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MONETARY POLICY AND FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN KENYA

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Abstract: **Commercial banks play a vital role in the allocation of capital resources and risk sharing of future flows in any given economy or country. However, the financial performance of commercial banks in Kenya has been on the decline and this has raised concerns in all corners of the financial sector Monetary policy has a direct impact on the banking sector. The link between monetary policy and bank financial performance has gained prominence following the Great Financial Crisis. A number of studies have been conducted on monetary policy and financial performances of commercial banks in developed countries. Similarly, a few studies have been carried out on monetary policy and financial performances of commercial banks in Kenya. This study sought to examine the effect of monetary policy on financial performance of commercial banks in Kenya. The study made use of annual panel data while focusing on Commercial Banks in Kenya for the period 2012 to 2016. Causal research design was adopted where the study made use of panel data which was analysed within the framework of a panel regression model. The findings of the study show that Central Bank Base Rate has a negative and insignificant effect of financial performance of commercial banks in Kenya. Secondly, the findings of the study indicated a positive and significant effect on money supply on financial performance of commercial banks. Thirdly, the findings of the study provide evidence of a negative and significant effect of Cash Reserve Ratio on financial performance of commercial banks. Furthermore, the findings of the study show that inflation has a negative and insignificant effect on commercial banks in Kenya. Lastly, the findings of the study indicated a significant moderating effect of bank size on the relationship between monetary policy and financial performance of commercial banks in Kenya. Therefore, the study recommends that the Central Bank of Kenya should study and incorporate the ever changing operating environment of commercial banks when making changes or adjustments in the money supply. In addition, the Central Bank of Kenya should be cautious when changing the cash reserve ratio especially when increasing the Cash Reserve Ratio as it increase leads to a decrease in the amount of cash available for commercial banks. Furthermore, the management of commercial banks should embark on activities that will lead to high assets volume. These activities include lower interest rate to attract borrowers and better customer relationship to retain customers.**

Keywords: **Monetary Policy, Central Bank Base Rate, Cash Reserve Ratio, Money Supply, Bank Size, Inflation, Financial Performance and Commercial Banks.**

1. INTRODUCTION

1.1 Introduction:

Globally, the banking industry is an important sector charged with the responsibility of allocating capital resources as well as risk distribution of future flows in an economy (Meshak & Nyamute, 2016). In any economy, a well-functioning banking industry facilitates business cycles which bring about increased growth and welfare in that country (Waweru, 2013). The various roles performed by commercial banks make them a suitable framework for the administration of

monetary policy (Borio, Gambacorta & Hofmann, 2015). These roles include the provision of services such as money conversion, processing of payments, maturity transformation of assets, enhancing quality as well as managing and controlling risks.

In order to avert predominant economic conditions, most countries globally redesign the structure and function of their monetary policy. However, over the years, commercial banks in developing countries have been characterized by poor performance evidenced by their declining profitability. The low performance of commercial banks in developing countries can be linked to their poor monetary policies (Njini, 2017). The formulation of a working operating framework for monetary policy is cumbersome in developing countries. This can be attributed to most developing economies having deep markets in government debt. The lack of autonomy by monetary authorities in many developing countries has led to poor formulation of monetary policy frameworks.

Monetary policy is the framework used by the Central Bank to perform its regulatory function which facilitates economic growth and stability (Macharia, 2013). Monetary policy is defined by the relationship between the cost of borrowed money in an economy and the total money available (Ekpung, Udude & Uwalaka, 2015). Monetary policy tools include; Central Bank Base Rate, Money Supply, Cash Reserve Ratio, Inflation, Open Market Operations among others. Inflation, interest rates among other economy wide variables are also regarded as fundamental risk factors. The operating environment of banks is characterized by these variables.

1.2 Statement of the Problem:

High performance of the banking sector is of significance to the economy as it creates employment and facilitates the transfer of funds from surplus to deficits units, thereby, boosting economic growth (Kimani, 2013). However, banks do not operate in a vacuum; they are guided by the monetary policies set by the Central Bank. Thus, leaving the commercial banks in a vulnerable situation that is likely to have an effect on their profitability and hence financial performance due to fluctuations in the monetary policy environment (Waweru, 2013). Over the last five years, the financial performance (ROE) of commercial banks in Kenya has been characterized by a decreasing trend.

