EFFECT OF SELECTED MACRO-ECONOMIC VARIABLES ON FINANCIAL PERFORMANCE OF THE BANKING INDUSTRY IN KENYA

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DECLARATION

I attest that this is my own original work and that it has not been submitted to any other institution for examination except the University of Nairobi.

Signed:  Date: 18/11/2021

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D61/87055/2016

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

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DEDICATION

I dedicate this work to my entire family for their endless support,love and understanding.

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LIST OF ABBREVIATIONS

ANOVA	Analysis of Variance
APT	Arbitrage Pricing Theory
CBK	Central Bank of Kenya
CPI	Consumer Price Index
FP	Financial Performance
GDP	Gross Domestic Product
GNP	Gross National Product
NIM	Net Interest Margin
NSE	Nairobi Securities Exchange
ROA	Return on Assets
SACCO	Savings and Credit Cooperative Societies
SASRA	Sacco Societies Regulatory Authority
SPSS	Statistical Package for Social Sciences
VAR	Vector Auto-Regressive
VECM	Vector Error Correction Model
VIF	Variance Inflation Factors

ABSTRACT

The Kenyan banking industry has experienced a difficult macroeconomic climate, which included interest rate caps in August 2016. Other macroeconomic issues that have impacted the industry include exchange rate volatility, interest rate uncertainty and rising costs. The Kenyan currency has been on a consistent decline over the last decade and this might have ramifications for the financial industry. In addition, the country inflation levels have also fluctuated significantly. The objective purposed toestablish the impact that selected macroeconomic variables have on thefinancial performance of the Kenyan banking industry.Economic growth, interest rates, the exchange rate, and inflation were all considered independent factors in this study. The response variable that the researchers attempted to explain was the financial performance of the Kenyan banking industry. The data was collected on a quarterly basis over a period of ten years (January 2011 to December 2020). A descriptive research approach was employed in the study, with a VECM-model utilized in examining the connection between variables. The data were analyzed using STATA. The study's findings yielded an R-square value of 0.7674, indicating that the chosen independent variables could explain 74.64 percent of the variance in financial performance of the Kenyan banking industry, while the remaining 23.26 percent was due to other factors not investigated in this study. The F-statistic was noteworthy at a 5% level with a p=0.0000, according to the findings of the ANOVA. This suggests that the model was adequate for explaining financial performance of the Kenyan banking industry. Further, the findings revealed that economic growth had a positive and significant influence on financial performance of the Kenyan banking industry while exchange rate had a significant negative influence. Interest rates and inflation did not exhibit a statistically substantialimpact. The study recommends the need for policy makers to enhance economic growth as this will lead to a rise in financial performance of the Kenyan banking industry. The study also recommends that there is need to manage the current levels of exchange rates since they have a major impact on financial performance of the Kenyan banking industry.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Several research works in finance have been conducted with the goal of understanding why two firms records different performance whereas they operate in the same environment (Athanasoglou, Sophocles &Matthaois, 2009).As a consequence of companies' differing financial performance, studies have been done focusing on various external and internal factors that are thought to cause the differential. According to Levine (1996) macroeconomic factors like, money supply, growth of economy, inflation, rates of exchange and rates of interest affect firm's financial performance in a number of ways. Companies must identify macro-economic variables that influence financial performance to develop initiatives that improve their profitability by effectively managing the dominating drivers (Asaolu&Ogunmuyiwa, 2011).

In this study, different theories were used including the Arbitrage Pricing Theory (APT), the international Fisher effect theory and modern portfolio theory that have sought to shed light on associations between financial performance and macroeconomics factors. Thestudy was backed up by current portfolio theory, which states that prices fluctuate in the financial markets exhibit actions in the macroeconomic variables disparity. The influence of macro-economic factors on returns of financial market is then reflected on the financial performance. In addition, Ross (1976) combined the classical APT model with macroeconomic factors in financial asset returns. The fisher theory contends that because of likelihood of arbitrage opportunities in financial market that occur in capital flows form, the real

interest rates throughout countries are equal. This theory informs the current study in that interest rates fluctuations encourage or discourage levels of borrowing (Fisher, 1930).

The study focused on Kenyan commercial banks, the decision was premised on the reality that the commercial banking sector is amongst the most rigorous in terms of performance improvement for managers. Due to the competitiveness in the banking industry, the sector has continued to focus on how its performance can be improved. More so, a country economic status is to a large extent dependent of the financial institutions success (Waithanji, 2016). In the recent decade, most commercial banks' financial performance has improved. However, there have been times when performance has shifted dramatically or worsened. It was thus necessary to examine how macroeconomic factors affect performance of Kenya's banking industry financially.

1.1.1 Macroeconomic Variables

A country's economy's position at the national and regional levels is determined by factors known as macro-economic variables (Sharma & Singh, 2011). Mishkin (2004) identifies macroeconomic factors as components that are significant to the whole economy and have a larger effect rather than a limited number of individuals. Because of their impact on the overall functioning of the economy, macroeconomic indicators are carefully examined by business, government, and consumers alike. In their research, Kwon and Shin (1999) came to the conclusion that money supply, economic growth, interest rates, exchange rate, inflation, government debt, the balance of payments and rate of currency exchange is very important macroeconomic factors.

Macroeconomics factors are of importance as their impacts are not felt by individual alone but also the large population and in addition it has an effect on the balance of payments, exchange rate, inflation rates, income levels and interest rates. These impacts are associated with the economic structure, the decision making and performance behavior at the broader level of the economy. Their impacts will affect the economy in terms of output levels, national income, inflation, consumption, international trade and finance and investment and savings (Sharma & Singh, 2011). The macroeconomic variables indicate the prevailing trends in the economy (Khalid et al., 2012).

Method of measuring macroeconomics variables differs based on the specific variable under consideration. An increase in a country's ability to create products is referred to as economic growth and its measurement index is the gross domestic product growth rate (Muthama, Mbaluka&Kalunda, 2013). Central bank lending rate is usually used as measure of interest rates. Government external borrowing refers to the amount of money the government has borrowed outside the country. It is usually measured as a percentage or as a ratio of GDP(Simiyu&Ngile, 2015). Inflation is often assessed by either the price index for consumers (CPI) or the inflation rate while money supply which represents the amount of money in circulation is usually measured by M2 (Shrestha&Subedi, 2014).

1.1.2 Financial Performance

This refers to company’s ability to accomplish a variety of financial objectives, including profitability, (Almajali, Alamro& Al-Soub, 2012). The degree to which a company's financial benchmarks have been met or exceeded is referred to as financial performance. It demonstrates the degree to which financial goals have been

met. The results show how a business utilizes assets to create income and therefore assist stakeholders in their making decisions, as per Baba and Nasieku (2016). According to Nzuve (2016), the soundness of the banking industry is evaluated primarily by individual banks' financial performance is utilized to evaluate their shortcomings and strengths. In addition, regulatory authorities as well as government are concerned in the way bank operate in regards to regulatory reasons.

Financial performance focuses mostly on things changing financial accounts or corporate statements (Omondi&Muturi, 2013). The primary instrument of evaluation used by external stakeholders is the firm's performance (Bonn, 2000). As a result, the success of the company is employed as a metric. The firm's performance is defined by how well it achieves its goals. The outcomes gained by fulfilling goals of a company both internally and externally, are the financial performance (Lin, 2008). Growth, competitiveness, and survival are some of the terms used to describe performance (Nyamita, 2014).

