hair et al., 2010). The research findings were construed between zero which indicates no relationship and 1.0 (perfect relationship). These relationships were concluded to be trivial when $r = \pm 0.1$ to ± 0.29 , however, the relationships were concluded to be intermediate when $r = \pm 0.3$ to ± 0.49 . Similarly, strong relationship was when $r = \pm 0.5$ and above

The table above indicates that at confidence levels of 95%: a medium and negative correlation coefficient was established between financial performance, return on assets, and shilling volatility ($R = -0.293$; $p = .118$); low, negative but significant relationship was also established with inflation rate ($R = -0.041$; $p = .946$); and a low, positive but significant relationship was established with the size of the banks ($R = 0.007$; $p = .864$). There was a weak and positive correlation between bank sizes and the inflation rates ($R = 0.046$; $p = .934$). However, there was medium and negative correlation between the bank size and the shilling volatility ($R = -0.398$; $p = .031$). The researcher also established that there was a low and negative correlation between the inflation rates and the shilling volatility ($R = -0.148$; $p = .261$).

4.4 Regression Analysis

To achieve the objectives, the researcher conducted a regression analysis. Using SPSS version 21.0, the researcher did a regression analysis to establish the degree to which shilling volatility were linked to changes in bank's performance. The data for a regression

analysis consists of two input columns. The findings are well illustrated in the table 4.3 below:

Table 4.3 Model Summary

Model	R	R squared	Adjusted R Square	Std. Error of Estimate
1	0.971	0.964	0.935	0.2562
a. Predictors: (Constant), shilling Volatility, Inflation Rates, Bank size				

Adjusted R squared was used as a coefficient of determination to express change in dependent variable as a result of changes in independent variables. At 95% confidence interval the adjusted R squared value from the findings was 0.935 this indicated that 93.5% of the deviations of the dependent variable was expounded by a variation independent variables. This also means some other factors not included here contributes 6.5% of the impact of the changes noted in the bank's performance.

Table 4.4: Analysis of Variance

Model		Sum of Squares	df	Mean Squares	F	Sig.
1	Regression	1372.25	5	259.5	2.678	.005(a)
	Residual	1347.64	14	94.56		
	Total	2719.89	19			

Analysis of Variance (ANOVA) evaluated the means of two or more simultaneous associations. It assessed if a substantial link occurs amongst the variables. ANOVA helped in getting the models significance levels. The outcomes below displayed that the model had a 0.005 error margin.

Table 4.5: Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	β	Std. Error	Beta		
Constant	22.916	13.831		0.468	0.641
Shilling Volatility	-0.153	0.288	-0.131	-0.727	0.669
Inflation Rates	-0.141	0.344	-0.063	-0.408	0.684
Bank Size	0.111	0.783	0.023	0.141	0.432

Using the regression model $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon$ in the above regression, the model becomes;

$$Y = 22.916 + 0.153X_1 - 0.141X_2 + 0.111X_3 + \epsilon.$$

Using the regression equation above, it was found out that shilling volatility, inflation rate and bank size at a constant zero, bank performance would stand at 22.916, unit increase in shilling volatility would result to decrease performance of banks by 0.153, also unit rise in inflation rate would result to 0.141 decrease in bank performance while that of bank size would result into an increase of 0.111. The study further revealed that shilling volatility, inflation rate and bank size were statistically significant affecting the share prices, as all the p value (sig) were less than 0.05%.

4.5 Diagnostic Test

Variance inflation factor was used to test for multicollinearity in the study where: $VIF = 1/T$ and $T = 1 - R^2$. If $VIF > 10$ existence of multicollinearity is there; with $VIF > 100$, certainly multicollinearity exists in the sample.

Table 4.6 Variance Inflation Factor

Statistic	Shilling Volatility	Inflation Rates	Bank Size
Tolerance	0.494	0.532	0.637
VIF	2.024	1.878	1.581

Table 4.2 indicates that levels of tolerance stretched from 0.494 to 0.637. Values of VIF stretched from 1.581 to 2.024. There was no multicollinearity in the research model used as VIF was below 10 and tolerance was over 0. The Variance inflation factor for all the variables was less than 10 hence all the variables were used in the study

4.6 Summary and Interpretation of Findings

The study objective of establishing the effects of exchange rate volatility on bank performance. The study established that existence of a negative association between exchange rate volatility and banks performance as measured by the returns on assets ratio. However, this relationship was weak and the intervening factors such as inflation contributed to this negative relationship. The bank size had a positive relationship with the financial performance. Most banks indicated a huge growth in assets over the study period.

