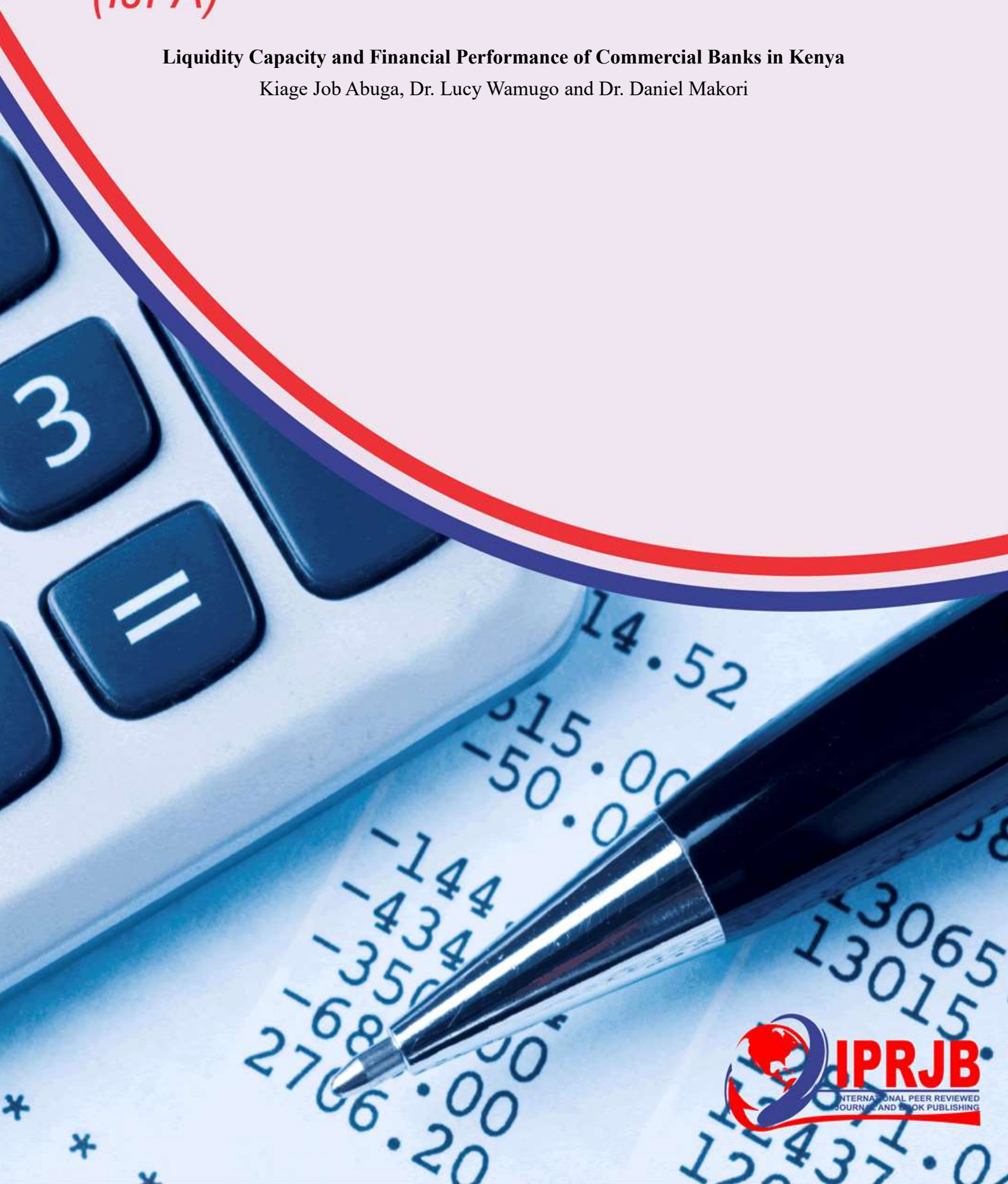


International Journal of Finance and Accounting (IJFA)

Liquidity Capacity and Financial Performance of Commercial Banks in Kenya

Kiage Job Abuga, Dr. Lucy Wamugo and Dr. Daniel Makori



Liquidity Capacity and Financial Performance of Commercial Banks in Kenya



Kiage Job Abuga

Master's Student: Kenyatta University

Corresponding Author's Email:

kiajob2@gmail.com

Dr. Lucy Wamugo

Department of Accounting and Finance, School of Business, Economics and Tourism, Kenyatta University

Dr. Daniel Makori

Department of Accounting and Finance, School of Business, Economics and Tourism, Kenyatta University

Article History

Received 23rd May 2023

Received in Revised Form 1st June 2023

Accepted 12th June 2023



How to cite in APA format:

Abuga, K., Wamugo, L. ., & Makori, D. (2023). Liquidity Capacity and Financial Performance of Commercial Banks in Kenya. *International Journal of Finance and Accounting*, 8(1), 76–96. <https://doi.org/10.47604/ijfa.2003>

Abstract

Purpose: The objective of the study was to assess the impact of liquidity capacity on the financial performance of commercial banks in Kenya.

Methodology: This study employed the explanatory research design. The 42 Kenyan commercial banks were the study's target population. The essential financial data for analysis was extracted and compiled using a data collection routine from the yearly reports. Panel data was mined from 42 commercial banks for six years between 2012 and 2018. The data were assessed by employing descriptive statistics as well as inferential statistics. Descriptive statistics employed involved the standard deviation, median, and average. Inferential statistics used involved panel regression. The data analysis was aided by STATA software.

Findings: The findings from the regression analysis indicate that Net Stable Funding and Liquidity Coverage exert a significant positive impact on the financial performance of commercial banks in Kenya. Conversely, provisioning for Non-Performing Loans, Liquidity Gap, and Provisioning for Nonperforming Loans demonstrate a notable negative effect on the financial performance of commercial banks in the country. Moreover, the study reveals that bank competition plays a significant moderating role in the relationship between liquidity capacity and the financial performance of commercial banks in Kenya.

Unique Contribution to Theory, Practice and Policy: The study was anchored on Anticipated Income Theory and Liquidity Preference Theory. The study recommended that the regulatory body for commercial banks, the CBK, facilitates open channels of communication between policy makers and senior management of commercial banks in Kenya. This discussion is critical to ensuring that the monetary policies developed are practical and beneficial to the expansion of the commercial banking industry. Lastly, the study suggests that all commercial banks in Kenya integrate considerations of liquidity costs, benefits, and risks into their performance measurement, pricing, and approval processes for significant business activities.

Keywords: *Commercial Banks, Financial Performance, Liquidity Capacity*

©2023 by the Authors. This Article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>)

INTRODUCTION

The productivity of any banking institution is essential in guaranteeing growth and stability. Banks carry out beneficial economic activities (Diamond & Rajan, 2001). On the asset side of the fiscal position report, financial institutions including banks ensure a streamline cashflow by loaning to deficit units and giving liquidity to excess units on the liability side (Halling & Hading, 2006). Further, banks facilitate trade and enhance business transactions by providing elaborate payment and settlement systems (Jenkinson, 2008). Through these functions, financial institutions (banks) are experience many dangers, like liquidity risks, interest rate, foreign exchange, credit, and markets (Landskroner & Paroush, 2011).

It is important that banks take account of liquidity problems, and they should do it in the most formal possible way, not as an afterthought (Lion & Dragos 2006). Consequently, this has compelled banks to introduce highly advanced systems for handling liquidity problems when they arise (Siaw, 2013). This makes the commercial banking industry likely to turn for direction on how to communicate most effectively on liquidity issues to the market (Eccles, Herz, Keegan, and Phillips, 2013). Basel I, II and III Accords have been endorsed by the Basel Committee on Banking Supervision to address this matter (Sensarma & Jayadev, 2009).

