

**EFFECT OF SELECTED MACRO-ECONOMIC VARIABLES ON  
THE FINANCIAL PERFORMANCE OF DEPOSIT-TAKING  
SAVINGS AND COOPERATIVE SOCIETIES SECTOR IN  
KENYA**

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## DECLARATION


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

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

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## **DEDICATION**

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## LIST OF ABBREVIATIONS

<b>ANOVA</b>	Analysis of Variance
<b>APT</b>	Arbitrage Pricing Theory
<b>CBK</b>	Central Bank of Kenya
<b>CPI</b>	Consumer Price Index
<b>FP</b>	Financial Performance
<b>GDP</b>	Gross Domestic Product
<b>KNBS</b>	Kenya National Bureau of Statistics
<b>NIM</b>	Net Interest Margin
<b>NPL</b>	Non-Performing Loans
<b>NSE</b>	Nairobi Securities Exchange
<b>ROA</b>	Return on Assets
<b>SACCOS</b>	Savings and Credit Cooperative Societies
<b>SASRA</b>	Sacco Societies Regulatory Authority
<b>SPSS</b>	Statistical Package for Social Sciences
<b>VECM</b>	Vector Error Correction Model
<b>VIF</b>	Variance Inflation Factors

## ABSTRACT

Financial performance is a domain of management which has remained and will continue to be the focus of management executives and scholars for a long time to come because of its centrality in the life of an organization. Because of the importance attached to financial performance, great attempts have been made to understand it over time in terms of factors that contributes to its realization or none realization. The relationship existing between macroeconomic factors and firms performance is a subject that has interested many scholars and practitioners. Often times, it is proved that a firm's performance is dictated by some basic macroeconomic variables like rate of interest, economic growth, money supply, exchange rate and inflation. The objective of this study was to determine how selected macro-economic variables influence financial performance of DT-SACCOs in Kenya. The predictor variables were economic growth, interest rates, exchange rates, inflation rates and money supply. Financial performance was the response variable that the study intended to explore and it was given by ROA of the DT-SACCOs on a quarterly basis. The study was guided by three theories namely; modern portfolio theory, the international fisher effect theory and arbitrage pricing theory. A ten year period (2010-2019) was chosen for the study and the quarterly data from the period collected from a secondary source. A descriptive design was chosen and analysis was made using the multiple linear regression model to determine how the selected variables relate. SPSS version 23 was utilized for analysis. From the results from the software used, the R-square value was 0.529 which can be translated to mean that 52.9% of the variations in financial performance of DT-SACCOs are attributable to the five selected independent variables and the 47.1 percent remainder are attributable to other factors beyond the scope of this research. The study also revealed a strong relationship between predictor variables and financial performance ( $R=0.728$ ). ANOVA results at 5% significance level show an F statistic of 7.648 hence the model was found fit to explain financial performance of DT-SACCOs. Additionally, the results showed that individually, economic growth, interest rate and inflation rate are statistically significant factors affecting financial performance while exchange rate and money supply do not substantially determine financial performance of DT-SACCOs. The recommendation made by the study was that more focus should be placed by policy makers to the current levels of interest rates, economic growth and inflation rates since they significantly influence financial performance of DT-SACCOs.

# 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). Due to the varying financial performance of firms, investigations have been undertaken focusing on various external and internal factors that are thought to cause the differential. According to Levine (1996) macroeconomic factors for example interest rate, exchange rate, money supply, economic growth and inflation affect firm's financial performance in a number of ways. Firms need to identify macro-economic factors influencing their financial performance so as to develop initiatives that improve their profitability through effective management of dominant determinants (Asaolu & Ogunmuyiwa, 2011).

This research was anchored on the modern portfolio theory. Other theories were the international fisher effect and arbitrage pricing theories that have sought to shed light on associations between macro-economic factors and performance. The modern portfolio theory anchors this study since it opines that prices in the financial markets reflect happenings in the macroeconomic variables disparity. The influence of macro-economic factors on returns of financial market is then reflected on the financial performance. Additionally, Ross (1976) classical model of Arbitrage Pricing Theory (APT) related the macroeconomic variables to returns of financial assets. The fisher theory contends that real rates of interest among countries are uniform because of the likelihood of arbitrage opportunities, occurring in the form of capital flows. This

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

The focus was on deposit taking Savings and Credit Cooperative Societies (SACCOS), the choice arose from the fact that the financial sector and specifically deposit taking SACCOs have been viewed to focus on enhancing their performance owing to the increased competition in this industry (Waithanji, 2016). Financial performance for most deposit taking SACCOs has been on the rise in the last 10 years while at the same time their number has also been on the rise. However, there have been periods where performance either experienced significant fluctuations or deepened. It is therefore imperative to undertake a study on the role of macro-economic factors on performance of these two types of financial institutions and do a comparison of how each is influenced.

### **1.1.1 Selected Macroeconomic Variables**

These denotes mainly to factors of general importance to the position of a country's economy both at the regional and national face (Sharma & Singh, 2011). Mishkin (2004) defines these variables as the factors which are relevant to an economy as a whole and shake a great populace relatively than a select few of them. Macroeconomic variables are mostly thoroughly examined by business, governments, and consumers because of their influence on overall performance of the economy. Kwon and Shin (1999) in their study concluded that economic growth, unemployment rate, interest rates, currency exchange rate, inflation, money supply, government debt and balance of payments are the most impactful macroeconomic variables.

Macro-economic factors are of importance because of the fact they have an impact on the whole population as opposed to individuals and additionally because it has an

influence of factors for instance, balance of payments, unemployment levels, inflation rates, economic growth, income levels as well as interest rates. These effects are related to performance behaviors, the economy structures and the decision making of the economy at large. These impacts are revealed through factors such as inflations, investments, output levels, national income, investment, savings, international trade and finance (Sharma & Singh, 2011). Macroeconomic variables are a reflection of the current performance of the economy (Ali, 2014).

The measurement of macroeconomic variables varies depending on the exact variable in question. Economic growth implies the increment in a country's ability to produce goods and services and its measurement index is the gross domestic product growth rate (Subhani, Gul & Osman, 2010). Central bank lending rate is normally applied 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 Gross Domestic Product (GDP) (Simiyu & Ngile, 2015). Inflation is usually measured using either the Consumer Price Index (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**

As per Almajali et al. (2012), financial performance denotes to a firm's capacity to achieve range of set financial goals such as profitability. Financial Performance (FP) is a degree of the extent to which a firm's financial benchmarks has been achieved or surpassed. It shows the extent at which financial objectives are being accomplished. As outlined by Baba and Nasieku (2016) financial performance show how a company utilizes assets in the generation of revenues and thus it gives direction to the

stakeholder in their decision making. Nzuve (2016) asserts that the health of the bank industry largely depends on their financial performance that is applied to indicate the strengths and weaknesses of individual banks. Moreover, the government and regulatory agencies are interested on how banks perform for the regulation purposes.

The focus of financial performance is majorly directed on items altering statements of finance or firm's reports (Omondi & Muturi, 2013). The firm's performance is the main external parties' tool of appraisal (Bonn, 2008). Hence this explains why firm's performance is used as the gauge. The attainment level of the objectives of the firm describes its performance. The results obtained from achieving objectives of a firm both internal and external, is the financial performance (Lin, 2008). Several names are given to performance, including growth, competitiveness and survival (Nyamita, 2014).

Measurement of financial performance can be done using a number of ratios, for instance, Return on Assets (ROA) and Net Interest Margin (NIM). This measure indicates capability of the bank to make use of the available assets to make profits (Milinović, 2014). ROA is derived by dividing operating profit by the total asset ratio which is used for calculating earnings from all company's financial resources. On the other hand, NIM measures the spread of the paid out interest to the lenders of banks, for instance, liability accounts, and interest income that banks generates in regard to value of assets. Dividing net interest income by total earnings assets expresses the NIM variable (Crook, 2008).

