INVESTIGATING THE EFFECTS OF MACROECONOMIC DETERMINANTS ON BANK INTEREST RATE SPREADS OF COMMERCIAL BANKS IN KENYA

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ABSTRACT

This study sought to determine the effect of macroeconomic determinants on interest rate spread. The study contributed to the literature on the effects of macroeconomic determinants on interest rate spreads of Commercial Banks in Kenya. This study adopted qualitative research design in assessing the effects of macroeconomic determinants on interest rate spreads of Commercial Banks in Kenya. The study targeted all Commercial Banks in Kenya but the sample size constituted 12 commercial banks in Kenya. Proportionate sampling technique was employed. Data for the study was obtained from Central Bank of Kenya reports, CBK Annual Supervisory reports, Annual Reports of the Commercial Banks and audited financial statements of the sampled banks. Descriptive statistics was used to state the means of the variables over a 5 year period under study. Correlation analysis was used to examine if there was any relationship or degree of association between macroeconomic determinants and bank interest rate spreads of commercial banks in Kenya. A multivariate regression model was used to determine the extent to which macroeconomic determinants determine interest rate spread of commercial banks in Kenya. The study found positive relationship between the predictor variables (real GDP, inflation rate and central bank rate) and dependent variable (Interest Rate Spreads). However, it was found that a strong positive and significant relationship existed between inflation rate and interest rate spread within commercial banks of Kenya. The study found that Kenya's medium commercial banks interest spread were affected most by macroeconomic variables than large and small banks. The study recommended that inflation should be curbed in order to have a positive influence (reduction) on interest rate spread.

Key Words: Real GDP, Inflation Rate, Interest Rate, Central Bank Rate

INTRODUCTION

Lending is the principal business for most commercial banks evidenced by the volume of loans that constitute banks assets and the annual substantial increase in the amount of credit granted to borrowers in the private and public sectors of the economy. Financing cost spread (IRS) is characterized as the contrast between normal loan cost earned on enthusiasm gaining resources (advances) and normal loan cost paid on stores by Crowley (2007); Barajas, Roberto and Natalia (1998). The normal rate charged on credits is ascertained by isolating aggregate intrigue pay got on advances and advances by the normal load of advances and advances, while the normal rate paid on stores is figured by separating absolute intrigue cost by the normal supply of aggregate stores.

The Kenyan banking sector has seen a rapid adoption of innovative products as banks (and other institutions) seek to gain a competitive edge. Following the success of M-Pesa, many banks have rolled out mobile banking services that allow customers to manage their accounts on their phones, and Kenya now has one of the most developed mobile banking systems in the world. Another recent innovation has been the agency banking model, whereby banks license agents, such as shopkeepers, to conduct their banking operations.

Generally, Kenya keeping money industry was ruled by significant global banks, for example, Barclays Bank and Standard sanctioned Bank that found their business in real towns and their primary clients were the administration and corporate foundations. This made it troublesome for little scale business holders and utilized residents to get to keeping money administrations (Ngugi, 2012).

Statement of the problem

In spite of changing the currency showcases in Kenya, loan costs spread keeps being high. In year 2010, the loan cost spread was high to the point that the individuals from Parliament tabled a movement on money related bill to top the financing cost. One of the normal advantages of money related progression and extending of the budgetary area is the narrowing of the financing cost spreads, that is, the distinction between the loan cost charged to borrowers and the financing cost paid to investors. The keeping money segment in Kenya assumes an overwhelming part in the budgetary area, especially as for preparation of investment funds and arrangement of credit. An examination of bank loan fee spreads is along these lines fundamental to the comprehension of the budgetary intermediation process and the macroeconomic condition in which banks work. The level of the CBR is looked into and declared by the Monetary Policy Committee (MPC) no less than at regular intervals and its developments, both in heading and extent, flags the money related arrangement position.

Kenyan banks are required to utilize another base rate when estimating advances; national bank supposes it will support the supply of credit to the private division yet spectators are suspicious. The Central Bank of Kenya acted to "improve the supply of private area credit", by presenting another base rate for business banks to utilize when choosing what financing costs to charge borrowers.

In response to the concerns about the lending rate, a number of policy-makers have suggested placing controls on the interest rates. In a recent example, the Parliamentary Budget Office suggested pegging deposit rates to lending rates, whilst in 2000 the Donde Act attempted to introduce a maximum spread between deposit rates and lending rates of 8

percentage points (p.p.) by pegging both to the 91-day Treasury bill (T-bill) rates.