Over the past quarter-century, the globe has undergone some financial crises (Fu, Lin, & Molyneux, 2014). At the heart of these crunches are often issues entangled with liquidity (Berger & Carolina, 2009). A depiction of the "liquidity phase" of the monetary catastrophe that commenced in 2007, numerous banks, irrespective of their decent capital level, still had trouble because of poor liquidity management. The predicament emphasized the gravity of liquidity to the commercial banking sector's proper functioning (Basel Committee on Banking Supervision, 2013). Prudential controls like capital or liquidity requirements, were created to help financial institutions withstand shocks by compelling banks to ensure consistent liquidity and capital ratios under a variety of market environments (Olawejaju, & Adeye, 2015).

Net Stable Funding

The Basel Committee, through the most recent Basel III Accords, introduced measures of liquidity like the Net Stable Funding Ratio (NSFR) and Liquidity Coverage Ratio (LCR) and .Banking institutions are obligated under the NSFR to have a constant funding history concerning their off-balance sheet ventures and assets (Arif & Nauman, 2012; Osuji, 2013). A viable financing scheme is purposed to lessen the possibility that disturbances to a bank's normal sources of finance will wipe out the liquidity state in a manner that would increase a risk to failure and systematic stress is the broader sense (Oloo, 2011). Stable financing of a bank is obtained from the weighted assets according to the maturation of liquidity and credit quality in line with the sum of commitments in the off-balance sheet (Giordana & Schumacher, 2012). This calculation mirrors those used in the liquidity coverage ratio. Improved assessment of funding risks in every on- and off-balance sheet elements are encouraged by the overreliance of the net stable funding confines on temporally wholesale funding. Moreover, the overreliance aspects promote the funding stability in financial institutions. The responsibility of supervisory assessment is a complement to the NSFR to ensure critical supervision of the liquidity risks (Muriithi & Waweru, 2017).

According to the Basel Committee on Banking Supervision (2008), liquidity capacity is the capability of the financial institution to attain its financial responsibilities when they are due with the liquid assets available to them without incurring probable losses. Consequently,

Liquidity problems occur due to the failure of a bank to attain its fiscal responsibilities when they are payable without suffering improper losses (Landskroner & Paroush, 2011). The Basel Committee postulates that a bank's vulnerability to liquidity problems emerges where the financial institution is involved in converting short-term payments into mature long-term loans. These resources or assets may be specific to a certain institution in nature and the ones that upsets the entire market environment. Therefore, the banks' financial commitments or transactions are affected as well as the banks' liquidity capacity.

Falconer (2001) and Plochan (2007) describe Liquidity Gap as the variance between liabilities and resources of a bank which may be positive or negative. The gap is presumed to be positive when a bank has leftovers of liquid assets after sorting out all liabilities. However, the gap is negative when there is low financial gain as compared to the outstanding liabilities (Brunnermeier & Yogo, 2009). Through these measures, the liquidity level of a bank is easily determined. Apart from the mismatch in the foregoing maturity, issues in liquidity may erupt due to economic recession issues that also result into reduced generation of resources. As a result, the demand created by depositors will be augmented with the creation of liquidity issues and a resulting contagion effect in banks. Issues in liquidity may rise from premature termination of the projects or delays or breakdowns in cash flows from the borrower (Diamond & Rajan, 2005).

The liquidity coverage objective is to enhance the temporary pliability of the liquidity risk records of banks (Otieno, 2016). One of the ways that this resilience is achieved is through assuring that banks have significant number of high-quality liquid assets (HQLA) which are effortlessly and swiftly turned into moneys. As a result, the liquidity demands of secluded markets for monthly liquidity pressure situation are satisfied (Musambi, Ali & King, 2016). The liquidity coverage improves the capability of the banking sector to nullify the tremors resulting from economic and financial stress, hence lessening the chance of spill over into the real economy from the commercial banking sector (Lamberg & Valming, 2010). The contemporary bank liquidity ratios are incorporated since LCR is inadequate to quantify all proportions of liquidity of a bank on its own (Lartey, Antwi, & Boadi, 2013). These ratios are supplementary to the LCR and are to be used to monitor the liquidity exposures of banks.

Provisioning for Nonperforming Loans includes the finances that are reserved by a bank to cover any possible losses on loans (Mwangi, 2014). In any group of loans, banks anticipate that there can be some that do not perform as expected. According to the international monetary fund, nonperforming loans include the loans when the interest payments have surpassed the 90-day mark. Banks with a high stock of NPLs earn less and therefore have less money to lend (Staikouras & Wood, 2013). Hence, commercial banks with low financial performance are more vulnerable to economic crises and market turmoil (Crowe, 2009). This may even destabilise the banking system as a whole. Therefore, banks set apart a portion of its scheduled loan restitution to meet a part of or the entire defaulted loan. When a loss occurs emanating from a defaulted loan, the bank uses the cash allocated to cater for the loss instead of using the cash flows (Lamberg & Valming, 2010). Commercial banks must tackle the issue of NPLs; banks would become more profitable and lend more money to the real economy (Tumin, 2011). Commercial banks will also become more stable and thus more resilient to economic crises.

Table 1: Liquidity Trend of Kenya's Commercial Banks

Parameter	2012	2013	2014	2015	2016	2017	2018
Stock of High-Quality Liquid Assets to Total Assets	13.6%	13.3%	13.6%	14.3%	14.3%	13.53%	12.6%
Liquid Assets to Total Deposits	40.0%	37.0%	39.8%	45.1%	44.5%	38.9%	37.3%
NPLs Provision Coverage Ratio	6.29%	4.43%	4.59%	5.05%	5.46%	5.99%	7.82%

Source: Bank Supervision Annual Reports (2012-2018)

Tables 1 indicate the trend averages of bank liquidity measures in Kenya from 2012 to 2018. It is an obligation for all commercial banks to keep a least liquidity ratio of 20%. An average liquidity ratio of 40.3% in commercial banks was reported in 2018 by the CBK (CBK, 2018). However, it is important to comprehend that the report does not render the Kenyan commercial banks safe from liquidity capacity problems. Actual liquidity ratios differ among these commercial banks (Muriithi & Waweru, 2017). A good thumb rule provides that the NPL Provision coverage ratio should be less than 1% through all stages of the credit cycle. Evidently, from the above table, the measures indicate an upward trajectory, that indicates an upsurge in the non-performing mortgages/loans.

In the case of high-quality Liquidity Coverage ratio (ratio of total assets to liquid) in a stock, there is holding of extremely liquid assets by financial in organisations to suffice temporary commitments (Molyneux, 2014). According to the Basal III accords, the benchmark as of 2018 should be 70%. The ratio of Liquid Assets to Total Deposits is a vital tool utilized by financial managers to continually evaluate the level of support the liquid assets can provide to the asset base of the organization. Several commercial banks have low sums of cash, which triggers them to inject their liquid assets into prolific usage. Through this method, the resultant Liquid Assets to Total Assets ratio may be close to zero. However, despite the importance of the asset productivity, little Liquid Assets to Total Assets ratios in commercial banks can be risky to the fiscal survival and health of commercial (Giannotti *et al.*, 2011).

The banks' capital and financial performance can adversely be affected by liquidity risk exposure (Arif & Nauman, 2012). Therefore, sound bank management should become a top priority to guarantee adequate funds to satisfy providers and borrowers' future demands at sensible costs (Phillips, 2013). In the modern world, liquidity risk is proving to be a stern alarm. This is contributed by the increased technology that possess different risks to the liquidity of banks (Arif & Nauman, 2012). Jenkinson (2008) asserts that prudent liquidity risk management is a necessary factor of a firm-wide risk management system.

