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Effect of Capital Adequacy on Liquidity of Microfinance Banks in Kenya

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Abstract:
The study sought to assess the effect of capital adequacy on the liquidity of microfinance banks in Kenya. The capital buffer theory and liquidity preference theory were employed for the investigation. The study used an explanatory research design and a positivist worldview. The 13 Kenyan microfinance banks that were operational between 2012 and 2018 were the demographic that was targeted. The study used a census methodology and concentrated on all 13 MFBs in Kenya. The study used secondary data from published financial statements and Central Bank regulatory reports. Descriptive analysis and panel regression analysis was used to analyze the data. At a significance threshold of 0.05, the hypothesis was tested. The study discovered that adequate capital has a substantial impact on Kenyan microfinance banks' liquidity. Notably, higher capital held above the minimum requirement depletes the liquidity levels of banks; hence, managers need to strike a balance between capital levels and optimum liquidity levels. This, in turn, will allow the Microfinance Banks to carry out other liquidity functions without interruptions emanating from rising capital adequacy.

Keywords: Capital adequacy, capital buffer theory, liquidity preference theory, liquidity and microfinance banks

1. Introduction and Background

Governments, central banks, and other decision-makers around the world are increasingly tasked with maintaining bank liquidity for both commercial and microfinance institutions and, consequently, the economic stability of nations (Ciha'ki, Mare & Malecky, 2016). As a result, governments and nations have developed and executed more liquidity programmes (World Bank, 2014). Additionally, microfinance banks have developed new services and products that are aimed at previously categorised groups as unbankable to alleviate liquidity difficulties (Allen, Carlett, Qian, Senbet & Valenzuela, 2013). This has brought about competition within the microfinance banks sector, where MFBs are competing for customers so that they can increase their market share and liquidity stability (Muriithi, 2014).

The Liquidity Coverage Ratio (LCR), which mandates banks to maintain liquid assets that can cover at least thirty days of cash outflows during any crisis time, is one of the liquidity criteria established by BCBS (Hye & Lau, 2017). Another requirement was the Net Stable Funding Ratio (NSFR), which mandated that the bank's fund medium- and long-term loans with stable money that would not run out during a crisis (Drehmann & Nikolaou, 2018). Microfinance banks have been the poster child of governments, policymakers and international organizations for many years, intending to raise millions out of poverty (International Finance Corporation, 2014).

One of the key concerns of regulators is capital adequacy, which is commonly expressed as an equity capital adequacy ratio to be kept as a percentage of weighted assets (Bindsell, 2014) as it demonstrates the firm's internal strength in the case of a liquidity shock or crisis (Dang, 2011). While capital adequacy is often seen as a limiting factor for excessive risk-taking by banks, capital adequacy cushions the banking sector against insolvency. The core capital ratio of some Microfinance banks is negative; for instance, Rafiki microfinance bank recorded a negative 7% while the statutory minimum is 10% (Microfinance Banks Supervisory Report, 2018).

In the Economic Survey (2019), levels of liquidity within microfinance banks have had a fluctuating trend and this has influenced how the operations and businesses of the microfinance-banking sector are undertaken. According to the Kenya National Bureau of Statistics Report (2019), the country's economy remained robust and grew by an average of 6% in the first three quarters of 2018 as opposed to 4.7% in the same period in 2017. This was attributed to many Kenyans embracing the ever-growing microfinance sector during the period. Consumers with different levels of access to credit based on registration and regulation (formality and informality) and the introduction of microfinance banking have

enabled many Kenyans to access finance and even borrow loans from microfinance banks (Kenya Bankers Association, 2019).

