



INFLUENCE OF CENTRAL BANK REGULATION ON PERFORMANCE OF LOAN REPAYMENT OF COMMERCIAL BANKS BRANCHES IN KAKAMEGA COUNTY, KENYA

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ABSTRACT

This study investigated whether CBK regulations have influence, if any on level of loan repayment in commercial bank branches in Kakamega County, Kenya. Further, it explored the influence of capital regulation, credit regulations, interest rate gap regulations and liquidity regulations by linking them to performance of loans repayment. Descriptive research design was used. The population of 211 employees in 15 commercial banks branches in Kakamega County was targeted. A sample of 136 employees was selected through stratified random sampling technique. Data was collected using structured questionnaire, SPSS used to analyze data and presented using tables. There was significant relationship between capital regulations ($r=0.419$, $P=0.000$), liquidity regulations ($r=0.506$, $P=0.000$), interest rate capping ($r=0.424$, $P=0.000$), credit regulation ($r=0.373$, $P=0.000$) and performance of loan repayment. Multiple linear regression results revealed that CBK regulations had a significant influence on performance of loans repayment of commercial banks in Kakamega County. Up to 36.8% ($r^2=0.368$) of the variance in performance of loans repayment was significantly accounted for by CBK regulations. Therefore, the study concluded that CBK regulations have positive significant influence on the performance of loan repayment of commercial banks branches in Kakamega County. Improvement in credit regulations, liquidity regulations, capital regulations and interest rate capping would results to increase in loan repayment performance. Therefore, the study recommended that there was need for CBK to enhance prudential regulations to prevent further bank crises. The study also recommended that commercial banks must comply fully with the stipulated regulations and the Central Bank must ensure that all banks comply. Implementing regulations would enable the regulator to discover banks that are struggling and provide remedial measures before they collapse and depositors lose their money.

Key Words: Capital Regulations, Liquidity Regulations, Interest Rate Capping, Credit Regulation, Loans

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INTRODUCTION

Central Bank Prudential Regulation refers to guidelines issued by CBK that subject banks to certain requirements and restrictions whose objectives are to reduce the level of risks to which depositors are exposed to and ensures stability of not only individual banks but also the whole financial system (Chege, 2014). Commercial bank needs to be protected from instability caused by shrinking of their balance sheet. In such circumstances they are required to hold enough assets so that they are not brought to their knees when they are hit by turbulent. But what is still a matter of debate is what happens if almost all financial institutions including banks are affected by similar shocks? This is where central bank prudential regulations come in handy (Agoraki, Delis & Pasiouras, 2011).

There are two types of prudential regulations: Micro prudential regulations and macro prudential regulations. Micro prudential regulations are those which protect individual institutions from shocks whereas macro prudential regulations protect all financial institutions in the financial sector. Nevertheless, research by Barth, Caprio and Levine (2013) found that central bank regulations are measures meant to supervise individual financial institutions. Whereas, Gitonga (2016) agrees that Central bank regulations cushion the monetary system from stresses in a study where liquidity was found to be strong influencer of financial performance and recommends adherence to prudential regulations to enable financial institutions enjoy benefits of increased volume of business. Recently, Central bank regulation has been key in enabling fiscal and monetary policies manipulation to produce desired results (Shin, Shim & Bruno, 2014).

Similarly, a study by UN in 2017 need to be wider and capable to deal with systemic risk in the financial sector while report by Research bank of Newzealand (2017) raises an issue of what qualifies as bank capital

in its research paper on Issues and Options but unanimously agree that Central bank regulations requires commercial banks to respond immediately and restore their capital bases in case of losses and the higher the amount of capital the better.

The global financial and market crisis of 2008 confirmed that having stable financial system spearhead equity and growth. Based on Maddaloni and Peydro (2013) monetary policy rates and central bank provision on long-term liquidity complement each other in eliminating credit crunch for among financial firms. A study by IMF (2013) despite tight Central Bank regulations in various countries, there are still very many gaps that needs to be filled hence there is need for inclusion of various stakeholders in enacting regulations so that regulations don't end up inhibiting growth in economy by scaring away investors and lenders.

Kenya's experience with interest rate caps dates back to post-independence period. After attaining independence in 1963, the Government pursued a regime of interest rate capping and quantitative credit controls with the aim of encouraging investment and spurring economic growth and development (Owino, 2013). Interest rate controls entailed fixing minimum saving rates for all deposit taking institutions and maximum lending rates for all commercial banks and building societies. As a result, the spread between the lending and savings rate were stable. The government policy of maintaining low interest rates resulted in negative real interest, especially in periods affected by shocks (Monetary Policy, 2017).

Non-performing loans are bank loans that are subject to late repayment or are unlikely to be repaid by the borrower. A robust banking System is crucial for growth and development of any country. International Monetary Fund IMF (2010) a non-performing loan is when the borrower has not made his or her scheduled payment in terms of interest and

principal for a period of more than 90 days while Musau (2018) notes that non-performing loans may be in default or close to default especially if the borrower has not made any effort to service their loan for more than ninety days.

Originally banks in Kenya used to finance International trade during colonial period before they expanded and took advantage of settler farming to diversify operations and tap opportunities arising due to demand for credit facilities. The first indigenous bank in Kenya was cooperative bank of Kenya, National bank followed in 1971 thereafter we had Kenya Commercial Bank (CBK, 2018). Since then banking sector has continued to expand and grown with numerous banks offering services tailored to specific needs of clients. Currently the banking system is complex necessitating regulatory framework to regulate them.

These are restrictions and requirement developed by Central bank of Kenya that commercial banks and other financial institutions in conduct of their business to ensure financial stability of both individual financial institutions and the stability of the whole sector. Prudential Guidelines means any Guideline issued by the Central Bank which is meant to apply (Prudential Guideline, 2013). This promotes integrity of the banking sector by ensuring that any violation of the Banking Act, Prudential Guidelines or condition imposed by the Central Bank is penalized.