### **1.1.3 Selected Macro-Economic Variables and Financial Performance**

McKinnon (1973) in his theory contends that it is important for monitoring macro-economic variables for example inflation, exchanges rates and real interest rates since

they have an influence on the numerous economic fundamentals and therefore impact the performance of a firm. For example, they posit that holding the interest rates below market equilibrium increases the investments' demand 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.

Gan, Lee and Zhang (2006) conclude that certain macroeconomic variables for example exchange rate, GDP, interest rates influences performance of a firm. Financial information shows that investors usually believe that GDP and other macroeconomic factors significantly impact the earnings predictability. Due to this fact, macro-economic variables impact individual's decisions in investment and makes many researchers to examine the association amongst performance and macroeconomic variables (Peansupap & Walker, 2005).

The theory of efficient market hypothesis by Fama (1970) argues that in an efficient market, security prices will always reflect all the information available. Bank managers as such therefore ought to react fast and accurately to actual and anticipated macroeconomic variable changes by adapting the said changes or planning for them well in advance. Such prudence assists to ensure financial performance not only in the present but also in future. Macroeconomic variables affect firms' profitability. When the macroeconomic variables changes both threats and opportunities emerges to the industry participants at the same time; the participants that are have made proper preparation for changes are able to take advantage of the opportunities which present themselves therefore improving performance and on the contrast those without

adequate preparation face the threats that adversely affect their financial performance (Gerlach, Peng & Shu, 2005).

#### **1.1.4 Deposit Taking Savings and Credit Cooperative Societies**

The Savings and Credit Cooperative Societies (SACCOs) are one of the most visible and important cooperative societies in Kenya. They are distinct and have unique traits as compared to other cooperatives. Their purpose is mobilization of savings and issuing credit facilities of their members. The delivery of savings and credit facilities is among the financial services. SACCOs are grouped together with financial intermediating cooperatives which are housing cooperatives and investments (SASRA, 2018).

The SACCO subsector in Kenya is divided into two; SACCOs that are distinguished by the nature of deposits and savings that the SACCOs mobilize from their membership and SACCOs that are principally defined. The first segment consists of non-deposit taking SACCOs and the second one consist of deposit taking SACCOs. There are 176 deposit taking SACCOs in Kenya. In Nairobi County, there are 43 deposit taking SACCOs in operation (SASRA, 2018). SACCOs provide credit facilities, by law they are required to comply with prudential guidelines as outlined by the SASRA (Njenga & Jagongo, 2019). SACCOs are important in pulling and accessing credit at prevailing interest rate(s) (Auka & Mwangi, 2013).

SACCOs' undesirable performance has been witnessed recently; deposit-taking SACCOs are continually experiencing high competition emanating from other deposit-taking institutions in Kenya, especially commercial banks (Mugo, Muathe & Waithaka, 2019; Odhiambo, 2019). Banks have gone to an extent of issuing unsecured loans to their clients and non-clients; this non-price competitive tool has



posed a challenge on SACCOs' performance (Munene, Ndambiri & Wanjohi, 2019). In regards to macroeconomic variables, SACCOs have faced a challenging macro-economic environment including capping of interest rate that was effected on August 2016. Other macro-economic challenges that have affected the sector include; rising levels of prices, interest rates unpredictability and variability of exchange rates. These unfavorable macroeconomic developments may result to great problems in financial performance of the sector.

## **1.2 Research Problem**

Financial performance is a domain of management which has remained and will continue to be the focus of management executives and scholars for a long time to come because of its centrality in the life of an organization. Because of the importance attached to financial performance, great attempts have been made to understand it over time in terms of factors that contributes to its realization or none realization (Abata, 2014). The relationship existing between macroeconomic factors and firms performance is a subject that has interested many scholars and practitioners. Often times, it is proved that a firm's performance is dictated by some basic macroeconomic variables like rate of interest, GDP, exchange rate and inflation (Gan, Lee & Zhang, 2006).

Financial sector has faced a challenging macro-economic environment including capping of interest rate that was effected on August 2016. Other macro-economic challenges that have affected the sector include; rising levels of prices, interest rates unpredictability and variability of exchange rates. These unfavorable macroeconomic developments may result to great problems in financial performance of the sector. Deposit-taking SACCOs being players in the financial industry have not been left

behind as they have faced numerous challenges mostly because of increased competition from the commercial banks (Munene et al., 2019). This dismal performance might also be justified through the volatility of macro-economic variables and this forms the basis of the current study.

Several research studies have been done within this field in international arena. Owoputi, Kayode and Adeyefa (2014) studied the influence of variables (industry specific, macroeconomic and bank-specific) on Nigerian bank performance. Out of the three macroeconomic variables investigated in this study, the empirical results showed a substantial negative impact of interest rate and inflation rate on bank profitability while GDP growth has an insignificant relationship. Osamwonji and Chijuka (2014) studied influence of macroeconomic variables on banks' profitability. The study finds significant and positive relation amongst GDP and ROA, significant and negative relation amongst ROA and interest rate, and finally insignificant and inverse relation involving inflation rate. Although these studies are related to the current study, they have mostly focused on banks leaving a gap on deposit taking SACCOs.

Locally, Mwaniki (2017) studied the effect of macroeconomic variables on average performance of DT SACCOs in Kenya and revealed that only money supply had a significant influence on performance. Tora (2018) conducted a study to examine influence of macro-economic factors on commercial banking sector financial performance in Kenya and revealed that interest rates are positively associated to performance of banking industry while the rest of the selected macro-economic variables had no significant effect. Nderitu (2019) aimed on examining the influence of macro-economic factors on performance of banks and concluded that interest rates

and economic growth affect financial performance positively while exchange rates and inflation has a negative substantial effect.

Although there are previous studies done before in this area, there exist contextual, conceptual as well as methodological gaps. Contextually, many of the previous studies have been done in developed economies while those conducted locally have mostly focused on commercial banks which are different from DT-SACCOs. Conceptually, previous researchers have considered different macro-economic variables and they have also operationalized both financial performance and macro-economic variables differently. This might explain the differences in previous studies as the findings have been inconsistent. In addition, most studies have focused on banks which are not the same as DT-SACCOs. Methodologically, majority of previous studies on macro-economic variables and financial performance have been time series in nature with a few adopting the panel approach. This study sought to contribute to this debate by responding to the research question: What is the effect of selected macro-economic variables on financial performance of deposit taking SACCOs in Kenya?

### **1.3 Research Objective**

The general objective of this study was to assess the effect of selected macroeconomic variables on financial performance of deposit taking savings and credit cooperative societies in Kenya.

The specific objectives were:

- i. To determine the influence of economic growth on financial performance of deposit-taking SACCOs in Kenya
- ii. To establish the effect of interest rates on financial performance of deposit-taking SACCOs in Kenya

- iii. To assess the influence of inflation rate on financial performance of deposit-taking SACCOs in Kenya
- iv. To determine the influence of exchange rate on financial performance of deposit-taking SACCOs in Kenya
- v. To establish the effect of money supply on financial performance of deposit-taking SACCOs in Kenya

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

The study findings will be of great value to the researchers in future as it will act as a reference point. In addition, the findings could also be of paramount importance to researchers and academician as far as identification of research gaps is concerned in topics relates to the current one on top of it being a basis to review empirical literature by future researcher. In addition, the findings will be useful in development of theory.

