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Asset Quality and Financial Stability: An Empirical Review of Commercial Banks in Kenya

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Abstract

The purpose of this paper is to evaluate the role of asset quality on the financial stability of commercial banks in Kenya. The study employed an unbalanced panel dataset comprising 43 commercial banks in Kenya spanning the period from 2000 to 2021, resulting in 789 bank-year observations. Asset quality was assessed using non-performing loans (NPLs), while financial stability was measured using Z-scores. Utilizing panel data estimation methods, the findings indicate a negative relationship between asset quality and financial stability, emphasizing that an increase in NPLs leads to a decrease in financial stability within the banking sector. The findings are consistent even after using different measures of financial stability i.e., Risk adjusted return on assets (RAROA) and Risk adjusted return on equity (RAROE). Moreover, capital adequacy which is employed as a control variable, reveal that improving capital adequacy can provide the commercial banks with the required stability to absorb losses and improve the ability to encounter unexpected financial shocks. The research results provide important policy implications for regulators, bank managers and policy makers on the better methods of customer screening to reduce the level of non-performing loans and prudent management of credit risk.

Keywords: *Asset quality, financial stability, capital adequacy, credit risk and commercial banks.*

1.0 Introduction

Asset quality is the level of efficiency in eliminating and bringing the credit risk to an acceptable level so that both payment of interest and principal is met (Salina, Zhang, & Hassan, 2021). This can be achieved through proper financial asset management, which is how financial institutions handle their balance sheet, since they are exposed to a variety of risks relating to credit, interest rates, liquidity, markets and capital (Epstein, 2019). The management of the financial asset is of great importance since financial stability of banks is an impetus for stability of the whole financial system (Masud & Haq, 2016; Saif-Alyousfi, Asish, & Rohani, 2020). The main objective of financial asset management is to maximize returns through efficient credit risk allocation and transfer leading to stability of commercial banks (Elbadry, Bank's Financial Stability and Risk Management, 2018). A bank is unstable when it becomes economically insolvent, and this occurs

when the market value of its assets falls short of the value of its deposits and other debt, including derivatives (Saif-Alyousfi, Asish, & Rohani, 2020).

Financial stability in banks refers to banks' ability to absorb shocks and to carry out their activities effectively and efficiently despite systematic and unsystematic risks during financial intermediation (Sarwar, Muhammad, & Azhar, 2021; Odundo & Orwaru, 2018). Financial stability in banks is as a result of several factors such as financial regulations, effective financial intermediation, economic growth, level of employment and financial literacy in the country (Sarwar, Muhammad, & Azhar, 2021). Due to global economic crisis and economic depression, banks' financial stability has become the major concern for most economies in the world (Adamako, Danso, & Damoah, 2016). With the advent of Basel III, financial stability can be achieved through asset quality which is considered to be one of the most important current issues (Sood & Ansary, 2017).

The implementation of Basel III principles has highlighted the significance of proper asset management within the banking sector, as improper management can pose a threat to the financial stability of numerous banks worldwide. This risk materializes when borrowers are unable to fulfill their obligations, failing to make payments for both principal and interest (Kim, Koo, & Park, 2013; Masud & Haq, 2016). Improper financial assets management result in the accumulation of excessive liquidity, irresponsible lending policies and the excessive use of complex financial products that constitutes a threat to the financial stability of the banks (Moudud-Ul-Huq, et al., 2021). Emerging evidence reveal that proper policies on financial asset management will enhance financial stability in banks' activities which are positively associated with financial stability in the banking sector (Elliott, 2014). Liquidity management plays a great role in stabilizing commercial banks which entails the bank's ability of meeting all legitimate demands for funds (Mateev & Bachvarov, 2019).

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 (Salina, Zhang, & Hassan, 2021). Low asset quality affects banks' capital and financial performance thereby making them financially unstable and the management should adopt modern methods of improving asset quality (Boachie, Aawaar, & Domehar, 2021). Improper accounting methods and poor management of deteriorating asset quality can result in an increase of non-performing loans and loss of revenue by the banks, this can be a starting point of the banks becoming unstable (Klein, Schardin, & Baily, 2017). Asset quality through credit risk management can be enhanced by identification, analysis and assessment, monitoring and control of credit and this can have a direct implication on the amount of loans and advances extended to customers as well as on the level of non-performing loans (Trad, Trabelsi, & Goux, 2017).