Dahiyat (2016) defines financial performance as the extent to which economic goals of a commercial bank have been realized. It includes the procedure of gauging the commercial bank's operations and policies in financial perspective (Kamau & Were, 2013). This element is mostly used by banks in measuring their financial health within a given time. Moreover, this parameter can be applied in comparing sectors or industries and in likening similar firms within a specific industry (Tabari, Ahmadi, & Emami, 2013). It is considered by Varotto (2011) as the potential of a commercial bank to create income more than cost relative to its capital base.

The essential measures of bank performance include the net interest margins (NIM), ROE, and ROA. NIM is frequently demonstrated as functions of both external and internal elements essentially affected by the policy aims and administrative decisions of a bank (Ghosh, 2012). This study employs ROA and ROE to evaluate the Kenya commercial banks' performance. The

study utilizes the two measures of performance because although ROE is an important element, it does not include the factors essential for hurting or helping the performance of a company (Waweru, 2017). However, this concern is addressed by the DuPont formula which allows investors to cite the drivers of ROE by simplifying it. Likewise, the formula allows investors to assess the value-generation capability of management towards shareholders (Adeye, 2015). This research also employs ROA to determine commercial banks' financial performance because it's the most frequently used standard for bank profitability. It measures the bank's return on investment in an easily comparable setup with other corporations (Paroush, 2011).

Table 2: The Kenya's Commercial Banks Performance Trend

Parameter	2012	2013	2014	2015	2016	2017	2018
Return on Assets	3.981%	3.497%	3.323%	3.403%	3.581%	3.781%	3.678%
Return on Equity	25.975%	23.098%	21.985%	20.939%	20.238%	20.380%	20.130%
Net Interest Margin	8.17%	8.26%	8.14%	9.28%	7.58%	8.03%	7.69%
Earnings per Share	3.41%	3.15%	3.01%	3.2%	2.57%	2.46%	2.18%

Source: CBK Annual Reports (2012-2018)

Table 2 shows the Kenya's commercial banks performance trend. It shows a steady decline in ROA in the first three years (2012-2015), with a slight increase in return on assets between (2015-2017) 2018, reverting to the general decline observed. There is a constant decline in return on Equity across the seven years, as indicated above. Net Interest margin showed a general decline in the seven years apart from 2015 and 2017, which indicated an increase which was, however, followed by huge margin declines in the following years. As indicated in the table above, the commercial banks' earnings per share have declined all through the anticipated study duration. Therefore, this study will justify this trend and identify whether the liquidity capacity has been involved in commercial banks' financial performance in Kenya.

Olweny (2011) observed that the Kenyan banking environment, in the recent decade, has undergone financial and regulatory reforms. According to Kamau (2009), there is a pervasiveness of banks in Kenya's financial industry. Thus, the financial intermediation process largely dependent on commercial banks. These financial institutions are governed and licensed harmoniously to the Banking Act's dictates, guidance, and prudential protocols provided by the CBK (CBK, 2015). The regulations set by the CBK necessitates commercial banks to sustain a twenty per cent liquidity buffer. In an economy with prevailing commercial banks, problems of liquidity within the economic sector have a significant effect on the economic progress of a nation.

As of December 2016, the CBK Supervision Report (2016) reported of 42 commercial banks within the banking sector. Chase and Imperial banks were in receivership as reported by the supervision report. Recent events in Kenya's banking sector, such as the placement under receivership and eventual liquidation of Dubai Bank Ltd., settlement under receivership of Chase bank ltd and Imperial bank ltd, indicate industry gaps. The gaps need further regulation to ensure stability and resilience. Liquidity problems in a particular bank could lead to a

systemic predicament in the banking industry because of the interconnected processes within these banks.

Problem Statement

Despite the general good picture depicted by the Kenyan banking sector, critical analysis indicates that a couple of banks are making losses (Ongore & Kusa, 2013). More than 50% of the listed Kenya's commercial banks struggle to reach targeted financial goals during the research period (2012-2018) as core earnings per share (EPS) declined hence impacting their ROA and ROE negatively (Waweru, 2017). Barclays Bank, Housing Finance Group, Standard Chartered, National Bank (NBK), CFC Stanbic, and NIC are six of the 11 listed commercial banks that had negative core earnings. Cytonn Investments' Banking Sector reported this from 2010 to 2018. As per the Bank Supervision Annual Reports, the banking industry expenses have been rising at a consistent rate of 2.3 per cent during the study's time scope.

Despite research on commercial banks' liquidity capacity and financial performance, evidence on the effect is mixed at best. For instance, Oloo (2011), Lamberg and Valming (2010), Konadu (2011), Tabari, Ahmadi, and Emami (2013) and Olarewaju, and Adeye (2015), have suggested that liquidity capacity is positively linked with the commercial banks' financial performance. Conversely, Karasulu (2001), Staikouras and Wood (2003), Said and Tumin (2011), Arif and Nauman (2012), and Crowe (2009) indicate that liquidity capacity adversely affects the financial performance of commercial banks.

Likewise, liquidity capacity in Kenyan commercial banks has posed immense attention in research. For instance, Maaka (2013), Musembi, Ali, Kingi (2016), Ogilo, Mugenyah (2015) Ouma, (2015), and Wambu (2013) used different sample sizes and similar measures of liquidity to study its effects on the Kenyan commercial banks' financial performance. Still, some samples were too small hence non-representative. Further, other studies including Giordana & Schumacher, 2012; Angora & Roulet, 2011; Giannotti *et al.*, 2011; Muriithi & Waweru, 2017, have not considered NSFR and LCR. The LCR and NSFR are liquidity policies developed within the Basel III framework, despite their efforts in incorporating other contemporary ratios. It is against this backdrop that this study was conceived.

LITERATURE REVIEW

Theoretical Review

The Anticipated Income Theory

Established in 1944 by Prochanow, this theory was principled on the action of increasing the term loans offered by the U.S. commercial banks. The model indicates that liquidity is guaranteed only if the anticipated loan repayments are completed on the debtor's subsequent income. This income theory accords that loan settlement should rely on income instead of collateral. The theory also stipulates that maturity pattern of investment portfolios and loans can affect financial institution's liability (Jenkinson, 2008). The theory perceives that liquidity of particular types of loans is more than others.

Based on this philosophy, the management of commercial banks supplement the investment portfolio with the ladder effect. Banks should ensure a particular number of securities is maturing yearly some times when the finances are needed for withdrawal or lending (Olawaju, & Adeye, 2015). However, there lacked evidence concerning the upcoming pay of the mortgagor. This warrants this theory's significance to the study because of the stipulation

of the theory that financial institution obligation can be affected by the development pattern of investment and loans portfolios (Giannotti *et al.*, 2011). Since these commercial banks depend heavily on this loaned fund, these institutions' liquidity may get depleted if sufficient care is not taken care of. This can cause liquidity problems hence affecting the financial performance of these institutions. This theory underpinned Liquidity Gap and Provisioning for non-performing loans study objectives

Liquidity Preference Theory

Investors want to keep their money liquid as cash, as per the Liquidity Preference Theory, and therefore expect interest in exchange for surrendering their liquidity. (Keynes, 1936) first developed this concept. Keynes indicates that people's need for liquidity arise due to three causes. Precautionary motive is the first motive that is defined by the desire to keep extra cash if an unforeseen situation requires some cash outlay. According to Keynes, people keep commodities as well as some savings accounts and stocks with a precautionary motive to take care of unexpected events. According to Financial (Glossary, 2011), The second incentive is speculative; the speculative motive is a desire to keep money on hand to take advantage of any excellent investment option that may emerge that requires a monetary outlay.