Statement of the Problem

Non-performing loans have risen to unmanageable levels. The Central Bank of Kenya (CBK) says in the latest credit officer survey report for the quarter ending June 2018 that the period was marked by a slowdown in business activities, which ultimately affected the ability of businesses to service their loans. However, the non-performing-loans increased was attributed due to change of laws particularly relating to the recovery process, high interest rates in 2012 and introduction of CBK prudential guidelines

regarding multiple loan facilities. There has been failure of three banks in Kenya which included Imperial Bank, Dubai bank and Chase bank (CBK, 2016). The principal cause of failure of banks is due to violation of banking laws, CBK prudential guidelines and eroding integrity that has seen senior officials falsify financial statements to misleading accounts of their state only to be unearthed by the office of the auditor general (Kiplangat, 2015). Collapse of commercial banks was witnessed in the year 2015 to 2016. A wave of collapsing banks almost affected National Bank of Kenya which posted sh15 billion loss in the same period (Muthami, 2016). Non-performing loans were evident at National bank of Kenya and even up to now it has not fully recovered despite the government bailing it out and even prosecuting the masterminds of its woes. Bank run was also reported with clients rushing to withdraw their deposits for fear that they get lost in event that more banks fail. A number of studies have been conducted on both prudential regulations and non-performing loans in Kenya (Musabi, 2018; Malenya et al., 2016; Talai, 2015). But little has been done to determine their relationships. Further, existing studies have given conflicting results on the influence of Central bank prudential regulations on non-performing loans on Commercial banks in Kenya. Hence, there is need to conduct another study on whether Central Bank Prudential regulations have an influence, if any on non-performing loans in Kenya that has been a thorn in financial health of most commercial banks in Kenya even causing some banks to fail and lose customer deposits and shareholders wealth. This study hence bridged the gap in knowledge by studying the influence of central bank prudential regulations on non-performing loans.

Objectives of the Study

The general objective of this study was to investigate the influence of Central Bank regulations on the performance of loan repayment of commercial banks

branches in Kakamega County. The specific objectives were:-

- To investigate the influence of capital regulation on the performance of loan repayment of commercial banks branches in Kakamega County
- To assess the influence of liquidity regulations on the performance of loan repayment of commercial banks branches in Kakamega County
- To determine the influence of Interest rate capping on the performance of loan repayment of commercial banks branches in Kakamega County
- To examine the influence of credit regulations on the performance of loan repayment of commercial banks branches in Kakamega County

Research Hypotheses

For the purpose of achieving the objectives of the study, the following null hypotheses have been formulated;

H₀₁: There is no significant relationship between capital regulations and the performance of loan repayment of commercial banks in Kakamega County

H₀₂: There is no significant relationship between liquidity regulations and the performance of loan repayment of commercial banks in Kakamega County

H₀₃: There is no significant relationship between interest rate capping and the performance of loan repayment of commercial banks in Kakamega County

H₀₄: There is no significant relationship between credit regulations and the performance of loan repayment of commercial banks in Kakamega County

LITERATURE REVIEW

Theoretical Review

Micro Prudential Theory and Macro-Prudential Theory

Macro prudential regulations deal with external factors that influence the financial stability of the whole banking sector. These financial crises may sometime affect a number of financial institutions including banks and even to the extent of collapsing

the whole economy. Therefore, there is need for regulations that cover the all players and institutions in the financial system. This is what exactly macro prudential regulation advocates for. Whereas, micro prudential theory calls for protection of individual financial institution from financial crises. It calls for banks to hold adequate capital which when losses occur it will still survive. This study used these theories because central bank regulations should endeavor to formulate and implement regulations that can be used to boost the resilience of commercial banks during a time of crises and consequently reduce their non-performing loans.

The Economic Theory of Regulation

There are two types of economic theories, that is public interest theory and private interest theory. Public interest theory states that government regulation is the instrument for overcoming the disadvantages of imperfect competition, unbalanced market operation, missing markets and undesirable market results (Arrow, 1985). It further argues that governments regulate banks to ensure their efficient operation by removing market failures at the advantage of society at large. This theory stands for opinion that commercial banks should allocate resources in the most efficient manner (Stigler, 1972). However, the greatest undoing is that regulatory bodies lack adequate information concerning cost, demand, quality in the industry, and then the irony is how they ensure efficiency in resource allocation and adequate regulation with these limitations. Another argument against public interest theory is that economic agents may include legislators, voters or consumers. Sometimes they pursue their own interest and not public interest hence regulation does not necessarily promote public interest (Krier & Montgomery, 1973).

The Capital Buffer Theory

This theory proposes that banks should hold more capital than the minimum requirement stipulated by the regulator. This condition lowers the pro cyclical nature of lending by promoting the creation of countercyclical buffers (Von Thadden, 2004). The capital buffer is the excess capital a bank holds above the minimum capital required (Jokipii & Milne, 2011). According to this theory, banks with low capital buffers has to increase capital buffer by raising capital and commercial banks with high capital buffers have maintain their capital buffer. More capital is beneficial since it absorbs adverse shocks and ensures banks do not collapse during difficulty times when they are faced by financial crises (Rime, 2001).

Commercial banks usually increase amount of capital when faced with greater risk to meet necessary capital buffer in order to withstand hard times (Martynova, 2015). Capital reduces the excessive risk-taking incentives caused by limited liability and government protection, and banks having higher capital optimally choose less risky portfolios which in the end reduces the level of non-performing loans. This theory has been applied in this study to support the idea of capital regulations which provides that commercial banks should hold adequate capital to enable them withstand shocks which may arise from inefficient banking sector or even self-induced shocks arising from rogue managers engaging in fraudulent practices. Though government may bail out some of the commercial banks, this strategy has not been widely advocated since this can create moral hazard problem where banks create crises knowing very well that they will be bailed out by the government (Murray, Manrai & Manrai, 2017). Kenyan regulator has recently tightened capital regulations for banks and also raised heavy penalties for individual's managers who betray trust bestowed on them by shareholders, investors and customers.