The stakeholders of the deposit taking SACCOS will find this research very beneficial as this study will generate vital information in management of the industry. These stakeholders include researchers, managers in the sector and the legislative authorities in the sector. The management of these financial institutions will derive the most out of this since it illuminates ways in which they can utilize macro-economic factors as a channel to improve performance.

The government and its agencies like SASRA, the study will also be of important since they might apply the results to come up with better policies to prevent the impacts of macro-economic factors 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 section looks into theories on which the study is based. Additionally, prior researches undertaken on the topic and areas related will be discussed. The determinants of financial performance, framework showing the association the variables have and a summary of literature will be discussed in other sections.

#### **2.2 Theoretical Framework**

This section reviews the theories which explains the amongst between macro-economic factors and performance. The theories comprise of; modern portfolio theory, APT and international fisher effect theory.

##### **2.2.1 Modern Portfolio Theory**

This is the anchor 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 contended that a firm can come up with a portfolio that will yield the highest anticipated returns at a risk level that is manageable. Mainly in this theory, the main idea is aimed on generating maximum profits in a specified portfolio risk or rather reducing risk in a specific level of anticipated returns through prudently selecting a proportion of various investment 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 risks. Systematic risk is inherent in the volatility of the 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 (Cuthbertson, 2004).

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 performance of financial firms in such environments varies hence affecting their growth and financial performance. Policy makers should thus be keen on macro-economic variables as they affect performance. This study is relevant since it recognizes systematic risk as a determiner of returns. Macro-economic variables being one of the causes of systematic risk are thus theoretically expected to influence financial performance.

### **2.2.2 Arbitrage Pricing Theory**

The model was advanced by Ross (1976). The theory presumes that returns of a given instrument are affected by different economic factors through their impact on future dividends and discount rates (Subedi & Shrestha, 2015). APT correlates with market portfolio concept, according to arbitrage theory persons exhibit varying investment portfolios with their systematic risk. The APT is a multifactor model and most of the empirical literature argues that it gives better results comparatively to CAPM, since it uses multiple factors for demonstrating shared and systematic risk (Waqar & Mustabsar, 2015).

The theory established a theoretical framework that links share returns with some variables that have the potential to influence sources of income volatility (Shrestha & Subedi, 2015). APT uses macro-economic variables determine asset prices and the theory assumes that various macro-economic variables can actually affect asset prices other than systematic risk beta (Waqar & Mustabsar, 2015).

Some of the macro-economic parameters that impact asset prices of financial instruments include: the gross national product, government internal borrowing, inflationary rates, balance of payments, investor confidence levels, prevailing levels of unemployment, changes in expected returns on securities and changes in the interest yield curve (Amarasignhe, 2015). Based on this linear correlation between the equity prices and macro-economic variables, it can be purported that macroeconomic variables have an effect on value of securities. Consequently, the value of the asset or security can be termed as the total of the expected return and any unexpected returns on the asset (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 variation in interest rates usually balance out the exchange rates. Additionally, it opines that real interest rates throughout nations are uniform because of the likelihood of arbitrage opportunities, occurring in form of capital flows. Real interest equality has the implication that the country with the higher interest rate ought to have a higher inflation rate 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, suggests that the reason why foreign currencies with comparatively high interests depreciate is since the high nominal rates of interest are a reflection of the expected inflation rate (Gopinath & Rogoff, 2014).

This theory informed the current study in that interest rates fluctuations encourage or discourage levels of borrowing. The capping of interest rates in Kenya by the Central Bank has reduced the bank lending rates close to the lending rates of the SACCOs. The subsequent buying off of loans from the SACCOs by the banks reduces the source of income of the SACCOs.

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

Determination of the FPof an organization can be ascertained by several factors; these factors are either internal or external. Internal factors differ from one bank to the next and are within a bank's scope of manipulation. These consist of labor productivity, capital size, quality of management, efficiency of management, deposit liabilities, credit portfolio, policy of interest rate, ownership and bank size. External factors affecting the a bank's performance are mainly gross domestic product, Inflation, stability of macroeconomic policy, Political instability and the rate of Interest (Athanasoglou, Brissimis & Delis, 2005).

#### **2.3.1 Economic Growth**

When an economy is growing a positive GDP is reported and this increases loan demand (Osoro & Ogeto, 2014). An increment in economic output might increase the



anticipated cash flows and thereby prompting an improvement in banks FPand 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 countries have more efficiency (Beck et al., 2003). There is in addition a positive association 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 worried with GDP reports because this measurement is able to communicate the overall health 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).

### **2.3.2 Interest Rates**

The rate of interest is considered as an outlay of funds and an upward or downward movement in interest rate could influence the savings choice of the financiers (Olweny & Omondi, 2010). According to Rehman, Sidek and Fauziah (2009), the use of an interest cap causes banks to decrease loans and provoke many of these foundations to abscond rural areas, as a result of high cost of production and rate of perils. Consequently this translates to slowed growth of the banks. The banks can mitigate this situation by skyrocketing fees and other levies to arrest the situation. Barnor (2014) stated that, unexpected change in interest rate has an impact in investment decisions, hence investors tend to adjust their savings arrangement, generally from capital market to fixed profits securities.

According to Khan and Sattar (2014) interest rate affects performance either positively or negatively depending on its movement. A decrease in interest rate to the depositors and an increment in spread discourage savings. An increasing interest rate to the depositor adversely affects the investment. Banking sector is the most sensitive to movements in interest rates in contrast to other sectors because the largest proportion of banks' revenue comes from the differences in the interest rate that banks charge and pays to depositors.

### **2.3.3 Inflation Rate**

Higher rates of inflation translate to higher prices for consumers slowing down business and thus reduce firms' earnings. Prices that are high also trigger a regime that has higher interest rate (Hendry, 2006). According to Fama (1998), inflation would be negatively associated with real economic activity, which would in turn be positively associated to performance of the market. Thus, FP should have a negative correlation with expected price level, with interest rates at the short-term acting as proxy identical to International Fisher Effect (IFE).

Inflation affects bank FP positively or negatively depending on the ability of a bank to anticipate it. When a country anticipates inflation, banks adjust the rate of interest to ensure that revenues generated are higher than the cost of operation. Banks that do not anticipate an inflation fails to make proper adjustment and as a result the cost of operations increases at a higher rate than revenue generated. A rise in interest rates resulting from inflation is expected to discourage borrowers from borrowing funds and this is likely to reduce the lending levels. Boyd, Levine and Smith (2001) reported a negative association amongst inflation and loan volumes. However Ameer (2015) asserts that most studies have found a positive impact of inflation on loan volumes.

### **2.3.4 Exchange Rates**

Exchange rates command a notable influence on FP when there are changes in a currency's exchange rate, this has an influence on the price of import comprising of CPI and production cost. The variation in exchange rates gets transmitted to domestic prices via linkages of prices of imported consumption goods, the variability of exchange rate directly influences the domestic prices. Demand of local goods increases as a result of factors influencing prices triggers rise in level of imported goods and services hence leading to decreased competition (Magweva & Marime, 2016).

This change in equilibrium mounts pressure on the domestic prices as well as nominal wages due to the increasing demand. More so, due to wages rises, more pressure will be applied on the domestic prices. The reduction in exchange rate is unable to protect the local industry because the increase in the local production cost less than the depreciation rate in comparison to cost of imports equally increase by full amount of the depreciation. This situation of depreciation in currency prompts improved and helpful condition for indigenous industry production (Nwankwo, 2006).

### **2.3.5 Money Supply**

Money supply entails a country's legal tender together with all other liquid instruments in circulation within the economic at specified duration of time. It would comprise of the money in different forms such as notes and coins, cash and bank balance in current and saving accounts as well as short-term investments. Money supply affects a country's economy largely and it is therefore imperative for a monetary authority to ensure there is regulation of the amount circulating by implementing monetary policies (Osamwonyi, 2003).