Finally, the transactions motive, according to Farlex Financial Dictionary (2009) the yearning of an individual to keep adequate assets to account for daily needs and wants. According to the liquidity preference concept, banks and other financial institutions should seek dynamic balance sheet strategies rather than merely permitting credit demand. (Karasulu, 2001). This theory acquaints this study in that it endeavours toward defining what leads to liquidity contingency. This supports this theory's connection to this study, in that the desire for liquidity determines the performance of banks in Kenya. Liquidity Coverage objective was guided by this theory.

Empirical Review

Liquidity Coverage and Banks' Financial Performance

Arif, Nauman and Anees (2012) researched the banking system's performance and Liquidity risk in Pakistan. The Multiple regression model was employed to evaluate the consequence of liquidity risk on the banks' performance. Regressions confirmed that Liquidity Coverage influences bank performance significantly, with cash reserves as the factor intensifying the liquidity risk. However, ROA was utilized as the sole metric of performance in this research. Saedi and Mahmoodi (2011) show that using a single indicator of financial success, or even a composite index, is inadvisable. This would result in a shaky conclusion about the variables' relationship. As a result, the current thesis used ROA and ROE for financial performance analysis in commercial banks.

Further, Konadu (2011) studied the Ghanaian banking industry's liquidity risk and financial performance. Performance was proxied by performance measures including return on equity, and on assets, Tobin's Q, and earnings per share. Long-term debt, total debt, and short-term debt, ratios were used to assess the capital structure. The data was analyzed using the panel data technique. According to the study, market measures of commercial banks' performance were positively related to Liquidity Coverage. However, the research was steered in Ghana, which has diverse economic, political, and social institutions compared to Kenya. Nonetheless, the emphasis of this research was on Kenya's commercial banks.

Ouma (2015) examined the effect of liquidity risk on Kenya's commercial banks profitability. The estimating method employed in the study was Ordinary Least Squares. One of the study's major variables was liquidity coverage. Liquidity Coverage had a considerable negative effect on the banks' financial performance indicators, according to the research's findings. However, the study did not use all the contemporary liquidity measures in the analysis. The current study used NFSR, LCR, provisioning for nonperforming loans, and liquidity gap to fill the gap.

Liquidity Gap and Financial Performance of Banks

Agbada and Osuji (2013) examined the effect of liquidity management on banking performance in Nigerian. The efficiency of liquidity management was measured by analysing a distributed questionnaire, whereas performance in banks was measured by profitability and return on capital employed (ROCE). A multiple regression analysis was employed. The results pointed out that there is a notable association connecting a negative Liquidity Gap with banking performance. They elucidated that Gaps create liquidity risk. However, the study's sole metric of financial performance was Gross Operating Profit. This study used two financial performance indicators, ROE and ROA, to ensure the analysis was robust.

Maaka (2013) looked at the Kenyan commercial banks' liquidity risk as well as their financial performance correlation. Data collected was analysed using various regression analysis in this work. As per the study findings, the increase in leverage and Liquidity Gap poses a detrimental consequence on performance of commercial banks. One of the major reasons of liquidity capacity issues, according to the study, is a maturity mismatch between assets and liabilities. However, the study did not include NFSR and CLR as measures of liquidity which the current study has used. Further, the study did not include a moderation variable. The current study enhances Maaka's (2013) research by incorporating NFSR, CLR, and bank competition as the moderating variable.

Similarly, Lartey et al (2013) conducted research to assess the link between the Ghanaian banks stoke exchange's liquidity risk and the performance. The research used a descriptive method. After applying numerous regression analysis, the research concluded that under the period of study, the banks' performance was dwindling due to the increased Liquidity Gap. They demonstrated that a undesirable gap indicates that the banks are making reduced revenue than the number of obligations expected. The current study was centred on the Kenyan banking sector.

Research Gaps and Literature Review Summary

There is a lack of consensus in the published scientific study on the topic of the link between bank liquidity capacity and financial results in Kenya, indicating that even more investigation is required. Further, the studies on this area did consider NSFR and LCR, which were the two liquidity capacity measures projected within Basel III framework. Because the Kenyan banking sector is still developing, standard banking theories originating in industrialized countries required to be evaluated in the Kenyan environment.

Conceptual Framework

A conceptual framework is a versatile assessment technique that can be used in a variety of situations. It is the researcher's conceptualisation of the interactions between the study variables (Mugenda & Mugenda, 2003). As demonstrated in Figure 1, the framework combines liquidity measurements and commercial bank performance into a single model.

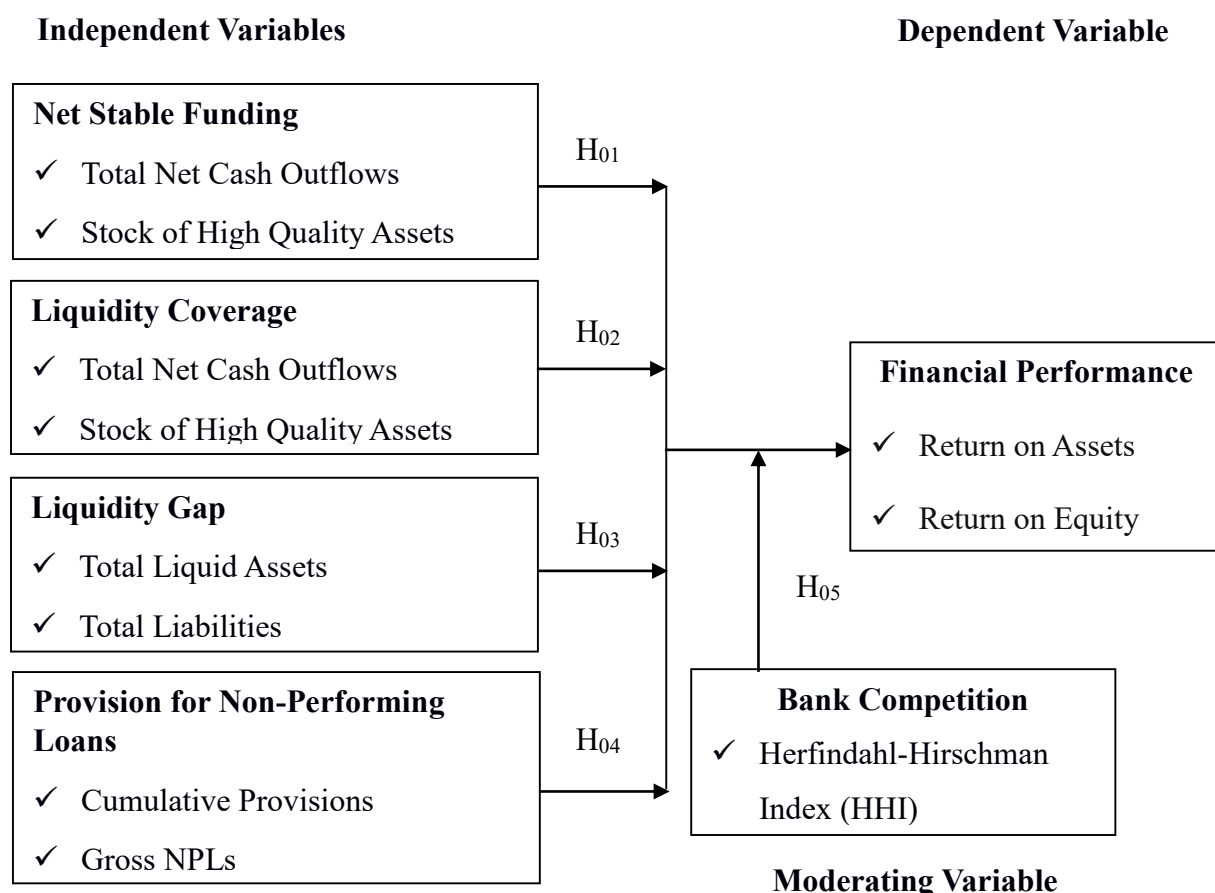


Figure 1: Conceptual Framework

Source: Researcher (2022)

