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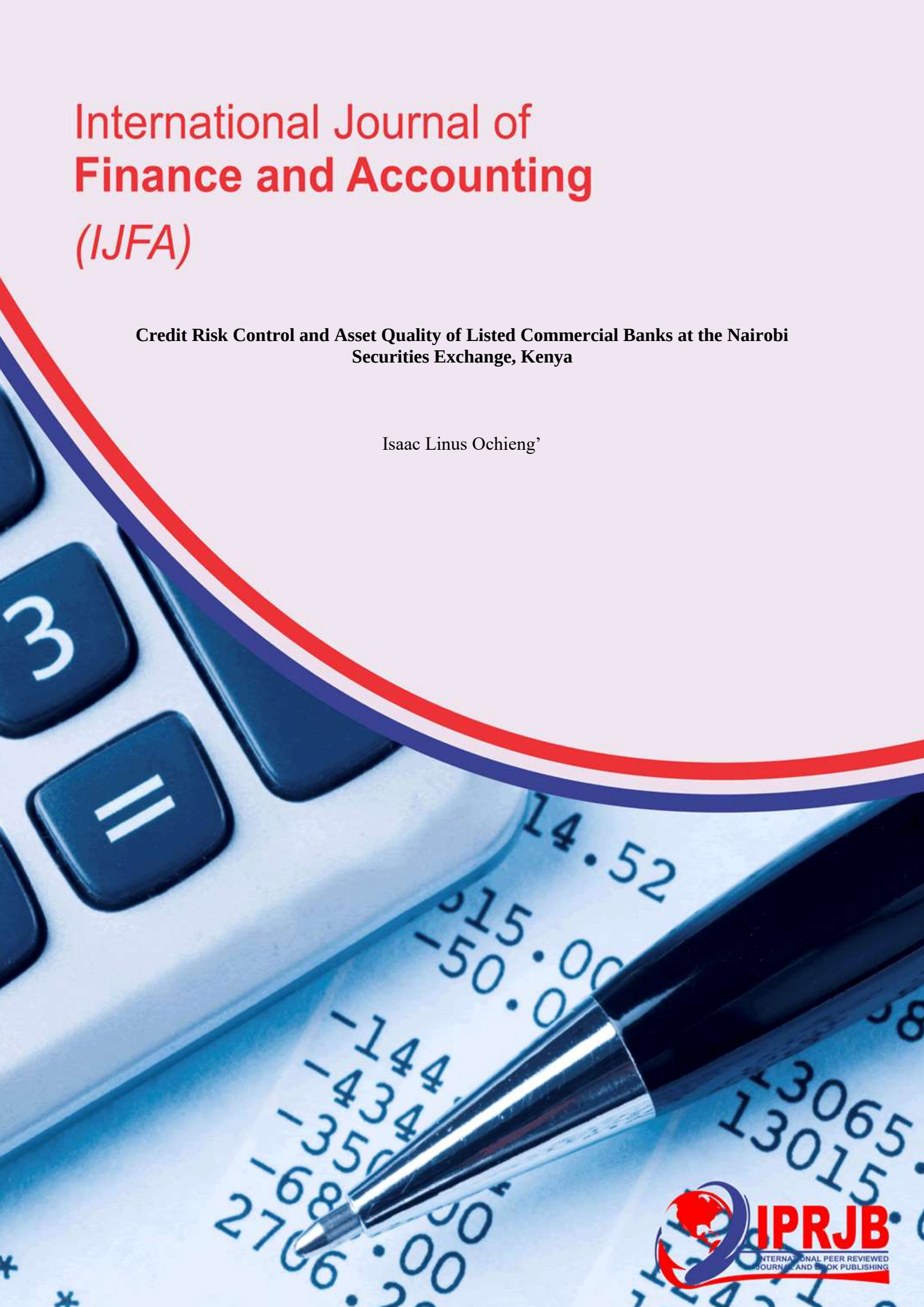
Isaac Linus Ochieng'



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# Credit Risk Control and Asset Quality of Listed Commercial Banks at the Nairobi Securities Exchange, Kenya

[1*]Isaac Linus Ochieng'
Lecturer, Department of Economics, Accounting & Finance; Faculty of Business & Entrepreneurship

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## ABSTRACT

*Lending remains the core activity of commercial banks, and subsequently the largest source of credit risk. For that reason, mitigation of credit risk EXPOSURE is vital for going-concern purposes. This study sought to establish whether there exists a relationship between credit risk control and the asset quality of commercial banks listed at the NSE in Kenya. The theory that the study anchored upon was asymmetric information theory. The study employs quantitative research design. The population of the study was drawn from the 11 commercial banks listed at the NSE in Kenya. The study was conducted through a census. Secondary data from 2015 to 2024 was utilized with data collected from annual financial reports of listed commercial banks in Kenya, CBK and the KNBS and financial statements for analysis with the aid of a secondary data collection sheet. Data was analyzed using descriptive and inferential statistics. Panel regression results indicated that credit risk control had a significant and bidirectional effect on the asset quality of commercial banks listed at the NSE, Kenya. The findings therefore concluded that credit risk control has a positive significant effect on the asset quality of commercial banks listed at the NSE, Kenya. As a consequence of the findings, the policy recommendation for commercial banks id to set aside resources in loan loss reserves to cover possible defaults. This will ensure they can withstand unforeseen losses and preserve financial stability by serving as a financial buffer against any defaults. As a safety net, the reserves will enable lenders to withstand losses without suffering a major blow to their overall financial stability.*