The findings agree with Owoeye, and Ogunmakin (2013) who observed through their study model that effects of FX rate on performance of banks was subject to the mode of proxy being utilized to calculate performance. Therefore, commercial banks in Kenya are exposed to foreign exchange risks that negatively affects their performance. They also agree with Majok (2015) who investigated effects of exchange rate fluctuations on financial performance of commercial banks in Kenya. The study found a negative relationship existed between foreign exchange rate fluctuations and the financial performance of banks as assessed by the returns on assets ratio. The research findings further revealed that the strength of association between the fluctuations and the returns was a weak one.

The research findings as under the banking sector concurred with research findings from other sectors, for instance. Nyairo (2015) The effect of FX rate volatility on success of Kenya insurance industry who found out that FX rate volatility negatively impacts the ROA of the insurance industry. GDP growth rate and inflation also negatively affects ROA of the insurance firms. Gachua (2011) also observed that unrealized FX gains or losses impacted on returns companies listed in NSE as it was presented to the stakeholders. Kös, Doqanay, and Karabacak (2010) established a unidirectional interconnection due from prices of stocks to FX rates by use of every day observations for the specific period.

The Kenyan USD exchange rate was observed to have increased significantly over the study period thus the high volatility over time. The exchange rate was volatile during the study period and generally showed a depreciating volatility trends. This indicates that the country's global competitiveness had reduced over the study period. The Kenyan

currency has been losing to the US dollar over the entire study period. This has negatively influenced the Kenyan economy by making the cost of living expensive since the country heavily relies on imports.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary, the conclusion and the recommendations of the study. From the findings in chapter four, the chapter offers a conclusion after which it draws the policy recommendations. The recommendations are constructed from the objective of the study with a consideration to the limitations experienced during the study after which the study recommends for further areas of study.

5.2 Summary of Findings

It was the major aim to investigate effects of exchange rate volatility (appreciation, stability and depression) on Kenyan commercial banks performance for the period from Jan. 2002 to Dec. 2015 as measured and averaged semiannually. There were two specific objectives: first, to examine the impact of FX rate volatility on Kenyan banks performance in Kenya, and second to investigate whether bank characteristics such as bank size have any intervening effect in the major objective.

First, the findings of the research show that exchange rate volatility (appreciation, stability and depression) had an influence on commercial banks performance in Kenya in the study period. The co-relation findings portrayed a weak negative connection between the FX volatility and the profits of banks over study period. The shilling showed volatility during the entire study period with short periods of appreciation and stability. Second, the exchange rates volatility was also found to be related to changes in inflation

rates. The correlation between the inflation and exchange rate volatility was a weak one hence as inflation rates increased the USD rate also increase hence the KES depreciated in value. Third, the research findings indicated that banks total assets had increased over the research period. All the banks had an increased growth over the research period. This facilitated an increase in the return on assets.

5.3 Conclusions

The conclusions that were obtained from the results of this study in section above were as indicated here. Firstly, the evidence strongly suggests existence of a weak negative association between FX rate volatility and banks performance in Kenya in the study period. More so, the Kenyan shilling exchange rates against the United States Dollar was observed to be very volatile during the study period. The Kenyan currency was depreciating in values against the dollar over the recent years and this depreciation has had negatively affected return of banks. The researcher also concludes that total assets owned by commercial banks and the inflation rates were increasing over the years.

Secondly, in regard to The inflation rates have been increasing yearly over the entire study period. The relationship however between inflation and returns on assets was negative and hence it negatively impacted performance. Volatility was not even during the years. Thus, the volatility clusters arise from random shocks to the market and are likely to persist in the market. This suggests that new information in the market is not instantaneously incorporated into exchange rates. Hence, the market could be populated by irrational market participants and/or market participants holding heterogeneous expectations.

The bank assets had increased in value over the research period thereby increase in return on assets. the results indicate that the foreign exchange market is highly volatile most of the time. This study concludes that the government should deploy adequate measures to safeguard the domestic currency. It should promote foreign direct investments so as to spur economic growth and consequently cause the local currency to appreciate. This would translate to a more stable currency against international currencies. This would consequently lower borrowing costs thus making loans even more affordable.

5.4 Policy Recommendations

There were several economic implications of these results for both business and public policy. First, a need for the management of banks operating in Kenya to hedge against foreign exchange exposure, as the study revealed that an increase in foreign exchange volatility negatively affects their financial performance and thus reduction in the company value, there is need for better strategies to ensure that financial performance is not affected by foreign exchange rate volatility

Secondly, that government's fiscal and monetary policy making department needs to consider the rate change effects on companies' performance and mostly those listed in the stock exchange. The reason for this is that their policies may impact the performance despite their good intention to rectify the deteriorating situations in the economy. The monetary Committee department at the Central bank of Kenya needs to maintain a stable foreign currency exchange if the activities at the Stock exchange are to be promoted. This is because huge exchange rate movements distort the trends of performance at the stock market leaving investors guessing the next cause of action because they may not be able to estimate with certainty the future state of the economy.