METHODOLOGY

This study employed the explanatory research design. The 42 Kenyan commercial banks were the study's target population. As per the supervision report of the Central Bank of Kenya (2018), the banking system consists of 42 commercial banks, with two banks under statutory management, including Chase Bank and Imperial Bank, and Charterhouse and Bank Dubai Bank in receivership. The essential financial data for analysis was extracted and compiled using a data collection routine from the yearly reports. Panel data was mined from 42 commercial banks for six years between 2012 and 2018. The statistics for all of the variables in this research came from the annual financial reports of commercial banks. The cross-sectional data included 42 Kenyan commercial banks, with the time series spanning 2012 to 2018. The data were assessed by employing descriptive statistics as well as inferential statistics. Descriptive statistics employed involved the standard deviation, median, and average. Inferential statistics used involved panel regression. The data analysis was aided by STATA software. The researcher first carried out data cleaning and coding of the collected data to create inferences through a series of controls involving editing to eliminate repetitions and inconsistencies. Based on the data collected from various the financial reports, Excel worksheets were utilized to calculate each commercial bank's relevant ratios for the period under discussion. The data

was then arranged in STATA format before importing data from excel worksheets to STATA software. The study further employed Feasible Generalized Least Square (FGLS) following accounting for some violations of standard linear expectations.

FINDINGS, INTERPRETATIONS AND DISCUSSIONS

Descriptive Statistics

Table 3 shows the descriptive statistics for the datasets utilized in the study.

Table 3: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Maximum	Minimum
Return on Assets	287	2.996167	2.494156	10.4	-7.13
Return on Equity	287	14.60847	15.73236	49.4	-76.7
Net Stable Funding	287	1.735508	1.352363	4.276249	-1.03884
Liquidity Coverage	287	.3627742	.1891953	.8485344	.0947727
Liquidity Gap	287	-1.607996	.5550747	1.976757	-3.863597
NPLs	287	.3086766	.2003845	.9283887	0.00677
Bank Competition	287	3.277631	3.865672	14.83	.01

Source: Study Data (2022)

The aggregate worth of ROA is 2.996167, and a standard deviation of 2.494156, as shown in Table 3. 10.4 and -7.13 were the maximum and minimum values, respectively. The positive ROA means that commercial banks were profitable on average. Some commercial banks, on the other hand, were losing money, as evidenced by the negative minimum practical value of return on assets. The aggregate value of ROE of 14.60847 shows that banks are vying for greater financial performance; nevertheless, their standard deviations of 15.73236 percent show that their financial performance differs from one another. 49.4 and -76.7 were the minimum and maximum values, respectively. The fact that certain commercial banks had a negative minimum value for ROE indicates that they were losing money.

According to Table 3, the average Net Stable Funding and Liquidity Coverage were 1.735508 and 0.3627742, respectively, on a rolling 12-month basis. The outcome was that commercial banks in Kenya generated more money from their deposits on average and were able to meet their liquidity requirements. With an aggregate liquidity coverage of 0.3627742 with a standard deviation of 0.1891953, Kenyan banks had a liquidity coverage ratio of 0.3627742. It was determined that the lowest and highest values were .09477270 and .8485344, respectively. A high degree of liquidity is shown, which may be related to the reality that commercial banks demand greater levels of liquidity to mollify their clients' cash requirements, that are sometimes erratic. According to the findings of the research, the quantity of stable capital that is readily available is far more than the amount of steady financing that commercial banks need. The readily accessible sum of financial support is constituted of the bank's finances, stock options, and debts with maturity dates equal to or greater about one year, whilst the required volume of financial support is computed as the weighted sum of the asset value secured and subsidized by the organization, and off-balance sheet exposures.

The mean value of Provisioning for Non-Performing Loans was 0.3086766, with a standard deviation of 0.2003845, according to the data in Table 3. The maximum value was 0.9283887

and minimum values was 0.00677. This means the variability in Provisioning for Non-Performing Loans was high though also Provisioning for Non-Performing Loans on average was higher. Even though some banks are reporting strong financial results, they are also dealing with a large number of non-performing loans. This is further shown by the negative minimum value observation of the Liquidity Gap.

Table 3 indicates that bank competition had a mean of 3.277631 and the standard deviation of 3.865672. The maximum value was 14.83 and the minimum value was 0.01. This indicates that the fluctuation in Market Share was considerable, and that market share had a major effect in the success of the commercial bank. The greater the market share, the greater the commercial bank financial performance.

Liquidity Capacity and Financial Performance (ROA) of Commercial Banks in Kenya

Using a regression model, the direct relationship between Kenya's commercial banks liquidity capacity and the financial performance can be examined. The discoveries are shown in Table 4.

Table 4: Regression Results (Dependent Variable: ROA)

Variable	Coefficient	Std. Error	t	P>t
Net Stable Funding	.082953	.0308414	4.66	0.000
Liquidity Coverage	-.0318796	.0921507	1.62	0.106
Liquidity Gap	.0666026	.0596325	3.09	0.002
Provisioning for NPLs	-.0664474	.0441477	0.46	0.0464
Constant	1.007567	.136796	9.33	0.000
Observations = 287				
F Statistics = 8.06				
Prob > chi2 = 0.0000				

Source: Study Data (2022)

Net Stable Funding and Financial Performance of Commercial Banks in Kenya

The regression model outcomes are shown in Table 4. As per the findings, net stable funding is statistically significant on the Kenya commercial banks' financial performance at the 5% significance level, implying that increasing Net Stable Funding would lead to a proportional improvement of the Kenya commercial banks' financial performance, as per the results of the study. In this thesis, the regression coefficient for Net Stable Funding was 0.0308414, which meant that a unit upsurge in Net Stable Funding would lead to an increase of 0.0308414 in the Kenya commercial banks' financial performance as evaluated by ROA. This coefficient was found to be statistically significant because the p-value for Net Stable Funding became 0.0000, lower than the threshold of 0.05 was used to determine statistical significance. So the hypothesis that stated Net Stable Funding lacks significant impact on the Kenya commercial banks' financial performance was rejected, and the research reached the conclusion that Net Stable Funding is statistically significant and positively impact on the Kenya commercial banks' financial performance

The findings of Muriithi and Waweru are corroborated by these findings (2017). They discovered that the impact of Net Stable Funding on the performance of the bank is inversely

proportional to the Kenya commercial banks' performance, which is a constructive association. Musembi, Ali, and Kingi (2016) came to the same conclusion after conducting a study aimed at determining the consequence of liquidity risk determinants on commercial banks' financial performance at the Nairobi Securities Exchange. Musembi, Ali, and Kingi (2016) found that the findings were consistent with their findings. According to the findings of their research, the Net Stable Funding and the financial performance of Kenyan banks' balance sheets have a statistically significant constructive connection.

Similarly, the findings were consistent with those of Olarewaju and Adeyemi (2015), who investigated the connection between bank performance and liquidity in Nigeria. As per the analysis of the study, there exist a statistically significant positive aconnection between Net Stable Funding and the financial performance of Nigerian banks' assets. According to Mwangi (2014), however, the available expanse of unchanging funding available to viable banks, which is a construct of the Net Stable Funding Ratio, was negatively correlated with the commercial banks' financial performance. The findings of this study, on the other hand, were in opposition to his findings.