The economic plan for Kenya, Vision 2030, intends to make Kenya a middle-income nation with a high standard of living for its people by bolstering the financial system and promoting microfinance banking (Ongore & Kusa, 2013; Mutuku, 2019). To do this, the GoK and the Kenyan central bank have started and implemented several reforms (Kenya National Bureau of Statistics, 2018). These include the Banking Amendment Act (2012), the 2009 Credit Reference Bureau (CRB) Regulations, the 2015 Interest Rate Cap, and the implementation of IFRS 9 in 2018. Despite these government attempts, several microfinance banks have recently experienced difficulties with liquidity, with microfinance banks posting liquidity levels below the predetermined threshold of 20%. (Central Bank of Kenya, 2016).

1.1. Statement of the Problem

Several microfinance banks have ended up recording a liquidity ratio of less than 20%, such as Rafiki MFB (negative 1%) and Choice MFB (negative 10%). In contrast, some MFBs, such as Uwezo (positive 88%) and SUMAC (positive 40%), had exceeded the liquidity ratio mark as the statutory limit set by Kenyan Central Bank (Central Bank of Kenya, 2018). This lower liquidity reduces the MFB stability making them more susceptible to liquidity risk, which results from the collapse of banks. Due to lower liquidity, MFB's deposits are dissipating, loan books are shrinking and profits are declining, which in turn affect the intermediation role of MFBs (Kiambati, 2018). The liquidity concerns have led to three commercial banks being placed under receivership in 2015 and 2016, which impacted liquidity allocation in the banking industry (Central Bank of Kenya, 2017). A financial institution will be able to pay its financial obligations and benefit from profitable investments that are anticipated to generate better returns in the future with proper liquidity management of microfinance banks (Graham & Bordeleau, 2016).

Waqas and Bahrain (2019) found that capital adequacy in Pakistan had an insignificant positive impact on commercial bank liquidity. Zelenyuk, Faff and Pathan (2018) reported that capital adequacy disclosures had a significant and negative effect on commercial bank liquidity in Australia. The study focused on all commercial banks in Australia for the period 2012 – 2018. According to Bowa (2015), adequate capital has a major positive impact on Kenyan commercial banks' liquidity. According to Moussa (2015), the bank's stability was significantly impacted by the bank's capital adequacy. According to Muriithi (2014), inadequate capital had a major and unfavourable impact on Kenyan commercial banks' liquidity. Vodova (2011) discovered that the liquidity of commercial banks in the Czech Republic was significantly impacted favourably by capital adequacy. There is a contextual gap because the majority of this research focused on commercial banks, while none did so on the microfinance-banking industry. The results of these studies cannot be applied to MFBs due to the unique contextual variations between commercial banks and MFBs. In view of these research gaps, this study sought to establish the effect of capital adequacy on the liquidity of microfinance banks in Kenya.

1.2. Objective of the Study

The study sought to establish the effect of capital adequacy on the liquidity of microfinance banks in Kenya.

1.3. Research Hypothesis

The study tested the hypothesis, which stated that:
- H_0: Capital adequacy does not have a significant effect on the liquidity of microfinance banks in Kenya.

1.4. Scope of the Study

The study concentrated on the impact of capital adequacy on the liquidity of Kenyan microfinance banks. 13 microfinance banks that were licensed in Kenya as of December 2018 participated in the study. The study's data came from secondary sources, which were obtained between 2012 and 2018 across a 7-year span. The financial industry in Kenya saw fast technical change during this time, which encouraged the development of new financial systems, products, and payment methods that altered the financial institutions' access to liquidity. The CBK has also made several rule changes during this time to restore public trust in the banking sector after the public lost money due to numerous pyramid scams.

2. Theoretical Review

Calem and Rob (1996) proposed the Capital Buffer Theory. According to the theory, banks that meet the regulator's minimum capital ratio may have the incentive to raise capital and minimize risk to avoid regulatory expenses incurred by a capital requirement violation (Ikpefan, Ochei & Ailemen, 2013). According to the theory, banks behave differently depending on the size of their capital buffers; those with large capital reserves work to keep their capital buffers, while those with small capital buffers want to increase their capital buffers. Therefore, banks with substantial capital reserves are favorably correlated with changes in capital and risk, whereas banks with low capital buffers are adversely correlated with changes in capital and risk (Heid, Porath, & Stolz, 2004). For this study, the theory of capital reserves was relevant as it describes the relationship between capital adequacy and liquidity. Individual banks have different capital rates, with those banks seeking to keep their capital base above the minimum requirement, while those with less than the minimum requirement try to get more capital. Banks' liquidity rates rise in direct proportion to their level of capital adequacy and vice versa. Capital Buffer Theory's prepositions, therefore, promote the adequacy of variable capital.