Tobin (1969) discovered a clear connection of the variations amongst the stock market and monetary policy. The study stressed on significance of performance as a linkage of the economic effects. A strong linkage of firm performance and economy was revealed. Additionally, Tobin discovered that there emerged deficits in budgets as a result of growth in money supply that consequently influenced the FP.

### **2.3.6 Firm Liquidity**

Liquidity denotes the extent that an entity is capable of meeting its obligations that fall due in the next one year by use of cash or cash equivalent for instance short term assets that can be simply converted in to cash. Ability of the managers to meet their obligation when they mature without financial assets having to be liquidated is where liquidity results from (Adams & Buckle, 2003).

As suggested by Liargovas and Skandalis (2008) firms might utilize liquid assets for purposes of financing investments and their activities when there is no likelihood of obtaining external funding. Firms able to handle the unexpected or contingencies that are unforeseen and cope with its falling obligations are those with higher liquidity. Firm's liquidity might have impact which is high on firm's efficiency (Almajali, Alamro and Al-Soub, 2012) Thus firms ought to aim on decreasing their current liabilities and at the same time increasing their current assets as per the recommendation. Though, at times liquidity abundance may lead to more harm (Jovanovic, 1982).

### **2.3.7 Firm Size**

The most fundamental question underlying firm policy is at what size is firm efficiency maximized. The expansion of the size of the firm increases its efficiency up to a particular level where any more increment becomes harmful since bureaucratic

and other managerial issues and challenges set in. Hence the relationship between size and efficiency is nonlinear in nature. We utilize the logarithm of the assets of the firm (logarithm) and their square so as to curb this likely non-linear association (Yuqi, 2007).

According to Amato and Burson (2007), the size of an organization is primarily determined by the amount of assets it owns. An argument can be made that the larger the assets a firm owns, the more its ability to assume a large number of projects with greater returns in comparison with small firms with a smaller amount of assets. Additionally, the bigger the firm, the larger the amount of collateral that can be pledged in a move to access credit facilities in comparison to their smaller competitors (Njoroge, 2014). Lee (2009) concluded that the amount of assets in control of a firm has an influence on the level of profitability of the said firm from one year to the next.

## **2.4 Empirical Review**

Local and international studies have been undertaken in support of the relationship amongst selected macro-economic variables and FP, with varied results.

### **2.4.1 Global Studies**

Alemu and Negasa (2015) examined the determinants of commercial banks performance in Ethiopia. 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 industry specific, firm specific and macroeconomic variables have a notable influence on the FP 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 FP 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.

Zulfiqar and Din (2015) conducted an investigation of the relation of firm performance and macroeconomic variables of Pakistan textile industry. To conduct data analysis, panel regression analysis was used. According to the study findings, it was revealed that inflation rate was positively though insignificantly related to FP of a firm. Time series data set was used which made it appropriate to use Vector Error Correction Model in examining the long run relation amongst macroeconomic factors and performance of the firms.

Baba and Nasieku (2016) examined the effect of macroeconomic factors on the performance of Nigerian banks. The study adopted an explanatory research design and relied on secondary data gathered from banks annual reports, World Bank, Nigerian bureau of statistics and research centers. 23 licensed banks in Nigeria participated in this study. The study used ROE as a measure of performance. The empirical findings indicated that exchange rate, unemployment rate, and interest rate are adversely and significantly related with the FP of banks while inflation has an insignificant relationship. An increment in exchange rate positively affects the performance of banks while an increment in the interest rates deteriorates FP.

Chimkono (2017) studied the impact of micro and macroeconomic variables on the performance of banks in Malawi. Secondary data was gathered from audited financial reports and covered a fifteen year period from 2000 to 2014. The population of study constituted banks licensed in Malawi. Publications prepared by the World Bank and

reserved bank of Malawi were also used as sources of data. The study revealed that independent variables (lending interest rate, cost efficiency, and asset quality) have a significant effect on the FP of commercial banks. Moderating variables (economic growth) has a significant effect on the independent variables. The study additionally revealed that the credit risks adversely influence the performance of banks.

Badullahewage (2019) investigated how macroeconomic variables impacted stock market performance in Sri Lanka. Studied macroeconomic variables comprised of GDP, money supply, Inflation, interest and exchange rates. Secondary data for period between 1990 and 2012 was used. The study discovered that there existed a strong relationship association amongst the macroeconomic factors and the stock market. Inflation and exchange rates were identified as factors with comparatively higher effects on the stock market performance.

Obeng-Krampah (2020) investigated the association amongst macroeconomic variables and performance of firms quoted on the Ghana Stock Exchange. To measure FP both ROA and ROE were used and they were the dependent variables. The independent variables were the main macroeconomic variables comprising of inflation rate, exchange rate and interest rate. Panel data was used of the period 2007 to 2015. The study significantly established a suitable link existing amongst macroeconomic variables and firm performance and further argued that macroeconomic variables alone lack enough explanatory power to explain variations within firm performance but integrating with financial indicators like firms' dividend pay-out, growth in company sales, leverage, and total assets provide a considerable explanatory power. The study further found that whilst inflation negatively affects ROA, interest rate also negatively affects ROE.

#### **2.4.2 Local Studies**

Ng'ang'a (2016) undertook a study to examine association amongst macroeconomic determinants and performance of insurance industry in Kenya. The performance was regressed against the macroeconomic indicators; average interest rates as computed by Central Bank rate, real exchange rates, GDP growth rate, inflation rate was calculated by CPI and unemployment rate. The study applied a descriptive research design. It utilized secondary data collected quarter yearly. The study was done in a ten-year period from 2006 to 2015. The data was analyzed through use of descriptive analysis, correlation and multiple regression analysis. Findings reveal that exchange rates, interest rates, and unemployment rates are not significant predictors of insurance industry's FP.

Nzuve (2016) investigated on influence of macroeconomic determinants on performance of deposit taking microfinance companies. The study applied secondary data from 9 Kenyan microfinance for a time span of ten years from 2005 and 2014 and analyzed the data using multiple linear regressions. Study findings found a negative association between inflation rate and financial performance, positive correlation between GDP, national savings, exchange rates, employment rate and deposit-taking micro finance institutions financial performance in all the years studied. The study recommended that the government policy intervention on macroeconomic factors so as to spur greater financial performance in the sector owing to influence financial performance of the deposit taking microfinance institutions.

Mwaniki (2017) examined the impact of macroeconomic variables on average FP of DT-SACCOs in Nairobi. The study aimed on establishing the impact of interest, inflation and money supply on the average performance of deposit taking SACCOs in



Nairobi, Kenya. The study applied 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 using the vector error correction time series model. The results show that only money supply had a significant influence on returns on assets of deposit taking SACCOs.

Tora (2018) did an examination on how selected macroeconomic variables affect performance of the banking industry in Kenya. The research applied a descriptive survey design. The study targeted all the 42 banks that were in operation for the study period and have financial data for the five-year period of the study from 2013-2017. The data was analyzed with aid of SPSS where descriptive and inferential statistics were generated. The study established that only interest rates affect FP of the commercial banking sector positively and to a significant extent.

Nderitu (2019) aimed on determining the extent to which macro-economic variables affect the FP of Kenyan banking sector. The study period spanned 2009 to 2018 and both descriptive and inferential statistics were done to analyze the data collected. SPSS software version 22 was applied in analyzing data and the outcomes were displayed in tables and graphs. The results revealed that interest rates and economic growth affect FP of the commercial banking sector positively while exchange rates and inflation rate have a negative significant impact on performance of the banking sector.

