

## **LIQUIDITY RISK AND PERFORMANCE OF DEPOSIT-TAKING MICROFINANCE BANKS IN KENYA**

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**Abstract:** *The effective management of financial risk is crucial for the stability and growth of the microfinance sector. This study focuses on deposit-taking microfinance banks (DTMs) in Kenya, examining the impact of liquidity risk on their performance. The primary objective is to determine how liquidity risk influences these institutions' return on assets (ROA). The theoretical framework is grounded in Financial Distress Theory and Liquidity Preference Theory, providing a robust foundation for understanding the dynamics of financial risk. Employing a correlational research design, this study analyzes annual secondary panel data from 2016 to 2022, covering all 14 registered DTMs in Kenya. The data was sourced from the financial statements of the DTMs and verified against Central Bank of Kenya (CBK) reports. A pooled ordinary linear regression model was utilized to control for unobserved heterogeneity and ensure accurate estimates of the effect of liquidity risk on ROA. The findings reveal that liquidity risk, when log-transformed, does not have a statistically significant impact on the ROA of DTMs in Kenya. These results suggest that while liquidity risk is a crucial factor, its direct impact on performance metrics like ROA may be minimal, emphasizing the complexity of factors influencing the financial performance of DTMs. The study concludes that a broader approach to risk management, incorporating additional variables and qualitative insights, is necessary to enhance the financial stability and performance of DTMs in Kenya. Future research should explore other risk factors and contextual influences to provide a more comprehensive understanding of DTM performance determinants.*

**Keywords:** *Financial risk, liquidity risk, microfinance banks, return on assets (ROA), financial distress theory, liquidity preference theory*

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### **1. Introduction**

Financial risk is a pivotal aspect of business, particularly in the microfinance industry and the broader banking sector. The effective management of financial risks is not just a matter of profitability but a key determinant of the stability and growth of the sector (Mathuva, 2019). Inadequate financial risk management can lead to a financial crisis, causing long-term harm to economies, markets, countries, and individuals (Onsongo et al., 2020). Therefore, every strategic and entrepreneurial decision should be underpinned by a robust understanding of the inherent risks (Muathe & Mwangi, 2020).

Microfinance banks have emerged as global catalysts for economic recovery and growth. Their services empower low-income individuals to break free from poverty, run businesses more efficiently, increase productivity, earn higher investment returns, and enhance their quality of life (Chen, 2018). These banks, beyond lending, offer a spectrum of financial services to micro and small enterprises, including savings, money transfers, payments, loans, and insurance (Abebe, 2022).

Internationally, financial risk management remains a critical area of focus. In the United States, a significant survey of financial corporations showed that at least 90% use some form of financial engineering to manage market risks such as interest rates, foreign exchange, or commodity pricing risks (Mardiana et al., 2018). In Europe, particularly Italy, the emphasis has been on developing comprehensive financial risk management frameworks that meet compliance requirements, contribute to more intelligent decision-making, and improve performance.

Asian countries with rapidly growing economies like India, Indonesia, Nepal, and Bangladesh have prioritized financial risk management to ensure sustainable economic growth. Bangladesh stands out as a pioneer and leader in microfinance, with the sector playing a crucial role in financial inclusion and economic development. The country has implemented various microfinance initiatives to address credit, liquidity, market, and operational risks (Khan et al., 2020). Indonesia has also implemented liquidity management strategies to ensure funds are available to meet short-term obligations, thereby reducing liquidity risk (Tasos et al., 2020). To manage liquidity risk, Indian MFIs have adopted measures such as maintaining adequate cash reserves and accessing short-term funding from banks and other financial institutions (Ashraf et al., 2019). Nepal and Indonesia have also seen notable developments in their microfinance sectors. In Nepal, MFIs have focused on improving credit risk assessment and enhancing liquidity management to support their growth and sustainability. In Bangladesh, the birthplace of modern microfinance, institutions like Grameen Bank have set the standard for managing various financial risks.

In Africa, the microfinance sector has seen both growth and challenges. While some regions continue to experience steady economic development, others remain trapped in cycles of poverty and dependency on aid. Microfinance institutions (MFIs) in Africa are vulnerable to various risks, including liquidity, interest rate, compliance, credit, and foreign exchange risks (Abebe, 2022).