Liquidity Preference Theory was introduced by Keynes (1936). Based on the concept of liquidity preference, three reasons inform the demand for liquidity. The motivation for operations relates to the reality that people have a liquidity

preference to ensure that they have enough money on hand for fundamental operations because revenue is not always easily accessible. The cautionary purpose is linked to the liquidity preference of people as extra security in case an unexpected opportunity or issue occurs requiring significant money outlay (Obamuyi, 2013). However, people may also have a financial motive based on the expectation that bond prices may begin to decline dramatically, allowing investors to use liquid resources to create an investment that provides a more attractive rate of return (Hadad, 2013).

2.1. Empirical Review

Risk management, capital adequacy, and audit quality for liquidity of commercial banks in Pakistan were researched by Waqas and Bahrain in 2019. Panel regression analysis and Pakistani commercial banks were employed in the study. Capital adequacy, interest rates, the percentage of non-performing loans, and bank intersection were among the study's variables. A descriptive analysis model was used and both primary and secondary data were collected. The study discovered that Pakistan's capital sufficiency had a negligible beneficial effect on commercial banks' liquidity. The MFBs in Kenya were the subject of this study, which utilized a causal research approach.

Zelenyuk, Faff, and Pathan (2018) looked at how statutory capital adequacy declaration affected commercial banks' bank liquidity in Australia. The study used a descriptive research methodology, and multiple regression was used for the analysis. The study discovered that Australian commercial banks' liquidity was significantly and adversely affected by capital adequacy disclosures. All Australian commercial banks from 2012 to 2018 were the subject of the study. The sole microfinance banks in Kenya, a developing country, were the focus of this study.

Bowa (2015) investigated how bank capitalisation affected Kenyan commercial banks' liquidity. The study concentrated on 42 commercial banks in Kenya from 2010 to 2014. The study's variables were asset quality, capital adequacy, and bank size. According to the study, adequate capital has a considerable positive impact on Kenyan commercial banks' liquidity. The study, however, was centred on MFBs, whereas this study was focused on commercial banks.

Moussa (2015) looked at Tunisia's bank liquidity factors. The study concentrated on Tunisia's commercial banks from 2000 to 2010. The variables taken into account for the study included capital, loans/total assets, liquidity, operational expenses/total assets, GDP growth rate, and inflation rate. According to the study, the bank's stability was significantly impacted by the bank's adequate capital. Nonetheless, in Tunisia, the report analyzed commercial banks. This study in Kenya was focused on MFBs.

Muriithi (2014) investigated how Kenyan commercial banks' liquidity risk was affected by non-performing loans. The study used a descriptive research design, while the analysis was carried out using multiple regression methods. According to the study, Kenya's commercial banks' liquidity was significantly and adversely affected by capital adequacy. The study focused on all of Kenya's commercial banks, but this study only concentrated on microfinance banks and Regression on panels of data was used to analyse the data.

Vodova (2011) investigated the liquidity and contributing factors of Czech commercial banks. Panel regression analysis and Czech commercial banks were employed in the study. Capital adequacy, interest rates, the percentage of non-performing loans, and bank intersection were among the study's variables. A descriptive analysis model was used and the collection of secondary data was carried out. According to the study, Czech Republic's capital adequacy significantly improved commercial banks' liquidity. Based on the explanatory research design, this study focused on MFBs in Kenya.