A variety of measures, such as Net Interest Margin and Return on Assets (ROA), may be used to assess financial performance (NIM). This metric shows a bank's capacity to earn from its accessible assets (Milinovi, 2014). The overall asset ratio used to determine earnings from the financial resources of a business, is divided by operational profit to get the ROI. NIM quantifies the difference between interest paid to bank lenders, such as liability accounts, and the interest income in proportion to asset value produced by banks. The NIM variable is represented by dividing net income by total income (Crook, 2008).

1.1.3Macro-Economic Variables andFinancial Performance

Empirical and theoretical literature accept the prosperity of a country as being closely connected to the economy, including factors like exchange rate,inflation, GDP, unemployment, payments, and availability of money. Changes in economic fundamentals influence share price fluctuations and these fundamentals have an effect on future prospects. The change of stock market share prices is a long-term measure of market performance (Aduda, Masila&Onsongo, 2012). As indicated by Gazi et al. (2010), a growing index or continuous stock price rise is a sign of expanding economy, while share price swings indicate a nation to be economically unstable.

McKinnon (1973) in his theory contends that it is important for monitoring macro-economic variables for example inflation, exchanges rates and real interest rates because they impact the many economic factors and therefore affect a company's success. They suggest, for illustration, that keeping interest rates beneath market balance boosts demands for investment and not the real investment. Though as indicated by the market efficiency theory, apart to the demand and supply forces no other factor ought to have an influence on the prices of all variables. An efficient market, according to Fama (2000) is one in which stock prices accurately reflect all market information.

Fama's (1970s) efficient premise that safety prices would always represent all available information in an efficient markets. As a result, bank managers must be able to respond quickly and correctly to real and expected macroeconomic variable changes by adjusting or preparing for them ahead of time. Prudence like this helps to ensure financial success not only now, but in the future as well. Profitability is influenced by macroeconomic factors (Gerlach, Peng&Shu, 2005). Changes in

macroeconomic factors offer possibilities and challenges for industrial players; those ready for change profit from opportunities that come from, while those unprepared may be under threat and have adverse effects on their financial performance.

1.1.4`Banking Industryin Kenya

As per the CBK, a bank is or will be carrying out banking activities in Kenya. The business of commercial banking involves maintaining deposits, issuing loans and advances, enabling funds transfers amongst other financial services. The banking industry is a major financial industry participant with its core mandate being collection of deposits from their various clients with surplus funds and issuing credit to the client with deficiency or in need of funds.The CBK is the legislative authority in the banking sector, according to the CBK's supervisory Annual Report (2018). In addition, there is one mortgage financing company, 42 commercial banks, and 13 microfinance institutions in the sector. Thirty of the 42 commercial banks in the nation are owned by locals, while twelve are held by foreigners. The NSE lists 11 of the 42.

The Kenyan banking industry has experienced a difficult macroeconomic climate, which included interest rate caps in August 2016. Other macroeconomic issues that have impacted the industry include exchange rate volatility,interest rate uncertainty and rising costs. The Kenyan currency has been on a consistent decline over the last decade and this might have ramifications for the financial industry. In addition, the country inflation levels have also fluctuated significantly. These disadvantaged macroeconomic trends may lead to major banking crises (CBK, 2018).

A substantial increase in the banking sector's financial performance has been seen in recent years during the last decade (CBK, 2016). In the field of macroeconomic

variables, the monetary policy committee of the Central Bank must set basic credit rates on a regular basis. The base rate set by the central bank has an effect on lending interest rates across the economy and, indirectly, on the value of the dollar against the other major world currencies. In addition, in 2015, the central bank put two banks into receivership; the institutions were forced to close as a result of liquidity issues, among other factors, which prompted their collapse (Adembesa, 2014). Additionally, the Banking Amendment Act (2016), which set a limit on interest rates, was signed into law in September 2016, this in turn affected the interest rates at which financial institutions borrowed and loaned money (CBK, 2018).

1.2 Research Problem

Financial performance is a field of management that continues to stay at the center of management and scientists for many years due to its importance in the life of a company.Due to the significance of financial performance, there have been considerable attempts to comprehend it throughout time in respect of the factors that contribute or fail to accomplish its achievement (Abata, 2014).The connection between macroeconomic variables and company success has attracted numerous academics and practitioners.It has often been demonstrated that certain key macroeconomic variables like interest rate, inflation, currency rate and GDP affect the performance of the business (Gan, Lee & Zhang, 2006).

Following a review of the CBK Regulation in 2013, three major commercial banks (Chase Bank, Dubai Bank and Imperial Bank) and receivables (Chase Bank and Imperial Bank) were placed under liquidation for the period 2016 and 2015.The Kenyan banking industry experienced a difficult macro-economic climate, including interest rate capping, which took place in August 2016.Other macro-economic issues

affecting the industry include: price increases, interest rate impredictability and currency rate fluctuation. These adverse macroeconomic trends may lead to serious banking difficulties.

Several worldwide research investigations have been carried out in this area. According to Osamwonji and Chijuka (2014), the profitability of commercial banks is influenced by macroeconomic factors. This research shows that the ROE-GDP is significantly positive, the ROE-interest-rate is significantly negative and the inflation-rate connection is negative. Macroeconomic factors such as brute domestic growth and inflation, discovered by San and Heng (2013), have little impact on profitability. However, bank factors influence the performance of the bank. Nigerian commercial banks' financial results were studied by Baba and Nasieku (2016), who looked at how macroeconomic variables influence their financial results. The empirical results indicated that rates of exchange, rate of interest and rates of unemployment are inversely and significantly connected to financial performance of banks whereas inflation was insignificantly related with the financial performance. An increment in exchange rate positively influences the performance of banksfinancially while an increment in the interest rate worsens financial performance.

Locally, Tora (2018) conducted a study in Kenya to assess the effect of macroeconomics factor on the commercial banks performance financially. The outcomerevealed that interest rate has a favorable and substantial impact on financial outcome of banking sector, whereas other chosen macroeconomic factors had no meaningful influence on banking industry performance in terms of financial results. The result contrast with Nderitu (2019), who studied on the impact of macroeconomics environment on financial performance of Kenyan bank and

concluded that rate of interest and economic growth, hasa favorable impact on financial results while exchange rates and inflation have negative impression.

From the foregoing, there exists empirical studies in this area but there are conceptual, contextual and methodological gaps that need to be filled. Conceptually, most of the previous empirical studies have been inconsistent with results oscillating from significant positive relationships, significant negative relationship and no significant relationships at all. The differences in the findings can be explained by different operationalization of variables as the findings are particular to the measure used. Contextually, most of the conclusive studies in this area have been carried in developed economies with only a few in Sub-Saharan Africa. Most of the local studies in this area have not been conclusive. Methodologically, most of the existing local studies have adopted multiple regression model which have its own limitations. Adoption of time series models might yield more conclusive results.This research purposed to contribute to this field by providing answer to research question; what is the effect of selected macroeconomic variables on financial performance of the banking industry in Kenya?

1.3Research Objective

Theobjectiveof this study was todeterminethe effect of selected macroeconomic variables on financial performance of the banking industry in Kenya.