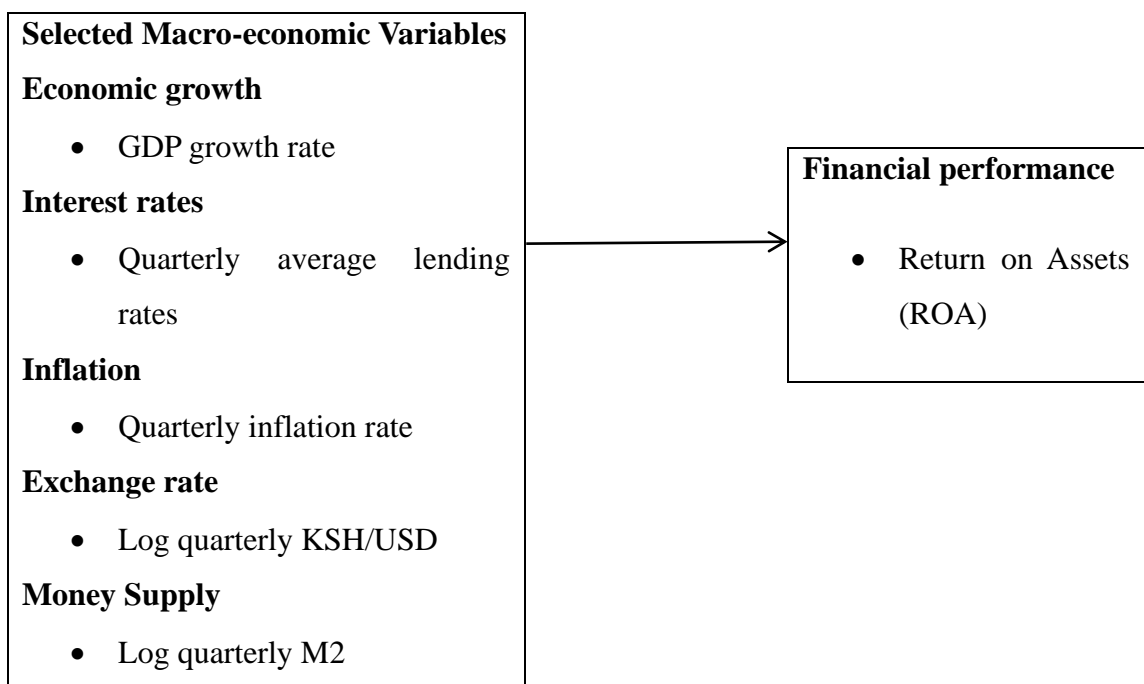
## **2.5 Conceptual Framework**

Theoretically, it is anticipated that economic growth have a positive impact on financial performance. Quarterly GDP growth rate is used as measure of economic growth. Interest rate given by average quarterly lending rates is expected to have a

positive association with financial performance, inflation as measured by quarterly inflation rate and exchange rate given by quarterly exchange rate amongst KSH/USD are theoretically expected to have an inverse association with FP while money supply as measured by quarterly M2 is expected to positively influence financial performance.

**Independent variables**

**Dependent variable**



**Figure 2.1: The Conceptual Model**

**Source: Researcher (2020)**

**2.6 Summary of the Literature Review**

Several frameworks have explained the expected relation amongst macro-economic variables and the performance. Theories reviewed in this section include; the international fisher effect theory, modern portfolio theory and arbitrage pricing theory. The main determinants of FP were reviewed. A number of domestic and

global studies existing on macro-economic factors and FP and their findings were also reviewed.

Tora (2018) undertook an investigation to examine influence of macro-economic factors on FP of Kenyan commercial banking sector. The study revealed that interest rates influence the banking industry FP positively and to a significant extent while the rest of the selected macro-economic variables had no significant effect on FP of the banking sector. Nderitu (2019) explored the influence of chosen macroeconomic variable on banking industry FP and revealed that GDP growth rate and interest rate have positive relationships with FP whereas inflation and exchange rate have a negative influence. Simiyu and Ngile (2015) had a study to analyse how the profitability of listed commercial banks in Kenya is affected by macroeconomic variables. The census study finds an insignificant positive effect by GDP on profitability; also, the study finds significant and negative association amongst profitability and interest rate and positive and significant effect between profitability and exchange rate. Lack of consensus among previous researchers is reason enough to conduct further study. Additionally, many of the studies conducted on these study variables have concentrated on banks whereas the current study focused on DT-SACCOs.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

To ascertain how the FP of deposit taking SACCOs in Kenya is influenced by macro-economic variables, the study ought to have a research methodology which layout the procedure through which the research was be conducted. Four sections are incorporated in this chapter that includes the research design, the procedure of collecting data, the diagnostics tests to validate the data and lastly the technique of analyzing the data.

#### **3.2 Research Design**

A descriptive design was utilized in this study to assess the effect of selected macro-economic variables on FP of DT-SACCOs in Kenya. The research used a descriptive research design as it enabled obtaining of the state of affairs as the actually exists (Khan, 2008). The researcher is well conversant with the area under scrutiny but wish to learn more with respect to the nature of relationship amongst the study variables hence the research design is the most suitable. More so, the aim of descriptive research is provision of an authentic and correct representation of the study variables and this aid when it comes to answering the research questions (Cooper & Schindler, 2008).

#### **3.3 Data Collection**

Secondary sources of data were utilized. There exists a regulatory demand for all deposit taking SACCOs to report to SASRA. Quarterly data for timespan of ten years (January 2010 to December 2019) was collected and analyzed. Independent variables data; interest rates, exchange rates (KSH/USD) and money supply were collected

from the CBK while data on inflation and economic growth was collected from the KNBS. Data for the independent variable; FP referenced by return on assets was obtained from SASRA on a quarterly basis.

### **3.4 Diagnostic Tests**

To determine the viability of the study model, the researcher carried out several diagnostic tests, which included normality test, stationarity test, test for Multicollinearity, test for homogeneity of variances and the autocorrelation test. Normality tests the presumption that the residual of the response variable has a normal distribution around the mean. The test for normality was done by the Shapiro-wilk test or Kolmogorov-Smirnov test. In the case where one of the variables was not normally distributed it was transformed and standardized using the logarithmic transformation method. Stationarity test was used to assess whether statistical properties for example variance, mean and autocorrelation structure vary with time. Stationarity was found using augmented Dickey Fuller test. In case, the data fails the assumption of stationarity, the study used robust standard errors in the model (Khan, 2008).

Autocorrelation measures how similar a certain time series is in comparison to a lagged value of the same time series in between successive intervals of time. This was measured by the Durbin-Watson statistic and incase the assumption was violated the study employed robust standard errors in the model. Multicollinearity occurs when an exact or near exact relation that is linear is observed between two or several predictor variables. Variance Inflation Factors (VIF) and the levels of tolerance were used. Any multicollinear variable should be dropped from the study and a new measure selected and substituted with the variable which exhibits co-linearity. Heteroskedasticity tests

if the variance of the errors from a regression is reliant on the independent variables. The study assessed for heteroskedasticity using the Levene test and in case, the data fails the assumption of homogeneity of variances the study used robust standard errors in the model (Burns & Burns, 2008).

### **3.5 Data Analysis**

The SPSS computer package version 23 will be applied in analyzing the data. Descriptive statistics will be used to compute the measures of central tendency as well as dispersion together with standard deviation for each variable. Tables, frequencies and percentages will be used to present the findings of the descriptive statistics. Inferential statistics on the other hand will entail correlation, regression analysis, coefficient of determination and Analysis of Variance (ANOVA).