According to Ayele (2012), capital adequacy is a gauge of a bank's strength in terms of its capacity to bear operational costs and maintain fund liquidity. According to the study, a crucial factor of liquidity risk is the regulatory requirement on the minimum capital that banks must keep and the ratio of core capital to client deposits as a measure of capital adequacy. Adequate capital also indicates a bank's capacity to take on new business. The amount of capital gives banks and other financial institutions financial flexibility. Liquidity risk is more unlikely to occur in banks with strong capital ratios. According to Ongore and Kasu (2013), the capital adequacy ratio demonstrates the bank's internal resilience to losses during a crisis.

The macroeconomic implications of regulatory capital adequacy requirements for Korean banks were examined in the study "The Macroeconomic Implications of Capital Adequacy Requirements for Korean Banks" by Chol (2014). Chol concluded that as capital is increased or risk assets, such as commercial loans, are decreased, credit risk is also decreased. As a result, facilities issued by banks with weaker capital adequacy ratios are reduced, and vice versa.

In the banking system, alternative capital cost plays a significant role in determining capital adequacy and CAR. When the cost of capital is low, holding back more money than what is required by law has no impact on profitability, making ROE a better tool for analysing alternative capital costs. A company with a high return on equity is more likely to be able to generate cash on its own. Net Income after Taxes divided by Total Equity Capital is known as the ROE ratio (Khrawish, 2011). There is a readiness to reduce keeping more capital as the alternative cost of capital rises (Rime, 2001).

22 banks were used by Vodova (2011) to study liquidity and its determinants in the Czech Republic between the years 2006 and 2009. The findings indicate that higher capital adequacy and loan interest rates increase the liquidity of Czech commercial banks. The liquidity measurements also reveal a favourable correlation between size and capitalization. According to the too big to fail argument, which holds that larger banks are less motivated to hold liquidity because they rely on government intervention in the event of shortages, the study indicated that bigger banks exhibit lesser liquidity.

To enhance institutional frameworks and increase the banking sector's resilience, the Central Bank of Kenya (CBK) raised the minimum capital requirement in Kenya. The Finance Act of 2008 mandates that all banks, whether they are new or established, maintain KES 1 billion ($12 million) in minimum capital. The minimum required capital to operate as a commercial bank in Kenya grew to KES 5 billion as of December 2012, up from KES 250 million (US$4 million) in 2008, and in December 2014, the national treasury increased the requirement to KES 5 billion to be attained by December

2018. The belief that stronger banks are more likely to endure financial turbulences and so boost banking sector stability and growth was the primary driver behind the accelerated build-up of capital. Greater capital for the banking sector might stimulate the consolidation of smaller lenders to create larger banks that can seize economic opportunities.

Both Longworth (2010) and Bernanke (2008) stated that throughout the recent financial crisis, liquidity played a key role. Many banks rapidly found themselves short on funds to meet their obligations as they were due as a result of lending sources drying up owing to uncertainty. In rare instances, banks in some nations collapsed or were compelled to combine. As a response, authorities in various nations, notably Canada and the United States, provided large sums of liquidity for the sake of greater financial stability. A bank incurs an opportunity cost by retaining liquid assets because they often have a poor return, such as cash and government securities.

Between 1997 and 2011, Kamau and were (2013) looked for the factors that contributed to Kenya's stellar banking sector performance. They were particularly interested in determining whether operating efficiency or bank structure was responsible for the performance of the banks. They used Data Envelopment Analysis and the SCP methodology to conduct their study. They discovered that, rather than efficiency, collusive power and organisation served as the foundation for better performance. They hypothesised that high levels of market power and concentration led to high levels of profitability, and they recommended lowering these levels to lower the superior earnings and increase competition in the banking industry.