World Bank (2017) reports a declining trend in the financial performance of commercial banks over the years as expressed in their profitability (ROE). The ROE of commercial banks stood at 21.99% as at 2012 which is a fall compared to the 23.10% of 2011. Furthermore, the declining trend in profitability extended to 2013, 2014 and 2015 as the ROE stood at 20.94%, 20.88% and 17.39% respectively. The ROE of commercial banks in Kenya further declined in 2016 which was largely attributed to the interest rate capping bill of 2016 introduced in Kenya. This development has however taken commercial banks unawares as it exerts an adverse effect on their financial performance (Mbua, 2017).

A number of studies have been conducted in respect to monetary policy and financial performances of commercial banks in developed countries. Similarly, a few studies have been carried out on monetary policy and financial performances of commercial banks in Kenya. This study sought to address this gap in literature as it focused on the effect of monetary policy on financial performance of commercial banks in Kenya

1.3 Objectives of the Study:

1.3.1 General Objective:

In this study, the general objective was to determine the effect of monetary policy on financial performance of commercial banks in Kenya.

1.3.2 Specific Objectives:

The following are the specific objectives of the study:

i) To determine the effect of Central Bank Base Rate on financial performance of Commercial Banks in Kenya.

ii) To establish the effect of money supply on financial performance of Commercial Banks in Kenya.

iii) To determine the effect of Cash Reserve Ratio on financial performance of Commercial Banks in Kenya.

iv) To establish the effect of inflation on financial performance of Commercial Banks in Kenya.

v) To determine the moderating effect on the relationship between monetary policy and financial performance of Commercial Banks in Kenya.

1.4 Research Hypotheses:

The research hypotheses for the study are:

H_{01}: Central Bank Base Rate has no significant effect on financial performance of Commercial Banks in Kenya.

H_{02}: Money Supply has no significant effect on financial performance of Commercial Banks in Kenya.

H_{03}: Cash Reserve Ratio has no significant effect on financial performance of Commercial Banks in Kenya.

H_{04}: Inflation has no significant effect on financial performance of Commercial Banks in Kenya.

H_{05}: Bank size has no significant moderating effect on the relationship between monetary policy and financial performance of Commercial Banks in Kenya.

1.5 Scope of the Study:

The study was on monetary policy and financial performance of commercial banks in Kenya which was anchored on the following variables: financial performance, being the dependent variable and Central Bank Base Rate, Money Supply, Cash Reserve Ratio and Inflation as the independent variables. The moderating variable was bank size. The study was focused on 40 commercial banks in Kenya for the period 2012 to 2016 where annual data was utilized.

2. REVIEWS

2.1 Theoretical Review:

2.1.1 Interest Rate Parity Theory (IPT):

Interest Rate Parity Theory was proposed by Keynes (1936). The presupposition in this theory is that interest rates variations in countries that are trading partners explain the nominal interest rates volatility. The difference in interest rates between foreign and local countries relates to interest rate parity. Premium or discount for the forward exchange rate on the foreign currency is an indication of difference in interest rate in two different currencies as provided by the parity condition where buying and selling of currency in the financial market does not exist (Bhole & Dash, 2002).

Interest Rate Parity Theory's relevance in this study is that it provides insight on the presence of parity which plays a major role in banking operations. Commercial banks seek to make profits as they carry out their financial intermediation role. The rate of interest charged by commercial banks on their loans as well as other financial services rendered determines the profits made (Buigut, 2010). Thus, as the interest rate charged goes higher, so are the profits of these commercial banks and thus, their financial performance.

2.1.2 Deflation Theory:

Deflation theory was propounded by Fisher (1933). The theory asserts that a decrease in inflation rates bring about a decline in the general price level, which subsequently brings down the business net worth, reduced profitability and thus, precipitating bankruptcies in institutions. The cycles cause complicated disturbances in interest rates and a decline in the value of money. These complicated disturbances are described as both macro and micro forces (external and internal factors) impacting on the level of over indebtedness which exists among debtors and/or creditors which can result in loan default (Nzuve, 2016).

The theory is relevant to this study as it asserts that high rates of inflation will bring about high commercial banks' revenues, high profitability and thus, better financial performance of banks.