#### **3.5.1 Analytical Model**

The regression model below was used:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon.$$

Where: Y = Financial performance given by return on assets on a quarterly basis

$\beta_0$  = y intercept of the regression equation.

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$  = are the regression coefficients

$X_1$  = Economic growth as measured by quarterly GDP growth rate

$X_2$  = Interest rate as measured by average quarterly average bank lending rates

$X_3$  = Inflation as measured by average quarterly inflation rate

$X_4$  = Exchange rates as measured by average quarterly exchange rate of log KSH/USD

$X_5$  = Money Supply as measured by natural logarithm of M2 on a quarterly basis

### **3.5.2 Tests of Significance**

Parametric tests will be conducted so as to establish the statistical significance of the overall model as well as individual parameters statistical significance. The F-test which will be obtained from ANOVA will be applied in establishing the overall model statistical significance while that of the individual variables will be obtained from the t-test.

## CHAPTER FOUR

### DATA ANALYSIS, RESULTS, FINDINGS

#### 4.1 Introduction

The chapter shows the study results and findings based on the study's objectives. It also gives an analysis of the data obtained from SASRA, CBK and KNBS to determine how selected macro-economic variables influence FP of DT-SACCOs. By use of regression analysis, correlation analysis and descriptive statistics, the study results were illustrated in tables to simplify the interpretation.

#### 4.2 Descriptive Analysis

Descriptive statistics shows the maximum, mean and minimum values of variants which are used with their standard deviations for this work. The illustration below is the presentation of the statistics for the study variables. Analysis of the variants under study was produced by the SPSS software within ten years (2010 to 2019) basis, every three months.

**Table 4.1: Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
<b>Financial performance</b>	40	2.500	4.700	3.323	.6930007
Economic growth	40	.092	.123	.10823	.008166
Interest rate	40	5.833	18.000	9.58540	2.884208
<b>Inflation rate</b>	40	4.033	16.833	8.07400	3.606442
<b>Exchange rate</b>	40	75.138	103.518	90.83655	9.511763
Money supply	40	8.7	9.4	9.185	.1331
<b>Valid N (listwise)</b>	40				

**Source: Research Findings (2020)**

#### 4.3 Diagnostic Tests

Diagnostic tests were carried out before the regression model was run. In this case, the tests conducted were Multicollinearity test, normality test, autocorrelation and Heteroscedasticity tests.



### 4.3.1 Multicollinearity Test

Multicollinearity can be defined as a statistical situation in which several predictor variables in a multiple regression model have a high correlation. The situation is unwanted where there exists a strong correlation among the predictor variables. A combination of variables is said to be perfectly multicollinear in case there is one or more exact linear relationship among a number of the variables.

**Table 4.2: Multicollinearity Test**

Variable	Collinearity Statistics	
	Tolerance	VIF
Economic growth	0.376	2.660
Interest rates	0.360	2.778
Inflation rate	0.392	2.551
Exchange rate	0.372	2.688
Money supply	0.384	2.604

**Source: Research Results (2020)**

VIF value was utilized in the study where a value lower than 10 for VIF meant lack of Multicollinearity. For multiple regressions to be useful, the variables should exhibit a weak relationship. The variables in the study showed a VIF value of <10 as shown on Table 4.2 which could be interpreted to mean that the variables had no statistical significant Multicollinearity among them.

### 4.3.2 Normality Test

To test for normality, the researcher used the Shapiro-Wilk test and Kolmogorov-Smirnov tests. The null and alternative hypotheses are as shown below.

H<sub>0</sub>: the secondary data was not normal.

H<sub>1</sub>: the secondary data is normal

A p-value greater than 0.05, would lead the researcher to reject the null hypothesis and vice versa. The test outcomes are illustrated in table 4.3.

**Table 4.3: Normality Test**

FP	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
Economic growth	.165	40	.300	.880	40	.784
Interest rate	.149	40	.300	.857	40	.853
Exchange rate	.156	40	.300	.906	40	.822
Inflation rate	.172	40	.300	.869	40	.723
Money supply	.174	40	.300	.890	40	.728

a. Lilliefors Significance Correction

**Source: Research Findings (2020)**

The data revealed a p- value more than 0.05 hence the researcher used only the alternative hypothesis and concluded that the data applied in the research was evenly distributed. This data was used to conduct parametric tests and statistical analyses like Pearson’s correlation, regression and ANOVA.

#### 4.3.3 Autocorrelation Test

Correlation of error terms in varying time periods were checked by conducting a serial correlation test. The Durbin Watson test for serial correlation was used to assess for autocorrelation in the linear panel which is a major challenge in panel analysis of data and it has to be accounted so as to get right model specifications.

Below are the results

**Table 4.4: Autocorrelation Test**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.728 <sup>a</sup>	.529	.460	.509182	1.864

a. Predictors: (Constant), Money supply, Interest rate, Exchange rate, Inflation rate, Economic growth

b. Dependent Variable: ROA

**Source: Research Findings (2020)**

The Durbin Watson statistic of 1.864 is amongst 1.5 and 2.5 implying that serial correlation does not exist.

### 4.3.3 Heteroscedasticity Test

The study checked for heteroscedasticity by use of Likelihood Ratio (LR) as indicated in the Table. This test used the alternative hypothesis that the error was homoscedastic. A chi-square value of 30.24 was produced by the likelihood-ratio test with a 0.3000 p-value. The chi-square esteem was significant at 1 percent level. The researcher hence concluded that the data was homoscedastic and therefore fit to conduct regression analysis.

**Table 4.5: Heteroscedasticity Test**

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Breusch-Pagan / Cook-Weisberg test for heteroscedasticity

Ho: Constant variance

Variables: fitted values of Financial performance

chi2(1) = 30.24

Prob > chi2 = 0.3000

---

**Source: Research Findings (2020)**

### 4.4 Correlation Analysis

This was done to determine associations amongst FP of DT-SACCOs and the variables for this research (economic growth, rates of interest, inflation and exchange rates and money supply). Findings show, a weak but positive and statistically unsubstantial correlation ( $r = .246$ ,  $p = .127$ ) between economic growth and FP. Interest rate and money supply have a positive but not significant relation with FP of DT-SACCOs as showed by ( $r = .123$ ,  $p = .450$ ); and ( $r = .307$ ,  $p = .054$ ) accordingly. Inflation shown a weak negative and insignificant association with FP as shown by  $p > 0.05$ . Exchange rate showed a negative correlation with FP of DT-SACCOs and the association was significant as exhibited by a p value of 0.027 that is lower 0.05 significance level.

**Table 4.6: Correlation Analysis**

		ROA	Economic growth	Interest rate	Inflation rate	Exchange rate	Money supply
ROA	Pearson Correlation Sig. (2-tailed)	1					
Economic growth	Pearson Correlation Sig. (2-tailed)	.246	1				
Interest rate	Pearson Correlation Sig. (2-tailed)	.123	.211	1			
Inflation rate	Pearson Correlation Sig. (2-tailed)	-.108	-.336*	.256*	1		
Exchange rate	Pearson Correlation Sig. (2-tailed)	-.350*	.307*	.244	-.356*	1	
Money supply	Pearson Correlation Sig. (2-tailed)	.307	.317*	-.107	-.389*	.353*	1

\*. Correlation is significant at the 0.05 level (2-tailed).  
\*\*. Correlation is significant at the 0.01 level (2-tailed).  
c. Listwise N=40

**Source: Research Findings (2020)**

#### 4.5 Regression Analysis

Financial performance of DT-SACCOs was regressed against five predictor variables; economic growth, rates of interest, inflation rate, exchange rates and money supply. It was done at 5% level. The summarized statistics are illustrated in 4.7 below.