Liquidity Theory

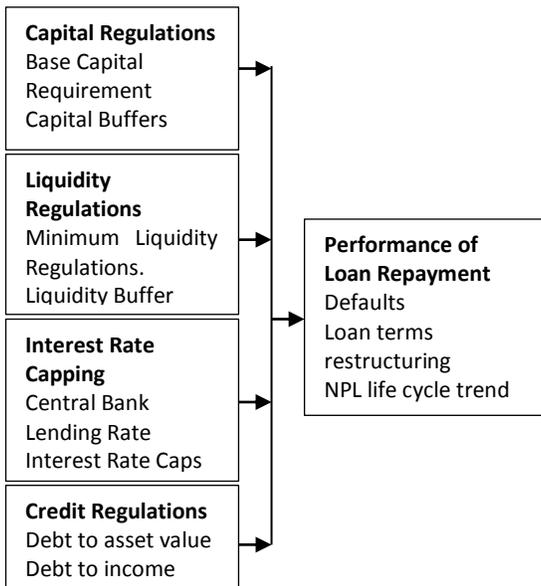
Holmstrom and Tirole (1998) provided a theory of liquidity in a model in which Intermediaries have borrowing frictions. a government has an advantage over private markets because it can enforce repayment of borrowed funds while the private lenders cannot. It states that making government provided liquidity increases pareto efficiency especially where aggregate uncertainty exists. Additionally, government plays a significant role of correcting any inefficiencies arising from externalities and private information and possibility of insider trading. This theory has been applied in this study to support liquidity regulations where government through CBK may come up with measures to ensure commercial banks have adequate liquidity to withstand stressful situations and also offer loans to worthy borrowers which can significantly reduce if not eliminate the level of non-performing loans.

Agency Cost Theory

This theory is of opinion that regulations increase the quality of financial services through provision of incentives to enter into contractual obligations during times of crises. It is for the idea that interested groups or individuals should identify market failures and come up with ways to correct them through having more markets.

The financial service markets provide an external mechanism that ensures orderly market in the industry. Banking institutions are poised to rip big from regulation through enhanced customer confidence and increased profitability and without forgetting low level of non-performing loans. This theory stresses on reconciliatory efforts for institutions, customers, regulators and taxpayers by harmonizing their interests (Edwards, 1997). It points out incentive conflicts arising from many parties' interrelationship. Likewise, through regulations, requirements are set to promote the welfare of one sector of the society while others may experience adverse effects (Diamond & Rajan, 2000).

Conceptual Framework



Independent Variables Dependent Variables

Figure 1: Conceptual Framework

Source: Author (2018)

Empirical Literature Review

Study conducted by David (2018) on effect of central bank of Kenya regulations on the non-performing loans of micro finance banks. Descriptive design was used with target population of 13 micro finance banks licensed as at 31st December, 2016. Both primary and secondary data was analyzed using SPSS. The study found that statutory requirement affects non-performing loans of micro finance banks greatly. It also revealed that capital adequacy affects non-performing loans of micro finance institutions. The study concluded that that statutory requirement has the greatest effect on non-performing loans of micro finance banks, followed by capital adequacy. The study recommended that in order to facilitate favorable non-performing loans, the institutions should prudently manage their liquidity; minimum capital requirement should be set based on the institutions risk appetite.

Kiplamgat and Talai (2015) studied interest rate regulations and non-performing loans. Descriptive research design and causal research design were applied in the study. population of the study was 43 commercial banks using secondary data. The study concludes that there is a positive and significant linear relationship between interest rates spreads and NPLs in tier banks in-Kenya. Researcher recommended policies to ensure commercial banks avoid excessive lending activities and maintain high credit standards. This is because of the adverse effects of high levels of NPLs on the Kenyan banking sector can spill over to the broad economy, as evidenced in various financial crises.

Chege (2014) studied Effect of Interest Rates on Non-Performing Loans in Commercial Banks in Kenya. Descriptive research design was adopted targeting all the 43 licensed commercial banks in Kenya. Secondary data was collected on the interest rate charged by the banks, total loan and advances, total non-performing loans, total assets, total risk weighted assets, noninterest expense, total revenue for five-year period (2009 – 2013). The data collected was analyzed using both descriptive and inferential statistics from multiple linear regression analysis using the ordinary least square method. The study found a significant, negative linear relationships between banks' NPLs and interest rate; interest rate spread and total assets. The study concludes that there is a strong relationship between financial performance of commercial banks with interest rate. The study recommended that banks to use efficient and effective credit risk management so that loans are matched with ability to repay and minimize on their interest rate spread and other incidental costs so as to reduce loan default.

Dash and Kabra (2010) discovered that the idea of interest rates and exchange rates influence nonperforming loans. However, Adela and Iulia (2010) offered the idea by using Pearson correlation coefficient that how banks set their interest rate

influence nonperforming loans in Romanian banking system covering the period of 2006 till 2010 suggesting also that there are direct ways which affect the non-performing loans.

A study by Collins and Wanjau (2011) found that interest rates regulations are important in lowering interest rates and loan default. It further found that CBK stipulates interest rates to be charged by commercial banks through interest rate capping law. Also the maximum value of NPA ratio was 34.85%, while the minimum value was 9.23%. The regulation has been controversial as the interest law capping has failed to meet its intended primary objective. It has been criticized by stakeholders in banks while the government has been reluctant to scrap it.

A study by Kolapo, Ayeni and Oke (2012) found that loan loss provision has a positive significant influence on NPLs; and rise in loan loss provision increases credit risk, lowers loan quality and also negatively influences bank financial performance. While, a study on Tireito (2012) on relationship between interest rates and non-performing loans in commercial banks in Kenya. He collected financial statements for five years (2007-2011) from the 43 banks. Analysis was done using correlations, regression and coefficients. The finding was, there is no relationship between interest rate and non-performing loans in commercial banks in Kenya.

Kivwanyiri and Mutua (2016) did a research on the determinants of NPL among commercial banks in Kenya. His study found out that poor credit analysis by banks, interest rates charged by banks were the causes of loan default which resulted in NPLs in banks. Mwai (2017) studied relationship between Capital requirement and non-performing loans of Commercial Banks in Kenya. Findings of the study were that there was a significant relationship between minimum core capital and non-performing loans, a significant positive relationship between total capital and non-performing loans, there was a significant negative relationship between leverage

and non-performing loans. The study recommended strict regulations to cap leverage levels among commercial banks to avoid any possible cases of insolvency.

Wanjiru (2017) studied interest rate capping and performance of financial institutions in Kenya. The researcher adopted descriptive design, stratified sampling was used while primary and secondary data was collected using interviews and questionnaires. Researcher found that banks are focusing on interest rates while the government lending is countering the risks; whereas KBA is focusing in repealing the law CBK is keen to retain it. It concluded that interest rate regulations are not a long term measure and there are other policies and measures that can be applied.