Kenya's Commercial Banks Liquidity Coverage and Financial Performance

In accordance with the empirical discoveries shown in Table 4, the regression coefficient for Liquidity Coverage was determined to be 0.0921507. This data demonstrates that, while maintaining the other variables in the model constant, an upsurge in Liquidity Coverage by one-unit outcomes in an improvement in the Kenyan commercial banks' performance of 0.0921507. This research also discovered that Liquidity Coverage exhibit a statistically insignificant positive impact on the Kenyan commercial banks' Financial Performance, as shown by the 0.106 P-Value, higher than the 5% significance limit used in the analysis. As a result of this conclusion, the research did not cast-off the null hypothesis, which stated that liquidity coverage lack a substantial impact on the Kenyan commercial banks' financial performance.

Remarkably, this outcome was steady with the results of Arif, Nauman, and Anees (2012). Additionally, their research showed that Liquidity Coverage had no statistically significant beneficial impact on the commercial banks' financial performance. In contrast to the conclusions of Ouma (2015), whose discoveries revealed the substantial adverse influence of Liquidity Coverage on the bank's financial performance indicators, these findings were not supported by the literature. Furthermore, these findings were in opposition to Konadu (2011)'s findings, which concluded that there was non-existence of significant connection between commercial banks' Liquidity Coverage and financial performance.

Liquidity Gap on the Financial Performance of Commercial Banks in Kenya

The research also intended to find the impact of the Liquidity Gap on the financial performance of Kenya's commercial banks' commercial banks' financial performance. A considerable negative impact on the Kenyan commercial banks' financial performance was found to be caused by the liquidity gap, according to the findings. In addition, the data show that a one-unit rise in the Liquidity Gap might result in a 0.596325 percent drop in the fiscal/financial performance of commercial banks. A further finding depicts this coefficient to be statistically significant, because of the 0.002 P-Value of 0.002, that is less 5 percent. According to this evidence, the null hypothesis that Liquidity Gap lacks significant impact on the commercial banks' Financial Performance was rejected and came to the conclusion that Liquidity Gap has

a statistically significant constructive influence on the fiscal/financial performance of commercial banks.

These outcomes corroborate the findings of Agbada & Osuji (2013), who investigated implications of good liquidity administration on the functioning of Nigerian banking system. The results pointed out that there is a notable interconnection linking negative Liquidity Gap and banking performance. Likewise, the study agreed with Lartey, Antwi, and Boadi (2013), who sought to find the connection between the commercial banks' liquidity risk and financial performance listed on the Ghana Stock Exchange. The results indicated that Liquidity Gap had a substantial negative consequence on commercial financial history. Maaka's (2013) outcomes were concurrent with the current study in that the outcomes of the research signify that the performance of Kenya's commercial banks is negatively affected by the increased Liquidity Gap. Vodová (2011) also found out that as the bank Liquidity Gap increased, it negatively affected the performance of banks. In their research to determine the impact of liquidity on the Canadian commercial bank profitability, Bordeleau and Graham (2010) found that the Liquidity Gap had no meaningful influence on the financial performance of Canadian banks.

Provisioning for Non-Performing Loans and Financial Performance of Banks

Concerning provisioning for non-performing, the regression result in Table 4 indicates that the coefficient for Provisioning for Non-Performing Loans was determined to be -0.362869 and statistically meaningful at a 5 percent level, with a 0.0464 p-value. According to the results, a unit rise in Provisioning for Non-Performing Mortgages would result in a 36.2869 percent decrease in Financial Performance of commercial banks in Kenya if other independent variables in the regression were held constant. Based on these discoveries, the study casted off the null hypothesis that provisioning for non-performing loans lacks noteworthy impact on commercial bank financial/financial performance in Kenya and concluded that provisioning for non-performing loans has a noteworthy adverse effect on commercial bank financial performance.

The findings in Table 4 were in line with the Liquidity Preference Theory, which was initially proposed by (Keynes, 1936). Investors want to keep their money liquid as cash, according to the Liquidity Preference Theory, and therefore expect interest in exchange for surrendering their liquidity. Muturi (2016) concluded Non-performing loan provisioning was observed to influence the liquidity capacity negatively, hence negatively impacting the banks' financial performance. Furthermore, conclusions of this thesis were consistent with the empirical findings of Odunga (2016), who discovered that an increase in provisioning for non-performing mortgages had a substantial adverse effect on commercial bank performance (ROA).

Liquidity Capacity and Financial Performance (ROE) of Commercial Banks in Kenya

The research investigated several hypotheses about the influence of liquidity capacity on the commercial banks financial performance of commercial, using ROE as the dependent variable. As shown in Table 5, ROE was reverted on Provisioning for Non-Performing Loans, Net Stable Funding, Liquidity Gap, and Liquidity Coverage.

Table 5: Regression Results (Dependent Variable: ROE)

Variable	Coefficient	Std. Error	T	P>t
Net Stable Funding	.2230188	.0304	7.34	0.000
Liquidity Coverage	.0429535	.222843	0.19	0.847
Liquidity Gap	-.0155594	.0573967	-0.27	0.787
Provisioning for NPLs	-.596133	.157671	3.78	0.000
Constant	2.038371	.1394301	14.62	0.000
Observations = 259				
F statistics = 33.36				
Prob > chi2 = 0.0000				

Source: Study Data (2022)

Kenya's Commercial Banks Liquidity Coverage and Financial Performance

Table 5 shows the regression findings for Liquidity Coverage and commercial banks' financial performance (ROE). The regression coefficient for Liquidity Coverage was determined to be 0.0429535, with a 0.00847 p-value, that is less than threshold (5%). Implying that Liquidity Coverage has a main valuable effect on commercial banks' financial performance (ROE). As a result, the hypothesis that Liquidity Coverage lacks substantial effect on Kenyan commercial banks' financial performance was not rejected. This statistic indicates that a one-unit increase in Liquidity Coverage causes the performance of commercial banks in Kenya to rise by 0.0429535, while all other variables in the model remain constant.

These findings contrasted with those of Ouma (2015), who determined that Liquidity Coverage have considerable adverse influence on the bank's financial performance metrics. The conclusions of this thesis were consistent with those of Arif, Nauman, and Anees (2012), who determined that Liquidity Coverage have considerable favorable impact on the financial performance of banks (ROE). Furthermore, these findings contradicted Konadu's (2011) findings, which concluded that there was non-existence of noteworthy association between bank financial performance and liquidity coverage.

Liquidity Gap on the Financial Performance of Commercial Banks in Kenya

From the findings on Table 5 reveal how Liquidity Gap have statistically insignificant undesirable outcome on the financial performance (ROE) of Kenyan banks, as shown by a 0.787 P-Value of 0.787 at a 0.05 level of significance. Further, the regression coefficient for Liquidity Gap was -0.0155594, which implied that a unit upsurge in Liquidity Gap results in a decline in financial performance (as indicated by ROE) of the Kenyan commercial banks by 54.9088. Based on these findings, the research did not cast-off the hypothesis that Liquidity Gap lacks a substantial influence on the Financial performance (ROE) of Kenyan banks.

The summary discoveries of the hypothesis assessment in this investigation are shown in Table 6. When the dependent variable was ROE, the result makes a conclusion of the entire research, including the final conclusions after the moderating effect was taken into account. The null hypothesis that Net Stable Funding has no impact on commercial banks' financial performance in Kenya was rejected. The liquidity coverage lacks influence on Kenyan commercial banks' financial performance null hypothesis, was accepted. The Liquidity Gap lacks meaningful influence on commercial banks' financial performance null hypothesis was also accepted. The

provisioning for non-performing mortgages/loans lacks impact on commercial bank financial performance null hypothesis was also disproved. Finally, the hypothesis that state no substantial moderating effect of bank rivalry on the liquidity risk and commercial bank financial performance connection in was rejected.