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**Keywords:** *Credit Risk Control, Asset Quality, Commercial Banks, Nairobi Securities Exchange*

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## INTRODUCTION

The banking industry is an essential component of financial services that supports development plans by directing funds for productive projects, facilitating the transfer of funds from units with surpluses to those with deficits, and bolstering governmental financial and economic policies (Ombaba, 2017). The stability of banks is assessed based on the quality of the bank's assets, profitability, loan performance, efficient allocation of resources, assessing and managing financial risks, and maintaining employment levels (Nyasaka, 2017). One of the vital risks, that many commercial banks face, is credit risk, especially now that granting loans to bank borrowers is commercial bank's main source of income (Li & Zou, 2018).

According to the Basel Accord (2001), credit risk is the likelihood that the loan amount will not be repaid in full or in part due to default risk. According to Salina, Zhang, and Hassan (2021), credit risk refers to the potential that a borrower will default on their loan obligations, leading to financial loss for the bank. Basel Accord (200) reiterates that credit risk is one of the three fundamental risks faced by financial institutions when conducting their day-to-day operations, the other two being operation risk and market risk. Credit risk management is the systems and processes put in place by banking institutions to mitigate or control its financial exposure (Mercylynne, 2017). Effective credit risk management is often essential to the health of commercial banks, (Bhattarai, 2016).

Credit risk control is sometimes referred to as credit policy standards and consists of previous borrowers, market conditions, the guarantor process, and the individual's credit rating. It is one of the decision-making elements that directly affects your ability to invest in trade credit. When establishing credit policy criteria based on specific credit applicants, Credit Policy Information, credit analysis, credit limitations, and default rates should all be taken into consideration. Credit policy criteria can either be stringent or loose, which has an impact on organizational profit. When a company's credit policy standards are rigorous, it loses a lot of clients, but when those rules are lenient, it gains more (Mudey & Wekesa 2020).

Asset quality is a small but very sensitive factor that measures the soundness and profitability of commercial banks and basically focuses on the quality of loans (Abata, 2014). Roselyne (2022) defines asset quality as the measures undertaken to reduce the risks connected to specific assets. According to Salina, Zhang and Hassan, (2021) asset quality is the process of evaluating the credit risk associated with a particular financial asset such a bond or stock of which the higher the credit risk the lower the financial asset quality. Wanjagi (2018) reiterates that asset quality as a component of banking management involves assessing a company's assets to make it easier to gauge the amount and nature of credit risk connected to its operations. According to Nzioka, (2015) asset quality and financial performance are two different ways to measure the health of a commercial bank.

Nzioka (2015) postulates that Asset quality measures how well a bank is able to predict and manage its credit risk of its assets. Asset quality is a good indicator of a future financial performance of commercial banks. It is different from financial performance, which measures how well a bank uses its resources to achieve its objectives. A bank with lower asset quality has a higher ratio of assets at risk which can make it harder to attract investors, leading to high chances of insolvency (Van Horne et al, 2017). An organization's financial liquidity is better when a greater proportion of its assets are high liquidity elements, and it is worse when the converse is true (Ajao & Ogieriakhi, 2018).

In developed countries, the adoption of stringent credit management practices is evident through the implementation of the Basel III framework, a global regulatory standard designed to enhance the stability and resilience of the banking sector. Notable examples include the United States, where financial institutions comply with the Dodd-Frank Act, incorporating Basel III principles to reinforce Asset QUALITY and liquidity standards. Africa presents a unique context for examining the impact of credit policies on the asset quality of banks. Credit rules are often less developed in many African nations, which is a reflection of issues including a lack of access to credit information, a limited financial infrastructure, and inadequate regulatory capacity. For the majority of institutions in the area, these variables result in increased credit risk and poorer financial performance (Funga, 2021).

Kenya's financial sector is among those that are growing the fastest globally. The profitability and overall performance of Kenya's banking industry have significantly increased during the past five years. In Kenya, Banks are regulated and licensed by CBK which oversees them in order to ensure they comply with regulations in their operation. Guidelines and regulations under CBK Act (Chapter 491, Kenyan law) were revised in 2014 and became effective in January 2018. Such regulations and guidelines are important as they are aimed at protecting investors and customers as well as promoting integrity in financial markets, safeguarding the industry against risk and protecting clients from excessive tariffs (Sonal, Anjarwalla & Khanna, 2017).