Specific objectives are:

i. To determine the influence of economic growth on financial performance of the banking industry in Kenya
ii. To establish the effect of interest rates on financial performance of the banking industry in Kenya

iii. To assess the influence of inflation rate on financial performance of the banking industry in Kenya

iv. To determine the influence of exchange rate on financial performance of the banking industry in Kenya

1.4 Value of the Study

The results of this researchare of significant importance in future for researchers as a point of reference. The results may also be of vital relevance for researchers and academics as far as identifying study gaps in subjects relating to the present one are concerned, as well as providing the foundation for future researcher review in empirical literature. Furthermore, the results are helpful in the development of theory.

This research will be extremely helpful for banking stakeholders because this study generates key information in the management of the sector. These stakeholders include academics, sector managers and the sector's legislatures. The bank managers will get the most from this since it reveals how macro-economic variables may be used to enhance bank performance.

The research will also be significant for government and policymakers like CBK as they may apply their results to effective strategies for alleviating the effects of macro-economic variables on performance. This can be done by increasing the macro-economic factors that have a positive influence on performance while reducing or holding constant the variables that have a negative influence.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter delves into the ideas that underpin the research. Prior researches undertaken on the topic and areas related will be discussed. The drivers of financial success, a framework demonstrating the relationship between the variables, and a review of the research will be addressed in more detail in the next chapter.

2.2Theoretical Framework

Theories have been outlined which explain the relation between macro-economic factors and performance. The theories comprise of: modern portfolio theory, arbitrage pricing theory and the international fisher effect theories.

2.2.1 Modern Portfolio Theory

Markowitz (1952) coined the theory on his write up for portfolio mixture. This theory put emphasis of maximization of expected returns through forming portfolios that have well managed risk levels. Markowitz said that a company may design a portfolio that would provide the greatest anticipated returns while maintaining a tolerable degree of risk. Mainly in this theory, the main idea is aimed on generating maximum profits in a specified risk associated with a portfolio or rather than lowering the risk to a certain threshold of anticipated occurrences through prudently selecting a proportion of various investments that yields the least risk and produces highest returns.

This theory identified two types of risks which investors need to be conscious of, that is, a systematic risk and unsystematic risk. Systematic risks are inherent in volatility of entire market or some part of it, while unsystematic risk is associated with the extent to which an individual investment is volatile. Investors are therefore instructed

to combine portfolios by guaranteeing that, specific risk carried by that specific investment in the portfolio is offset by a lower specific risk in another investment (Mishkin, 2004). This theory is criticized by Kwon and Shin (1999) because of its simplistic assumptions that risk is defined by volatility, investors are risk averse and that they are rational. They argue that these assumptions and the modelling of the theory ignored the influence of human behaviour in financial markets.

According to Brueggeman and Fisher (2011), macroeconomic variables generally influence the business environment within the economy. An environment of volatile economic variables including inflationary pressures and volatile exchange rates, infer that returns to businesses, firms and financial firms in particular shall fluctuate. Unstable returns therefore dominate outcome of financial firm in fluctuating environment hence affecting their growth and financial performance. Policy makers should thus be keen on macro-economic variables since they may have a financial impact. This research is important to the present investigation because it identifies macro-economic factors as variables that can influence performance of firms.

2.2.2 Arbitrage Pricing Theory

The theory advanced by Ross (1976) presumes that returns from a particular instrument are influenced throigh their impact on discount rate and future dividend by various economic variables (Subedi& Shrestha, 2015). As per the theory of arbitration, APT relates to the markets portfolio concept of the many investment portfolio of people with their own systemic risk. APT is a model with many factor and numerous empirical literature indicates APT offers superior result compared with CAPM, since it utilizes many variables in order to demonstrate common and systemic risks (Waqar&Mustabisar, 2015).

The concept established a theoretical model connecting a number of variables affecting revenue volatility sources (Shrestha &Subedi, 2015). The theory of arbitration pricing (APT) utilizes macroeconomic factors that determine asset values and the theory posits that other macroeconomic variables really influence asset prices other than beta systemic risk (Waqar&Mustabsar, 2015). This theory is critiqued by Cuthbertson (2004) due to the fact that it does not specify the sources of systematic risk but analysts can establish this by regression returns against macro-economiccharacteristicssuch as inflation changes, rate of unemployment, GDP growth rate and so on.

Some of the macro-economic parameters that impact asset prices of financial instruments including: GNP, government internal borrowing, inflate rates, balance of payments, confidence level of investors, prevailing levels of unemployment, changes in expected returns on securities and changes in the interest yield curve (Amarasignhe, 2015). This linear connection among stock prices and macroeconomics factors is based on, it is possible purported that macroeconomic factors have effect on value of securities. As a result, the asset's or security's value may be defined as the sum of the anticipated and unforeseen returns (Cuthbertson, 2004). This study relates macroeconomic factors to returns of firms and therefore it is relevant to the current study.

2.2.3 International Fisher Effect Theory

The theory by Fisher (1930) advocates for the use of market rates of interest to explain the over-time variations in interests. The theory states that exchange rate are smoothen by variations in interests. It also argues that actual interest rates across countries are consistent because of the probability of arbitration as shown by the

existence of capital flow. Equality of real interest implies that the higher nation should have a greater rate of inflation that lowers its real value currency overtime (Gopinath&Rogoff, 2014).

The relation between relative interests and foreign rates of exchange is explained by the theory of exchange rate expectations. If the fisher effect holds, rates of interest in currencies that are appreciating become low and in currencies that are depreciating they are high enough to compensate the forecasted currency gains and losses (Keynes, 2016). The fisher effect indicates that since the great nominal interests level reflect the anticipated inflation rate, foreign currencies having a comparatively high interest rate are depreciating. (Gopinath&Rogoff,2014).Badullahewage (2019) critiques this theory in that it only makes long-term predictions ignoring short-term influence and the fact that it does not take into account other factors influencing exchange rates.

This theory informed the current study in that interest rates fluctuations encourage or discourage levels of borrowing. CBK has set a ceiling on rates of interests had reduced the bank lending rates to levels that made it difficult for banks to offer loans to clients who are considered risky. And although, the capping has been lifted, the prevailing rates of interest keep on changing and a company's financial performance is predicted to be affected by this, according to the theory.

2.3 Determinant of Financial Performance

When it comes to the financial performance of an organization, a number of variables come into play, both within and external to the company. Individual banks have their own internal variables, which they control. These include capital size, labour productivity, management quality, efficiency of management, liability for deposits, credit portfolio, bank sizes, ownership and policies on rate of interest. External factors

affecting the success of the bank mainly include the inflation, gross domestic product, macroeconomic policy stability, political upheavals and interest rate (Brissimis et al, 2005).

2.3.1 Interest Rates

Interest rates serves as an income function and it mainly helps in the mobilization of financial resources and ensures efficient resource utilization so as to bring economic development (Osoro&Ogeto, 2014). The annual price charged on a borrower by a lender so as to avail loans to the borrower in form of the percentage of the sum of the loaned amount is called the interest rate. As suggested by the neo-classical theory of interest rates, the loans' investment cost for the business persons becomes costly when the interest rates increase leading to a shrink in the investment opportunities in an economy (Barnor, 2014).

The neoclassical theory that explains rates of interest states that, the loans' investment cost for the entrepreneurs becomes expensive when the interest rates increase leading to a shrink in the investment opportunities in an economy (Barnor, 2014). The rates of interest are assumed to be capital expense and decisions of investors are influenced by changes in interest rates (Olweny&Omondi, 2010). Increased discount rate and interests rates will lower the current worth of flow of cash leading to increased Costs of chance to keep cash, the interest rates level, which finally results to stocks being substituted for bonds (Rehman, Fauziah and Sidek, 2009).