The earlier literature has shown that business cycles (market risk) significantly affect bank stability, since firms' and households' ability to service their debt plays an important role in ensuring bank stability (Al-Malkawi & Pillai, 2018). Bank stability is anticipated to exhibit a pro-cyclical pattern, whereby factors influencing stability typically emerge from the downturn in economic activities (Epure & Lafuente, 2015). Due to this, the study will be centered on evaluating empirically to determine whether asset quality can play a role in enhancing the financial stability for commercial banks in Kenya. Today's competitive banking environment has experienced the need for the use of various methods to evaluate and manage risks mostly the credit risk in banking sector (Chi & Li, 2017). This is probably due to the fact that it is not easy to measure efficiency as

well as competitiveness of financial institutions, owing to the fact that their products and services are mostly intangible (Alshatti, 2015). The study will assess the role of financial assets management especially asset quality in ensuring banks' financial stability and how this can be measured.

1.1 Research Objective

The objective of this study is to evaluate the role of asset quality on the financial stability of commercial banks in Kenya.

1.2 Research Questions

i. How does asset quality contribute to financial stability of commercial banks in Kenya?
ii. What is the effect of asset quality on the financial stability of commercial banks in Kenya?
iii. Is there significant value created by installing good asset quality practices in enhancing financial stability in commercial banks in Kenya?
iv. How does bank specifics and macro-economic variables enhance financial stability of commercial banks in Kenya

2.0 Literature Review

This section presents a review of literature for the study. It details the empirical and theoretical aspects related to the study. These aspects of literature are discussed in sections.

2.1 Commercial Banks In Kenya and Financial Stability

According to the Central Bank of Kenya 2021, the total number of commercial banks in Kenya were 43. Figure 1 below presents the evolution of financial stability of commercial banks in Kenya for twenty-two (22) years, between the year 2000 and 2021. Generally, the financial stability of commercial banks in Kenya had a set of mixed results ranging from between eleven per cent (11%) to thirteen point five per cent (13.5%), it can be concluded that Kenya commercial banks have been experiencing a considerable long period of financial stability as demonstrated by Graph 1. The highest financial stability experienced by Kenya commercial banks was thirteen point five per cent (13.5%), and this was at the start of the study that is year 2000. This suggests that there was a certain factor or there were certain factors making the commercial banks not to improve their financial stability. The lowest financial stability experienced by Kenya commercial banks was eleven per cent (11%), which occurred at the outbreak of Covid-19 in the country. This suggest that Covid-19 pandemic greatly affected operations in the banking sector making them prone to financial instability.

Between 2000 and 2002, there was a notable decline in financial stability from 13.5% to 11.5%. Subsequently, within a one-year period from 2002 to 2003, a slight increase to 13% occurred, albeit briefly, before a sharp decline ensued, dropping back to 11.5% by the year 2006. A sharp increase just for one year was experienced between the year 2006 and 2007 up to thirteen per cent (13%). Between the year 2007 and 2009 there was a slight decline of financial stability from thirteen per cent (13%) to twelve point five per cent (12.5%), this did not last for long before the financial stability bounced back in the year 2009/2010 to thirteen per cent (13%). This was followed by a sharp decline in the year 2010/2011 to twelve per cent (12%) before growing to twelve point five per cent (12.5%) up to the year 2013. Between the year 2013 and 2017 the financial stability of commercial banks in Kenya was almost constant at twelve point five per cent (12.5%). After the year 2017, the financial stability of commercial banks in Kenya has been

declining and this indicates that commercial banks started experiencing a lower stability even before the onset of Covid-19 pandemic, but it was severe during the pandemic recording the lowest percentage at eleven per cent (11%). The period between 2019 and 2020 the commercial banks reported the lowest stability of between 11% and 12%. From the year 2021 the commercial banks in Kenya started bouncing back from Covid-19 pandemic, reporting a steady increase of stability from 11% to eleven point five per cent (11.5%) which was end of the study period.