Solarin, Sulaiman and Jauhari (2011) compiled their findings on the basis of Auto regressive distributed lag (ARDL) approach on Islamic banks of Malaysia that interest rate has significant positive long run impact on Nonperforming loans whereas productivity has a positive but insignificant relationship with NPLS which also lessens the stronger belief of Islamic banks operating on profit and loss mechanism because productivity has a weak impact than interest rate.

Conversely Asari and Jusoff, K. (2011) also brought the opinion with the help of vector error correction model among commercial banks in Malaysia during 2006 till 2010 to unearth the relationship of inflation and interest rate with non-performing loans. By using Stata software, they found a strong long run relationship between interest rate and non-performing loans while inflation and interest rate have insignificant relationship in long run. During short run interest rate couldn't influence non-performing loans. Saad and Kamran (2012) concluded outcomes of their study using generalized autoregressive and heteroscedasticity, they found that political factors and credit policy of the banks require to be studied in depth to find the root cause of Nonperforming loans. Interest rate volatility

significantly but not exclusively effect on rising nonperforming loans.

Joseph, Edson, Manuere, Clifford and Michael (2012) studied to find out the influence of non-performing loans in Zimbabwe. Loans generated from the total assets in banks generate huge interest income for banks which determine the level of nonperforming loans. However, these loans fail to be paid causing default. According to Nir Klein (2013) studied about non-performing loans in Eastern, Central, and South-Eastern Europe. The researcher found that the NPLs can be accredited to bank specific factors. The investigation also indicates that there are tough effects from the banking thus signifying that the high NPLs that many CESEE countries incur, adversely affect the banks.

Geletta (2012) assessed determinants of nonperforming loans in Ethiopia banks. The mixed research approach was adopted for the study. The findings of the study shows that deprived credit assessment, disastrous loan monitoring, indulgent credit terms and conditions, aggressive lending, weak institutional capacity, willful default by borrowers and their knowledge limitation, fund diversion for unintended purpose, causes of loan evasion.

Karim, Chan and Hassan (2010) by using the stochastic cost frontier approach and by applying normal-gamma efficiency distribution model, the researcher found non-performing loans have impact on bank efficiency in Malaysia and Singapore. However, Pasha and Khemraj (2010) studied the determinants of non-performing loans in Guyanese Banking sector. The empirical results show that GDP growth is inversely related to non-performing loans when the economy improves nonperforming loans decreases. In addition, banks with high interest rates have non-performing loans. However, contrary to previous studies, their evidence does not support the view that large banks are more effective in showing loan customers when compared to their smaller counterparts.

A study was done in Rwanda to obtain the relationship between regulation and the non-performing loans of commercial banks incorporating a descriptive research design. The sample size was ten banks. The study established that control is not a significant determinant of non-performing loans of commercial banks in Rwanda. The study recommended that the government of Rwanda ought to develop a policy that will help banks to operate in a conducive environment that can create financial stability of financial institutions in the country. This study, therefore, notes that regulations have no impact on the non-performing loans of financial institutions (Vianney, 2013).

Gahuthu (2016) studied the impact of prudential regulation on the non-performing loans of deposit-taking financial institutions in Kenya. The methodology of data collection was mining secondary data from Sasra database, and the analytical tool was the statistical package for social sciences (SPSS) which either led to acceptance or rejection of the null hypothesis. The study used a similar design and a linear regression model to establish the impact of prudential requirements.

The data was able to show low performance before legislation and higher performance after the bill. Further analysis, compared the Betas of various independent and dependent variables before the regulatory reforms and after. In comparison, all the betas showed that the independent variables, namely core capital, credit management, membership growth and liquidity were not reliable predictors of non-performing loans but after the prudential regulations, they all became strong predictors. The study recommends that financial institutions should abide by prudential rules to enable them to enjoy benefits of an increased volume of business.

Another study was carried out by Mwogeli (2012) on the effect of regulations on the non-performing loans of commercial banks in Kenyan. The population of the study was the 43 commercial banks in Kenya and

the period of study was between 2010 and 2015. Chi-Square test of independence was used to analyze the relationship between the two variables. The analysis was carried out on each of the ratios, and the findings were that there is no relationship between regulations and non-performing loans of commercial banks. This study doesn't factor in macroeconomic factors that may affect the non-performing loans of commercial banks

Mwega (2014) investigated the potential trade-off between regulation and stability of Kenya's commercial industry with a focus on the banking sector. The researcher adopted an empirical approach stating that finance aims at providing economic activity and the primary aim of regulations is maintaining financial stability and enhancing economic growth. The findings were that there is need to be balanced since when more focus provided on the stability of the financial sector, it can hinder growth whereas emphasis placed on growth may create an economic crisis in the long run. Researchers concluded that reforms in the commercial industry over the last ten years had strengthened the banking industry. This study, therefore, notes that regulations have led to an increase in profitability in the banking sector.

Mureithi (2012) researched the effect of financial regulation on the non-performing loans of Deposit-Taking financial institutions in Kenya. The study used descriptive survey research design. The target population was 6 Deposit-Taking Microfinance institutions in Kenya. The researcher concluded that the supportive Deposit Taking Microfinance Regulations of 2008 led to the development of the fiscal performance of Deposit-Taking Microfinance institutions. The findings were that the regulations lead to increase in the value of loans outstanding, total assets, profit and shareholders' equity of Deposit-Taking Microfinance institutions. The study, therefore, notes that regulations do have a positive impact on the profitability of commercial banks.

METHODOLOGY

This study utilized descriptive research design. Descriptive research is relevant as it explains the current status of a phenomenon and is concerned with finding out the what, where and how of a phenomenon (Ngechu, 2004). The target population of the study was 211 employees of 15 commercial banks branches in Kakamega County. Eleven of the commercial bank branches are located in Kakamega Town while 4 of them are located in Mumias Town. The population size was based on all these 15 licensed commercial banks operating in Kakamega County with 211 members of staff who include managers, supervisors and operation staff (Kenya Bankers' Association, 2017). The sample size of this study was 136 respondents. Primary data was collected using structured questionnaire. The questionnaire was designed so that it addressed specific objectives of the study. Data was collected by use of self-administered structured questionnaires under the researcher's guidance. A regression model was formulated as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon.$$

Where:

Y = Performance of loan repayment

β_0 = Constant (coefficient of intercept),

β_1 = Non Performing Loans change for capital regulations,

β_2 = Non Performing Loans change for Interest rate capping,

β_3 = Non Performing Loans change for liquidity regulations,

β_4 = Non Performing Loans change for credit regulations,

X_1 = capital regulations, X_2 = interest rate regulations,

X_3 = liquidity regulations, X_4 = credit regulations, ϵ = is error term.