**Statement of the Problem**

The problem of loan delinquency is still a challenge for many commercial banks even if they have tried to follow credit guidelines and policies to lend prudently, (Kirui, 2023). KBA (2015) reported an increase in the PAR of commercial banks listed in Kenya by 4.5% in 2014.The rise was attributed to a mix of high interest rates environment and subdued economic activities that affected the banking sectors asset quality. In 2015, the ratio increased to 6.5 %, (CBK, 2016; KBA, 2017). In 2016, the ratio increased further to 7.2%, this was on account of a slowdown in private sector credit growth which reduced to an average of 20.5% in 2016 from an average of 23.5% in 2015. Particularly, there was a reduction in lending to areas perceived as risky and hence a lower loan loss provision, (Cytonn Investment 2019; KBA, 2017). The PAR ratio further increased by 9.9%, 10.5%, 12.4%, 13.1%, in 2017, 2018, 2019 and 2020 respectively. The increase was attributed to delays by the government in releasing payments to counties and the private sectors which left many suppliers unable to service their debt obligations (CBK, 2019) and coronavirus-induced downturn in the economy which led to an increase in number of loan balances compared to total loans, (KBA, 2021). Cytonn (2023): CBK (2023) reports a further increase of PAR ratio to 13.1%, in 2021, 14.7% in 2022 and 15% in 2023.

According to Cytonn report (2024), listed commercial banks will likely continue to see an uptick due to the adverse macro-economic environment. Some of the affected banks that recorded a rise in PAR ratio are HF group from 25.4% in 2017 to 28.2% in 2022, KCB from 8.3% in 2017 to 15.3% 2020, NCBA from 12.4% in 2015 to 14.1% in 2018,Co-operative Bank from 0.5% in 2014 to 13.2% in 2020, Stanbic Bank from 10.9% in 2017 to 13.3% in 2019,Equity Group from 8.4% in 2019 to 10.8% in 2021 and ABSA Bank Kenya from 6.8% in 2019 to 7.6% in 2022. These figures are way above the ideal ten-year average of 10.1%, (CBK, 2020).Various studies have been conducted on credit risk control on commercial bank using either ROA or ROE as a measure of financial performance, (Githaiga, (2022), Mulongo (2017), Nguli (2019)).Other studies have been done globally which provide a geographical gap from the studies done in Kenya, AlShatti (2015) in Jordan, and Munnangi (2015) in South

Africa) among others. Lastly, studies indicating conflicting results include those of Bace (2016), Ozurumba (2016), indicating a negative effect of credit risk control on financial performance. On the other hand, Adebisi and Matthew (2015), Günes (2015), did not come up with a correlation while Bhattarai (2016), Charles & Mori (2016), and Kimeu (2020) found positive correlation between credit risk control and asset quality. From the empirical studies mentioned there's a need to take a close look at the relationship between credit risks control by commercial banks and the resulting asset quality in banking institutions. It is therefore on this basis that this study shall be undertaken to establish the effect of credit risk control on asset quality of commercial banks listed at the NSE in Kenya.

### Objective of the Study

The objective of the study was to assess the effect of credit risk control on asset quality of commercial banks listed at the NSE in Kenya.

### Hypotheses of the Study

Credit risk control does not have a significant effect on asset quality of commercial banks listed at the NSE in Kenya.

## LITERATURE REVIEW

This chapter discusses both the theoretical and empirical literature on the credit risk control and asset quality of commercial banks in Kenya. The theory of credit risk control and the asset quality of the banks was considered.

### Theoretical Review

### Credit Risk Theory

The study was anchored on the Credit risk theory by Merton (1974) to explain credit risk control. According to Merton (1974) credit risk is the potential for suffering a monetary loss due to a counterparty's deteriorating creditworthiness in a financial transaction. Credit risk arises from the potential for a counterparty to fail to fulfill their half of the agreement. The majority of the risk, including lost principal and interest, is borne by the lender, (Liu, Mirzaei, and Vandoros 2014). One of the many ways that a bank can experience disruption loss is if it is unable to return a depositor's money. The lender may seek security or guarantees from third parties, conduct a credit check on the potential borrower, or demand the borrower to obtain the necessary insurance, such as mortgage insurance, in order to lower the lender's risk. According to Owojori, Akintoye, and Adidu (2011), the interest rate that borrowers are required to pay on their debt would generally increase with the level of risk.

Credit risk theory typically assumes that the probability of default is dependent on a borrower's financial situation, the state of the economy, and the loan's terms; that default events are statistically predictable based on past data; and that the recovery rate, or the amount recovered in the event of a default, can be estimated with a reasonable degree of accuracy (Tsesmelidakis & Merton, 2013). Another assumption includes the ability to effectively determine a borrower's creditworthiness based on the information at hand, the independence of defaults among borrowers, and the normalcy of specific variables, (Sy 2007). According to Merton's credit risk theory, an entity has a specific amount of zero-coupon debt instruments that are due at a future date, T. As a result, in the event of default, shareholders receive nothing while lenders receive a payout equivalent to the asset value (Hull, 2012). Longstaff and Schwartz (1995) discovered that financial assets are primarily vulnerable to credit risk throughout their lives and at every level of maturity. They also demonstrated how the credit risk theory ties a company's financial

assets and bank management's role in controlling operational risk. Clifford V. Rossi derived three key techniques to credit risk measurement by leveraging the Merton model. These include the idea of credit spreads, managing credit portfolios, and distributing losses using Monte Carlo simulation. The lender may run a credit check on the potential borrower, demand that they obtain the necessary insurance, like mortgage insurance, or look for security or guarantees from other parties in order to lower their risk.