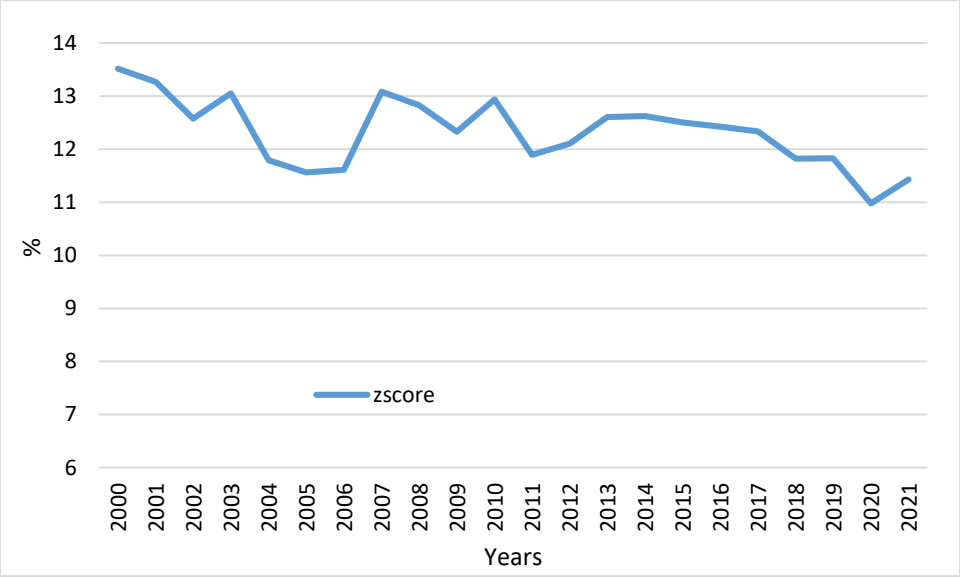

Figure 1: Evolution of Financial Stability

2.2 Theoretical Review

The study was informed by the systemic risk theory which was introduced by Diamond & Dybvig in 1983, who argued that there is a reason why the bank need to operate with a balance sheet where the liquidation value of its assets is less than the value of liquid deposits in order to provide liquidity services (Diamond & Dybvig, 1983). Banks' provision of liquidity services leaves them exposed to runs (Diamond & Dybvig, 1983). Under these circumstances, given that depositors' expectations about the value of their deposits depend on their place in line at the time of withdrawal because of the first come, first served rule (Diamond & Dybvig, 1983). A run can occur without the release of adverse information about the bank's assets and even where there is perfect information about the bank's assets (Diamond & Dybvig, 1983).

The proponents of this theory for example, Bhattacharya & Fulghieri (1994), Flannery (1996) and Allen & Gale (2004), conclude that the banks can improve the quality of their financial assets by avoiding the banks' runs and when the banks lend to each other to eliminate the issue of uncertainty of short-term assets. Bhattacharya & Fulghieri (1994), further adds that the banks can improve asset quality by transfering the risk to other parties like insurance companies (Bhattacharya & Fulghieri, 1994). Chari & Jagannathan (1988), used this theory to construct a model by modifying the theory concept while assuming that the banks' investment produces a random return that is observable by the depositors which could reduce the banks' (Chari & Jagannathan, 1988). Jacklin & Bhattacharya (1988), observed that asymmetry of information about financial assets makes them susceptible to banks' runs thereby lowering the asset quality (Jacklin & Bhattacharya, 1988).

The systemic risk theory can be instrumental in enhancing the asset quality and improving the stability of commercial banks in Kenya. By offering insights into large withdrawals initiated by depositors, rather than waiting for others to act under the assumption that the withdrawals stem from the bank's poor performance, proactive measures can be taken to mitigate risks and address underlying issues promptly. (Chari & Jagannathan, 1988). Further commercial banks in Kenya can enhance their asset quality through transferring the risk to insurance company and provide this information to the depositors (Allen & Gale, 2004). To protect the banks from the asset quality deterioration through banks' run since it may trigger contagion runs, the regulator should always ensure that depositors money is well insured and the amount is adequate (Aghion, Bolton, & Dewatripont, 2000). Better still the commercial banks in Kenya can enhance its financial stability through enhanced asset quality by screening properly the customers who are borrowing, to see that the credit risk is always at minimum (Calomiris & Gorton, 1991).

2.3 Empirical Review

Barus et al. (2017), in their study whose objective was to establish the effect of capital adequacy on the financial performance of savings and credit societies in Kenya. The study employed an explanatory research design of which the target population was the 83 registered deposit taking SACCO's in Kenya that have been in operation since 2011. The sample size for the study was all 83 SACCOs that have remained in existence since 2011 to 2015. Census methodology was used in the study of which both primary and secondary sources of data were employed. Multiple linear regression models were used to analyze the data using statistical package for the social sciences (SPSS) and STATA. The findings of the study concluded that capital adequacy influenced the financial performance of savings and credit societies in Kenya. Also, the findings showed that the influence was positive and also showed the magnitude by which capital adequacy influenced the financial performance of savings and credit societies (Barus, Muturi, Kibati, & Koima, 2017).