Conversely, decrease in rates of inflation, decreases revenues, profitability and thus poor financial performance of banks which can ultimately leads to bankruptcy of commercial banks (Nzuve, 2016). The anticipation of inflation rate determines its effect on the banks' profitability. It is positive when it well anticipated, as management of banks will quickly adjust interest rates to cater for such changes and vice versa.

2.1.3 Agency Theory:

This theory was propounded by Jensen and Meckling (1976). Agency theory has become popular management and its owners, who are the stockholders, relate (Mulwa, 2015). According to the theory, an agency conflict exists. The organisation's management is regarded as a contracted agent by the people holding stocks for the organisation to uphold

the value of stockholders by prudent financial performance (Waweru, 2013). To promote performance of the organisation financially, the management has the responsibility of putting the owner's interests before theirs.

In relevance to this study, agency theory asserts that the commercial banks' financial performance in terms of Return on Equity is dependent on how managers go about the operations of the banks in maximizing shareholders' wealth. The maximization of shareholders return can be seen on the rate of return on equity of shareholders. The theory arises from the fact that managers being the agents, maybe involved in actions that have personal motives which downplays the interests of the owners (shareholders) of the banks. According to this theory when such a situation occurs, it affects the banks' financial performance.

2.2 Empirical Review:

2.2.1 Central Bank Base Rate and Performance of Commercial Banks:

There are a few studies conducted in relation to monetary policy and financial performance of banks.

Ajayi and Atanda (2012) carried out a study on the effect of monetary policy instruments on Nigerian banks' performance. The research focused on the period 1980 and 2008 where the Engle-granger two-step co-integration approach was adopted. Bank rate was shown to insignificantly affect the Nigerian banks' performance. However, the study concentrated on Nigeria, therefore the findings of their study cannot be generalised for Kenya.

Waweru (2013) conducted a study on the effect of monetary policy on commercial banks' financial performance in Kenya. The study focused on Central Bank Base rate and financial performance. The results of the study indicate that; the average base rate of the CBK, that is, CBBR has a significant positive effect on the Kenyan commercial banks' profitability. Similarly,

Borio *et al*. (2015) conducted a study on the link between monetary policy and bank profitability. The study used a non-linear approach while using data for the period 1995 to 2012 on 109 large international banks with headquarters located in 14 major advanced economies. The study looked at the effect of interest rate changes (short-term rate level and yield curve slope) on all key elements of a profit and loss account such as the net interest income, non-interest income and bank loss provisions. The study also looked at overall profitability which was measured by Return on Assets (ROA). The results of the study provided evidence of a notable positive relationship between interest rate and profitability of banks. Further, the results study show that high interest rates enhance banks profitability. This can be attributed to the notion that interest rate charged by banks determines their profit on a particular loan. However, the study focused on major advanced economies therefore; the findings of their study cannot be applied to Kenya which is a developing economy.

Mulwa (2015) carried out a study on the effect of monetary policy and financial performance of commercial banks in Kenya, it covered a period of five years from 2010 to 2014. The study findings reveal that Central Bank Base Rate had a negative and insignificant effect on the financial performance of commercial banks in Kenya. However, the study by Mulwa focused on Net Interest Margin as a measure for financial performance of banks, this study adopted Return on Equity as a measure of financial performance for commercial banks in Kenya. ROE is an indicator of the return ate that is realised by the stockholders on what they have invested in the bank and it denotes how effective the use of shareholders' funds is by the management of the bank.

2.2.2 Money Supply and Performance of Commercial Banks:

A study was conducted by Al-Qudah and Jaradat (2013) on macroeconomic variables, bank characteristics on the Profitability Jordanian Islamic Banks. The study adopted Return on Equity (ROE) and Return on Assets (ROA) as measures of profitability. The findings of the study reveal that growth in money supply had a positive effect on the profitability of Jordanian Islamic Banks. However, Al-Qudah and Jaradat (2013) focused on Jordanian Islamic Banks; the current study was centered on commercial banks in Kenya.

Kwakwa (2014) conducted a study on the determinants of performance of commercial banks in Ghana. The study considered the effect of bank size, inflation and money supply on performance of commercial banks in Ghana. ROA and ROE were used to measure the banks' performance. The findings of the study show that money supply had a significant negative effect performance of commercial banks in Ghana as measured by on Return on Assets (ROA) and Return on Equity (ROE). However, the study was based on Ghana, therefore the findings from the study cannot be generalized for other countries, in this case the commercial banks in Kenya.