Objectives of the Study

- To determine the effect of real Gross Domestic Product (GDP) on interest rate spreads of Commercial banks in Kenya.

- To analyze the effect of prevailing inflation rate on interest rate spreads of Commercial banks in Kenya.

- To evaluate the effect of Central Bank Rate (CBR) on interest rate spreads of Commercial banks in Kenya.

THEORETICAL REVIEW AND LITERATURE REVIEW

Classical theory of interest

As per Keynes, genuine traditional hypothesis of loan fee is the reserve funds speculation hypothesis. Essentially, the hypothesis holds the recommendation in view of the general balance hypothesis that the rate of intrigue is controlled by the convergence of the interest for and supply of capital. Hence, a balance rate of intrigue is resolved at a time when the interest for capital equivalents its supply. Interest for capital stems from speculation choices of the business visionary class. Venture request plan, along these lines, mirrors the interest for capital, while the supply of capital outcomes from reserve funds in the group. Investment funds plan, along these lines, speaks to the supply of capital. It takes after that reserve funds and speculation are the two genuine variables deciding the rate of intrigue. In specialized language, the rate of premium is dictated by the crossing point of venture request plan and the investment funds plan. At the balance rate of premium, add up to venture and aggregate funds are equivalent (Caplan, 2000). The ramifications of the hypothesis, diverse banks have distinctive sell, if

what expressed in the hypothesis is genuine high fluid bank should charge low financing cost on stores loan keeping in mind the end goal to draw in more borrowers and loan fee on reserve funds ought to be low with a specific end goal to demoralize investment funds or in the event that it charges an indistinguishable rate from different bets on cash obtained then financing cost on sparing ought to stay low. On the off chance that that is genuine financing cost spread on exceedingly fluid banks ought to be nearly more than low fluid banks. Monetary execution on similarly high fluid bank ought to be superior to low fluid bank (Rochon and Vernengo, 2001).

The Rational Expectations theory of interest

The hypothesis of discerning desires (RE) is an accumulation of suppositions in regards to the way in which financial specialists misuse accessible data to frame their desires. Financial specialists who have faith in objective desires construct their conviction with respect to the standard monetary presumption that individuals carry on in ways that boost their utility (their happiness regarding life) or benefits. Financial specialists have utilized the idea of reasonable desires to comprehend an assortment of circumstances in which hypothesis about what's to come is a pivotal factor in deciding current activity. The balanced desires hypothesis can be joined with the loanable assets hypothesis so as to better consider the accessible data inside the economy. The constraining elements of sound desire hypothesis are generally identified with the trouble in social affair data and seeing how people in general uses its data to shape its desires (Caplan, 2000). On the off chance that desire of the general population is that premium will rise many individuals will abstain from getting this consequently will influence bank execution because of diminished procuring on loan cost, yet individuals anticipate that financing cost will drop individuals

would obtain and this will enhance banks execution because of increment in loan cost acquiring (Bekaert, 1998).

Loanable Funds Theory of interest

The loanable-stores hypothesis of premium is an augmentation of the established funds and venture hypothesis of intrigue. It joins fiscal elements with the non-money related components of funds and venture. As indicated by the loanable-stores hypothesis, the rate of intrigue is controlled by the interest for and the supply of assets in the economy at that level at which the two (request and supply) are compared. In this manner, it is a standard request supply hypothesis as connected to the market for loanable assets (credit), regarding the rate of enthusiasm as the cost (per unit time) of such supports.

Loanable assets are "the totals of cash provided and requested whenever in the currency advertise. "The supply of "credit" or subsidizes accessible for loaning would be affected by the reserve funds of the general population and the increments to the cash supply (as a rule through credit creation by banks) amid that period. The request side of the loanable assets, then again, would be controlled by the interest for speculation in addition to the interest for storing cash (Turnovsky, 1985). Loanable reserve hypothesis has suggestion on banks savers and borrowers as per this hypothesis these two gatherings should well be repaid at harmony. As indicated by this hypothesis loan cost spread ought not to be wide where one gathering feels misused. Loan fee ought to be organized in a way every gathering feel great (Emmanuelle, 2003).