Mungwang'a (2014) further suggested that to decrease market concentration and ultimately boost competition in the banking industry, efficiency might be achieved by increasing operating size. They made the implication that larger banks would experience scale and scope economies. The authors suggested that to increase competition in the banking industry and allocate profits more fairly among the participants, policies that promote a decrease in concentration and relative market powers be implemented. They proposed that policy directives such as raising capital and liquidity requirements and deposit insurance premiums may expand banks' physical footprints and balance out firms' relative market sway, which would promote competitive pricing and operational effectiveness.

Liquidity risk and commercial banks' capital adequacy did not directly correlate at (t = 0.05), where 't' values were (0.167) and (0.868), according to Salike's (2014) study of the factors influencing capital adequacy of commercial banks in Kenya. However, the Pearson correlation coefficient was (0.017). This suggests that capital adequacy is poor when liquidity risk is high. The ROA and liquidity have a negative yet significant relationship. This is true because liquid assets carry lower rates of return and are less risky. The outcome goes against the assertion made by Onyeka et al. (2018) that there is a positive association between bank liquidity and profitability ratios. The study's focus on the impact of liquidity on deposit-taking institutions' financial performance while taking into account the impact of control factors is what led to the study's discrepant findings.

The lack of proper liquidity management by a bank, according to Marozva (2015), results in a significant liquidity constraint that has a detrimental impact on capital formation and earnings. Therefore, if liquidity management is not properly handled, financial institutions may incur high liquidity expenses. Therefore, banks must decide how to categorise the level at which they can preserve their assets to maximise profits while also satisfying depositors' financial needs because every liquidity has a different impact on the profitability level. The problem arises when banks prioritise maximising profits while ignoring the management of liquidity, which can result in both technical and legal insolvency.

3. Research Methodology

The positivist philosophy was used in the study. According to the positivist ideology, only factual information obtained via observation and measurement is reliable (Cooper & Schindler, 2008). Usually, the results can be quantified. In positivism, there is no possibility of human interest in the inquiry and the researcher is autonomous from it, while epistemology is concerned with the origins of knowledge. The study adopted a census approach by focusing on all the 13 MFBs in Kenya that have been in existence from 2012 to 2018. The study was based on an explanatory research design. An exploratory study establishes the foundation for further research by attempting to determine whether the phenomena being seen can be explained by an existing theory. More information is needed for the freshly studied field using a descriptive survey research design after the foundation has been laid (Lewis & Thornhill, 2009). The panel regression technique was used for the data analysis, and the empirical model is as follows:

$$LR_{it} = \beta_0 + \beta_1 CA_{it} + \varepsilon_{it}$$

Where:

LR_{it} = Liquidity Ratio for firm i at time t

CA_{it} = Capital Adequacy of firm $_i$ at time t

β_0 = Constant term

$\beta_1 - \beta_4$ = Coefficients

ε_{it} = Error term

4. Research Findings and Discussions

4.1. Descriptive Statistics

The descriptive analysis produced statistics, which are shown in table 1 and comprise the research variables' mean, standard deviation, and minimum and maximum values for the years 2012 to 2018.

Variable	Obs	Mean	Std. Dev.	Min	Max
Capital Adequacy	75	0.507404	0.37481	0.017879	1.542056
Liquidity Ratio	75	40.98667	31.28473	3.00	217

Table 1: Descriptive Statistics
Source: Study Data (2022)

The descriptive statistics shown in table 1 indicate that capital adequacy and Liquidity ratio had means of 0.507404 and 40.98667, respectively. The mean and standard deviation for bank size were 6.919 and 1.931, respectively. The observations in table 1 show that the average Liquidity Ratio for companies during the period of the study was 40.98667 and a standard deviation of 31.28473. The liquidity Ratio further had minimum and maximum values of 3.00 and 217, respectively, indicating that the microfinance sector had a high liquidity fluctuation from 2012–2018. The observations implied that the majority of the microfinance banks' liquidity ratio was nearly optimal for maintaining efficiency and operations excellence. However, some firms recorded a very low liquidity ratio of 3.00, while on the hand, others had a very liquidity ratio of 217.