Elbadry (2018) in his study on banks' financial stability and risk management whose objective was to examine the effect of Saudi banks' financial stability on risk management. The research used different ordinary least square models to study the significant effect of banks' financial stability indicators on different types of risks in Saudi banks. The researcher collected financial statements of all Saudi banks (12 banks) from 2011 to 2014 from the TADAWL website. The study reveals three key findings regarding the relationship between various financial ratios and credit risk as well as liquidity risk. Firstly, it identifies a negative and significant impact of the capital adequacy ratio on credit risk. Secondly, it establishes a significant and positive association between the leverage ratio and credit risk. Thirdly, the study uncovers a negative and significant influence of provisions, leverage ratio, loan-to-deposit ratio, and bank size on liquidity risk. Finally, the results indicated that there is a positive and significant effect of capital adequacy, provisions, leverage and asset utilization ratio on operational risk which indicate a negative and significant effect of loan-to-deposits ratio on operational risk (Elbadry, Bank's Financial Stability and Risk Management, 2018).

Gueyie, Guidara and Lai (2019), in their study on the banks' non-traditional activities under regulatory changes assessing the impacts in risk performance and capital adequacy. They used the big 6 Canadian Chartered Banks quarterly financial statements and daily stock market data from 1982 to 2018, they examined the impact of non-interest income on Canadian banks' risk, performance and capital under the different major regulatory changes made to the Bank Act of Canada. Their results showed that Canadian banks' expansion into non-traditional activities had

slightly decreased their risks and significantly improved their performance benefiting from income diversification. Moreover, while adhering to capital adequacy regulation, reshuffling banks' portfolio towards non-traditional activities did not reduce Canadian banks' capital ratio. In spite of the re-regulation towards universal banking against ring fencing, this feature buttresses the effectiveness of capital adequacy regulation in Canada in linking banks' capital allocation with their risk taking (Gueyie, Guidara, & Lai, 2019).

Nguyen & Dinh (2021) in their study on risk management and financial stability during the Covid-19 pandemic for Vietnamese firms whose objective was to investigate whether firms can ensure their financial stability during the corona virus disease 2019 (COVID-19) pandemic by having ex-ante risk management. The researchers studied 279 Vietnamese listed firms by investigating their disclosure of risk awareness and risk management tool(s) in the 2019 annual reports. The authors then examined whether prior risk awareness and adoption of risk management tool(s) could enhance the firms' financial ratios during the COVID-19 pandemic. The study found out that firms that disclosed their risk management tool(s) in the 2019 annual reports had better asset utilization and higher liquidity during the COVID-19 pandemic than others. The study concluded that firms that simply express their risk awareness did not exhibit stronger financial stability. In addition, the study concluded that debt management is the most popular and most effective tool to ensure firms' financial stability during the crisis (Nguyen & Dinh, 2021).

Kamel et al. (2021), in their study in Egypt whose objective was to use data envelopment analysis (DEA) models to measure financial efficiency of twelve commercial banks listed in the Egyptian stock exchange; along with evaluating changes to the financial efficiency during the period 2017-2019. The study used BCC-I, cross-efficiency, super-efficiency models and Malmquist productivity index (MPI) to assess financial efficiency of the examined banks. The findings indicate that among the twelve banks examined, only four demonstrated efficiency according to the BCC-I model. Notably, only one bank, CIB, emerged as the most efficient compared to its peers within the study sample. Furthermore, the results from the MPI analysis suggest a decline in financial efficiency over the study period, attributed to reduced technological innovation, with the exception of HDB. Finally, Tobit regression results confirmed that total assets and total equity are significant factors in impacting financial efficiency (Kamel, Mousa, & Hamdy, 2021).

3.0 Methodology

This section presents a detailed overview of the model used for the study. The section further provides an indepth examination of the variables used in the study, and the corresponding measurement of these variables.

The study employed fixed effects panel data method to investigate the relationship between asset quality and financial stability of commercial banks in Kenya. The utilized data provides information on asset quality and the analysis evaluates whether stability has been enhanced as a result of improved asset quality. The study takes an ontological position in applying positivism which is a research philosophy of science that seeks facts of social phenomena with little regard for the subjective status of an individual (Patton, 2015). The data is collected from commercial banks' aannual reports for a period of 22 years between 2000 and 2021.