Third, there is need for the policy maker at Central bank of Kenya to control the inflation rate in the country through various monetary policy as it was established that increase in inflation negatively affects performance. There is need for the policy maker at Central Banks to use various fiscal policy to control, interest rate as we know that interest rate negatively impacts on company performance.

Lastly, Central Bank of Kenya ought to implement efficient monetary and fiscal policies so as to help curb significant deficits in balance of payments. The government at large should deploy measures that are aimed at increasing the national income of the country based on investments funded locally. International funding should be limited to small extent so that the domestic currency can be strong in the international money markets. Banks were observed to be profitable at a time when the economy was bad whereby other sectors were experiencing difficulties in remaining afloat. The banking industry benefits in such times since the interest rate spread and inflation are high.

5.5 Limitations of the Study

A couple of challenges were faced on the study. The major limitation experienced was that secondary data generated for other purposes was used to do the analysis. Therefore, it might not be as accurate as possible. Secondary data cannot be wholly reliable since it was intended for other financial purposes. To mitigate this, audited financial results were relied on.

The research also used three independent variables (the exchange rate volatility, inflation rate and the banks size) in assessing their effects on banks financial performance. Therefore, effects of the other economic variables were not analyzed in this research.

Effects of non-financial paradigms on performance were not studied by this research; therefore, the study never looked at implications of non-economic factors on performance. In addition, the inflation level has also been high in Kenya leading to the revision of goods making up the basket used to calculate the inflation index. This depreciated the purchasing power of many Kenyans thus leading to reduced activity at the commercial banks activities.

Lastly, the period under study faced several challenges including the 2007/2008 post-election violence which disrupted normal business in Kenya thus reducing investor confidence in the Security's exchange.

5.6 Suggestions for Further Studies

Further studies should be done on the Uganda and Tanzania's banks to investigate the influence of FX volatility on their profits. This will help generalize the findings to a wide area.

This researcher used the US dollar fluctuation to measure the foreign exchange fluctuations. The results were presented with respect to the KES/USD market could be gainfully replicated in other currency markets. Future studies ought to be done using other international currencies for instance the Yen, Euro and Sterling pound with reference to the Kenya shilling. This would ensure that comparisons in fluctuations with other currencies can be done and the effects of such changes studied against firm performance.

Further studies can be done on other sectors and not entirely the banking sector for instance firms in energy, manufacturing, agriculture, tourism and other sectors. This would provide a wide pool of research findings that can be compared across the business fraternity for optimal policy formulation. Future researchers can also undertake to ascertain the effectiveness of hedging strategies for instance usage of forwards contracts in reducing foreign exchange risks and their effects on bank performance in Kenya.

Lastly, there is need to study the issue of volatility forecasting in the foreign exchange market in Kenya. Specifically, it should be examined whether the models fitted to the data in the current study offer any improvement over the extant models in forecasting returns and unpredictability in the FX market.

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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. Charterhouse Bank Limited - Under Statutory Management
8. Chase Bank Kenya (In Receivership)
9. Citibank
10. Commercial Bank of Africa
11. Consolidated Bank of Kenya
12. Cooperative Bank of Kenya
13. Credit Bank
14. Development Bank of Kenya
15. Diamond Trust Bank
16. Ecobank Kenya
17. Equatorial Commercial Bank
18. Equity Bank
19. Family Bank
20. Fidelity Commercial Bank Limited
21. First Community Bank
22. Giro Commercial Bank

23. Guaranty Trust Bank Kenya
24. Guardian Bank
25. Gulf African Bank
26. Habib Bank
27. Habib Bank AG Zurich
28. Housing Finance Company of Kenya
29. I&M Bank
30. Imperial Bank Kenya (In receivership)
31. Jamii Bora Bank
32. Kenya Commercial Bank
33. Middle East Bank Kenya
34. National Bank of Kenya
35. NIC Bank
36. Oriental Commercial Bank
37. Paramount Universal Bank
38. Prime Bank (Kenya)
39. Sidian Bank
40. Standard Chartered Kenya
41. Trans National Bank Kenya
42. United Bank for Africa
43. Victoria Commercial Bank

(Source: Central Bank of Kenya, 2016)