RESULTS

Descriptive Analysis of the Variables in the Study

Descriptive analysis included an assessment of the capital regulations, liquidity regulations, interest rate capping, credit regulations which were under Central Bank of Kenya Regulation falls. The statements were anchored on a five point Likert-type scale ranging from 5=Strongly Agree to 1= Strongly Disagree and respondents were asked to indicate the extent to which they agreed to the statements. Descriptive measures included percentage, frequency, mean and

standard deviation. Mean is a measure of central tendency used to describe the most typical value in a set of values. Standard deviation shows how far the distribution is from the mean.

Capital regulations

Capital regulations are one of the CBK regulations that govern commercial banks in Kenya. To measure capital regulations, a set of five statements were formulated. The respondents were asked to indicate the extent of agreement with each of the capital regulations statements. The pertinent results were presented in Table 1.

Table 1: Descriptive Statistics for Capital regulations

No	Capital Regulations	1	2	3	4	5	Mean	SDV
1	Commercial banks adhere to minimum capital requirements	9.2% (10)	18.3% (20)	7.3% (8)	16.5% (18)	48.6% (53)	3.77	1.44
2	Some banks have capital which exceeds the minimum set by CBK	24.8% (27)	12.8% (14)	32.1% (35)	19.3% (21)	11% (12)	2.79	1.52
3	There is breach in capital regulations by bank	45% (49)	31.2% (34)	11% (12)	10.1% (11)	2.8% (3)	1.94	1.10
4	The objectives and goals of subordinates are in line with the central bank prudential regulations	8.3% (9)	16.5% (18)	19.3% (21)	32.1% (35)	23.9% (26)	3.47	1.25
5	Most banks have enough capital to withstand shocks	4.6% (5)	17.4% (19)	33% (36)	11% (12)	33.9% (37)	3.52	1.25

As shown in Table 1, 48.6 % (53) strongly agreed that commercial banks adhere to minimum capital requirements while 16.5 % (18) agreed. A mean of 3.77 implies that respondents confirmed that commercial banks adhere to minimum capital requirements. However, there was greater deviation from the mean as indicated by standard deviation of 1.44 implying some responses were far away from agreeing on adherence to minimum capital regulations. Only 11% (12) of the sample respondents strongly agreed that some banks have capital which exceeds the minimum set by CBK while 19.3% (21) of

them agreed, A mean of 2.79 postulated that majority of respondents fairly agreed that some banks had capital which exceeded the minimum set by CBK. There was great deviation from the mean as indicated by a standard deviation of 0.152 suggesting that some respondents did not agree on minimum capital set by CBK.

Further, the results revealed that 10.1% (11) and 2.8% (3) strongly agreed and agreed respectively that there was breach in capital regulations by bank. With a mean of 1.94 implied that there was no breach in capital regulations by CBK. The results also revealed

that 32.1% (35) and 23.9% (26) of the sampled respondents agreed and strongly agreed respectively that the objectives and goals of subordinates were in line with the central bank prudential regulations. A mean of 3.47 indicated that most of respondents somehow agreed that objectives and goals of subordinates were in line with the central bank prudential regulations. Lastly, 33.9% (37) of the sampled respondents strongly agreed that organization had enough capital to withstand shocks and 11% (12) agreed with a mean of 3.52. This

implied that commercial banks fairly have enough capital to withstand shocks.

Liquidity regulations

Liquidity regulations are one of the vital CBK regulations. To measure liquidity regulations, a set of for statements were formulated. The respondents were asked to indicate the extent of agreement with each of the liquidity regulations statements from strongly disagreed to strongly agreed. The relevant results were presented in Table 2.

Table 2: Descriptive Results for Liquidity regulations

Liquidity Regulations	1	2	3	4	4	Mean	SDV
6 Commercial banks in Kakamega County meet the minimum liquidity requirement set by CBK	4.6% (5)	11.9% (13)	6.4% (7)	35.8% (39)	41.3% (45)	3.97	1.17
7 There is no Commercial banks in Kakamega County holding excess liquidity	8.3% (9)	21.1% (23)	28.4% (31)	27.5% (30)	14.7% (16)	3.19	1.17
8 Commercial banks leaders have knowledge and skills on what to do in case of liquidity shocks.	10.1% (11)	11% (12)	5.5% (6)	33% (36)	40.4%(44)	3.83	1.34
9 There is a lot of loop holes for banks in using liquidity regulations to deal with non performing.	38.5% (42)	35.8% (39)	13.8% (15)	11.9% (13)	0.0%	2.11	1.17

From Table 2, 35.8% (39) and 41.3% (45) agreed and strongly agreed respectively that Commercial banks in Kakamega County meet the minimum liquidity requirement set by CBK. A mean of 3.97 indicated that Commercial banks in Kakamega County meet the minimum liquidity requirement set by CBK. There was great dispersion from the mean as indicated by standard deviation of 1.17. The results further revealed that 27.5% (30) and 14.7% (16) agreed and strongly agreed respectively that there was no Commercial banks in Kakamega County holding excess liquidity. A mean of 3.19 implied that some commercial banks fairly held excess liquidity.

Majority of the respondents confirmed that Commercial banks leaders had knowledge and skills on what to do in case of liquidity shocks as indicated by a mean of 3.83. The results further revealed that

33% (36) and 40.4% (44) of the sampled respondents agreed and strongly agreed on the same. Lastly, none of the respondents strongly agreed that there was a lot of loop holes for banks in using liquidity regulations to deal with non performing. However, 11.9%(13) of the sampled respondents agreed with a mean of 2.11 implying that there were no lot of loop holes for banks in using liquidity regulations to deal with non performing.