2.2.3 Cash Reserve Ratio and Performance of Commercial Banks:

Ajayi and Atanda (2012) carried out a study on the effect of monetary policy instruments on Performance of banks in Nigeria. The research focused on the period 1980 and 2008 where the Engle-granger two-step co-integration approach was adopted. The results of the study show that cash reserve ratio had a significant negative impact on banks' performance in Nigeria. Similarly, Mulwa (2015) carried out a study on the impact of monetary policy and financial performance of commercial banks in Kenya, the study covered a period of five years from 2010 to 2014. The study findings reveal that Cash Reserve Ratio had a negative and insignificant effect on the financial performance of commercial banks in Kenya..

Meshak and Nyamute (2016) conducted a study on monetary policy and financial performance of commercial banks listed in the Nairobi Securities Exchange, Kenya. The findings of the study established that Cash Reserve Ratio (CRR) negatively influenced the financial performance of commercial banks listed on the NSE. However, the study did not look at bank size which is an important banks specific variable that accounts for economies of scale.

2.2.4 Inflation and Performance of Commercial Banks:

A study was conducted by Buyinza (2010) to examine the profitability of commercial banks in Sub-Saharan African countries. The study focused on samples of 23 commercial banks profitability covering the period 1999 to 2006 all in Sub-Saharan African countries. The research made use of panel data regression analysis where the results of the study show that inflation impacts positively on profitability of banks. However, Buyinza (2010) focused on commercial banks in Sub Sahara Africa countries thereby making the study a cross country study. The current study focused on commercial banks thereby providing a country-specific result.

Frederic (2014) carried out a study on determinants of the local commercial banks' financial performance in Uganda. The study analysed data of all banks which included foreign and domestic commercial banks where a linear multiple regression analysis was conducted over the period 2000 to 2011. The findings of the study show that inflation significantly influences the performance of domestic commercial banks in Uganda.

Kiganda (2014) conducted a study on macroeconomic factors' effect on profitability of commercial banks in Kenya, a case study of Equity Bank Limited. The variables included in the study were exchange rate, GDP and inflation rate. The study made use of annual data ranging from 2008 to 2012. Analysis of the study was conducted within the framework of a multiple regression model where the study findings reveal inflation to have a positive and insignificant impact on commercial banks (Equity Bank Limited) Profitability in Kenya. However, this study focused only on Equity bank as such the findings cannot be generalized for all the commercial banks in Kenya.

3. METHODOLOGY

3.1 Research Design:

The study adopted causal research design. Causal research design is employed in a research to establish cause and effect on relationships among research variables. Therefore, causal research design was appropriate for this study.

3.2 Empirical Model:

The study made use of a panel regression model based on a panel data. Thus, financial performance of Commercial banks in terms of ROE was expressed as a function of Central Bank Base Rate, Money Supply, Cash Reserve Ratio and Inflation.

$$Y_{it} = \beta 0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \epsilon_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 3.1$$

Where:

Y_{it} - Financial Performance (ROE) of Commercial banks in Kenya.

$\beta 0$ - Constant

X_{1it} – Central Bank Base Rate

X_{2it} – Money Supply

X_{3it} – Cash Reserve Ratio

X_{4it} – Inflation

β1 – β4= Regression coefficients, they measure of sensitivity of a variable Y to changes in variable X

$Є_{it}$= Error term, it captures the omitted variables in the model

Moderating effect of Bank size on the zero-order correlation between monetary policy and financial performance was tested using the two models presented below.

$Y_{it} = \beta 0 + \beta_1 X_{it} + \varepsilon$…….....3.2

$Y_{it} = \beta 0 + \beta_1 X_{it} + \beta_2 M0_{it} + \beta_3 X_{it} * M0_{it} + \varepsilon$.....3.3

Where; Y_{it} = Financial Performance

X_{it} = Monetary Policy

$M0_{it}$ = Moderating Variable (Bank Size)

$X_{it} * M0_{it}$ = Interaction term

β_1, β_2, and β_3 = Beta coefficients

ε = Error term

In the case of moderation of an overall effect, the moderation test effect was specifically focused on assessing whether the interaction term coefficient was statistically different from zero (Whisman and McClelland, 2005).