2.3.2 Inflation

Tuckey (2007) defines inflation as the overall increase in the prices of good and service across an economy, according to his writings. When we talk of inflation, we are not referring to a rise in the value per unit of a product or service; rather, we are

referring to an increment price level. In their study work Sloman and Kevin (2007) show that inflation may take various forms, either demand pulls inflation due to greater demand for products or inflation pushes costs. When there is general rise in demand for goods consequently causing the prices to increase and results to a certain degree increasing the exports in an economy that is referred as demand-pull inflation. In contrast, an increment in the production cost leads to cost push inflation which makes firms shift the increase in cost to customers by charging more (Hendry, 2006).

As a result of high inflation rates there are higher prices that are likely to slow down business and decrease earning for companies. Interest rates also tend to rise as result of high prices. Fama (2000) argued that real economic activity is negatively correlated to inflation that would consequently positively relate to the performance of a market. Therefore, the ROA ought to correlate with the expected inflation negatively, and short-term interest rates are used as a substitute for the IFE.

2.3.3 Economic Growth

When an economy is growing a positive GDP is reported and this rises loan demand (Osoro&Ogeto, 2014). An increment in economic output might increase the anticipated cash flows and thereby prompting an improvement in banks financial performance and on the other hand the recession period a reverse impact is reported (Kirui et al., 2014). From the prior empirical studies, it is noted that the financial systems of developed counties have more efficiency (Beck et al., 2003). There is in addition a positive relationship of monetary policies, fiscal policies and economic stability with banking sector development. Banking sectors are more advanced in countries with high income in comparison with countries that have low income (Cull, 1998).

In most case, investors are more concerned with GDP reports because this measurement is able to communicate the overall wellbeing of the economy. The long term effect of a healthy economic growth is improving performance of corporates in terms increased profits, improvement of lending levels of banks which results to long term growth whereas short term effect is market trends that are unpredictable even in times of positive economic growth (Beck et al., 2003).

2.3.4 Exchange Rates

The exchange rates have a considerable effect on financial performance when the currency exchange rate changes, which affects the import price including the CPI and manufacturing cost. The change in exchange rates is communicated at domestic prices through the pricing of imported products, with the exchange-rate fluctuation directly affecting domestic prices. Demand for local products is rising because of pricing considerations that cause an increase in the amount of imports and services, leading to reduced competition (Magweva&Marime, 2016).

This balance shift increases pressure on nominal wages and domestic prices because of rising demand. Moreover, additional pressure on domestic pricing will be exerted owing to rising wages. The exchange rate decrease is not capable of protecting the local industry since it increases by an entire level of depreciation when the cost of local manufacturing is less than the depreciation rate as opposed to import costs. This currency depreciation scenario leads to a better and better environment for indigenous manufacturing (Nwankwo, 2006).

2.4 Empirical Review

Studies have been pursued domestically and worldwide to substantiate the link between certain macroeconomic factors and performance in terms of financial success, with mixed findings.

2.4.1 Global Studies

Alemu and Negasa (2015) reviewed performance determinants of Ethiopia commercial banks. The study relied on data from banks over the period 2002 to 2013. The researcher adopted a quantitative approach and utilized secondary data. The empirical results showed that variable of macroeconomics, industry specific and firm specific has a notable influence on banks' financial performance of banks. Industry specific factors such as market share and ownership have a notable influence on the bank. However, inflation showed insignificant and positive relationship for financial performance given by ROA. The management of the banks has control over firm's specific factors, and thus it is possible to improve the performance by focusing on these factors for example bank size and capital structure. Predicting the effects of macroeconomic variables on bank performance can help commercial banks to improve their profitability. This study considered inflation as a determinant of financial performance leaving a gap on the influence of other macro-economic variables.

Zulfiqar and Din (2015) conducted an investigation of the relation of firm performance and macroeconomic variables of Pakistan textile industry. To conduct data analysis, analyses of regression panel were utilized. It was shown that inflation rate was positively though insignificantly related to financial performance of a firm. Time series data set was used which made it appropriate to use Vector Error

Correction Model in examining the long run association amongst firms' performance and factors macroeconomics. The study focused on a different context. In addition, many macro-economic variables such as economic growth were not considered.

Pinjaman and Aralas (2015) investigated the impacts that selected variables macroeconomics on stock return instability Malaysian. Selected variables comprised of inflation rates, GDP, exchange rates, interest rate, financial crisis, money supply as well as economic liberalization. The dynamic stock results, instability assessment perceived return of stock shakiness is constant in nature where the previous instability will control current returns of stocks. The model of cross-sectional time series was utilized for investigation. There were notable links among rates of interests, rate of exchange, GDP, crisis in finance sector, inflation and economic liberalization and stock return instability existed. There exists a conceptual gap as the dependent variable was stock return instability while the current study focuses on financial performance.

Baba and Nasieku (2016) examined the impact on Nigerian banks' performance by macroeconomics variables. The research used an explanatory research approach based on secondary data gathered from the yearly reporting of banks, World Bank, Nigerian bureau of statistics and research centers. 23 licensed banks in Nigeria participated in this study. The research utilized ROE as a performance measurement. The research results showed that exchanges, unemployment and interest rates are adversely and substantially linked with banks' financial performance but inflation has nothing to do with it. An increment in exchange rate substantially affected banks performance while an increment in interest rates deteriorates financial performance. This study utilized OLS model while the current study will be based on a vector autoregressive model.

Obeng-Krampah (2020) investigated the association amongst macroeconomic variables and company performance stated on the Ghana Börse. To measure financial performance both ROA and ROE were used and they were the dependent variables. The independent variables were the main macroeconomic variables comprising of rate of interest, exchange rate and rate of inflation.From 2007 through 2015, panel data was utilized. The study found a strong link between macroeconomic variables and firm performance, and it further argued that while macroeconomic variables alone lack sufficient explanatory power to explain variations in firm performance, combining them with financial indicators such as dividend payout, sales growth, leverage, and total assets provides significant explanatory power. The study also discovered that, whereas inflation has a negative impact on ROA, interest rates have a negative impact on ROE.There exists a methodological gap as this study adopted panel data whereasthis researchutilizes time series data.

2.4.2 Local Studies

Ng'ang'a (2016) undertook a study to examine association amongst performance of Kenya's insurance industry and macroeconomic determinants. Performance was regressed against macroeconomic indicators; average interest rates as computed by Central Bank rate, real exchange rates, GDP growth rate, inflation rate was calculated by CPI and exchange rate. Descriptive research design was applied. It made use of secondary data collected quarter yearly. A ten-year span from 2006 - 2015 was used for the research. Multiple regression analyses, correlation analyses and descriptive analyses were used to analyze the information. Outcomes reveal that exchange rates, interest rates, and exchange rates are not significant predictors of performance of Kenya's insurance industry financially.The insurance sector was the subject of this research, whereas the banking industry will be the subject of current study.

Mwaniki (2017) examined how macroeconomic factors affect performance of Nairobi's DT-SACCOs financially. The goal of the research was to see how money supply, inflation and rate of inflation affected performance of Nairobi's DT SACCO financially. The research used a descriptive design. Target population was 35 DTS registered by SASRA to operate up to December 2017 in Kenya. Quarterly data was collected for 20 years (1997 – 2016). Analysis was conducted by useof vector error correction time series models. Findings indicate that the yields on SACCO deposit assets only had an important impact on the cash supply. This research focuses on SACCOs whereas the present study focuses on banks.