According to Owojori, Akintoye, and Adidu (2011) borrowers will typically be required to pay a greater interest rate on their debts the higher the risk. Credit risk theory is frequently criticized for its shortcomings in accurately representing intricate borrower and economic behaviors. These shortcomings include an excessive dependence on historical data, a failure to consider information asymmetry, and an inadequate consideration of macroeconomic factors, which can result in inaccurate risk assessments and bad lending choices, (Kamara 2024). According to Eichberger (2012) the theory's inability to acknowledge the relative stability of bank deposits is demonstrated by its insistence that all loans should be repaid in the regular course of business.

Lastly, Bülbül (2019) posits that it is unlikely that all depositors will demand payment at the same time, even though demand deposits are on demand. Credit risk theory also ignores possible economic downturns or abrupt changes in creditworthiness in favor of irrational assumptions about the financial stability and future conduct of borrowers. Credit risk theory a crucial theory in financial management asserts that the management should monitor all the available information including screening of the borrower's creditworthiness over time and making sure the borrower follows the terms of the agreement. (Crosbie et al., 2003). Credit risk theory also explains how commercial banks and other financial institutions can handle unforeseen circumstances that come up during the credit servicing period. By examining elements such as a borrower's credit history, financial health, and market conditions, lenders can evaluate and mitigate the associated risks with the ultimate goal of controlling lending decisions thereby minimizing potential losses. Credit risk theory will therefore be useful in establishing the effects of credit risk control and asset quality of commercial banks listed at the NSE in Kenya.

## Conceptual Framework

The researcher's comprehension of the relationships between the specific variable in their study is represented by the conceptual framework. The research has two variables: the independent variable and the dependent variable.

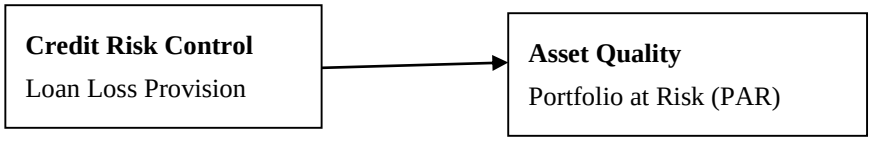


*Figure1: Conceptual Framework*

## Empirical Review

Anwer et al., (2023) in their study that sought to establish the effects of credit risk control practices and financial performance of commercial banks in Iraq. The study applied qualitative techniques to establish the extent to which a business employs adequate risk management identification procedures and tools, The target population of the study was 500 employees that included senior, intermediate, and practical level personnel in various banking sectors in

Iraq.The study employed multiple regression and Pearson's correlation for inferential analysis to identify the most critical and relevant variables that contribute to the improved performance of Iraq's commercial banks.The study findings revealed that credit risk control as a credit risk management component is associated with commercial banks' performance.

Naqvi et al., (2018) conducted a study with the aim of establishing the effects of credit risk management practices on loan performance of Commercial Banks in Pakistan Data was collected from primary sources using close-ended questions. There were 35 scheduled commercial banks operating in Pakistan with 12,424 branches across Pakistan. A sample of 24 commercial banks were selected for the research according to its market capitalization and data ability and reliability for the research. Data was collected from managers and credit officers of commercial banks in Pakistan by meeting them personally as well as coordinate with them via emails. Credit control was taken as a dimension to measure credit risk management and how it affects loan performance (LP) as the dependent variable. The result showed that credit risk control has a positive and statistically significant influence on loan performance (LP) in commercial banks in Pakistan. The study recommended that commercial banks in Pakistan should effectively practice credit control measures to maximize the profitability by increases the loan performance of the bank.

Olobo (2021) conducted a study to assess the effects of credit risk control practices and financial performance of commercial banks in South Sudan. The study applied a cross-sectional survey design with 124 respondents linked to the creditt process across 7 sampled banks in Juba. Cluster, purposive and sample random techniques were employed in gathering data using structured questionnaires and interview guides. Data was analyzed using descriptive statistics mainly mean and standard deviation. Inferential analysis was done using Pearson' Product Moment Correlation Coefficient to establish the relationship between risk factors and commercial bank performance. To establish whether relationships existed, hypotheses were tested using multiple regression analysis to establish the order of casual influence of credit control measures on banks performance. The study revealed a strong positive correlation between credit risk control practices and bank performance.

Catherine (2020) sought to establish the effects of credit risk control on financial performance of Bank of Africa in Uganda. The research was based on quantitative research approach. A case study was chosen as the most appropriate research strategy. Descriptive research was used to collect detailed information, while analytical research was to analyse phenomenon. The main sources of data were financial reports, annual reports, textbooks, articles, and company publications that included brochures and magazines. Questionnaires and interviews were also used to obtain the relevant data. The sampling procedure was both random and purposive. Data was presented using descriptive statistics involving frequency tables and percentages; data was also analysed using SPSS version 20. Correlation and regression analysis were adopted to identify the relationship between credit risk control and ROA as the measure of financial performance applied. The study findings revealed that credit risk control practices inversely influenced the financial performance of Bank of Africa.