Traditional Banking Theory

Banks have customarily assumed the key part in the money related framework by going about as monetary go-betweens between extreme savers and borrowers. As resource transformers, they have acknowledged stores with one arrangement of attributes and made resources with an alternate set; specifically, they have occupied with development change with obligation contracts on the two sides of the monetary record. They have additionally been the focal component inside the installments framework. For these and different reasons (outstandingly a potential threat of store which may make dissolvable banks wind up plainly indebted, and the fundamental outcomes that could in this way collect), banks have customarily been viewed as "extraordinary" inside the money related framework.

Empirical Review

Real Gross Domestic Product (GDP)

Loan fee is one of the macroeconomic development factors; it's all over unpredictability is firmly related with expansion rates. Its high or low rates likewise affect the financial blast (high GDP) and stretching out to impact monetary development rate. Projectile (2007) gauges the determinants of business banks, loan fee spreads in the Eastern Caribbean Currency Union utilizing yearly board information. The spread was found to increment with an expansion in showcase control, the managed investment funds store rate, hold necessities, arrangement for advance misfortunes and working expenses and genuine GDP as a pointer of monetary action.

As indicated by Gambacorta (2004), loaning rates have a positive association with genuine GDP and swelling. An expansion in genuine financial action makes extends that would some way or another seem unfeasible wind up plainly beneficial when marked down to the present. The expansion in monetary action along these lines expands interest for credit. An expansion in genuine GDP and

swelling are adversely related with store rates. At the point when the economy is blasting, it pushes up interest for stores and consequently banks have no motivation to expand store rates. As for working expense and credit chance, an expansion in the cost of monetary intermediation prompts higher loaning rates as banks endeavor to recover the expenses. These incorporate expenses brought about in surveying the hazard profile of borrowers, observing of the different ventures for which credits have been progressed and connecting with however many individuals and land territories as could be expected under the circumstances through development of branch arrange. Then again, an expansion in the instability of the currency showcase loan cost drives up both store and loaning rates.

The impact of genuine GDP on financing cost spreads is basically proportional to the impact of household monetary development on loan fees (Suranovic, 2007). An ascent in GDP, as indicated by Suranovic (2007), will prompt an ascent in loan fee spreads, as requests for reserves increment. There are a few reasons that an expansion in GDP can prompt an ascent in loan fee spread. For one, when an economy is blasting, more financial specialists will be putting cash in it. This expanded interest for assets can prompt loan specialists requesting higher financing costs. Besides, as an economy blasts, swelling will for the most part increment. This will prompt an expansion in the financing cost charged by loan specialists, in order to keep pace with swelling. An ascent in GDP may likewise start swelling that can outpace the development of the GDP, putting the economy in danger of an emergency. With a specific end goal to cool an "overheated" economy, the Central Bank of Kenya may raise the loan fee at which it loans out cash. The higher financing cost at which borrowers from the Central bank need to credit cash frequently puts brakes on new venture. By differentiate, the Central

bank may bring down loan fees to cajole new speculation. In the event that increments as a rule loan fees are excessively fast, it can discourage the GDP severely, making harm the economy, as indicated by the Economics Web Institute. The Central Bank should accordingly be watchful in the amount it raises and lower loan costs.

Inflation Rate

In money related viewpoints, extension is an overseen increase in the general esteem level of stock and ventures in an economy over some extend of time. Exactly when the general esteem level risings, each unit of cash buys less items and endeavors. Along these lines, extension reflects a decreasing in the purchasing impact per unit of money – lost bona fide motivation in the medium of exchange and unit of record inside the economy. A primary measure of significant worth development is the swelling rate, the annualized rate change in a general esteem record (usually the buyer esteem document) after some time. The backwards of swelling is crumple. Swelling impacts an economy in various ways, both positive and negative. Negative effects of swelling fuse an extension in the open entryway cost of holding money, defenselessness over future swelling which may cripple wander and speculation reserves, and if development were adequately quick, lacks of items as buyers begin amassing out of stress that expenses will augment later on. Helpful results join ensuring that national banks can adjust honest to goodness advance expenses (to lighten withdraws), and engaging enthusiasm for non-money related capital undertakings.