Using panel data regression analysis, the relationship between asset quality and financial stability is explored as shown in the equation below:

Y= function of (Asset quality, Bank-specific indicators and Macro-economic variables)

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Where Y refers to the dependent variables that is bank's Z-score, RAROA and RAROE. More specifically the equations are:

$$Z-score = \beta_0 + \delta_1 Ass\_Qty_{it} + \delta_2 B\_siz_{it} + \delta_3 Lev_{it} + \delta_4 L\_qty_{it} + \delta_5 B\_Lty_{it} + \delta_6 F\_Owp_{it} + \delta_7 GDP + \delta_8 Inf + \varepsilon_i$$

$$RAROA = \beta_0 + \delta_1 Ass\_Qty_{it} + \delta_2 B\_siz_{it} + \delta_3 Lev_{it} + \delta_4 L\_qty_{it} + \delta_5 B\_Lty_{it} + \delta_6 F\_Owp_{it} + \delta_7 GDP + \delta_8 Inf + \varepsilon_i$$

$$RAROE = \beta_0 + \delta_1 Ass\_Qty_{it} + \delta_2 B\_siz_{it} + \delta_3 Lev_{it} + \delta_4 L\_qty_{it} + \delta_5 B\_Lty_{it} + \delta_6 F\_Owp_{it} + \delta_7 GDP + \delta_8 Inf + \varepsilon_i$$

Where:

- Z-Score = Bank's Z-score.
- RAROA = Risk Adjusted Return on Assets.
- RAROE = Risk Adjusted Return on Equity.
- $Ass\_Qty_{it} = Asset\ Quality\ for\ each\ bank\ at\ time\ t.$
- $B\_Siz_{it} =$ $Bank\ size\ measured\ as$ natural log $total\ assets\ \ for\ each\ bank\ at\ time\ t.$
- $Lev_{it} = Bank\ leverage\ measured\ as\ TE\ to\ TA\ for\ each\ bank\ at\ time\ t.$
- $L\_Qty_{it} =$ $Loan\ quality\ measured\ as\ NPLs\ to\ total\ assets\ for\ each\ bank\ at\ time\ t.$
- $B\_Lty_{it} = Bank\ liquidity\ measured\ as\ loan\ to\ deposits\ for\ each\ bank\ at\ time\ t.$
- $F\_Owp_{it} = Foreign\ ownership\ for\ each\ bank\ at\ time\ t.$
- $GDP = Gross\ domestic\ product\ for\ each\ year.$
- $Inf = Inflation\ for\ each\ year.$
- $\varepsilon_{i=}\ Error\ term$

This research evaluate how asset quality can contribute to banks' stability of commercial banks in Kenya, taking the data for the period between 2000 and 2021. Banks whose data is not consistent for a period of more than three years is excluded in the study. The banks that liquidated in between or started its operations in between the period of study is also excluded from the study. The data from macroeconomic variables is obtained from world bank indicators.

Banks' stability was measured using the default risk, that is Z-score, and is measured as the number of standard deviations earnings have to fall before the bank becomes insolvent (Stiroh & Rumble, 2006). Several scholars have used the Z-score, risk adjusted return on assets (RAROA) and risk adjusted return on equity (RAROE) to measure the financial stability in banking sector which include (Barra & Zotti, 2020; Nguyen & Dinh, 2021; Saif-Alyousfi, Asish, & Rohani, 2020). The equations are as follows:

$$Z-score = \frac{[ROA+\left(\frac{E}{A}\right)]}{\delta ROA}$$

$$RAROA = \frac{ROA}{\delta ROA}$$

$$RAROE = \frac{ROE}{\delta ROE}$$

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Where:

$E = Total\ Equity$

$A = Total\ Assets$

$ROA = Return\ on\ Assets$

$ROA = Return\ on\ Equity$

$\delta ROA = Standard\ Deviation\ of\ the\ Return\ on\ Assets$

$\delta ROE = Standard\ Deviation\ of\ the\ Return\ on\ Equity$

The higher the Z-score the more stable the bank is that is a higher Z-score implies a lower probability of insolvency. The higher the RAROA and RAROE value the more the stable the bank is.

Bank stability mostly depend on the level of efficiency in eliminating and bringing the credit risk to an acceptable level since financial crises is accelerated by increase in non-performing loans (Khan, Siddique, & Sarwar, 2020; Ghosh, 2017). Asset quality is measured by non-performing loans as used by (Ghosh, 2017).

$$NPL = \frac{Total\ Loans\ past\ due\ 90\ days\ or\ more}{Total\ Gross\ Loans}$$

A higher NPL ratio is an indication of a higher credit risk which can be a cause of financial crises.

The study employed bank size, measured by the natural logarithm of total assets, as a control variable. This factor is considered crucial as it serves as a determinant of bank diversification, thereby influencing financial stability. Expectation was that large banks should exhibit high diversification and high Z-scores therefore, those banks should be more stable. Secondly is leverage measured by total equity to total assets which is an important determinant of bank capitalization which improves financial stability. Expectation is that higher capitalization should result with higher value of Z-score and RAROE therefore, those banks should be more stable. Thirdly is loan quality measured by NPLs to total assets which is an important determinant of bank instability. Expectation was that with lower value of loan quality, those banks should be more stable. The next aspect is bank liquidity, which was measured by loans to deposit and is an important determinant of evaluating liquidity problems. Expectation was that with higher value of bank liquidity, those banks were experiencing liquidity problems and therefore they were less stable. Lastly is the foreign ownership where we expected the foreign owned banks to be more liquid and demonstrate high capitalization and hence more stable than the local banks.