Omagwa (2018) conducted a study to establish the effects of credit control management practices and financial performance of microfinance institutions in Nairobi central business district in Kenya. A descriptive survey design was adopted for the study for a target population comprising of 165 members of staff of the MFIs studied. Primary data was collected using questionnaires. Purposive sampling was used to pick 165 respondents. Of the 165 questionnaires dispatched, 158 were filled and returned. Descriptive analysis and multiple

regression analysis were used to analyze data. The study found that credit risk control was statistically significant in explaining financial performance of the MFIs studied. The study further established that credit risk control had a positive relationship with financial performance. The study concludes that unit increase in credit risk control results to better financial performance of MFIs. Hence, the MFIs should endeavor to invest more on the credit management practices as a way of improving their financial performance.

Getangi (2015) conducted a study on the effects of credit risk control practices on financial performance of loan portfolios of commercial banks in Kenya. The study applied descriptive survey research design for the data collected for five years period between 2010 and 2014. Census study was adopted on primary data using semi structured questionnaires. The secondary data was sourced from the bank's financial reports and CBK supervisory reports. The study used the linear regression model to examine the relationship between the variables. The findings revealed that credit control practices to a very great extent have a negative significant relationship with non-performing loans in commercial banks in Kenya. Therefore, when credit control measures are undertaken, it decreases the level of nonperforming loans to a great extent.

**Research Gap**

Research on credit risk control encompassing both developed and developing countries, has primarily centered on the variables influencing the asset quality in actively trading and listed companies across varying periods (Odhowa & Mutswenje, 2023). The empirical review of literature makes it clear that there are contextual, methodological, and conceptual research gaps. While the existing research provides valuable insights into credit risk control and asset quality, certain limitations and gaps can be identified. Contextually, most studies carried out on the effects of credit risk control and asset quality on commercial banks were done in other jurisdictions which may limit the generalization of the findings. Beyond Kenya, studies have covered various sectors and countries. First, the studies predominantly focus on various international contexts, such as Sweden, Bangladesh, Rwanda, Nigeria, India and Uganda, with minimal attention given to the specific Kenya context. Therefore, a knowledge gap exists on the effect of credit risk control in the context of commercial banks and terms of geographical location.

Methodologically, many studies have been limited to historical and qualitative data which may not capture current situations. Sathyamoorthi, Mapharing, Mphoeng, and Dzimiri (2020) analyzed the relationship between credit risk control and financial performance of commercial banks in Uganda using secondary data for five-years. Naqvi et al., (2018) conducted a study with the aim of establishing the effects of credit risk management practices on loan performance of Commercial Banks in Pakistan Data was collected from primary sources using close-ended questions. Anwer et al., (2023) used primary data with multiple regression to establish the effects of credit risk control practices and financial performance of commercial banks in Iraq. The current study intends to apply the asset quality, with panel regression as the model for analyzing inferential statistics for 10 years. Moreover, while some studies have examined the relationship between credit risk control and asset quality, there is insufficient evidence demonstrating a clear and significant impact of risk control strategies on enhancing asset quality thereby suggesting the need for more robust and comprehensive analyses for a more focused and in-depth analysis of these mechanisms within the Kenyan banking sector.

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## METHODOLOGY

Quantitative research design with causal type of design was used to establish the existence of causeand-effect relationships among variables (Cooper &Schindler, 2004). The choice of the design was informed by the availability of the subtypes of research methods such as qualitative and quantitative study, correlational and content analysis (Atmowardoyo, 2018; Mittal, 2010; Vanderstoep & Johnson, 2008). The target population for this study was 11 commercial banks listed at the NSE in Kenya as of December 2023. A census study was employed. A census constitutes a research methodology in which the entire population is encompassed within the study,(Kothari, 2004). The study collected secondary data utilizing a data collection sheet which was used to compile information from reports released by the Central Bank of Kenya and KNBS. The data was coded and then imported into STATA 18 software for both descriptive and inferential analysis. Panel regression model was used in the study. Panel regression model is a combination of cross section and time series data (Zulfikar, 2018) in which the data including time series and cross-sectional data was pooled into a panel data set and estimated using a panel data regression.

$$Y_{it} = \beta_0 + \beta_1 RC_{it} + \varepsilon_{it}$$

Where: $Y_{it}$ is the asset quality of listed commercial banks $\beta_0$,
represent the constant or coefficient of intercept $\beta_1$, $\beta_2$, $\beta_3$ and
$\beta_4$ represent the coefficients of independent variables ***RC***
represent risk control

***it*** represents indices for individual firms in time t
$\varepsilon_{it}$ represent the error term

## FINDINGS AND DISCUSSIONS

### Descriptive Statistics Results

The study sought to establish the influence of credit risk control on asset quality of listed commercial banks in Kenya. The results of the analysis are shown in Table 1.