Monetary experts overall assume that high rates of extension and hyperinflation are caused by an extravagant advancement of the money supply. Regardless, money supply improvement does not so much reason development. A couple of business

experts keep up that under the conditions of a liquidity trap, immense cash related mixtures take after "pushing on a string". Points of view on which factors choose low to coordinate rates of extension are more changed. Low or direct development may be attributed to instabilities in real enthusiasm for items and endeavors, or changes in open supplies, for instance, in the midst of deficiencies. Nevertheless, the assention see is that a since a long time prior oversaw time of extension is caused with money supply getting to be noticeably speedier than the rate of budgetary improvement.

Central Bank Rate

Individuals from the Kenya Bankers Association in 2012 willfully embraced the Annual Percentage Rate or APR valuing model. APR is the numerical portrayal of the Total Cost of Credit. The APR execution was embraced in 2013 with the powerful date occurring on first July 2014. The "Aggregate Cost of Credit" or TCC will incorporate the bank financing cost in view of a premium (or the "k") that takes care of the banks' Expense of Funds, Margin and Risk. Outsider Costs straightforwardly connected with the advance are likewise canvassed in the TCC; these incorporate legitimate expenses, protection, valuation, and government demands. The TCC, including gauges for outsider expenses, ought to be given to all credit candidates preceding contract marking. While the APR and TCC revelations don't straightforwardly affect the cost of credit, clients will be enabled to look for the advance items that address their issues. The improved straightforwardness will likewise fortify rivalry inside the managing an account industry in this way adding to more aggressive financing costs for clients with a decent credit track record.
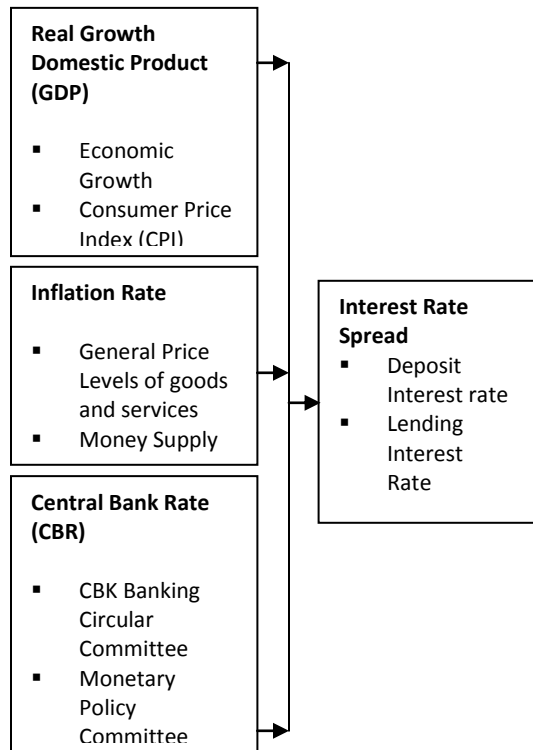
In a different report that broadens Ho and Saunders (1981) display, Allen (1988) regards banks as latent merchants much the same as pros on securities trades and thus contends that banks change their costs as a method for changing interest for their items – stores and advances. Loaning rates are set by reducing default-hazard balanced genuine costs of the advance while store rates are dictated by putting an increase on default-chance balanced genuine cost of the store. As indicated by Allen (1988), the spread is along these lines impacted by syndication power and hazard premium.

In Kenya, few investigations exist that look at the premium spread assurance. Beck et al (2010) inspect improvements in Kenya's budgetary area with a particular concentrate on strength, proficiency and effort, and utilize loan cost spreads as an intermediary for the effectiveness of money related intermediation. They construct their investigation in light of ex post developed spreads and disintegrate the spreads into various segments in view of an arrangement of variables, for example, overhead costs, advance misfortune arrangements and expenses. Ndung'u and Ngugi (2000) hypothetically determined factors prone to clarify the loan fee spread and observationally assessed a financing cost spread condition utilizing month to month time arrangement information for the period April 1993 to June 1999, while Ngugi (2001) expands the month to month time arrangement information to December 1999. The elements considered by the previous are stores, credits, Treasury charge rate and interbank rate. They find that the spread are emphatically related with stores yet adversely identified with credits. Notwithstanding the components above, Ngugi (2000) fuses overabundance liquidity and non-performing credits proportion as illustrative factors and finds that an ascent in non-performing advances proportion prompts an ascent in spreads while abundance liquidity is contrarily related with spreads. The two examinations are attempted at the miniaturized scale level, for the most part concentrating on the smaller scale industry level

factors. In any case, they both disregard macroeconomic markers, for example, GDP and expansion.