Interest rate capping

Interest rate capping was one of the key CBK regulations. To measure Interest rate capping, a set of five statements were formulated. The respondents were asked to indicate the extent of agreement with each of the interest rate capping statements from strongly disagreed to strongly agreed. The pertinent results were presented in Table 3.

Table 3: Descriptive Results for Interest rate capping

No	Interest rate regulation	5	4	3	2	1	Mean	SDV
10	The interest rate caps has reduced the level of non-performing loans	22.9% (25)	19.3% (21)	23.9% (26)	13.8% (15)	20.2% (22)	2.89	1.44
11	Commercial banks are struggling with interest rate regulations	13.8% (15)	11.9% (13)	22% (24)	27.5% (30)	24.8% (27)	3.38	1.35
12	Fluctuations in CBK base rate in dealing with non-performing loans has been a success	5.5% (6)	31.2% (34)	27.5% (30)	24.8% (27)	11% (12)	3.05	1.11
13	There is no relationship between interest rate regulations and non-performing loans	27.5% (30)	22.9% (25)	8.3% (9)	19.3% (21)	22% (24)	2.85	1.55
14	CBK should scrap off interest rate caps	16.5% (18)	4.6% (5)	17.4% (19)	25.7% (28)	35.8% (39)	3.60	1.43

Results in Table 3, indicated that 13.8% (15) and 20.2% (22) of the sampled respondents agreed and strongly agreed respectively that the interest rate caps had reduced the level of non-performing loans. A mean of 2.89 indicated that interest rate cap had fairly reduced the level of non-performing loans. The results also revealed that, 27.5% (30) and 24.8% (27) of the sampled respondents agreed and strongly agreed respectively that commercial banks were struggling with interest rate regulations. A mean of 3.38 implied that commercial banks were fairly struggling with interest rate regulations.

The results further revealed that 11% (12) strongly agreed that fluctuations in CBK base rate in dealing with non-performing loans had been a success and 24.8% (27) agreed on the same. A mean of 3.05 indicated that there was fair fluctuation in CBK base rate in dealing with non-performing loans had been a success. The results also revealed that 19.3% (21) and 22% (24) of the respondents agreed and strongly

agreed respectively that there was no relationship between interest rate regulations and non-performing loans. A mean of 2.85 indicated that was fair relationship between interest rate regulations and non-performing loans. Lastly, 25.7% (28) and 35.8% (39) of the sampled respondents agreed and strongly agreed respectively that CBK should scrap off interest rate caps. A mean of 3.60 indicated majority of the respondents agreed that CBK should scrap off interest rate caps.

Credit regulations

To measure credit regulation, a set of five statements were formulated. The respondents were asked to indicate the extent of agreement with each of the credit regulations statements from strongly disagree (1) to strongly agree (5). The relevant results were presented in Table 4.

Table 4: Descriptive results on Credit regulation

No	Credit regulation	5	4	3	2	1	Mean	SDV
15	Credit policies have threatened stability of Commercial banks in Kakamega County.	21.1% (23)	16.5% (18)	33.9% (37)	14.7% (16)	13.8% (15)	2.83	1.30
16	Commercial banks have experienced favorable loan to asset value requirement in issuing loans.	0.0	27.5% (30)	35.8% (39)	16.5% (18)	20.2% (22)	3.29	1.08
17	Debt to income requirement has succeeded in reducing non-performing loans among commercial banks	0.0	16.5% (18)	41.3% (45)	22.9% (25)	19.3% (21)	3.45	0.99
18	Breach in Credit policies is the reason for woes facing Commercial banks in Kakamega County	12.8% (14)	38.5% (42)	25.7% (28)	9.2% (10)	13.8% (15)	2.72	1.22
19	Central Bank has tightened credit regulation to force unwilling commercial banks to adhere to them	8.3% (9)	16.5% (18)	19.3% (21)	24.8% (27)	31.2% (34)	3.54	1.31

The results in Table 4, 13.8% (15) strongly agreed that credit policies had threatened stability of Commercial banks in Kakamega County while 14.7% (16) agreed. A mean of 2.83 implied that credit policies had fairly threatened the stability of Commercial banks in Kakamega County. The results further revealed that 20.2% (22) strongly agreed that commercial banks have experienced favorable loan to asset value requirement in issuing loans and 16.5%(18) agreed on the same favorable loan to asset value requirement. A mean of 3.29 implied that commercial banks had fairly experienced favorable loan to asset value requirement in issuing loans.

Few of the respondents (20.2%) strongly agreed that commercial banks had experienced favorable loan to asset value requirement in issuing loans and additional 16.5% (18) agreed on the same. A mean of 3.29 suggested that to some extent commercial banks

had experienced favorable loan to asset value requirement in issuing loans. Further, 22.9 % (25) and 19.3% (21) of the sampled respondents agreed and strongly agreed respectively that debt to income requirement had succeeded in reducing non-performing loans among commercial banks. A mean of 3.45 implied that debt to income requirement had fairly succeeded in reducing non-performing loans among commercial banks.

The results also revealed that 9.2%(10) and 13.8%(15) of the sampled respondents agreed and strongly agreed respectively that breach in credit policies is the reason for woes facing Commercial banks in Kakamega County. A mean of 2.71 indicated that breach in credit policies is somehow the reason for woes facing Commercial banks in Kakamega County. Lastly, 31.2% (34) strongly agreed that Central Bank had tightened credit regulation to force

unwilling commercial banks to adhere to them while 24.8% (27) of them agreed. A mean of 3.54 suggested that Central Bank had tightened credit regulation to force unwilling commercial banks to adhere to them.

Loan Repayment Performance

Loan Repayment performance in this study was used as dependent variable. It was measured using NPL

life-cycle, Loan terms restructuring and Cost of NPL. The respondents were asked to indicate the extent of seven parameters of performance from strongly disagree (1) to strongly agree (5). The pertinent results were presented in Table 5.