3.3 Data Collection:

The data utilized in this study was secondary data which was collected from a number of sources such as the audited financial statements of the sample commercial banks; the Central Bank of Kenya and the Kenya National Bureau of Statistics. Due to incomplete data, the data utilized in this study was based on 40 banks. Data was collected for the duration of five years from 2012 to 2016.

4. DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Descriptive statistics:

The descriptive statistics help in exhibiting the basic features of the data used in the study. It provides the mean, standard deviation, minimum and maximum values. This was carried out and the results shown in the table below.

Table 4.1: Descriptive Statistics of the Study

Variable	Obs	Mean	Std. Dev.	Min	Max
ROE	200	.1842241	.108086	0	.494
CBBR	200	9.9	1.244081	8.5	11.5
Msupply	200	3.22787	.0912747	3.093457	3.348714
CRR	200	5.312	.0117255	5.299	5.329
Inflation	200	6.98	1.276616	5.7	9.4
BankSize	200	4.542593	.5755715	3.680438	5.808751

Source (Research Findings, 2018)

From the results, ROE had a mean of 0.184 and standard deviation of 0.108. CBBR had a mean of 9.9, standard deviation of 1.244. Money supply had a mean of 3.228, standard deviation of 0.091. CRR had a mean of 5.312, standard deviation of 0.012. Inflation had a mean of 6.98, standard deviation of 1.277. Lastly, bank size had a mean of 4.543 and standard deviation of 0.576.

4.2 Test for correlation:

Correlation test is a test that indicates how strongly a pair of variable is correlated. This test was carried out using the Pearsons correlation and results presented in the table below.

Table 4.2: Result for Correlation Test

	ROE	CBBR	Msupply	CRR	Inflation	Banksize
ROE	1.0000					
CBBR	-0.0889	1.0000				
	0.2106					
Msupply	0.1704	0.1055	1.0000			
	0.0159	0.1369				
CRR	-0.0255	0.0207	-0.3568	1.0000		
	0.7201	0.7714	0.0000			
Inflation	-0.0383	0.4923	-0.6164	0.6123	1.0000	
	0.5900	0.0000	0.0000	0.0000		
Banksize	0.5067	0.0029	0.0934	-0.0187	-0.0631	1.0000
	0.0000	0.9675	0.1884	0.7924	0.3747	

Significant at 0.05

Source (Research Findings, 2018)

From the table, there is a non-significant association between the CBBR and the Roe (r=-0.0889, p value 0.2106). There is a significant relationship between Money supply and ROE(r=-0.1704, p-value 0.0159). There is a non-significant association between the Cash reserve ratio (CRR) and ROE (r=0.0255, p value 0.7201). The association between the bank size and the ROE is significant (r=0.5067, p-value 0.000). According to Green, (2008), if a pair of variable has a correlation of 0.8 or -0.8 (i.e. r2 of 64% or more), then the pair is strongly correlated and this means that multicollinearity does not exists. From the table, none of the pair of association has r of more than 0.8 (64%) hence the data has no multicollinearity problem.

4.3 Hausman test:

A hausman test is carried out to determine the best model to use in carrying out a panel regression output. The null hypothesis is that the preferred model is random effect while the alternative hypothesis is that the preferred model is fixed. A p value of less than 0.05 rejects the null hypothesis therefore the fixed effect model is used.

Table 4.3: Results of the Study on Hausman Test

	coefficients			
	(b) M1	(B) m2	(b-B) Difference	sqrt(diag(v_b-B)) S.E.
CBBR	-.0007575	-.0025728	.0018152	.
Msupply	-.2004014	-.2983144	.0979131	.0214508
CRR	.2544946	-.1337866	.3882811	.
Inflation	-.0104630	-.0057742	-.0046888	.
Banksize	-.1338299	.0752905	-.2091204	.0579862

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtabond

Test: Ho: difference in coefficients not systematic

chi2(5) = (b-B) ' [(v_b-v_B)^(-1)](b-B)
= 13.01
Prob>chi2 = 0.0233

Source (Research Findings, 2018)

From the findings a p value of less than 0.05 was obtained thus the study used the fixed effect model in carrying out the panel regression.