Conceptual Framework

Real Growth Domestic Product (GDP)
- Economic Growth
- Consumer Price Index (CPI)

Inflation Rate
- General Price Levels of goods and services
- Money Supply

Central Bank Rate (CBR)
- CBK Banking Circular Committee
- Monetary Policy Committee

Interest Rate Spread
- Deposit Interest rate
- Lending Interest Rate

Independent Variables   Dependent Variable
Figure 1: Conceptual Framework
Source: Author 2016

Methodology

The study adopted a qualitative research design in assessing the effects of macroeconomic determinants on interest rate spreads of Commercial Banks in Kenya. Data was collected from Central Bank of Kenya reports. CBK Annual Supervisory reports, Annual Reports of the commercial Banks and Audited annual financial Statements of Commercial Banks in Kenya for the period 2011-2015. The population of study consisted of Forty-three (43) Commercial banks in Kenya, according to the Central Bank of Kenya (CBK, 2011). The analysis involved preparation of the collected data. This included coding, editing and cleaning of data in readiness for processing using Statistical Package for Social Sciences (SPSS).

Results and Discussions

Descriptive Statistics
This segment tried to give a portrayal of the variables for the averages of the variables utilized as a part of depicting the connection between variables. Results are presented in table 1 below.

Table 1: Descriptive Statistics for the Averages of Variables

	N	Mean	Std. Deviation
Interest Rate Spreads	60	10.3667	2.86987
Real GDP	60	5.4400	0.53968
Inflation Rate	60	8.5200	3.02760
Central Bank Rate	60	10.7200	3.72353

In the findings above, a Mean score for the dependent variable (Interest Rate Spread) was 10.3667. Mean scores for independent variables, Real GDP, Inflation Rate and Central Bank Rate were 5.44, 8.52 and 10.72 respectively.

The mean for Interest Rate Spread shows that over the period under study, Interest Rate Spread was averaging at 10.37%. The descriptive statistics for average Real GDP explains that average Real GDP under study was averaging at 5.44%. Average mean for Inflation Rate explains that over a period of study, inflation rate was averaging at 8.52%. Average for central bank rate explains that over a period under study and central bank rate was averaging at 10.72%.

Correlation Analysis

Spearman's correlation was used to examine if there was any correlation or degree of association between macroeconomic determinants and bank interest rate spreads of commercial banks in Kenya. Table 2 presents the results.

Table 2: Correlation Analysis for Large Banks

Spearman's rho	Interest Rate Spreads	Real GDP	Inflation Rate	Central Bank Rate
Interest Rate Spreads	1			
Real GDP	0.315**	1		
Inflation Rate	0.217*	0.231*	1	
Central Bank Rate	0.192	0.041	0.033	1

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Spearman's correlation was used to carry out correlation analysis and the significance of the coefficients was calculated at 0.01 and 0.05 level. The method was used due to the fact that it easily indicates how variables are statistically significance to the determinants and bank interest rate spreads of commercial banks as indicated by the positive and strong Spearman correlation coefficients. This infers the loan fee spread are depended upon to influence decisions about bank enthusiasm to rate spreads of business banks as appeared by their solid and positive relationship coefficients.

For large banks, the findings show a strong positive and significant relationship between interest rate spread and real GDP with a correlation coefficient of 0.315. This implies that increasing Real GDP will have an increase in interest rate spread given its positive significant correlation of 0.315. This concurs with a study by Grenade (2007) who posited that found to increase interest rate spread increase market power, which on the other hand regulate savings deposit rate.

The study shows a relatively strong positive and significant relationship between interest rate spread and inflation rate with a correlation coefficient of 0.217. This implies that if a countries inflation rate increases, there will be an expected increase in interest rate spread for that period under which inflation rate increased and vice versa for large banks.

The findings also show a weak positive relationship between interest rate spread and central bank rate with a correlation coefficient of 0.192. This implies that if central bank rate increases at any given time, interest rate spread will increase significantly and vice versa.