Table 6: Hypothesis Test (ROE as Dependent Variable)

Hypothesis	Causal relationship (Null hypothesis)	Reject/ Fail to Reject
H ₀₁	The financial performance of Kenyan commercial banks is unaffected by Net Stable Funding.	Reject
H ₀₂	The financial performance of Kenyan commercial banks is unaffected by liquidity coverage.	Not Rejected
H ₀₃	The liquidity gap has no substantial impact on Kenyan commercial banks' financial performance.	Not Rejected
H ₀₄	Provisioning for non-performing loans has little impact on commercial banks' financial performance in Kenya.	Reject
H ₀₅	In Kenya, there is little evidence that bank competition has a major moderating influence on the link between commercial banks' liquidity capacity and their financial performance.	Reject

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

Net Stable Funding has a statistically substantial favorable effect on commercial banks' financial performance in Kenya, as per the research. According to the findings, a rise in Net Stable Funding will lead to a comparable improvement in Kenyan commercial banks' financial performance. As an effect, the Net Stable Funding lacks influence on the Kenyan financial performance of banks null hypothesis was vetoed.

The research discovered that the Liquidity Coverage has significantly negligible beneficial impact on the financial performance of Kenyan banks. This means that increasing Liquidity Coverage effects negligible influence on commercial banks' financial performance. Therefore, the research recognized the liquidity coverage lacks effect on commercial banks' financial performance in Kenyan banks null hypothesis.

The research found that Liquidity Gap had significant constructive influence on commercial banks' financial performance in terms of ROA, meaning Liquidity Gap increase might bring about considerable improvement in commercial banks' financial performance in Kenya. Liquidity Gap, on the other hand, was shown to create a statistically minor adverse effect on the financial performance of Kenyan banks in terms of ROE. This means that a rise in the Liquidity Gap might result in a little drop in the financial performance of profitable banks. Thus, the Liquidity Gap lacks impact on the financial performance of Kenyan banks in terms of ROA null hypothesis was rejected. Furthermore, the research accepted the null hypothesis that the Liquidity Gap has no influence on the financial performance of Kenyan banks in terms of ROE.

Consequently, according to the study provisioning for non-performing loans pose considerable adverse consequence on the Kenyan banks financial performance. As per the research, increasing provisioning for non-performing loans would lower commercial banks' financial performance. As a result, the provisioning for non-performing mortgages/loans lacks

substantial impact on commercial bank financial performance in Kenya null hypothesis was rejected.

Conclusion

According to the findings, Net Stable Funding is strongly beneficial for commercial banks' financial performance in Kenya. As a result, Net Stable Funding is a crucial driver of Kenyan commercial banks' fiscal success. The positive impact suggests that when Net Stable Funding rises, so does the financial performance of Kenyan banks. The Basel III reforms include a crucial component: the net stable finding. It enhances long-term resilience by emphasizing on bank banks for their processes with more solid fund sources continuously. This allows banks to sustain a steady financing silhouette in relation to asset conformation and off-balance sheet processes.

According to the findings, Liquidity Coverage has a considerable favorable influence on commercial banks' financial performance. Liquidity Coverage, as a result, is a critical predictor of commercial banks' fiscal success. The positive impact implies the Liquidity Coverage rise, leads to improvement of commercial banks' financial performance. As a result, liquidity coverage enhances banks' short-term resilience to possible liquidity capacity interruptions by guaranteeing they have enough superior liquid resources/assets to endure a 30-day acute stress state.

The research shows that the Liquidity Gap has a considerable favorable effect on commercial banks' financial performance in terms of ROA. As a result, the Liquidity Gap is a crucial predictor of Kenyan commercial banks' fiscal success. Liquidity Gap, was shown to have a statistically minor undesirable impact on the financial performance of Kenyan banks in terms of ROE. The negative consequence is that when the Liquidity Gap widens, the financial performance of Kenyan banks deteriorates. The discrepancy in a bank's resources/assets and accountabilities alludes to the liquidity gap. Aside from the above-mentioned maturity discrepancy, liquidity issues develop as due to the current economic downturn, which results in decreased resource creation. This will boost depositor demand, causing liquidity capacity issues. Because of the contagion consequence, this can lead to the downfall of an individual bank or perhaps the entire banking sector.

According to the findings, provisioning for non-performing loans pose considerable detrimental impact on Kenyan commercial banks' financial performance. This means that in Kenya, provisioning for non-performing mortgages/loans is a major factor of commercial banks' fiscal success. The negative consequence is that when provisioning for non-performing mortgages/loans rises, commercial banks' financial performance falls. Banks with a large number of nonperforming loans make less money and hence have less money to lend. When a bank incurs a loss as a result of a defaulted loan, the money put aside to meet the loss is used instead of cash flows to pay the loss.

According to the findings, there exist no substantial moderating consequence of bank competition on the connection in liquidity capacity and financial performance of Kenyan viable banks in relation of ROA. The research, on the other hand, found that the Bank Competition has a strong moderating influence on the association in Liquidity Capacity and Commercial Bank Financial performance in terms of ROE. This means that bank rivalry is a major predictor of the link between liquidity capacity and Kenyan commercial banks' financial performance with regards to ROE. Bank competition, in the long-term, mends the undesirable trait of

intermediation incompetence, which establishes itself in excellent bank financial success fueled by greater interest duties as well as broad interest rate durations. Fundamentally, the amount of banking sector liquidity capacity stability is determined by the level of competition between commercial banks.

Policy Recommendations

This research found that Net Stable Funding pose a statistically beneficial impact on commercial banks' financial performance in Kenya. As a consequence, the report advised that Kenyan commercial banks develop a strong understanding for the need of having complete visibility of all cash flows and exposure situations throughout their businesses. Furthermore, they must have a good understanding of the assumptions that drive cash flows, both from a liquidity and valuation standpoint, in order to best address the terms of requirement from a regulatory standpoint, and thus to assist in monitoring the fluctuations in Net Stable Funding in Kenyan commercial banks.

This work also found that Liquidity Coverage is statistically beneficial for Kenyan commercial banks' financial performance. Therefore, the research suggests that commercial banks engage in strategic planning in order to develop business models that fit their operations while also maintaining their liquidity capacity, ensuring that Kenyan commercial banks' performance improves.

The Liquidity Gap has significant favorable effect on the financial performance of Kenyan commercial banks in terms of ROA, according to the research. Liquidity Gap, on the other hand, was shown to pose a statistically minor undesirable financial performance impact on Kenyan banks in terms of ROE. As a result, the report suggests that all Kenyan commercial banks include liquidity costs, reimbursements, and dangers in performance evaluation, valuing, and agreement processes for every key commercial activity. As a result, commercial banks in Kenya are actively managing their Liquidity Gap situations and risks in order to mollify payment as well as settlement commitments in time in normal and stressed circumstances, therefore contributing positively to their financial performance.

Furthermore, this study discovered that non-performing loan provisioning had a statistically significant negative influence on the financial performance of profitable Kenyan banks. As a result, the thesis suggests enhancing internal recovery procedures through the implementation of improved IT structures and specialized knowledge. It implies that distinct workout units may be more suited to identifying problems in credit files, resulting in more reliable appraisals. Asset management companies could also play a role in this process by preventing commercial banks from selling non-performing loans too quickly and by providing a progressive asset disposal method that allows for loan recovery once market circumstances stabilize. Finally, the analysis finds inadequate governance schemes and incompetent management as the key causes of nonperforming loans and the need for measures. Commercial banks should pay close attention to these issues and rectify them as soon as possible.