4.4 Regression Analysis and Hypotheses Testing:

Table 4.4: Panel Regression Model Without the Moderating Variable

```
fixed effects (within) regression               Number of obs      =       200
Group variable: bank                            Number of groups   =        40

R-sq: within = 0.2023                           Obs per group: min =         5
     between = 0.2814                                          avg =       5.0
     overall = 0.2167                                          max =         5

                                                F(4,156)           =      8.08
Corr(u_i,xb) = 0.0000                           Prob > F           =    0.0000
```

ROE	Coef.	Std. Err.	Z	P>|z|	[95% Conf.	Interval]
CBBR	-.0019192	.0049386	-0.39	0.698	-.0116743	.0078359
Msupply	.2630624	.0679712	3.87	0.000*	-1.397325	2.2230624
CRR	-.0600801	.0306531	-1.96	0.050*	-.9088228	.9208388
Inflation	-.0074623	.0071715	-1.04	0.300	-.0216281	.0067035
_cons	1.0725280	2.3776471	0.45	0.653	3.6240070	5.7690630
Sigma_u	.09690489					
Sigma_e	.05119913					
rho	.78177067	(fraction of variance due to u_i)				

Source (Research Findings, 2018)

Without the inclusion of the predictor variables, the ROE of the banks increase by 1.0723. A unit increase in CBBR results in the decline in the ROE of banks by 0.0019 times. Secondly, a unit increase in money supply results in a significant increase in the ROE by 0.2631 times. Thirdly, a one unit increase in CRR results in a significant decrease in the banks ROE by 0.060 times. Lastly for a unit increase in the inflation rate, there is a 0.0075 times decline in ROE. Among the variables, the results show that money supply and CRR were significant at 0.05 level of significance with p values of 0.000 and 0.050 respectively. An R^2 of 0.2167 was obtained meaning that in the absence of the moderating variable, the predictor variables explain 21.67 % of the change in the ROE of the banks.

The equation thus become

ROE_{it} =1.073 - 0.0019 $CBBR_{it}$ + 0.2631 $Msupply_{it}$ - 0.0601 CRR_{it} – 0.0075 $Inflation_{it}$ + 0.7818εt

4.5 Effect of Monetary Policy on Financial Performance of Commercial Banks in Kenya:

The first objective of the study was to determine the effect of Central Bank Base Rate on financial performance of Commercial Banks in Kenya. The coefficient of CBBR (-0.0019) has a probability value of 0.698 which is greater than 0.5. Thus, a unit increase in CBBR results in the decline in the ROE of banks by 0.0019 times. Therefore, the findings of the study show that CBBR has a negative and insignificant effect of financial performance of commercial banks.

The second objective of the study was to determine the effect of money supply on financial performance of Commercial Banks in Kenya. The coefficient of money supply (0.2631) has a probability value of 0.000. Therefore, money supply has a positive and significant effect on financial performance of commercial banks in Kenya as measured by ROE. The findings of the study imply that a unit increase in money supply results in an increase in the ROE by 0.2631 times.

The third objective of the study was to determine the effect of cash reserve ratio on financial performance of commercial banks in Kenya. The coefficient of CRR (-0.06008) has a probability value of 0.050. Therefore, the null hypothesis was rejected at 5% significance level. Therefore, CRR has a negative and significant effect on performance of commercial

banks in Kenya. The findings of the study imply that a one unit increase in CRR results in a decrease in the banks ROE by 0.06008 times.

The fourth objective of the study was to determine the effect of inflation on financial performance of commercial banks in Kenya. The coefficient of inflation (-0.0075) has a probability value of 0.300 which is greater than 0.5. Therefore, the null hypothesis was not rejected at 5% significance level. Thus, for a unit increase in the inflation rate, there is a 0.0075 times decline in financial performance as measured by ROE.

4.6 The Moderating Effect of Bank Size on the Relationship Between Monetary Policy (CBBR, Money Supply, CRR and Inflation) and Financial Performance of Commercial Banks in Kenya.

In determining the moderating effect of bank size on the relationship between monetary policy and financial performance of commercial banks in Kenya the second model was used. The second model represents the panel regression with the inclusion of the moderating variable. The inclusion of the variable was done using the composite to moderate the changes of the effect of the predictor variables on the dependent variables.