Table 3: Correlation Analysis for Medium Banks

Spearman's rho	Interest Rate Spreads	Real GDP	Inflation Rate	Central Bank Rate
Interest Rate Spreads	1			
Real GDP	0.629**	1		

	Inflation Rate	Central Bank Rate		
Inflation Rate	0.437*	0.471*	1	
Central Bank Rate	0.238	0.109	0.094	1

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

** Correlation is significant at the 0.01 level (2-tailed).

Spearman correlation was used to determine the degree of association between independent variables and dependent variable amongst medium banks. This is because it supports the hypothesis that each independent variable has its useful value in explaining the determinants and bank interest rate spreads of commercial banks in Kenya.

For medium banks, the findings show a very strong positive and significant relationship between interest rate spread and real GDP with a correlation coefficient of 0.629. This implies that increasing Real GDP will have a significant increase in interest rate spread given its positive significant correlation of 0.629. This concurs with a study by Suranovic (2007) who posited that a rise in GDP will lead to a rise in interest rate spreads, as demands for funds increase.

The study also shows a strong positive and significant relationship between interest rate spread and inflation rate with a correlation coefficient of 0.437. This implies that if a countries inflation rate increases, there will be an expected significant increase in interest rate spread for that period under which inflation rate increased and vice versa. An investigation by Gambacorta demonstrated that the expansion in monetary action expands interest for credit. He additionally included that an expansion in genuine GDP and swelling are adversely related with store rates.

The findings show a relatively strong positive relationship between interest rate spread and central bank rate with a correlation coefficient of 0.238. This implies that if central bank rate increases at any given time, interest rate spread will increase significantly and vice versa. This concurs with a study by Demirgüç-Kunt and Huizinga (1999) who set that distinctions in premium edges and bank benefit unequivocal and verifiable bank tax collection and store protection direction

Table 4: Correlation Analysis for Small Banks

Spearman's rho	Interest Rate Spreads	Real GDP	Inflation Rate	Central Bank Rate
Interest Rate Spreads	1			
Real GDP	0.294*	1		
Inflation Rate	0.172	0.178*	1	
Central Bank Rate	0.271*	0.062	0.047	1

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

** Correlation is significant at the 0.01 level (2-tailed).

Spearman correlation was used to determine the degree of association within the independent variables amongst small banks at 0.05 level. This is because it supports the hypothesis that each independent variable has its useful value in

explaining the determinants and bank interest rate spreads of commercial banks in Kenya.

For small banks, the findings show a relatively strong positive and significant relationship between interest rate spread and real GDP with a correlation coefficient of 0.294. This implies that increasing Real GDP will have a significant increase in interest rate spread given its positive significant correlation of 0.294.

The findings show a relatively strong positive and significant relationship between interest rate spread and central bank rate with a correlation coefficient of 0.271. This implies that if central bank rate increases at any given time, interest rate spread will increase significantly and vice versa.

The study shows a weak positive relationship between interest rate spread and inflation rate with a correlation coefficient of 0.172. This implies that if a countries inflation rate increases, there will be an expected increase in interest rate spread for that period under which inflation rate increased and vice versa.

The findings illustrate the results obtained from the correlation analysis for the sampled commercial banks for the period of study at 0.05 and 0.01 significance levels.

Regression Analysis

According to Sekaran (2006), the use of the model to analyse the study is recommended as the study has five independent variables which are important in determining the effect, which is the dependent variable.
The resultant regression model was as follows;
$$IRS = \alpha_0 + \alpha_1 RGDP_1 + \alpha_2 IR_2 + \alpha_3 CBR_3 + \varepsilon$$

Table 5: Model Summary for Different peer groups/Tiers

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Large	0.716^a	0.513	0.421	1.94208
Medium	0.858^a	0.735	0.686	1.22558
Small	0.671^a	0.450	0.340	2.80405

a. Predictors: (Constant), Central Bank Rate, Real GDP, Inflation Rate

Analysis in table 5 shows that R^2 equals 0.513 for Large banks, 0.735 for medium banks and 0.45 for small banks. That is, Central Bank Rate, Real GDP and Inflation Rate explains 51.3 percent only of large commercial banks' interest rate spread leaving 49.7 percent unexplained, 73.5 percent only of medium commercial banks' interest rate spread leaving 26.5 percent unexplained and 45 percent only of small commercial banks' interest rate spread leaving 55 percent unexplained. The findings show that Kenya's medium commercial banks interest spread are affected most by macroeconomic variables than large and small banks.

Table 6: ANOVA findings for Large Banks

Model	Sum of Squares	Df	Mean Square	F	Sig.