Table 5: Descriptive Results for Loan Repayment Performance

No	Statement	1	2	3	4	5	Mean	SDV
1	Non-performing loans have increased in the last five years.	22.9% (25)	22% (24)	16.5% (18)	16.5% (18)	22% (24)	2.93	1.48
2	Commercial banks in Kakamega County are struggling with Non-Performing Loans	9.2% (10)	31.2% (34)	32.1% (35)	11% (12)	16.5% (18)	2.94	1.21
3	The Commercial banks have breakeven and remained solvent at a time when non-performing loans have hit their highest point	8.3% (9)	22.9% (25)	19.3% (21)	29.4% (32)	20.2% (22)	3.30	1.26
4	The cost of non-performing loans exceeds income generated by the commercial banks in issuing loans	35.8% (39)	24.8% (27)	13.8% (15)	17.4% (19)	8.3% (9)	2.38	1.35
5	Banks have significant bad debts occasioned by CBK Regulation	31.2% (34)	19.3% (21)	30.3% (33)	11% (12)	8.3% (9)	2.46	1.27
6	Non-performance loans life-cycle has been on the increasing trending	10.1% (11)	31.2% (34)	24.8% (27)	14.7% (16)	19.3% (21)	3.02	1.284
7	Banks keep on restructuring terms of loans in order to address non-performing loans	2.8% (3)	16.5% (18)	19.3% (21)	19.3% (21)	42.2% (46)	3.82	1.226

From Table 5, 16.5% (18) and 22% (24) agreed and strongly agreed respectively that Non-performing loans had increased in the last five years. A mean of 2.98 indicated that non-performing loans had fairly increased in the last five years. The results further revealed 11% (12) and 16.5% (18) agreed and strongly agreed that commercial banks in Kakamega County were struggling with Non-Performing Loans. A mean of 2.94 suggested that Commercial banks in Kakamega County were fairly struggling with Non-Performing Loans.

The results also revealed that 29.4% (32) and 20.2% (22) of the sampled respondents agreed and strongly agreed respectively that commercial banks had breakeven and remained solvent at a time when non-performing loans had hit their highest point. A mean of 3.30 postulated to some extent some commercial banks have breakeven and remained solvent at a time when non-performing loans have hit their highest point. Only 8.3% (9) of the sampled agreed that the cost of non-performing loans exceeds income generated by the commercial banks in issuing loans while 17.4% (19) agreed. A mean of 2.38 implied that

the cost of non-performing loans have not exceeded income generated by the commercial banks in issuing loans. Similarly, 11% (12) and 8.3% (9) of the sampled respondents agreed and strongly agreed respectively that banks have significant bad debts occasioned by CBK Regulation. A mean of 2.46 implied that banks do not have significant bad debts occasioned by CBK Regulation.

The study also revealed 14.7% (16) and 19.3% (21) agreed and strongly agreed respectively that non-performance loans life-cycle had been on the increasing trending. A mean of 3.02 indicated that Non-performance loans life-cycle had been fairly on increasing trending. Lastly, 19.3% (21) and 42.2% (46) of the sampled respondents agreed and strongly agreed respectively that banks keep on restructuring terms of loans in order to address non-performing loans. A mean of 3.82 implied that banks keep on restructuring terms of loans in order to address non-performing loans.

CBK Regulations and Performance of Loan Repayment

The main objective of the study was to investigate the influence of Central Bank regulations on the performance of loan repayment of commercial banks in Kakamega County. These regulations were considered under variables of capital regulations, liquidity regulations, and interest rate capping and

credit regulations. This section considered overall CBK regulation on performance of loan repayment both using correlation and multiple linear regression analysis.

Multiple linear regression of the CBK regulations regressed against performance of loan repayment

Objective of this study sought objective of the study was to investigate the influence of Central Bank regulations on the performance of loan repayment of commercial banks in Kakamega County. This was achieved by carrying out standard multiple regressions with the model consisting of each of the constructs of CBK regulations. The study was interested in knowing the influence of CBK regulations on performance of loan repayment when all these constructs were entered as a block on the model. The results of multiple linear regression analysis were presented in Table 6 which contained ANOVA (goodness of fit; F Ratio, Sig Value) and model summary (R, R², Adj R²) results while Table 6 contained regression coefficient (Unstandardized & standardized), t-value and Sig. value results.

In order to determine the overall percentage change in the performance that was explained by all the strategies of the credit risk management, the study utilized R² which is the coefficient of determination. The results in Table 6 present R, R², Adj R², F ratio and Sig. value.

Table 6: Model Summary and ANOVA

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.607 ^a	.368	.344	.554		
a. Predictors: (Constant), Credit, Capital, Interest Rate Capping, Liquidity						
ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	18.550	4	4.638	15.130	.000 ^b
	Residual	31.877	104	.307		
	Total	50.427	108			

a. Dependent Variable: Loan Repayment

b. Predictors: (Constant), Credit Regulation, Capital, Interest Rate Capping, Liquidity

The results from the model summary gave information on the overall summary of the model. It was deduced that CBK regulations accounted for 36.8% significant variance in performance (R square =.368, P=0.000) implying that 62.8% of the variance in performance was accounted for by other variables not captured in this model. From the findings, also adjusted R square value was obtained, which was a corrected R square value to provide a useful estimate of true study population. The difference between R² and adjusted R² was obtained by subtracting the later from the former (.368-.344=0.024) a value when multiplied by 100% results in 2.4 percent. This reduction implied that should the model originated

from the entire population instead of a sample, it would explain about 2.4% less variation in the study outcome.

In order to assess the significance of the model, simply whether the study model was a better significant predictor of the performance, the study resorted to F Ratio. From the findings, the F value was more than one, as indicated by F (4,108) = 15.130, P=0.000. The large F value was very unlikely to exist by chance (99.0%), thus implying that the study model was significant predictor of performance of loan repayment of commercial banks in Kakamega County.

Table 7: Coefficients on effect of Constructs of CBK regulations on Loan Repayment

Model	Unstandardized Coefficients		Standardized Coefficients Beta	T	Sig.
	B	Std. Error			
(Constant)	.607	.332		1.826	.071
Capital regulation	.198	.089	.208	2.235	.028
Liquidity regulations	.199	.082	.248	2.440	.016
Interest rate capping	.208	.087	.213	2.198	.019
Credit regulation	.161	.080	.174	2.018	.046

a. Dependent Variable: Loan Repayment

From the findings, we looked at the model results and scan down through the unstandardized coefficients B column. All CBK regulations variables had significant influence on the performance of loan repayment. If CBK regulations are held at zero or it is absent, the performance of loan repayment of commercial banks in Kakamega County would be 0.607, p=0.071. Though be positive but insignificant. It was revealed that capital regulations had unique significant contribution to the model with B=.198, p=.028 suggesting that controlling of other variables (liquidity regulations, interest rate capping and credit regulation) in the model, a unit change in capital regulations would result to significant change in Loan repayment performance by 0.198 in the same direction.