Contribution to Knowledge

This study varies from earlier studies that looked at the relationship between Kenyan banks' liquidity capacity and financial performance. Rather than focusing exclusively on liquidity capacity, this research examined many aspects of financial performance and how they respond to various liquidity capacity models. Furthermore, to confirm the validity of the conclusions, this thesis used a variety of financial performance metrics. The researchers used two distinct

metrics of financial performance in the regression study, namely ROA and ROE. In a departure from previous research, this study explores the moderating influence of bank rivalry on the link between profitable Kenyan banks' liquidity capacity and financial performance.

Recommendations for Further Research

Market and financing liquidity, regulatory and supervisory variables, and macroeconomic conditions all have an impact on an institution's ability to maintain liquidity. For commercial banks, acquiring liquidity comes at a considerable cost, making it a critical predictor of their financial success. This study concentrated primarily on the factors impacting financial liquidity. As a result, future research should evaluate additional determinants such as market liquidity requirements, macroeconomic variables, and regulatory and supervisory variables to analyze their impact on commercial banks' financial performance in Kenya.

REFERENCES

- Agbada, A. O., & Osuji, C. C. (2013). The efficacy of liquidity management and banking performance in Nigeria. *International review of management and business research*, 2(1), 223-233.
- Arif, A., & Nauman Anees, A. (2012). Liquidity risk and performance of banking system. *Journal of Financial Regulation and Compliance*, 20(2), 182-195.
- Athanasoglou, P., Delis, M., & Staikouras, C. (2006). Determinants of bank profitability in the South Eastern European region.
- Basel III, B. C. B. S. (2013). The Liquidity Coverage Ratio and liquidity risk monitoring tools. *Bank for International Settlements*.
- CBK (2014). Bank Supervision Annual Report 2014. *Supervision*, 86.
- Cifuentes, R., Ferrucci, G., & Shin, H. S. (2005). Liquidity risk and contagion. *Journal of the European Economic Association*, 3(2-3), 556-566.
- Consiglio, A., Staino, A., & Zenios, S. A. (2010). Managing Liquidity Risk. *Working Paper*, 1-4.
- Dahiat, A. (2016). Does Liquidity and Solvency Affect Banks Profitability? Evidence from Listed Banks in Jordan. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 6(1), 35-40.
- Dang, U. (2011). The CAMEL rating system in banking supervision: A case study.
- Diamond, D. W. R. (2001). Developments in banks' liquidity profile and management.
- Diamond, D. W., & Rajan, R. G. (2005). Liquidity shortages and banking crises. *The Journal of finance*, 60(2), 615-647.
- Eccles, R., Herz, R., Keegan, M., & Phillips, D. (2013). The risk of risk. *Balance Sheet*.
- Falconer, B. (2001). Structural liquidity: the worry beneath the surface. *Balance Sheet*, 9(3), 13-19.
- Fu, X. M., Lin, Y. R., & Molyneux, P. (2014). Bank competition and financial stability in Asia Pacific. *Journal of Banking & Finance*, 38, 64-77.
- Ghosh, A. (2012). *Managing risks in commercial and retail banking*. John Wiley & Sons.
- Goddard, J., Molyneux, P., & Wilson, J. O. (2004). The profitability of European banks: a cross-sectional and dynamic panel analysis. *The Manchester School*, 72(3), 363-381.
- Halling, M., & Hayden, E. (2006). Bank failure prediction: a two-step survival time approach.
- Hartlage, A. W. (2012). The Basel III Liquidity Coverage ratio and financial stability. *Michigan Law Review*, 453-483.
- Jenkinson, N. (2008). Strengthening regimes for controlling liquidity risk: some lessons from the recent turmoil.
- Kamau, A., & Were, M. (2013). What drives banking sector performance in Kenya? *Global Business and Economics Research Journal*, 2(4), 45-59.

- Kariuki, P. W., Muturi, W. M., & Ngugi, P. K. Profitability and intermediation efficiency: Evidence from deposit-taking saving and credit co-operative societies in Kenya. *International Journal of Economics & Finance (IJEF)*, 2.
- Kerr, M. K., Martin, M., & Churchill, G. A. (2000). Analysis of variance for gene expression microarray data. *Journal of computational biology*, 7(6), 819-837.
- Konadu, J. S. (2009). *Liquidity and Profitability: empirical evidence from listed Banks in Ghana* (Doctoral dissertation).
- Kosmidou, K., & Zopounidis, C. (2008). Measurement of bank performance in Greece. *South-Eastern Europe Journal of Economics*, 1(1), 79-95.
- Lartey, V. C., Antwi, S., & Boadi, E. K. (2013). The relationship between liquidity and profitability of listed banks in Ghana. *International Journal of Business and Social Science*, 4(3).
- Landskroner, Y., & Paroush, J. Liquidity Risk Management, Structure, and Competition in Banking. *Technical Finance*, 113.
- Li, Y. (2007). Determinants of banks' profitability and its implication on risk management practices: Panel evidence from the UK in the period 1999-2006.
- Maaka, Z. A. (2013). *The relationship between liquidity risk and financial performance of commercial banks in Kenya* (Doctoral dissertation, University of Nairobi).
- Makori, D. M. (2017). short-term financing decisions and financial performance of non-financial firms listed at the Nairobi Securities Exchange. *Kenya (Doctoral dissertation, PHD Thesis, Kenyatta University)*.
- Maina, E. K. (2017). *Effect of Ownership, Capital and Cost Structures on Financial Performance of Commercial Banks in Kenya* (Doctoral dissertation, United States International University-Africa).
- Mugenda, O. M., & Mugenda, A. G. (2003). Qualitative and quantitative approaches. *Research Methods Africa Center for Technology Studies (Acts) Press. Nairobi Kenya*.
- Muriithi, J. G., & Waweru, K. M. (2017). Liquidity Risk and Financial Performance of Commercial Banks in Kenya. *International Journal of Economics and Finance*, 9(3), 256.
- Musembi, D. M., Ali, B., & Kingi, W. (2016). Effect of Liquidity Risk Determinants on the Financial Performance of Commercial Banks Listed at the Nairobi Securities Exchange. *Imperial Journal of Interdisciplinary Research*, 2(11).
- Mwangi, Y. K. (2014). *The effect of risk management on the financial performance of commercial banks in Kenya* (Doctoral dissertation, University of Nairobi).
- Odunga, R. M. (2016). Specific Performance Indicators, Market Share and Operating Efficiency for Commercial Banks in Kenya. *International Journal of Finance and Accounting*, 5(3), 135-145.
- Olweny, T., & Shipho, T. M. (2011). Effects of banking sectoral factors on the profitability of commercial banks in Kenya. *Economics and Finance Review*, 1(5), 1-30.

- Ongore, V. O., &Kusa, G. B. (2013). Determinants of the financial performance of commercial banks in Kenya. *International Journal of Economics and Financial Issues*, 3(1), 237.
- Otieno, S., &Nyagol, M. (2016). The relationship between Credit risk management and financial performance: Empirical evidence from microfinance banks in, 7(6), 115–142.
- Sensarma, R., &Jayadev, M. (2009). Are bank stocks sensitive to risk management? *The Journal of Risk Finance*, 10(1), 7-22.
- Tabari, N. A. Y., Ahmadi, M., &Emami, M. (2013). The effect of liquidity risk on the performance of commercial banks. *International Research Journal of Applied and Basic Sciences*, 4(6), 1624-1631.
- Varotto, S. (2011). Liquidity risk, credit risk, market risk and bank capital. *International Journal of Managerial Finance*, 7(2), 134-152.
- Vodová, P. (2011). Determinants of commercial banks' liquidity in the Czech Republic. *ratio*, 50, 3. Voss, D. S. (2004). Encyclopedia of Social Measurement.