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	63.453	3	21.151	5.608	0.008[b]
	Residual	60.347	16	3.772		
	Total	123.800	19			

a. Dependent Variable: Interest Rate Spreads

b. Predictors: (Constant), Central Bank Rate, Real GDP, Inflation Rate

Table 7: ANOVA findings for Medium Banks

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	66.767	3	22.256	14.817	0.000[b]
	Residual	24.033	16	1.502		
	Total	90.800	19			

a. Dependent Variable: Interest Rate Spreads

b. Predictors: (Constant), Central Bank Rate, Real GDP, Inflation Rate

Table 8: ANOVA findings for Small Banks

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	96.481	3	32.160	4.090	0.026[b]
	Residual	117.940	15	7.863		
	Total	214.421	18			

a. Dependent Variable: Interest Rate Spreads

b. Predictors: (Constant), Central Bank Rate, Real GDP, Inflation Rate

ANOVA findings shows the P- value of 0.008 for large banks, 0.000 for medium banks and 0.026 from small banks (Less than 0.05) which implies that the models for the three tires are significant at the 5 percent significance. The findings show a significant relationship between the predictor's variables (Central Bank Rate, Real GDP and Inflation Rate) and the response variable (Interest Rate Spreads) for the three tares of commercial banks in Kenya.

Table 9: Coefficients Distribution for Large Banks

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	18.402	3.064		6.006	0.000
	Real GDP	0.474	0.137	0.903	3.459	0.003
	Inflation Rate	0.277	0.145	0.515	1.914	0.074
	Central Bank Rate	0.190	0.183	0.306	1.043	0.312

a. Dependent Variable: Interest Rate Spreads

Table 10: Coefficients Distribution for Medium Banks

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.350	1.457		0.240	0.813
	Real GDP	0.708	0.156	0.627	4.529	0.000
	Inflation Rate	0.520	0.354	0.734	1.471	0.161
	Central Bank Rate	0.206	0.285	0.358	0.723	0.480

a. Dependent Variable: Interest Rate Spreads

Table 11 Coefficients Distribution for Small Banks

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.539	2.391		2.316	0.035
	Real GDP	0.673	0.195	0.679	3.446	0.004
	Inflation Rate	0.121	0.802	0.110	0.151	0.882
	Central Bank Rate	0.134	0.654	0.150	0.205	0.840

a. Dependent Variable: Interest Rate Spreads

The tables above shows the coefficient estimates for predictor variables for the three tares of commercial banks in Kenya. From the findings, the unstandardized coefficients for Real GDP, Inflation and Central Bank Rate for large banks are 0.474, 0.277 and 0.190 respectively. For medium banks, the unstandardized coefficients for Real GDP, Inflation and Central Bank Rate for large banks are 0.708, 0.520 and 0.206 respectively. Lastly, the unstandardized coefficients for Real GDP, Inflation and Central Bank Rate for small banks are 0.673, 0.121 and 0.134 respectively.

The resultant models for the three tires are of the form:

$$IRS = 18.402 + 0.474\alpha_1 + 0.277\alpha_2 + 0.190\alpha_3$$
_____ Large Banks

$$IRS = 0.350 + 0.708\alpha_1 + 0.52\alpha_2 + 0.206\alpha_3$$
_____ Medium Banks

$$IRS = 5.539 + 0.673\alpha_1 + 0.121\alpha_2 + 0.134\alpha_3$$
_____ Small Banks

From the findings, there are low interest rate spreads among the medium banks compared to large and small banks. This is due to the fact that medium banks incur lesser operating costs which are relatively low as compared to larger and smaller banks that incur bigger costs such as cost of non-performing advances (NPLs), authoritative and accidental expenses including costs that the banks bring about in setting up new branches and pulling in and holding gifted faculty, promoting, and different uses that the banks embrace to expand piece of the pie and business. Such conditions are not basic in medium banks in this way influencing enthusiasm to rate spreads stays low.

Large Banks

Holding Real GDP, Inflation and Central Bank Rate to a constant zero, Interest Rate Spreads will be 18.402. The coefficient for Real GDP (0.474) indicates that a unit increase in Real GDP leads to 47.4% increase in the interest rate spreads of Kenyan large banks holding the other variables constant. A unit increase in the Inflation Rate leads to a 0.277% increase in the interest rate spreads of Kenyan large banks performance ceteris paribus. The Central Bank Rate coefficient (0.190) indicates that a unit increase in the variables leads to a 19% increase in interest rate spreads of Kenyan large banks holding other factors constant.