Tora (2018) examined how selected macroeconomic factors influence Kenyan banking sector financial performance. The research was carried with descriptive survey design. The study looked at all 42 banks that were active throughout the study period, using financial data from 2013 to 2017. SPSS was utilized for analyses the data and generate statistics descriptively and inferentially. This research showed that rate of interest has substantial impact on performance of Kenya's banking industry financially, while other chosen macroeconomic factors had no meaningful performance effect on Kenya's banking industry financially. This research used OLS whereas a time series model was utilized in the present study.

Kamamia (2018) did an investigation how certain macroeconomic factors affect performance of Kenya's banking industry financially. A descriptive survey design was adopted. The time frame 2008-2017 was period of the study and secondary data was acquired on a quarterly basis. Both inferential and descriptive statistics were applied in analyzing the data. The results discovered that independently, rate of exchange, inflation rate and interest rate are substantial determinants of FP of

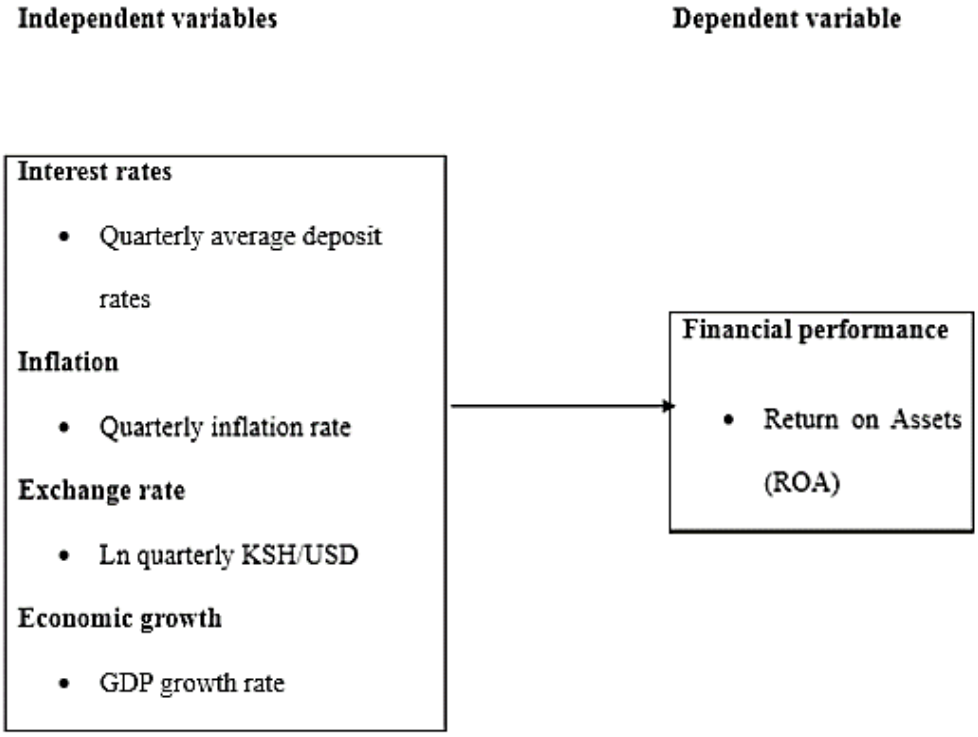
investment banks in Kenya while economic growth is not a main determiner. The study was pursued in a different context. In addition, a methodological gap exists as the current study will adopt a time series model.

Nderitu (2019) sought to ascertain thedegree to which macro-economic variables influence the Kenya commercial banking industry financial performance. The researcher ran a descriptive and inferential analysis on all the commercial banks for the time frame 2009-2018. Data was analyzed using the version 22 of SPSS program and displayed with chart and frequency tables. The finding shows that interest rates and economic growth has favorable impression on performance of Kenya's banking industry financially and to a favorable extent while exchange rates and inflation rate has aninverse significant impact on performance of Kenya's banking industry financially.The study adopted multiple linear regression model while the current study will adopt a time series model.

2.5 Conceptual Framework

The following conceptual model captures the anticipated connection between variables. Interest rates were calculated using rate of lending on average quarterly basis, inflation was calculated using quarterly inflation rates, Growth in economy was calculated using quarterly GDP growth rates, and the exchange rate was calculated using the quarterly KSH/USD exchange rate. The dependent variable was financial performance, which was computed using quarter asset returns and was the subject of this research.

Figure 2.1: The Conceptual Model



Source: Researcher (2020)

2.6 Summary of Literature Review

Various theories endeavor to explain theoretical anticipated association of selected macro-economic variables and performance of Kenya's banking industry financially. Contemporary portfolio theory, Arbitrage pricing theory and the international fisher effect hypothesis are among the theories discussed in this study. The most important factors that influence financial success were examined. A variety of local and international research on macroeconomic variables and financial performance, as well as their conclusions, were examined.

Tora (2018) initiated an investigation on the macroeconomic factors affect performance of Kenya's banking industry financially.The outcome showed that rate of interest has a favorable and considerable influence in performance of Kenya's

banking industry financially, whereas other elements of macroeconomics selected had no meaningful impact on banking industry financial performance. Simiyu&Ngile (2015) researched how macroeconomics factors affect performance of Kenya's listed banks in terms of profitability. The beneficial effect on profitability by GDP is found to be minimal according to census study; the investigation also showed substantial and inverse connection among the rate of interest and profits and among rates of exchange and profits which is positive and significant. Ongeri (2014) has examined how certain macroeconomic factors affect performance of Kenya's non-banking organizations and identified positive links between GDP and exchange rates and currencies.Lack of agreement among prior researchers was sufficient grounds for additional investigation.This research aimed at contributing to this discussion.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The study includedmethodology that lays out the process for doing the research in order to determine how macroeconomic factors affect performance of Kenya's banking industry financially. This chapter was divided into four sections: the study design, the data collection method, the diagnostic tests to verify the data, and finally the data analysis approach.

3.2 Research Design

The relationship between chosen macroeconomic factors and financial performance was assessed using a descriptive design. The study used a descriptive research approach, which allowed for the collection of data on the current state of things (Khan, 2008). The researcher is knowledgeable about the topic at hand; however, the researcher wants to better grasp the nature of the connection among the study variable, hence the perfect option is descriptive research design. In specifically, the objective of descriptive research was to give the investigated variables a genuine and accurate portrayal to assist addressing the research questions (Schindler & Cooper, 2008).

3.3 Data Collection

Only secondary sources were used to gather information. All banks must submit their quarterly valuations to CBK due to a regulatory requirement. Data was gathered and evaluated on a quarterly basis during a ten-year period (January 2011 to December 2020). The CBK provided data on rate of currency exchange (USD/KSH) and rate of interest while KNBS provided statistics on inflation and economic growth. Financial

performance as measured by asset returnswas acquired from CBK for the predictor variables.

3.4 Diagnostic Tests

Before moving on to equation estimation, diagnostic tests were done to make sure there are no breaches of the linear regression model assumptions. Parameter estimations are skewed as well as inefficient whenever the assumptions of a classical regression model are broken.

3.4.1 Multicollinearity Test

The research used a correlation matrix to assess multicollinearity, with an optimum multicollinearity threshold of 0.8 (Cooper & Schindler, 2013). In the absence of multicollinearity, infinite standard errors andindeterminateregression coefficients arise, yielding huge standard errors. This will have an impact on the precision with which the null hypothesis is rejected or fails to be rejected. Tolerance levels as well as variance inflation factors (VIF) were also employed. Any multicollinear variables was standardized to reduce the degree of collinearity.