The study utilized macroeconomic indicators, including the gross domestic product (GDP) and the inflation rate, as control variables. These indicators are essential for providing context and controlling for external economic factors that may influence the variables under investigation. The real economic growth was measured by the growth of GDP; the data was collected from World Bank. The inflation rate data was collected from the World Bank. Positive growth in the real GDP with lower inflation rate are expected to improve the bank financial performance and therefore lowers the probability of insolvency.

4.0 Research Findings and Discussions

This section presents the study findings. Further, it provides a discussion of the findings. These findings are further corroborated by past literature on the study.

4.1 Summary Statistics

Table I below presents the summary statistics for the variables to establish the effect of asset quality on the financial stability of commercial banks in Kenya which include dependent variable, robust check for financial stability variables that is RAROA and RAROE, asset quality, firm specific variables, financial structure variables and macroeconomic variables. All the variables had an acceptable mean and standard deviation. Dependent variable for the study was Z-score as a measure for financial stability in the banking sector of which the higher the value, the higher the stability which was demonstrated in Table I that is a mean of approximately twelve percent (12%) and standard deviation of approximately eight percent (8%). This is an indication that most of Kenya commercial banks have been stable within the period of study, although some banks were financially unstable demonstrated by the minimum value of approximately negative eight point three percent (-8.3%). For robustness check using risk adjusted return on assets (RAROA) and risk adjusted return on equity (RAROE) shows a mean of 1.695 and 1.468 respectively and standard deviation of 1.837 and 1.548 respectively, which is an indication that either could have been used to measure financial stability without changing the results materially.

High levels of non-performing loans (NPLs) increase the uncertainty, thereby risk and this can affect the financial stability in banking sector. From Table I the values of NPLs indicated the commercial banks in Kenya were stable with a mean of approximately 14%. Although some few banks were in danger zone of becoming insolvent, due to high values of NPLs with a minimum value of approximately 1% and a maximum value of approximately of 63%. There was an inverse relationship between the amount of NPLs and the financial stability of commercial banks. When NPLs are high the financial stability of commercial banks measured by Z-score is low. Increase in NPLs weakens the financial system making credit to stagnate, raising worries that the recovery could be slowed down by credit constraints and this make commercial banks financially unstable.

Equity to total assets was used to measure leverage which is an indication of the level of capitalization that control the relationship between bank fragility and levels of capitalization. From Table I, Kenya commercial banks showed a high leverage with an average of approximately 17% and ranging from 5.13% to 95.41%. High levels of capitalization is an indication that commercial banks can absorb large shocks and shield banks when asset values decline, this enhances financial stability. Bank size, as defined by the natural log of total assets, is regarded as a significant predictor of bank diversity, fragility, and stability. Larger banks have better risk diversification due to the level of capitalization. From Table I it is evident that the level of capitalization has a great variation with an average of $19.41 billion and standard deviation of $1.483 billion. This explained why most of the banks had a low diversification since larger banks have a better risk diversification.

Bank concentration was measured by HHI and bank concentration, with higher values indicating higher concentration and low competition. The statistical summary indicates that Kenyan commercial banks have a low concentration, an average of approximately 7% and ranging from 5% to 11.6%. With low bank concentration, it means that the rate of competition is high and this can lead to banks' managers taking higher risks and this can be detrimental to financial stability.

There is a balance between the foreign owned banks at 0.45 with local banks at 0.55 (1-0.45), indicating that there is a balance between the local banks and foreign banks. Kenyan commercial banks have a minimal asset growth rate at approximately mean rate of 16%, this indicates minimal investments is done by majority of the banks.