**Table 1: Descriptive Statistics**

| Statistics | N | Min 1 | Max 2 | Mean 3 | SD 4 | Skewness 5 | Kurtosis 6 |
|---|---|---|---|---|---|---|---|
| Credit Risk Control | 11 | 0.01 | 4.19 | 0.311 | 0.17 | 0.0052 | 1.0047 |
| Asset Quality | 11 | -2.523 | 1.029 | 0 .1682 | 2.653 | 1.7167 | 2.0045 |

The study sought to establish the influence of credit risk control on the asset quality of listed commercial banks in Kenya among other predictor variables. In line with the objective, the results of the table indicate that variability of credit risk appraisal is significant, spanning from a minimum of 0.01 to a maximum of 4.19. The low LLP (less than 10%). This may indicate that certain commercial banks possess inadequate provisions to mitigate credit risks, while others demonstrate significant provisions, reflecting their robust risk management capabilities. The average of 0.311 for credit risk control, indicated by the loan loss ratio, implies that, on average, 21.1% of listed commercial banks in Kenya utilized loan loss provisions as a credit control technique to minimize credit risk. Majani (2022) asserts that LLP is a credit risk management instrument utilized by commercial banks to account for anticipated losses within loan portfolios, serving as a metric that aids in managing credit risk by enabling banks to foresee and allocate funds for projected losses. A standard deviation of 0.17 signifies a

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moderate variability in credit risk control technique among commercial banks. The study revealed a normal distribution in of 0.0052, for credit risk control indicating positively skewed distribution. The kurtosis coefficient of 1.0047 was considered to be normal.

Furthermore, the study aimed to evaluate the asset quality of listed commercial banks in relation to the dependent variable. Asset quality ranged from a minimum of -2.5231 to a maximum of 1.0295. The negative minimum figure implied that some firms had higher risk of default and lower rate of return depicted by the negative minimum value whereas others had good asset quality rating above 1 that depicted strong performance and risk management practices as shown by the maximum value Table 4.1 reveals that the average asset quality, measured by portfolio at risk (PAR), was 0.1682, signifying that 16.82% of listed commercial banks in Kenya effectively employed their assets to manage the extent and magnitude of credit risk inherent in their operations through the implementation of robust credit risk management strategies. Utilizing PAR as a risk management instrument is essential for commercial banks, since it enables management to precisely and objectively assess their loan portfolios to proactively detect credit-related problems. Understanding the risks associated with investments and implementing strategies to reduce them can help investors maximize their returns while minimizing their losses (Mbuva, 2019). However, the standard deviation of 2.653 reflected high dispersion in PAR compared to the mean signifies a high variability in the quality of assets among these listed commercial banks. The measures of skewness and kurtosis revealed a relatively normal distribution with asset quality reveling coefficients of skewness of 1.7167 and 2.0045 for kurtosis which was considered to be normal.

**Trend Analysis**

The study sought to identify the trend analysis for credit risk appraisal. Figure 1 indicates the time series results of credit risk monitoring as applied by commercial bank listed at the NSE in Kenya.

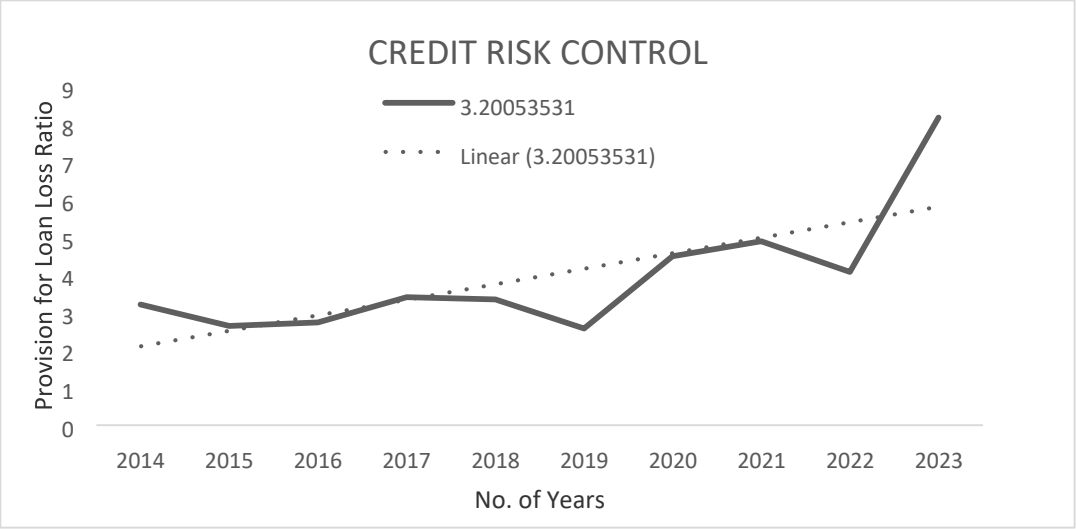


*Figure 1: Trend Analysis for Credit Risk Control*

According to Figure 1 credit risk control indicated a specific trend of a constant credit risk control technique between 2014 t0 2018, which slightly reduced in 2019. In 2020 and 2021 it went slightly up and in 2022, it slightly declined only to rise significantly in 2023. The sharp rise can be explained by the effects of Covid-19 which led to closure of markets and restriction

of movement due to economic policies, global events, or market dynamics stabilizing during that period.