3.4.2 Autocorrelation

Wooldridge test for serial correlation was utilized in the research to find out the autocorrelation existence. Khan (2008) posits that overlooking serial correlation outcomes to inefficient parameter estimates as well as biased standard errors. The null hypothesis for this test was that there was no serial autocorrelation. Data that was discovered to have cross-sectional dependency was arrested by lagging the dependent variable.

3.4.3 Heteroskedasticity

If heteroskedasticity exist, it ought to be checked and adequately accounted for in the CLRM. The parameter estimates would be unbiased and the standard errors invalid if you run a regression analysis prior to checking for heteroskedasticity. In this research, the panel heteroskedasticity level was measured using the Likelihood Ratio test, which was developed by Cooper and Schindler (2013). The research utilized robust standard errors in the model where the data failed the test.

3.4.4 Normality Test

The residuals of the response variables are assumed to be normally distributed around the mean in normality tests (Khan, 2008). It was determined using the Kolmogorov-Smirnov or Shapiro-Wilk tests. If the data failed the test, the researcher transformed the variable using natural logarithms.

3.4.5 Stationarity Test

Stationarity means that the characteristics (variance, means) of the data will remain constant overtime. Non-stationary in time series data leads to spurious regression (Cooper & Schindler, 2013). The study tested for panel unit root using the Levin-Liu-Chu test. Robust standard errors were used where the data failed the test.

3.5 Data Analysis

Analysis of data was carried out utilizing time series analysis. The test utilizedStata version 13, which was easier to utilize. Researcher usedVector Correction Model (VECM) to assess the connection between financial performances and independent variables, based on the test results: interest rate, inflation, growth and exchange rate.

3.5.1 Analytical Model

A linear connection among financial performance and macroeconomic factors was assumed. In this instance, the estimated model was as follows

$Y_{it}= \beta_0 + \beta_{1i}X_{1it}+ \beta_{2i}X_{2it}+ \beta_{3i}X_{3it}+ \beta_{4i}X_{4it}+\varepsilon.$

Where: Y = Performance in regard to financemeasured by asset return on a quarterly basis

β_0 =y intercepting the equation of regression.

$\beta_1 \ldots \beta_4$=are the sloping coefficients of the regression equation

X_{1it} = Growth of Economy computed by quarterly rate of growth in GDP

X_{2it} = Interest rate calculated by average quarterly deposit rates

X_{3it} =Inflation calculatedby average quarterly inflation rate

X_{4it} = Exchange rate calculated by average quarterly exchange rates of lnUSD/KSH

ε =error term

3.5.2 Tests of Significance

Statistical significance of entire model, as well as the statistical significance of individual parameters, was determined using parametric tests. The F-test was used to estimate overall model statistical significances, while the t-test was applied to determine the statistical significances of the individual variables.

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND FINDINGS

4.1 Introduction

The current results are summarized in this chapter. The goal was to uncover how economic growth influence performance of the banking industry in Kenya. These parts contain descriptive statistic, diagnostic test, analysis of correlations, regression and discussion of results.

4.2 Descriptive Analysis

The descriptive statistics for the variables analyzed are listed in the table below. Quarterly information on the factors under investigation was collected and analyzed using STATA software during a ten-year period (2011 to 2020).

Table 4.1: Descriptive Statistics

	Obs	Minimum	Maximum	Mean	Std. Deviation
ROA	40	2.500	4.700	3.32250	.693001
Economic growth	40	.092	.123	.10823	.008166
Interest rate	40	5.833	18.000	9.58540	2.884208
Inflation rate	40	4.033	16.833	8.07400	3.606442
Exchange rate	40	75.138	103.518	90.83655	9.511763
Valid N (listwise)	40				

Source: Research Findings (2021)

4.3 Diagnostic Tests

Before running the regression model, diagnostics tests were performed. Multicollinearity, normality, autocorrelation, and heteroscedasticity test were all performed in this instance.

4.3.1 Multicollinearity Test

Multicollinearity develops in a multiple regression model when two or more predictor variables have a substantial relationship. It is undesirable for the independent variables to have large correlations. A collection of parameters is said to be

completely multi-collinear for some of the parameters in case there is an exact linear connection.

Table 4.2: Multicollinearity Test

	Collinearity Statistics	
Variable	**Tolerance**	**VIF**
Economic growth	0.382	2.618
Interest rates	0.377	2.653
Inflation	0.391	2.558
Exchange rate	0.368	2.717

Source: Research Findings (2021)

VIF value was utilized when VIF values less than 10 are not multi-linear. There should be no strong connection between variables for multiple regressions to apply. From the results, all the VIF variables are < 10 as shown in table 4.2 suggesting that the independent variables have no significant statistical multi-linearity.

4.3.2 Normality Test

To see if the data was normal, researchers used the Kolmogorov-Smirnov and Shapiro-Wilk tests. The alternative and null hypotheses are listed below.

H0: the secondary data was not normal.

H1: the secondary data is normal

If the p-value is greater than 0.05, the investigator will reject the null hypothesis, and vice versa. Table 4.3 summarizes the results of the test.

Table 4.3: Normality Test

	Obs	W	V	z	Prob>z
ROA	40	0.983	3.925	3.219	0.061
Economic growth	40	0.928	16.183	6.555	0.058
Interest rate	40	0.445	125.183	11.372	0.082
Inflation rate	40	0.943	12.835	6.009	0.124
Exchange rate	40	0.861	31.396	8.116	0.073

The researcher relied only on the alternative hypothesis because the data had a p-value larger than 0.05 and was uniformly distributed. Data was subjected to statistical test and analysis like analyses of variance, regression and Pearson's Correlation analyses.

4.3.3 Autocorrelation Test

A serial correlation test has evaluated the connection of error terms in different time periods. In order to acquire appropriate model parameters, the Durbin Watson serial correlation test was employed to analyze autocorrelation in the linear panel, a significant problem in panel data analysis that must be considered. The findings below are.

Table 4.4: Autocorrelation Tool

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.876a	0.7674	0.6848	0.316	1.612

Source: Research Findings (2021)

According to the null hypothesis, there is no auto correlation/first-order serial/. The 1.612 Durbin Watson statistical is between 1.5 and 2.5 and indicates that there is no serial connection.

4.3.4 Heteroskedasticity Test

The Breusch-Pagan test is used to examine for heteroskedasticity. The null hypothesis was that error term variance is constant. Heteroskedasticity Test outcomes are shown in Table 4.5.

Table 4.5: Heteroskedasticity Test

Modified Wald test for group wise heteroskedasticity in regression model
H0: sigma(i)^2 = sigma^2 for all i
chi2 (40) = 346.17
Prob>chi2 = 0.2836

Source: Research Findings (2021)

The null hypothesis of Homoskedastic error terms is not rejected, according to the results in Table 4.5, which are supported by a 0.836p-value

4.3.5 Stationarity Test

Stationarity test was utilized in determining if the statistical characteristics such as variance, mean, as well as autocorrelation change with the passage of time. Table 4.6 shows Levin-Lin Chu unit root test results.