Table 4.5: Results of Panel Regression in the Presence of a Moderating Variable (Bank Size).

```
fixed effects (within) regression               Number of obs      =       200
Group variable: bank                            Number of groups   =        40

R-sq: within = 0.4960                           Obs per group: min =         5
     between = 0.5427                                          avg =       5.0
     overall = 0.5086                                          max =         5

                                                F(5,155)           =      7.96
Corr(u_i,xb) = -0.8341                          Prob > F           =    0.0000
```

ROE	Coef.	Std. Err.	Z	P>|z|	[95% Conf.	Interval]
CBBR	-.0025728	.0050319	-0.51	0.609	-.0124352	.0072896
Msupply	.2983144	.0699166	-4.27	0.000*	-1.661686	2.2583144
CRR	-.1337866	.0597262	-2.24	0.029*	-2.093786	1.8262134
Inflation	-.0057742	.0073177	-0.79	0.430	-.0201165	.0085681
BankSize	.7529051	.0211761	3.56	0.000*	.0337862	.1167949
_cons	1.5815790	2.4252420	0.65	0.514	-3.1718081	6.3349652
Sigma_u	.01896904					
Sigma_e	.02751199					
rho	.32211195	(fraction of variance due to u_i)				

Source (Research Findings, 2018)

The second model represents the panel regression with the inclusion of the moderating variable. The inclusion of the variable was done using the composite to moderate the changes of the effect of the predictor variables on the dependent variables. The results are presented in the Table 4.7.

Upon the introduction of a moderating variable, a unit increase in the CBBR results in a decline in ROE by 0.0026. Secondly, a unit increase in the money supply results in an increase in the ROE of the banks by 0.2983. The decline is statistically significant with a p value of 0.000 at 0.05 level of significance. Thirdly, a unit increase in CRR results in the decline of the banks' ROE by 0.1338. This decline is also statistically significant at 0.05 significance level. Fourthly, with a unit rise in the inflation rate, the ROE declines by 0.0058.

$ROE_{it} = 1.5816 - 0.0026CBBR_{it} + 0.2983Msupply_{it} - 0.1338CRR_{it} - 0.0058Inflation_{it} + 0.0752Banksize_{it} + 0.3221\varepsilon t$

The fifth objective was to determine the moderating effect of bank size on the relationship between monetary policy and financial performance of commercial banks in Kenya. From the model the introduction of the moderating variable significantly affects the relationship between the independent and the dependent variable; R^2 increases from the previous 0.2167 to 0.5086. This means the predictor variables can explain up to 50.86% of the changes in ROE of the banks. The

null hypothesis stated that bank size has no significant moderating effect on the relationship between monetary policy and financial performance of commercial banks in Kenya. A p value of 0.000 is obtained which is a manifest of the statistical significance of the bank size as a moderating variable. Therefore, the null hypothesis was rejected at 5% significance level

5. SUMMARY, CONCLUSION AND POLICY RECOMMENDATIONS OF THE STUDY

The study concluded that money supply has a positive and significant effect on the financial performance of commercial banks in Kenya. Therefore, the Central Bank of Kenya should study and incorporate the ever changing operating environment of commercial banks when making changes or adjustments in the money supply. Furthermore, the study concluded that CRR has a negative and significant effect on the financial performance of commercial banks in Kenya. Therefore, the Central Bank of Kenya should be cautious when changing the cash reserve ratio especially when increasing the CRR as the increase in CRR leads to a decrease in the amount of cash available for commercial banks. Lastly, the study concluded that bank size has a significant moderating effect on the relationship between monetary policy and financial performance of commercial banks in Kenya. Therefore, the management of commercial banks should embark on activities that will lead to high assets volume. These activities include lower interest rate to attract borrowers and better customer relationship to retain customers.

The inability of the study to consider the newly introduced interest rate cap led to the adoption of CBBR. This is attributed to the fact that the newly interest rate capping in Kenya is barely two financial years since it was introduced in September 2016. However, the CBBR has been in existence for so many years and hence the choice of CBBR. The study suggests that further studies in the similar area should consider the interest rate capping and its effect on the financial performance of commercial banks in Kenya.

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