**Inferential Statistics Results**

To evaluate the relationship between credit risk control and asset quality of commercial banks listed at the NSE, Kenya and draw broad conclusions about the firms, inferential statistics was employed.

**Correlation Analysis**

Correlation analysis was conducted to determine the relationship that existed between credit risk control and asset quality of commercial banks listed at the NSE, Kenya. Pearson's coefficient of correlation (r) was utilized to give a value between +1 to -1. Where 1 indicates a strong positive relationship, -1 a strong negative correlation and 0 indicates no relationship. The results are presented in Table 2.

**Table 2: Correlations Coefficients**

| Correlation | | PAR | Credit Risk Appraisal |
|---|---|---|---|
| PAR | Pearson Correlation | 1 | |
| | Sig.(2-tailed) | -.569** | |
| Credit Risk Appraisal | Pearson Correlation | .0000 | 1 |
| | Sig.(2-tailed) | | |
| N | | 11 | |
| * Correlation is significant at the 0.05 level (2-tailed).<br>** Correlation is significant at the 0.01 level (2-tailed). | | | |

According to the findings on Table 2, the analysis of the results reveals a strong negative correlation between credit risk control and asset quality ($r = -0.569$, $p < 0.05$). The significance probability for all the variable was found to be less than the significant threshold ($P<0.05$). Thus, the study concluded that credit risk control has a statistically significant relationship on asset quality of commercial banks listed at the NSE, Kenya at 5% level of significance.

**Regression Analysis**

The study sought to know the relationship between credit risk control and asset quality of commercial banks listed at the NSE, Kenya. Panel regression analysis was done to obtain the R coefficient and R square that determined the relationship. The coefficient of determination ($r^2$) was applied to explain the extent of these changes. Table 3 explains the model summary

**Table 3: Model Summary**

| Model 1 | Multiple R | R Squared | Adjusted R Square | S.E Regression | Obs |
|---|---|---|---|---|---|
| **Asset Quality** | 0.784 | 0.614 | 0.577 | 1.447 | 110 |

Table 3 indicates the results of the model summary with Multiple R showing the correlation coefficient between the observed and predicted value of 0.784. The correlation coefficient depicted a strong relationship between credit risk control and asset quality of commercial banks listed at the NSE, Kenya.

The coefficient of determination $R^2$, is a measure that provides information about the goodness of fit of the model. In the context of regression, it is a statistical measure of how well the regression line approximates the actual data. The results of the model summary revealed an $R^2$ value of 0.614 (61.4%). This implies that the variations in the percentage of credit risk control explained 61.4 % of the variations in portfolio at risk, thus, the variables had a predictive/explanatory power on the asset quality of commercial banks listed at the NSE, Kenya

The adjusted R-squared which is a modified version of R-squared takes into account how many independent variables can be added or adjusted to improve the regression model to increase the reliability of that model. In other words, the adjusted R-squared shows whether adding additional predictors improves a regression model or not. The results of the adjusted $R^2$ of 0.577 imply that if additional predictor variables are taken into account, 57.7% of the variations in the percentage of credit risk control will improve the asset quality of commercial banks listed at the NSE, Kenya. Other factors not included in this study model explain the remaining 42.3% of the variation in asset quality of commercial banks listed at the NSE in Kenya.

The standard error of the regression which is the average distance that the observed values fall from the regression line. The standard error as revealed by the study was 1.447 which indicates a high accuracy of the prediction made in this study. This implies that the observed values fall an average of 1.447 units from the regression line. The low standard error is good since it shows that the sample means are closely distributed around the population mean therefore a good representative of the population.

**Analysis of Variance (ANOVA)**

The study further evaluated the model's significance through the Analysis of Variance (ANOVA) technique. The results are presented in the table below.

**Table 4: ANOVA**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 18.991 | 1 | 18.991 | 13.52 | 0.000 [b] |
| | Residual | 12.638 | 9 | 1.4042 | | |
| | **Total** | 31.629 | 10 | | | |

An F statistic is a test based on the F-test used to determine the significance of a square change. A significant F change implies the variable added significantly improves the model prediction. The calculated F value of 13.52 was greater than the value proving that the regression model is effective in its explanation of the variation in the asset quality of commercial banks listed at the NSE, Kenya. This also shows that the model is significant. Therefore, we reject the null hypothesis that the model is insignificant and conclude that credit risk control has a significant effect on the asset quality of commercial banks listed at the NSE, Kenya. From the ANOVA results, the study established the regression model had a significance level of 0.000(0%). Given that the p-value (significant value) is less than 5%, it is evident that the data utilized in the study was sufficient and reliable for drawing conclusions about the variable being examined.

**Regression Coefficient Results**

Panel regression analysis among dependent and independent was carried out to establish the effects of credit risk control and asset quality of commercial banks listed at the NSE, Kenya. The coefficient results are shown in Table 5.