Table 4.6: Levin-Lin Chu unit-root test

Levin-Lin Chu unit-root test			
Variable	**Hypothesis**	**p value**	**Verdict**
ROA	Ho: Data contain unit roots	0.0000	Reject Ho
Economic growth	Ho: Data contain unit roots	0.0000	Reject Ho
Interest rate	Ho: Data contain unit roots	0.0000	Reject Ho
Inflation rate	Ho: Data contain unit roots	0.0001	Reject Ho
Exchange rate	Ho: Data contain unit roots	0.0000	Reject Ho

Source: Research Findings (2021)

The null hypotheses that: Panels contain unit roots were rejected for all variables since the p values were below 0.05, on the basis of the outcomes in Table 4.6. This meant that all of the variables' panel data were stationary.

4.4 Correlation Analysis

The Pearson correlation was utilized to examine the correlations between performance of the Kenyan banking industryand the study's characteristics (economic growth, inflation, interest rate and exchange rate). According to the findings, there

was a weak positive and significant statistical connection between (r = .350, p = .000) between economic growth and ROA. Exchange rate also has a considerable and inverse relationship to the performance of the Kenyan banking industry(r = -.440, p = .000). Even though there was a positive connection between interest rate and ROA, the link was not significant, as demonstrated by a probability value of 0.115 which isgreater than a 0.05 threshold. The results also revealed a negative but not significant association between inflation and performance of the Kenyan banking industry.

Table 4.7: Correlation Analysis

		Growth	Economic growth	Interest rate	Inflation	Exchange rate
Growth	Pearson Correlation	1				
	Sig. (2-tailed)					
Economic growth	Pearson Correlation	.350**	1			
	Sig. (2-tailed)	.000				
Interest rate	Pearson Correlation	.016	.179	1		
	Sig. (2-tailed)	.117	.270			
Inflation	Pearson Correlation	-.121	-.269	-.304	1	
	Sig. (2-tailed)	.069	.093	.056		
Exchange rate	Pearson Correlation	-.440**	.568**	.060	-.436**	1
	Sig. (2-tailed)	.000	.000	.713	.005	
**. Correlation is significant at the 0.01 level (2-tailed).						
b. Listwise N=40						

Source: Researcher (2021)

4.5 Regression Analysis

Economic growth, interest rates, inflation, and the exchange rate were all used as predictor factors for the Kenyan banking industry performance. The testing was performed at 5% level of significance. Table 4.8 displays the model summary statistics.

Table 4.8: Regression Results

Source	SS	df	MS	Number of obs	=	40	
		F(4, 35)			=	3.35	
Model	238.532375	4	79.5107916	Prob > F	=	0.0000	
Residual	1805.36345	35	23.7547823	R-squared	=	0.7674	
		Adj R-squared			=	0.6848	
Total	2043.89583	79	25.8720991	Root MSE	=	4.8739	
ROA		Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
Economic growth		8.823779	3.571506	2.47	0.016	1.710509	15.93705
Interest Rate		.384829	.647455	1.82	0.086	1.90168	0.443765
Inflation		-.514515	.3173845	-1.62	0.109	-1.14664	0.117611
Exchange rate		-12.29149	5.327244	-2.31	0.024	-22.9016	-1.68136
_cons		34.94928	1.77014	19.74	0.000	31.42374	38.47482

Source: Research Findings (2021)

The findings for model fitness indicated that R square was 0. 7674. It implies that variables economic growth, interest rate, inflation and exchange rate explained 76.74% of the variation in the dependent variable ROA. The residual 23.26% may beattributed by other factors not included in the research. ANOVA findingsuncovered that the entire model that is utilized to explain the link between the independent and the dependent variable is significant (p=0.0000).

Table 4.7show the variable economic growth has a positive and substantiallink with performance of the banking industry in Kenyaas explained by a beta coefficient (β) of 8.823779and a p value of 0.016which was less than 0.05. The study also reveals that the variable exchange ratehas a negative and substantiallink with performance of the banking industry in Kenyaas explained by a beta coefficient (β) of -12.29149and a p value of 0.024which was less than 0.05. The other independent variables did not have a substantialeffect on ROA of the banking industry as shown by p values above 0.05.

4.6 Discussion of Research Findings

The goal was to see how the predictor variables affected the performance of banking sector in Kenya. The independent variables were interest rates, economic growth, exchange rateand inflation. The study aimed to explain the growth as a dependent variable. The GDP growth rate was employed to measure economic growth. Regression and correlation were employed to examine the relationships between the independent and dependent variables.

The Pearson model revealed a weak and significant link between economic growth and ROA of the banking industry. Interest rates showed a positive but not significant association with the ROA, according to the data while inflation showed a negative but not significant association with ROA. In the Kenyan banking industry, the exchange rate has a substantial, negative, and statistically substantial link with ROA.

The independent variables considered account for 76.74percent of variances in performance of the Kenyan banking industry, according to the model summary. In this study, the chosen predictor variables were found to have explanatory power that was fit at a 95 percent confidence level, as shown by the p value of 0.0000, which is less than the significance threshold of 5 percent. Thus, the overall model used in this research proved to be a viable prediction model for understanding the performance of the Kenyan banking industry.

This research is in agreement with Nderitu (2019) who sought to ascertain the degree to which macro-economic variables influence the Kenya commercial banking industry FP. The researcher ran a descriptive and inferential analysis on all the commercial banks for the time frame 2009-2018. Data was analyzed using the version 22 of SPSS program and displayed with chart and frequency tables. The finding shows that

interest rates and economic growth has favorable impression on performance of banking sector in Kenya financially and to a favorable extent while exchange rates and inflation rate has an inverse significant impact on performance of Kenya's banking industry financially.

This study is also in agreement with Tora (2018) who examined how selected macroeconomic factors influence Kenyan banking sector financial performance. The research was carried with descriptive survey design. The study looked at all 42 banks that were active throughout the study period, using financial data from 2013 to 2017. SPSS was utilized for analyses the data and generate statistics descriptively and inferentially. This research showed that rate of interest has substantial impact on performance of Kenya's banking industry financially, while other chosen macroeconomic factors had no meaningful performance effect on Kenya's banking industry financially.

CHAPTER FIVE
SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The primary purpose of the research was to determine how selected macro-economic variables influence the performance of the Kenyan banking industry. The findings from the preceding chapter are summarized in this section, as well as the research's conclusions and limitations. It also suggests policies which may be used by policymakers. The chapter also makes recommendations for future research.

5.2 Summary of Findings

The research evaluated the contribution of macro-economic factors to the performance of the Kenyan banking industry. Economic growth, interest rates, inflation, and unemployment were all included in the study as predictor variables. The research utilized descriptive design for analysis and data collection. Secondary data have been acquired from CBK and KNBS and processed using Stataprogram. The research utilized data over a period of 10 years.

The findings revealed a positive and weak link between economic growth and performance of the banking sector in Kenya. Furthermore, the correlation findings indicate that interest rate is positively but statistical insignificantly linked to economic growth while inflation is negatively but not significantly linked to economic growth. However, the exchange rate was negatively and statistically significantly linked to Kenya's economic growth.

The R-square coefficient was 0.7674, which means that the predictors chosen may explain 76.74% of ROA changes in the Kenyan banking industry, whereas 23.26% of growth changes relate to other factors not addressed by this study.The research

revealed that independent factors combined had a significant influence on Kenyan banks. ANOVA emphasizes that the F statistic with p=0.0000 is significant at 5 percent level. This demonstrates that the model was capable of capturing the impact of independent variables on the performance of the Kenyan banking industry.