Table I: Descriptive Statistics

VARIABLES	N	Mean	s.d.	Min	Max
Dependent Variables (DV)					
Z-score	789	12.25	7.941	-8.309	41.47
RAROA	789	1.695	1.837	-4.066	8.33
RAROE	789	1.468	1.548	-4.14	5.856
Independent Variable (IV)					
NPLs	789	14.45	14.25	0.29	63.39
Control Variables					
Firm specific variables					
Bank Size	789	19.41	1.483	15.81	23.17
Bank Efficiency	789	0.696	1.978	0.0928	55.12
Leverage	789	17.19	11.26	5.13	95.41
Loan Quality	789	14.45	14.25	0.29	63.39
Foreign Ownership	789	0.456	0.498	0	1
Growth on assets	789	0.155	0.33	-0.531	5.209
Financial structure variables					
Bank Concentration (HHI)	789	0.0788	0.0176	0.0594	0.116
Macroeconomic variables					
GDP Growth Rate	789	4.224	2.209	-0.25	8.058
Inflation	789	7.578	3.201	1.966	15.11
Covid-19 Dummy	789	0.0938	0.292	0	1

Notes: N refers to number of observation; s.d. refers to standard deviation; Min refers to minimum; Max refers to maximum; RAROA refers to risk adjusted return on assets; RAROE refers to risk adjusted return on equity; NPLs refers to non-performing loans; and HHI refers to Herfindahl Hirschman Index.

4.2 Asset Quality on Banks' Financial Stability

The objective of this study was to establish the role of financial assets quality on the financial stability of commercial banks in Kenya. Table II below presents the regression result using the fixed effects. The NPLs were negatively statistically significant with financial stability, which means that with increase in NPLs resulted with a decrease in financial stability in the banking sector. the results was in line with the outcome of the study of (Saif-Alyousfi, Asish, & Rohani, 2020; Harkati, Alhabshi, & Kassim, 2020). The same results were replicated when other measures of financial stability that is RAROA and RAROE were used. This results are in line with the studies of Ozili (2017) and Ghosh (2017). One of the principles of Basel III is the capital adequacy which

provides the banks with required stability to absorb losses and improve their ability to encounter unexpected financial shocks (Harkati, Alhabshi, & Kassim, 2020).

Asset quality is a matter of eliminating or bringing the credit risk to an acceptable level so that both payment of interest and principal is met. Low asset quality which consists of growing NPLs affects banks' capital hence the financial stability (Boachie, Aawaar, & Domehar, 2021). Deteriorating asset quality due to high values of NPLs and loss of revenue by the banks can be the main reason for instability in the banking sector (Klein, Schardin, & Baily, 2017). Growth on NPLs can be attributed to weak supervision of the lending standards of all banks and non-bank financial institutions actively involved in the financial intermediation process as it was the outcome of the study of (Ozili, 2017).

From Table 2 below, bank size measured as natural log of total assets was positively statistically significant with financial stability of commercial banks in Kenya, meaning that the large the bank is the more it is stable. Further, it is an indication that commercial banks in Kenya could improve their financial stability by increasing their level of total assets. Bank efficiency measured as the cost to gross income was negatively statistically significant with financial stability of commercial banks in Kenya, the more the bank is efficient the more it takes higher risk and this negatively affect the financial stability, which is in line with the study of (Adem, 2023). Further leverage measured as total equity to total assets was positively statistically significant with financial stability of commercial banks in Kenya. Table II indicate that an increase in leverage results with an improvement in bank stability of commercial banks in Kenya, so longer as the commercial banks are able to meet the financial obligations when and as they fall due.

From Table 2, the study shows that GDP growth rate and inflation was positively statistically significant with financial stability of commercial banks in Kenya. The GDP growth rate had a trickle-down effect which enabled the borrowers to meet their financial obligations, reducing the level of NPLs and therefore enhancing financial stability. Inflation was directly proportionally with NPLs, that is a reduction in inflation enabled the borrowers to meet their financial obligations reducing the value of NPLs and vice-versa was true. There was a relationship between the GDP and inflation in that when there is a growth in GDP, the rate of inflation is low and level of NPLs is greatly reduced enhancing the financial stability of commercial banks.

The study findings show that diversification is negatively and statistically significantly associated with the financial stability of commercial banks in Kenya. This suggests that when banks diversify their offerings by introducing new financial products into the market, it can have adverse effects on their stability. The introduction of unfamiliar financial products may exceed the banks' capacity to manage risks effectively, leading to potential defaults on both principal and interest payments. Consequently, while diversification may present opportunities for revenue growth, it also introduces increased complexity and risk, which can compromise the overall financial stability of commercial banks in Kenya. When payment of financial obligations is defaulted it result with an increase in the levels of NPLs and this makes the commercial banks financially unstable. Unexpected result was Covid-19 dummy which was negatively associated with bank stability when measured using RAROA, the expectations of Covid-19 pandemic was to increase the level of NPLs making the commercial banks unstable.

NPLs is caused by unexpected events setting in making the borrower unable to meet their financial obligations that is both the principal and interest. In conclusion, NPLs was inversely associated with financial stability of commercial banks in Kenya with an increase in NPLs making the banks unstable. It was evident that bank size, leverage, inflation and GDP growth rate was positively associated with bank stability. Further, it was evident that bank efficiency, diversification and Covid-19 used as a dummy negatively affected the bank stability.