Medium Banks

Holding Real GDP, Inflation and Central Bank Rate to a constant zero, Interest Rate Spreads will be 0.35. The coefficient for Real GDP (0.708) indicates that a unit increase in Real GDP leads to 70.8% increase in the interest rate spreads of Kenya's medium commercial banks holding the other variables constant. A unit increase in the Inflation Rate leads to a 0.52% increase in the interest rate spreads of Kenya's medium commercial banks' performance ceteris paribus. The Central Bank Rate coefficient (0.206) indicates that a unit increase in the variables leads to a 20.6% increase in interest rate spreads of Kenya's medium commercial banks holding other factors constant.

Small Banks

Holding Real GDP, Inflation and Central Bank Rate to a constant zero, Interest Rate Spreads will be 5.539. The coefficient for Real GDP (0.673) indicates that a unit increase in Real GDP leads to 67.3% increase in the interest rate spreads of Kenya's small banks holding the other variables constant. A unit increase in the Inflation Rate leads to a 12.1% increase in the interest rate spreads of Kenya's

small commercial banks' performance ceteris paribus. The Central Bank Rate coefficient (0.134) indicates that a unit increase in the variables leads to a 13.4% increase in interest rate spreads of Kenya's small commercial banks holding other factors constant.

Conclusions and recommendation

The study sought to investigate the effect of the macroeconomic determinants such as real GDP, inflation rate and Central Bank on interest rate spreads of Commercial Banks in Kenya. Twelve commercial banks were sampled and the period of study was five years between 2011 and 2015. All the data required was obtained from the banks audited financial statements.

The study found that medium banks relate strongly with interest rate spread than large and small commercial banks in Kenya. For medium banks, real GDP has a strong positive significant relationship with interest rate spread having 0.629 as compared to large and small banks with 0.315 and 0.294 respectively. This shows that if a countries real GDP increases, there will be significant increase in interest rate spread for medium banks than large and small banks.

As for inflation rate, medium banks also report a stronger positive relationship with interest rate spread of 0.437 as compared with 0.217 and 0.172 for large and small banks respectively. If there is an increase in inflation rate, medium banks will report a significant increase in their interest rate spread than large and small banks. The study also found that medium banks reported a stronger relationship between central bank rate and interest rate spread than large and small banks. Any change in central bank rates affects interest rate spread for medium banks more than those for large and small banks.

The regression analysis for large banks obtained Coefficient of determination (R), Correlation Coefficient (R-Square), P-Value and F-test statistics which were; 0.716, 0.513, 0.008 and 5.608 respectively. Since R was positive (0.716) the relationship between interest rate spread and the macro-economic determinants was positive. Since, R-Square was way below 0.75 but more than 0.5 as it was (0.513) the relationship between interest rate spread and the macro-economic determinants is strong but not very strong.

The study concludes that medium banks' interest spread respond more to macro-economic factors than large and small banks. Medium banks' real GDP and inflation rate have the strongest positive and significant relationship with interest rate spread as compared to large and medium banks. Large banks' real GDP and inflation rate also have a positive and significant relationship with interest rate spread but not as strong as that for medium banks. This implied that increasing Real GDP will have a greater increase in interest rate spread given its stronger relationship than large banks. If a countries inflation rate increases, there will be an expected large increase in interest rate spread on medium banks for that period under which inflation rate increased than large banks. The study finally concludes that small banks' real GDP and CBR have a weak positive and significant relationship with interest rate spread.

The study recommends that the Government, through the Central Bank of Kenya should be instrumental in developing policies and regulations to guide commercial banks in setting up of macro-economic determinants such as Central Bank Rate, Real GDP and Inflation Rate in order to promote loan uptake as well as improve performance of these commercial banks. As such, the economy can have sufficient money supply to ensure that there is enough money to conduct trade in the economy.

The examination likewise prescribes that Central Bank which is the Regulatory Authority of business banks in Kenya ought to apply stringent controls on financing costs charged by business banks in order to manage their loan cost spread and furthermore they should think of thorough arrangements on advance advances in order to relieve moral perils, for example, insider loaning and data asymmetry.

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