**Table 4.7: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.728 <sup>a</sup>	.529	.460	.509182	1.864

a. Predictors: (Constant), Money supply, Interest rate, Exchange rate, Inflation rate, Economic growth  
b. Dependent Variable: ROA

**Source: Research Findings (2020)**

Based on the results on table 4.7 above, R square value was 0.529, a revelation that 52.9% of the deviations in FP of DT-SACCOs are caused by variations in exchange rate, inflation rate, economic growth, interest rate and money supply. Additional variables outside the model explain the 47.1% of variations in FP of DT-SACCOs. Additionally, the results showed strong relation amongst the chosen predictor variables and the FP as indicated by the correlation coefficient (R) of 0.728. A durbin-watson statistic of 21.864 showed that there was no serial correlation of the variable residuals since it gave a value greater than 1.5.

**Table 4.8: Analysis of Variance**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	9.915	5	1.983	7.648	.000 <sup>b</sup>
	Residual	8.815	34	.259		
	Total	18.730	39			

a. Dependent Variable: ROA  
b. Predictors: (Constant), Money supply, Interest rate, Exchange rate, Inflation rate, Economic growth

**Source: Research Findings (2020)**

The p value is 0.000, lower than  $p=0.05$ . This shows that the model was statistically significantly in showing how economic growth, inflation rate, rates of exchange, interest rate and money supply affected FP of DT-SACCOs.

Coefficients of determination reflected the movement of the relationship between inflation rate, economic growth, exchange rates, interest rates and money supply with FP of DT-SACCOs. The p-value under sig. column indicated how significant the relationship was. At 95% confidence level, a p-value lower than 0.05 is an indication of statistical significance. The table 4.9 following exhibit the output

**Table 4.9: Model Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	-6.007	9.512		-.632	.532
1 Economic growth	.120	.059	.288	2.049	.048
Interest rate	.171	.046	.710	3.668	.001
Inflation rate	-.120	.049	-.625	-2.445	.020
Exchange rate	-.043	.022	-.586	-1.925	.063
Money supply	1.665	1.047	.314	1.590	.121

a. Dependent Variable: ROA

**Source: Research Findings (2020)**

The findings above prove that interest rate, economic growth, interest rate and inflation rate substantially determine FP as evidenced by p values lower than 0.05. Exchange rate and money supply are unsubstantial determinants of financial performance as evidenced by p values that are greater than 0.05.

The equation was as below:

$$Y = -6.007 + 0.120X_1 + 0.171X_2 - 0.120X_3$$

Where,

Y = Financial performance of DT-SACCOs

X<sub>1</sub> = Economic growth

X<sub>2</sub> = Interest rate

X<sub>3</sub> = Inflation rate

On the above model, the constant = -6.007 means that if chosen independent variables (money supply, interest rate, economic growth, exchange rate and inflation rate) were rated zero, FP would be -6.007. Economic growth rise by a unit would increase FP by 0.120 whereas an increment in a unit in inflation rate would lower FP by 0.120. A unit increment in interest rate would cause an increment in FP by 0.171.

#### **4.6 Discussion and Interpretation of Research Findings**

The researcher intended to establish the influence of selected macro-economic variables on FP of DT-SACCOs. The independent variables were money supply, interest rate, economic growth, exchange rate and inflation rate. FP was the response variable that was the main scope of the study and was given by quarterly security returns among DT-SACCOs. The effect of every predictor variable on the response variable was analyzed based on strength and direction.

The correlation coefficients showed a weak positive and statistically unsubstantial correlation ( $r = .246$ ,  $p = .127$ ) between economic growth and FP. Interest rate and money supply showed a positive but not significant relation with FP of DT-SACCOs as evidenced by p values greater than 0.05 and positive correlation coefficients. Exchange rates showed a negative and significant correlation with financial performance as evidenced by a p value below 0.05. Inflation showed a negative correlation with FP of DT-SACCOs but the association was insignificant as shown by a p value greater than 0.05 significance level.

The model summary showed that the predictor variables: rates of interest, exchange and inflation, economic growth and money supply explains 52.9% variations in the dependent variable as indicated by the  $R^2$  Value meaning that the model excludes other variable which explain the 47.1% of variations in FP of DT-SACCOs. The F test

was done at the confidence level of 95% and an F value of 7.648 was established which was higher than the critical value. This implied that the model was statistically significant, so it was fit for us in predicting the FP of DT-SACCOs.

The results are 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. Analysis was done through use of SPSS software version 22 and was presented through use of tables and graphs. The results established that interest rates and economic growth affect FP of the commercial banking sector positively and to a significant extent while exchange rates and inflation rate have a negative significant effect on FP of the banking sector.

This study is also in agreement with Chimkono (2017) who studied the impact of micro and macroeconomic variables on the performance of banks in Malawi. Secondary data was gathered from audited financial reports and covered a fifteen-year period from 2000 to 2014. The population of study constituted banks licensed in Malawi. Publications prepared by the World Bank and reserved bank of Malawi were also used as sources of data. The study established that interest rate has significant influence on the finance performance of commercial banks. Moderating variables (economic growth) has a significant effect on the independent variables



## **CHAPTER FIVE**

### **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Introduction**

In this section, a summary of findings from the previous section is provided, conclusions are derived, limitations that were encountered on the overall study explained. Additionally, this chapter gives recommendation to decision maker as well as the policy makers. Finally, the researcher offers suggestions on areas that can be covered by other scholars in further research studies.

#### **5.2 Summary of Findings**

The intention of the study was to assess the effect of selected macro-economic variables on FP of DT-SACCOs. The predictor variables used were inflation rate, exchange rates, interest rates, economic growth and money supply. A descriptive design was chosen for the study. Secondary data sourced from CBK, CMA and KNBS was used and analysis made by SPSS software version 23. Quarterly data over ten years from January 2010 to December 2019 was obtained.

Correlation showed a weak positive and statistically insignificant correlation between economic growth and FP. Interest rate and money supply exhibited a positive and not significant association with FP of DT-SACCOs. Inflation rate exhibited a negative but not statistically significant association with FP. Exchange rate was inversely connected with FP of DT-SACCOs and the relationship was significant.

The co-efficient of determination  $R^2$  was 0.529 which can be translated to mean that 52.9% of the variations in FP are attributable to the five chosen predictor variables while 47.1% in the variation of FP is caused by factors beyond the scope of this study. It was also discovered that the predictor variables had a strong correlation with FP of

DT-SACCOs ( $R=0.728$ ). ANOVA results revealed a significant F statistic at 5% level with a  $p=.000$ . Hence adequacy of the model in explaining how the selected variables relate.

The findings from the regression indicate that when the chosen predictor variables (inflation rate, exchange rate, interest rate, economic growth and money supply) were rated zero, FP would be -6.007. Economic growth rise by a unit would increase FP by 0.120 whereas an increment with a unit in inflation rate would lower financial performance by 0.120. A unit increment in interest rate would cause an increment in FP by 0.171.

### **5.3 Conclusion**

From the results, economic growth was discovered to be positively associated with FP of DT-SACCOs and thus an increment in economic growth raises FP of DT-SACCOs. It also showed a positive influence of interest rate on FP and henceforth indicates that FP of DT-SACCOs is positively impacted by interest rate. A conclusion of the study is therefore that higher economic growth and interest rates leads to an improvement in FP to a significant extent. The study showed a negative relation between inflation rate and FP of DT-SACCOs leading us to make the conclusion that higher inflation rate has the tendency to lower performance of DT-SACCOs.