Kenya's microfinance sector is one of the most developed in Africa, with a robust framework established under the Microfinance Act of 2006. The sector aims to deliver financial services to the unbanked and underbanked populations, thus fostering financial inclusion (Central Bank of Kenya, 2021). As of 2022, there are 14 licensed DTMs in Kenya, offering a range of services including savings, loans, and insurance. These institutions are regulated by the Central Bank of Kenya (CBK), which ensures they adhere to prudential guidelines to maintain financial stability (Central Bank of Kenya, 2024). However, the sector has faced significant challenges in recent years, including declining returns on assets and increased competition from other financial service providers (Cytonn Investments, 2023).

The performance of deposit-taking microfinance banks (DTMs) in Kenya has been declining in recent years, as evidenced by several key financial metrics. The Central Bank of Kenya (CBK) and various financial analyses, such as those by Cytonn Investments, highlight a troubling trend. From 2016 to 2022, the microfinance sector has experienced a persistent decline in return on assets (ROA), a critical measure of profitability. The latest CBK Financial Sector Stability Report indicates that the overall ROA for microfinance banks has turned negative, reflecting ongoing losses and diminishing asset values (Central Bank of Kenya,

2023; Cytonn Banking Sector Report, 2023). Specifically, in 2022, the total assets of these banks decreased by 4.8%, and gross loans and advances dropped by 3.1%. Furthermore, the overall bank deposits fell by 7.8%, exacerbating the liquidity challenges faced by the sector (Kenya Bankers Association Report, 2023).

Liquidity risk, which refers to the inability of a financial institution to meet its short-term financial obligations without incurring unacceptable losses, has been identified as a significant factor contributing to this decline. Effective liquidity management is crucial for maintaining the financial health and stability of DTMs. However, many institutions struggle with this aspect, leading to adverse impacts on their overall performance. Only four out of the fourteen microfinance banks reported profits in 2022, while the rest continued to suffer significant losses. The losses were partly due to a narrowing funding base and declining capital and liquidity levels, with four banks failing to meet minimum capital ratios (Central Bank of Kenya, 2023).

Given these findings, the current study on the liquidity risk and performance of DTMs in Kenya is not only timely but also crucial. It aims to provide comprehensive solutions to the performance of DTMs that seem to have been neglected in previous studies. Further, the study strives to fill the existing research gap by specifically focusing on the Kenyan context, thereby providing insights that could inform policy and operational strategies to enhance the financial stability and performance of DTMs in Kenya. The main objective of this study is to determine the effect of liquidity risk on the performance of deposit-taking microfinance banks in Kenya. Understanding this relationship will provide insights into the critical factors that DTMs need to address to improve their financial performance and sustainability.

## **2. Theoretical Review**

The study reviewed two theories namely, Financial Distress Theory and Liquidity Preference Theory as below.

### **2.1. Financial Distress Theory**

Financial Distress Theory, introduced by Beaver (1966), examines the forms of financial distress, such as bankruptcy and structural changes. Beaver highlighted the difficulty in predicting distress, particularly when businesses face short-term obligations. Altman (1968) expanded on this with the Z-Score model, a widely used bankruptcy prediction tool. Other scholars like Zmijewski (1984) and Ohlson (1980) developed models incorporating accounting ratios and macroeconomic variables. Recent enhancements by Barboza et al. (2019) and Muñoz-Izquierdo et al. (2020) introduced artificial intelligence to improve accuracy. The theory has broad applications, including predicting financial distress in commercial banks (Chen et al., 2019) and studying corporate social responsibility's impact (El Ghouli et al., 2019). Whitaker (1999), Kalu et al. (2018), and Cupertino et al. (2022) have further applied this theory to assess risks within financial institutions and corporate sustainability.

### **2.2. Liquidity Preference Theory**

Liquidity Preference Theory, developed by Keynes (1936), suggests that individuals prefer to hold wealth in liquid form, primarily money, due to transaction, precaution, and speculation motives. Keynes argued that this preference is influenced by interest rates and economic conditions, with higher interest rates prompting individuals to seek higher returns from investments (Bibow, 2005). Proponents like Mabati and Onserio (2020) and Chireka and Fakoya (2019) emphasize the theory's importance in managing liquidity risks within financial institutions, particularly microfinance banks (MFIs). The theory guides MFIs in balancing liquidity needs with financial stability (Gan, 2019). Despite criticisms by Jin et al. (2022) regarding its narrow focus, it remains a

crucial framework for understanding liquidity risks and their impact on financial performance (Tassew & Hailu, 2019).