Table 2: Regression Output for Asset Quality on Financial Stability

	FIXED EFFECTS		
VARIABLES	**Z-score**	**RAROA**	**RAROE**
NPL	-0.028***	-0.031***	-0.024***
	-0.009	-0.003	-0.005
Bank Size	0.522*	0.223**	0.065
	-0.268	-0.09	-0.111
Leverage	0.487***	0.043***	0.007
	-0.047	-0.005	-0.007
Bank Efficiency	-0.288***	-0.059***	-0.004
	-0.058	-0.014	-0.013
Diversification	-4.374**	-0.157	0.77
	-1.723	-0.563	-0.714
HHI	10.925	5.122	0.396
	-11.965	-4.743	-6.396
Inflation	-0.03	0.009	0.021*
	-0.021	-0.011	-0.011
C-19 Dummy	-0.45	-0.539***	-0.291
	-0.277	-0.178	-0.197
GDP GR	0.019	0.055***	0.060***
	-0.023	-0.012	-0.015
Constant	-4.467	-3.488*	-0.301
	-6.194	-2.068	-2.649
Observations	789	789	789
R-squared	0.75	0.264	0.146
Banks	43	43	43

*Note: RAROA refers to Risk Adjusted Return on Assets; RAROE refers to Risk Adjusted Return on Equity; NPL refers to non-performing loans; HHI refers to Herfindahl Hirschman Index; C-19 refers to Covid-19; and GDP GR refers to gross domestic growth rate. *** p<0.01, ** p<0.05 and * p<0.1 denote 1%, 5% and 10% level of significance respectively.*

5.0 Conclusion

The study concludes by emphasizing the detrimental impact of non-performing loans on the financial stability of commercial banks in Kenya. It highlights a negative association between non-performing loans and financial stability, indicating that as non-performing loans increase, commercial banks become more financially unstable. Weak supervision of lending standards and the proliferation of digital lending by non-bank financial institutions contribute to the rise in non-performing loans, exposing banks to greater credit risk. The study also identifies external factors such as the Covid-19 pandemic, which further exacerbate non-performing loans and negatively correlate with financial stability. Moreover, the findings underscore the critical role of commercial banks in providing credit to support economic growth, emphasizing the adverse effects on the economy when banks face higher credit risks and companies are unable to access necessary funds.

The study concludes that maintaining high asset quality is essential for ensuring financial stability within commercial banks. Asset quality directly impacts the ability of banks to meet their financial obligations, including the payment of interest and principal. The presence of a high number of non-performing loans (NPLs) negatively affects banks' capital and overall financial stability. Improving asset quality involves either reducing non-performing loans or increasing total assets, which can be achieved through maintaining the required capital adequacy levels. Adequate capitalization enables banks to absorb losses and withstand unexpected financial shocks, thereby enhancing their stability. Proper screening of customers before loan disbursement and utilizing credit ratings are identified as effective strategies for reducing non-performing loans and improving asset quality, thus promoting stability within the banking sector.

The study has implication to the regulators in that, asset quality which majorly is caused by credit risk and liquidity risk. Currently the CBK has introduced monitoring and control of commercial banks on the issue to do with lending to enhance market discipline and discourage increase in credit risk. Currently the CBK reviews on quarterly basis on each institution’s financial performance of which a report is provided. Since credit risk affect the financial stability of commercial banks, the regulators should introduce another aspect of the review of which the relationship between financial performance and credit risk can be evaluated to enhance stability. On the issue to do with liquidity risk, the CBK requires the bank to make a deposit of five hundred shillings (Kshs. 500,000) with depository insurance fund. This fund curbs the bank runs that greatly affect liquidity of the banks hence the financial stability. The study recommends that the regulators can think of increasing the fund to enhance the stability of commercial banks in Kenya.

6.0 Recommendations

The study recommends several strategies for bank managers to enhance stability and mitigate risks. Firstly, it suggests implementing proper mechanisms for customer screening to reduce the level of Non-Performing Loans (NPLs), which significantly impact banks' stability. Additionally, the study emphasizes the importance of improving leverage by increasing assets and customer deposits to strengthen bank stability. Furthermore, the research highlights the negative association between bank efficiency and stability, underscoring the need for managers to encourage growth in gross income without a proportional increase in operating costs. Finally, the study proposes that growth in equity, enhanced loan quality, and well-regulated operations positively influence bank stability. Commercial bank managers are urged to leverage this valuable insight to bolster stability and ensure sustainable growth in the banking sector.

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