The coefficient value for liquidity regulations is B=.199, p=.016. When the variance explained by all other variables (capital regulations, interest rate capping and credit regulation) in the model is controlled, a unit change in liquidity regulations would result to a significant change in loan repayment performance by 0.199 in the same direction.

Another variable that also had a unique significant contribution to the model was the value for interest rate capping (B=.208, p=.019). This contribution was the largest in the model. When other variables in the model are controlled (liquidity regulations, capital regulations and credit regulation), a unit change in interest rate capping would result to significant change in performance of loan repayment by 0.208 in

the same direction. Lastly, credit regulations had least unique significant contribution to the model with $B=0.161$, $p=.046$ implying that when other variables in the model are controlled (liquidity regulations, interest rate capping and capital regulations), a unit change in credit regulations would result to significant change in loan repayment performance by 0.161 in the same direction.

A regression of the four predictor variables against performance established the multiple linear regression model as below.

$$Y = 0.607 + 0.198 X_1 + 0.199 X_2 + 0.208 X_3 + 0.161 X_4$$

Where

Y = Performance of loan repayment

X_1 = capital regulations

X_2 = interest rate capping

X_3 = liquidity regulations

X_4 = credit regulations

Test for Null Hypotheses

Table 8: Test of Null Hypothesis

Hypothesis	Criteria ($B \neq 0$ & $P < 0.05$)	Verdict
H_{01} : There is no significant relationship between capital regulations and the performance of loan repayment of commercial banks in Kakamega County	$B=0.198$ $P=0.028$	Reject
H_{02} : There is no significant relationship between liquidity regulations and the performance of loan repayment of commercial banks in Kakamega County	$B=0.199$ $P=0.016$	Reject
H_{03} : There is no significant relationship between interest rate regulations and the performance of loan repayment of commercial banks in Kakamega County.	$B=0.208$ $P=0.019$	Reject
H_{04} : There is no significant relationship between credit regulations and the performance of loan repayment of commercial banks in Kakamega County.	$B=0.161$ $P=0.046$	Reject

CONCLUSION

The first null research hypothesis was rejected as there is significant relationship between CBK capital regulations and the performance of loan repayment of commercial banks in Kakamega County. Therefore, the study concluded that capital regulations have significant influence on the performance of loan repayment of commercial banks in Kakamega County. Commercial banks adhere to minimum capital requirements; therefore, they have enough capital to withstand shocks. Hence there was no breach in capital regulations by bank.

The second null research hypothesis was rejected as there is significant relationship between CBK liquidity regulations and the performance of loan repayment of commercial banks in Kakamega County. The study concluded that CBK liquidity regulations have significant influence on the performance of loan repayment of commercial banks in Kakamega County. Commercial banks in Kakamega County meet the minimum liquidity requirement set by CBK and Commercial banks leaders have knowledge and skills on what to do in case of liquidity shocks. The study also concluded that there are no a lot of loop holes

for banks in using liquidity regulations to deal with non-performing.

The third null research hypothesis was rejected as there is significant relationship between CBK interest rate capping and the performance of loan repayment of commercial banks in Kakamega County. Hence, the study concluded that CBK interest rate capping have significant influence on the performance of loan repayment of commercial banks in Kakamega County. The interest rate caps have fairly reduced the level of non-performing loans although commercial banks are somehow struggling with interest rate regulations. Therefore, some respondents indicated that CBK should scrap off interest rate caps.

The fourth null research hypothesis was rejected as there is significant relationship between CBK credit regulation and the performance of loan repayment of commercial banks in Kakamega County. Therefore, the study concluded that CBK credit regulations have significant influence on the performance of loan repayment of commercial banks in Kakamega County. Central Bank has tightened credit regulation to force unwilling commercial banks to adhere to them. This has result to debt to income requirement fairly succeeding in reducing non-performing loans among commercial banks and commercial banks have fairly experienced favorable loan to asset value requirement in issuing loans.

RECOMMENDATIONS

From the study conclusions, the following recommendations were derived as per the specific objectives.

The study concluded that capital regulation influences loan repayments. From the long-term point of view, as Kenya economic growth is highly dependent on credit supply, the banks need to grow their loan scales at certain rates so as to support the sustained economic growth. Therefore, they need for capital supplementation in order to keep up with the regulatory requirements on Capital Adequacy Ratio

(CAR) since stricter capital adequacy, powerful supervision and market discipline power promote technical efficiency.

Liquidity regulations were found to have significant influence on performance of loan repayment. The study therefore recommends that commercial banks must comply fully with the stipulated liquidity regulations and the Central Bank must ensure that all banks comply. This will have the effect of ensuring a stable banking sector which plays a big role in the economy. If this sector is stable the economy will thrive and financial crisis will be avoided in the country. Implementing strict regulations will also enable the regulator to discover banks that are struggling and provide remedial measures before they collapse and depositors lose their money.

Interest rate capping had significant influence on the performance of loan repayment of commercial banks in Kenya. However, the regulation has locked out some of the clients thus reducing interest rate income. The study therefore recommends that the interest rate regulations of CBK should also be enhanced to be more dynamic and effective as this will impact positively on the bank revenue and enhance financial performance of commercial banks in Kenya.

The study also concluded that credit regulation has significant influence on performance of loan repayment. Therefore, the study recommended that Central bank should provide strict credit policies based on the prevailing economic environment as this will ensure uniformity in administration of credit facilities. Central banks of Kenya should ensure that commercial banks adhered to credit information sharing so as to reduce loan default rate.

Areas for Further Studies

It is hoped that the findings of this study would contribute to the existing body of knowledge and form a basis for future researches. The following areas of further research are thus suggested. This

study focused on CBK regulations however; there are other factors that influence loan repayment such credit risk management strategies. It's therefore

recommended that further studies should be conducted to find out how these strategies influence loan repayment of commercial banks.

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