The conclusion of the study therefore is that the predictor variables ; rates of interest, exchange and inflation, economic growth and money supply influence FP of DT-SACCOs largely since they account for 52.9% of variations in FP. The realization that the five predictor variables account for 52.9% of changes in financial performance imply that the factors beyond the model explain 47.1% of changes in financial performance. The significance of the model for the study was revealed by the F

statistic. Thus, it is correct to state that these variables substantially affect financial performance as revealed by the p value in ANOVA.

This finding partly agrees with Nzuve (2016) who investigated on influence of macroeconomic determinants on performance of deposit taking microfinance companies. The study applied secondary data from 9 Kenyan microfinances for a timespan of ten years from 2005 and 2014 and analyzed the data using multiple linear regression. Study findings revealed negative association between inflation rate and financial performance, positive correlation between GDP, national savings, exchange rates, employment rate and deposit-taking micro finance institutions financial performance in all the years studied.

#### **5.4 Recommendations**

The findings were that inflation rate has a negative impact on financial performance of DT-SACCOs. The variable was a substantial determinant of financial performance. A recommendation of the study to policy makers is that focus should be placed on current rates of inflation as it can negatively affect financial performance of DT-SACCOs and in essence have an impact on the level of financial development in the country.

It was discovered that economic growth has a positive substantial impact on financial performance of DT-SACCOs. The study recommends the need to come up with measures that can boost economic growth as this will have an effect on the returns generated by the DT-SACCOs. Interest rates were also found to have a significant positive effect on financial performance. A recommendation of the study is that the CBK should aim at regulating the interest rate prevalent in the country knowing that they have an influence on financial performance of DT-SACCOs.

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

The period selected in this study was 10 years that is from 2014-2019. There is no proof that alike outcome will remain the same in a longer period. More so, the findings might not even hold for the period beyond 2019. An extended period will lead to the results being reliable since it will include cases of major economic changes like recessions and booms.

The quality of data was the greatest limitation of this study. This is because it cannot be determined accurately that the secondary data represent the situation as it is in the ground. It is has only been assumed that the data is accurate. This is usually a general problem when dealing with secondary data. The research used secondary data, which was in the public domain had already been obtained, unlike the first-hand information associated with primary data. The study additionally did not exhaust the entire factors affecting corporate taxes of listed firms greatly because of availability of data limitation.

This study focused on some factors that are hypothesized to influence financial performance of DT-SACCOs. Precisely, the study focused on five explanatory variables. In reality however, there are other variables that are likely to influence financial performance some which are internal such as management efficiency and leverage while others are not under the control of management like political stability, balance of trade, and unemployment rate among others.

This study relied purely on secondary data. The limitation of using secondary data is that it does not capture qualitative aspect of a research which can also have a significant influence on research findings. If the study had considered some

qualitative aspects by conducting interviews or focus group discussions, the findings would have been more comprehensive.

In achieving the analysis of the data, the study used a multiple linear regression model. Because of the restrictions involved when using the model like erroneous and deceptive outcomes that lead to the value of the variable changing, it was therefore not possible the findings of the study to be generalized with accuracy. More so the result could be different if more data was added in the regression. Hence the model was another limitation.

### **5.6 Suggestions for Further Research**

The basis of the study was on selected macro-economic variables and financial performance of DT-SACCOs and reliance was placed on secondary data. A similar study that places reliance on primary data collection methods such as in depth questionnaires and interviews extending to all the DT-SACCOs on the influences on financial performance would be more revealing since it would complement the current study.

The study did not exhaust all the predictor variables that influence the financial performance of the DT-SACCOs and hence recommends that additional studies be carried out to include additional variables like balance of payments, rate of unemployment, efficiency of management, performance of the industry, firm characteristics, political stability and others. Identifying how each variable influences financial performance of DT-SACCOs will allow policy makers to identify the best tool for controlling performance.

The concentration of the study was on the past ten years because it was the most current and readily available data. Additional studies in the future may cover a much

larger range for example from 1970 to date which will be helpful in approving or disapproving findings of the study. The advantage of a longer study is that it will enable the researcher to capture effects of business cycles such as booms and recessions.

The study limited itself making a focus only on the DT-SACCOs. The researcher advises that additional studies be done on other sectors and regions for example East African Community. In addition, selected macro-economic variables can also affect other aspects of the economy such as economic growth, FDI, foreign remittances among others and therefore the need to conduct studies on the effect of these predictor variables on other aspects of the economy.

Finally, this study was based on a multiple linear regression model, which have its own limitations like erroneous and misleading results resulting from a change in variable value. Future researchers should focus on other models for example the Vector Error Correction Model (VECM) in examining the various relations between selected macro-economic variables and financial performance.

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## APPENDICES

### Appendix I: Research Data

Year	Qr.	ROA	Interest rate	Exchange rate	Money supply	Inflation rate	Economic growth
2010	1	2.600	8.417	79.581	8.729	16.833	0.092
	2	2.600	8.083	78.446	8.954	15.920	0.094
	3	2.600	7.750	76.243	8.908	13.393	0.097
	4	2.600	7.250	75.138	8.961	10.300	0.098
2011	1	3.700	6.917	76.488	9.204	7.850	0.098
	2	3.400	6.750	78.938	9.230	5.867	0.099
	3	3.500	6.000	80.926	9.157	4.707	0.099
	4	3.700	6.000	80.581	9.184	4.033	0.100
2012	1	3.700	5.833	82.236	9.185	4.157	0.100
	2	3.400	6.083	86.124	9.120	6.013	0.103
	3	3.300	6.500	93.014	9.195	9.020	0.104
	4	3.300	15.167	93.870	9.116	12.777	0.104
2013	1	3.800	18.000	84.139	9.025	15.827	0.104
	2	4.000	18.000	84.120	9.166	16.290	0.105
	3	3.700	15.333	84.276	9.077	14.297	0.106
	4	4.600	11.667	85.578	9.245	10.697	0.106
2014	1	4.700	9.500	86.721	9.251	7.257	0.106
	2	4.700	8.833	84.608	9.341	5.043	0.106
	3	4.700	8.500	87.255	9.249	4.563	0.107
	4	4.700	8.500	85.907	9.282	5.387	0.107
2015	1	3.400	8.500	86.327	9.238	6.203	0.107
	2	3.400	8.500	87.247	9.364	6.827	0.107
	3	3.400	8.500	88.238	9.306	7.237	0.108
	4	3.400	8.500	89.878	9.316	6.977	0.109
2016	1	2.500	8.500	91.525	9.210	6.667	0.110
	2	2.500	9.000	95.844	9.268	6.657	0.111
	3	2.500	11.500	102.967	9.275	6.390	0.111
	4	2.900	11.500	102.381	9.163	6.437	0.112
2017	1	3.400	11.500	101.910	9.114	6.840	0.113
	2	4.200	10.833	101.035	9.150	6.590	0.114
	3	3.300	10.500	101.338	9.301	6.470	0.114
	4	2.500	10.500	101.734	9.042	6.403	0.116
2018	1	2.900	10.000	103.415	9.162	6.483	0.117
	2	2.800	10.000	103.359	9.162	7.723	0.118
	3	2.700	10.000	103.518	9.162	8.323	0.119
	4	2.700	10.000	103.351	9.161	8.153	0.119
2019	1	2.700	9.500	101.833	9.318	7.360	0.121

<b>Year</b>	<b>Qr.</b>	<b>ROA</b>	<b>Interest rate</b>	<b>Exchange rate</b>	<b>Money supply</b>	<b>Inflation rate</b>	<b>Economic growth</b>
	2	2.800	9.000	100.759	9.302	5.683	0.122
	3	2.800	9.000	100.706	9.301	4.703	0.123
	4	2.800	9.000	101.908	9.300	4.603	0.123