**Table 5: Regression Coefficients**

| | B | Std Error | tStat | P-value | [95% Conf. | Interval |
|---|---|---|---|---|---|---|
| Credit Risk Control | -0.31714 | 0.10220 | -3.10 | 0.000 | 0.01639 | 0.09400 |
| (Constant) | -0.73813 | 0.15768 | 4.68 | 0.000 | 0.06271 | 0.29800 |

The output generated as per the STATA 18 is as presented in Table 4.5, thus the equation is as shown:

$$Y_{it} = 0.73813 - 0.31714RC_{it}$$

Where, ***Y*** is the asset quality of listed commercial banks ***RC*** represent risk control

***it*** represents indices for individual firms in time t

**Hypothesis Test Results**

The study sought to establish the effects of credit risk control and asset quality of commercial banks listed at the NSE, Kenya. The null hypothesis ($H_{04}$) stated that credit risk control has no significant influence on asset quality of commercial banks listed at the NSE, Kenya. Regression results indicated that credit risk control had coefficients of -0.31714 and p value of 0.047 (Beta = -0.31714, p=0.000<0.05). The results thus reveal that holding other factors constant and credit risk control techniques are controlled, a unit increase in credit risk control techniques will results to a decline in the PAR for commercial banks listed at the NSE and thus increasing the asset quality of commercial banks listed at the NSE by 0.31714 units. The increase will have a significant effect in the quality of assets of these banks at 0.05 level of significance (p=0.000<0.05). Therefore, we reject the null hypothesis and conclude that credit risk control has a statistically significant effect on the asset quality of commercial banks listed at the NSE, Kenya.

The results are in agreement with that of Anwer et al., (2023), Naqvi et al., (2018) Olobo (2021) and Omagwa (2018) who concur with the findings that there is a significant impact of credit risk control and asset quality of commercial banks in different countries. However, the results contradict Catherine (2020), Getangi (2015), Orang'i (2018) and Arifaj (2023) who argues that there exists a negative relation between credit risk control techniques and the asset quality of commercial banks in different economies.On the other hand, Siddique (2022), Chhetri (2021) and Etenyi (2024) established an insignificant association between credit control practices on commercial banks asset quality.

## SUMMARY, CONCLUSION AND RECOMMENDATIONS

### Summary

In line with the objective, correlation coefficient revealed a strong negative correlation between credit risk control and asset quality of listed commercial banks in Kenya as was measured by loan loss provisions. Panel regression analysis revealed that credit control reduces the PAR of commercial banks thus improving the asset quality of these banks listed at the NSE, Kenya. The study rejected the null hypothesis and concluded that credit risk control has a significant effect on asset quality of commercial banks listed at the NSE, Kenya.

### Conclusion

In the context of the hypothesis, the study found that credit risk control has a positive significant effect on asset quality of commercial banks listed at the NSE, Kenya. The results support the credit risk theory which explains how commercial banks and other financial institutions can

handle unforeseen circumstances that come up during the credit servicing period with the ultimate goal of controlling lending decisions thereby minimizing potential losses which is vital to the financial stability, profitability, and public trust of commercial banks by reducing loan losses and averting possible financial crises that could jeopardize the financial system as a whole. Therefore, the study made conclusion that commercial banks listed at the NSE, Kenya should increase their credit risk control techniques to boost their asset quality.

**Recommendations**

By improving the stability, profitability, and resilience of financial institutions, effective credit risk control strategies improve financial performance and, eventually, resource allocation and long-term viability of the commercial banks. Recommendations for commercial banks to control credit risk using a variety of strong risk management techniques, including a careful credit analysis, establishing suitable credit limits, keeping an eye on loan performance, and utilizing technology to improve data quality and analysis. As a safety net against unforeseen losses, commercial banks should put money aside in loan loss reserves to cover possible defaults. This will ensure they can withstand unforeseen losses and preserve financial stability by serving as a financial buffer against any defaults. As a safety net, the reserves will enable lenders to withstand losses without suffering a major blow to their overall financial stability.

Credit policies, also known as "Lending Guidelines," should be in place at all banks. These policies should clearly define the senior management's priorities for company development as well as the terms and circumstances that must be met for loans to be authorized. The Lending Guidelines should be communicated to all lending and marketing officials and updated at least once a year to take into account shifts in the economy and the development of the bank's loan portfolio. All banks should implement a credit risk grading system that defines the risk profile of borrowers to make sure that pricing, structure, and account management are appropriate for the risk involved. Since risk grading is a crucial indicator of a bank's asset quality, it is crucial that the grading process be robust. Each facility should be given a risk grade, and if a decline in risk is observed, the risk grade assigned to the borrower and its facilities should be promptly modified. Borrower risk grades should be explicitly mentioned on credit applications.

**Further Research**

Further research should be conducted to determine the nexus between the credit risk control practices for unsecured loans in Kenyan banking and non-banking financial institutions. In order to help the banking industry improve the performance of unsecured loans, this will assist policymakers in developing a strict framework for risk management. Lastly, the study found that credit risk control explains 57.7 % of the asset quality of commercial banks listed at the NSE in Kenya. This study therefore suggests further studies should be conducted on other factors affecting the asset quality of these listed commercial banks.

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