The regression results further revealed that economic growth has a positive and significant relationship with performance of the banking industry in Kenya as explained by a beta coefficient (β) of 8.823779 and a p value of 0.016 which was less than 0.05. The study also reveals that the variable exchange rate has a negative and substantiallink with performance of the banking industry in Kenya as explained by a beta coefficient (β) of -12.29149 and a p value of 0.024 which was less than 0.05. The other independent variables did not have a substantialeffect on the Kenyan banking industry as shown by p values above 0.05.

5.3 Conclusion

The results of the research indicate that the Kenyan banking industry is positively affected by economic growth. The research finds that an increase in economic growth leads to a significant increase in the Kenyan banking industry. The research also concludes that exchange rate has a significant adverse effect on performance of the banking industry in Kenya. The research finds that while inflation rate has an adverse impact on the Kenyan banking industry, the impact is not statistically meaningful. Rate of interest was found also not to have a significant influence on the Kenyan banking industry.

This research finds that the factors selected for investigation – economic growth, interest rate, inflation and the exchange rate – influence growth by explaining 76.74% of the Kenyan banking industryROA variations. The finding that the independent

factors account for 76.74% of changes in the Kenyan banking industry performance means that the non-model variables explain 23.26% of variations in the Kenyan banking industry. It is sufficient to infer that the factors highlighted substantially influence the growth as demonstrated in the ANOVA summary by p values less than 0.05.

The findings of this study are in agreement with Obeng-Krampah (2020) who investigated the association amongst macroeconomic variables and company performance stated on the Ghana Börse. To measure financial performance both ROA and ROE were used and they were the dependent variables. The independent variables were the main macroeconomic variables comprising of rate of interest, rate of exchange and rate of inflation. From 2007 through 2015, panel data was utilized. The study found a strong link between macroeconomic variables and firm performance, and it further argued that while macroeconomic variables alone lack sufficient explanatory supremacy to explain variations in firm performance, combining them with financial indicators such as sales growth, dividend payout, leverage, and total assets provides momentous explanatory power.

5.4 Recommendations

The results have shown that economic growth has a positive and considerable impact on performance of the banking industry in Kenya. This means that performance of the banking industry in Kenya will expand with an increase in economic growth. The study recommends the need for policy makers to come up with policies that will lead to enhancement of economic growth. The government should also create a conducive environment for doing business as this will lead toperformance of the banking industry in Kenya.

The results of this research have shown that the exchange rate has had a negative and substantial impact on performance of the banking industry in Kenya. The study recommends that steps are needed to guarantee that variables that impact existing exchange rate levels are properly handled in order to ensure that the current exchange rate does not negatively affect theperformance of the banking industry and the economy in general. If the nation can control the current exchange rate, this would improve performance of the banking industry in Kenyaand eventually the development of the economy as a whole.

The research showed that inflations negatively impact performance of the banking industry in Kenya. The research suggests that commodity prices should be regulated on the market since price growth leads to inflation, which may bear a negative effect on the performance of the banking industry in Kenya. The research suggests that interest rates should be determined by the law of demand and supply with minimal regulation as they do not have a significant influence on performance of the Kenyan banks.

5.5 Limitations of the Study

The time frame chosen was 10 years from 2011-2020 in this research. There is no evidence that over a longer period comparable findings will stay the same. Furthermore, it cannot be evaluated if the same results will hold after 2020. More time is more reliable since it includes instances of significant economic shifts such as recessions and booming.

The greatest constraint for this research was data quality. The results of this study cannot be reliably inferred to be a true reflection of the situation at hand. The accuracy of the data used in the research has been assumed. In addition, there has

been a lot of incoherence in measuring the data owing to the existing circumstances. In contrast to primary data, the research used secondary data. Some of the drivers of growth have been taken into account and not all due to the restriction of data availability.

Regression models were utilized to finalize the data analysis. The investigators would be unable to generalize the results exactly due to the constraints involved with utilizing the model, such as misleading and wrong results due to a change in variable value. When data is added to a regression model, it can no longer be run using the previous model.

5.6 Suggestions for Further Research

The purpose of this research was to establish how selected macro-economicvariables affected the performance of the banking industry in Kenya. A study focusing on primary data or a mix of primary as well as secondary data is suggested in order to identify qualitative elements which may be overlooked in this investigation.

The study did not take into account all of the independent elements that drive the performance of the banking industry in Kenya. The study suggests that more research and investigation be carried out in this area and that additional factors be included in the study and analyses. Factors such as the money supply, balance of payments, corruption, cost of labour, poverty level and other factors. Displaying each of these factors' impact on the performance of the banking industry in Kenya may allow policymakers to choose what instruments to employ for controlling performance of the banking industry in Kenya.

Due to constraints in data availability, the research concentrated on the last 10 years. Additional research should utilize a broader range of data to validate additional data.

It was also restricted, since only Kenya was concerned. Further research should also be carried out in other countries. Finally, the researcher used a regression model to confirm or reject the findings, and future researchers should use different ways to confirm or reject the findings.

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APPENDICES

Appendix I: Research Data

Year	Quarter	ROA	Economic growth	Interest rate	Inflation rate	Exchange rate
2011	1	2.600	0.092	8.417	16.833	79.581
	2	2.600	0.094	8.083	15.920	78.446
	3	2.600	0.097	7.750	13.393	76.243
	4	2.600	0.098	7.250	10.300	75.138
2012	1	3.700	0.098	6.917	7.850	76.488
	2	3.400	0.099	6.750	5.867	78.938
	3	3.500	0.099	6.000	4.707	80.926
	4	3.700	0.100	6.000	4.033	80.581
2013	1	3.700	0.100	5.833	4.157	82.236
	2	3.400	0.103	6.083	6.013	86.124
	3	3.300	0.104	6.500	9.020	93.014
	4	3.300	0.104	15.167	12.777	93.870
2014	1	3.800	0.104	18.000	15.827	84.139
	2	4.000	0.105	18.000	16.290	84.120
	3	3.700	0.106	15.333	14.297	84.276
	4	4.600	0.106	11.667	10.697	85.578
2015	1	4.700	0.106	9.500	7.257	86.721
	2	4.700	0.106	8.833	5.043	84.608
	3	4.700	0.107	8.500	4.563	87.255
	4	4.700	0.107	8.500	5.387	85.907
2016	1	3.400	0.107	8.500	6.203	86.327
	2	3.400	0.107	8.500	6.827	87.247
	3	3.400	0.108	8.500	7.237	88.238
	4	3.400	0.109	8.500	6.977	89.878
2017	1	2.500	0.110	8.500	6.667	91.525
	2	2.500	0.111	9.000	6.657	95.844
	3	2.500	0.111	11.500	6.390	102.967
	4	2.900	0.112	11.500	6.437	102.381
2018	1	3.400	0.113	11.500	6.840	101.910
	2	4.200	0.114	10.833	6.590	101.035
	3	3.300	0.114	10.500	6.470	101.338
	4	2.500	0.116	10.500	6.403	101.734
2019	1	2.900	0.117	10.000	6.483	103.415
	2	2.800	0.118	10.000	7.723	103.359
	3	2.700	0.119	10.000	8.323	103.518
	4	2.700	0.119	10.000	8.153	103.351
2020	1	2.700	0.121	9.500	7.360	101.833
	2	2.800	0.122	9.000	5.683	100.759

	3	2.800	0.123	9.000	4.703	100.706
	4	2.800	0.123	9.000	4.603	101.908