4.2. Regression Analysis

To examine the link between capital adequacy and liquidity of microfinance banks, a panel regression model was built (measured by liquidity ratio). Hypotheses were tested at a 5 percent significance level. Table 2 below presents the results.

Liquidity Ratio	Coef.	Std. Err.	Z	P>|z|	[95% Conf.]	Interval]
Capital Adequacy	-24.276	17.41321	-1.39	0.033	-58.4053	9.853252
_cons	86.80856	29.2051	2.97	0.003	29.56761	144.0495
Wald chi2(4) = 13.82						
Prob > chi2 = 0.0079						
Pseudo R-sq = 0.6792						

Table 2: Regression Analysis
Source: Study Data (2022)

4.3. Hypothesis Testing

The goal of the study was to assess how Kenyan microfinance banks' liquidity was affected by their capital adequacy. The aforementioned null hypothesis was created and put to the test at a 0.05 significance level to achieve this goal. According to the findings shown in table 2, the capital adequacy coefficient was = - 24.276, P = 0.033, which is less than 0.05. The results demonstrate that adequate capital has a negative and significant impact on Kenyan microfinance institutions' liquidity. These results led the study to reject H03: Capital adequacy does not have a significant effect on the liquidity of microfinance banks in Kenya.

Therefore, capital adequacy predicted the liquidity of microfinance banks in Kenya. The findings of Moussa (2015) and Zelenyuk, Faff, and Pathan (2018), which revealed that adequate capital has a major impact on the stability of the bank, are in agreement with those of the study. These findings concurred with those of Muriithi (2014), who discovered that capital adequacy had a significant, adverse impact on Kenyan commercial banks' liquidity. The results also support Ng'ang'a (2016), who discovered a strong correlation between a microfinance institution's size, liquidity, capital adequacy, and efficiency. Independent factors accounted for 22.8% of the variation in microfinance banks' efficiency. F was determined to be statistically insignificant by analysis of variance since its probability value was more than 5% (p = 0.063). The ratio of bank size to efficiency was absent.

5. Conclusions and Recommendations

The findings of the study emphasize the importance of capital adequacy as an indicator of the liquidity of microfinance banks in Kenya. The Central Bank of Kenya, which regulates microfinance banks, should establish and enforce minimum capital adequacy requirements that are in line with international best practices such as the Basel III framework. These requirements should take into account the size, complexity, and risk profile of microfinance banks to ensure that they have sufficient capital buffers to absorb unexpected losses and maintain their liquidity position. The Kenyan government and regulatory authorities should consider providing incentives for capital injection into microfinance banks. These incentives could include tax breaks, grants, or other financial incentives to encourage microfinance banks to raise additional capital from external sources such as equity investors, development partners, and philanthropic organizations. This can help to strengthen the capital base of microfinance banks and improve their liquidity position.

Central Bank of Kenya should consider implementing a risk-based capital adequacy framework that aligns capital requirements with the risk profile of microfinance banks. This would involve assigning different risk weights to different types of assets based on their credit risk and requiring microfinance banks to hold higher capital for riskier assets. This would incentivize microfinance banks to maintain a healthy loan portfolio and manage their risk effectively, which in turn would enhance their liquidity position. The Central Bank of Kenya should promote capacity building and good governance practices among microfinance banks to improve their risk management capabilities and ensure prudent capital

management. This could include providing training and technical assistance to microfinance banks on risk management, corporate governance, and financial reporting. Strengthening the governance practices of microfinance banks would help ensure that they maintain adequate capital buffers and manage their liquidity effectively.

Monitor and supervise microfinance banks regularly and establish a robust system for monitoring and supervising microfinance banks on an ongoing basis to ensure compliance with capital adequacy requirements. Regular examinations, audits, and reporting requirements should be put in place to assess the capital adequacy and liquidity position of microfinance banks. Prompt corrective actions should be taken if any microfinance bank falls below the minimum capital adequacy requirements to prevent further deterioration of its liquidity position.

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