### **2.3. Empirical Review**

Numerous studies have explored the relationship between liquidity risk and the performance of financial institutions. In the Kenyan context, Gathigia (2021) found that liquidity risk significantly impairs the Return on Equity (ROE) of commercial banks, suggesting similar implications for DTMs. Devinaga (2020) emphasized the importance of maintaining adequate liquidity assets to manage potential liquidity crises, including bank runs. However, the study cautioned that effective liquidity management alone does not guarantee positive financial performance. This highlights the complexity of factors influencing the performance of DTMs, where liquidity risk plays a crucial but not solitary role (Hoseininassab et al., 2022).

Kioko et al. (2019) conducted a comprehensive analysis of the impact of financial risks on the stability of private banks in Kenya. The study revealed that liquidity risk adversely affects financial outcomes, emphasizing the need for effective liquidity management practices. Similarly, Umar et al. (2020) in Pakistan found a positive correlation between liquidity management indicators and financial performance, suggesting that DTMs could benefit from similar practices to enhance their ROA. In another study, Al-Khoury (2019) analyzed 43 commercial banks in Gulf Cooperation Council (GCC) countries and found that liquidity risk, along with credit and capital risks, significantly influences bank performance as measured by ROA (Kalu et al., 2018; Tassew & Hailu, 2019).

Additionally, a study by Hoseininassab et al. (2022) focusing on Iranian banks, found that liquidity risk measures such as the facility to deposit ratio and long-term facility to long-term deposit ratio negatively impacted bank performance, whereas the cash to deposit ratio exhibited a positive relationship. These findings indicate that the management of liquidity is a nuanced challenge that requires balancing various factors to maintain financial health (Lelgo, 2018).

Despite the extensive research on the relationship between financial risks and the performance of commercial banks, there is a notable gap in studies focusing specifically on DTMs in Kenya. The unique challenges faced by DTMs, such as their client base and operational structure, necessitate a tailored approach to understanding how liquidity risk affects their performance. This study aims to fill this gap by providing empirical evidence on the impact of liquidity risk on the ROA of DTMs in Kenya, offering insights that could inform better risk management practices and policy decisions

### **3. Methods**

This study adopts a correlational research design to investigate the relationship between liquidity risk and the performance of deposit-taking microfinance institutions (DTMs) in Kenya. This design is appropriate for examining how variations in liquidity risk correlate with changes in the performance metrics of DTMs, specifically the Return on Assets (ROA). The correlational approach allows for the identification of relationships between variables without manipulating the study environment, providing a realistic and applicable understanding of how liquidity risk impacts DTM performance.

The target population for this study includes all 14 deposit-taking microfinance institutions (MFIs) in Kenya, which were registered under the Microfinance Act of 2006 and listed as members of the Association of

Microfinance Institutions of Kenya as of December 2022. These institutions are diverse in size and scope, offering a comprehensive overview of the sector's performance and risk management practices.

Given the manageable number of microfinance institutions and the specific focus of this study, a census approach is used instead of sampling. This approach ensures that the data collected is comprehensive and representative of the entire population of interest. By including all DTMs, the study eliminates sampling bias and provides a complete picture of the sector's performance.

The study utilizes annual secondary panel data from 2016 to 2022. The dependent variable, Performance, is measured by Return on Assets (ROA). The independent variable, Liquidity Risk, is proxied by the Liquidity Coverage Ratio (LCR) and the Loan to Deposit Ratio (LDR). Data is collected from the financial statements of the respective DTMs and verified against Central Bank of Kenya (CBK) reports to ensure accuracy and reliability. Secondary data is advantageous as it provides a historical perspective and allows for the analysis of trends over time.

A Pooled Ordinary Linear Squares Regression model using STATA 15 software is employed to analyze the collected data. This model controls for unobserved heterogeneity among the DTMs, providing more accurate estimates of the effect of liquidity risk on ROA. The fixed effects model is chosen for its ability to account for time-invariant characteristics that could bias the results, ensuring that the findings specifically reflect the impact of liquidity risk on performance. Descriptive statistics summarize the dataset, highlighting key trends and variations, while inferential statistics are used to draw conclusions about the population based on sample data.

The model that guides this study is:

$$ROA_{it} = \alpha_i + \beta_1 LqR_{it} + \varepsilon_{it} \dots \dots \dots (1).$$

Where:

$ROA_{it}$  = Return on Asset of individual DTM  $i$  at time  $t$ .

$\alpha_i$  captures individual specific effects.

$LqR_{it}$  = Liquidity Risk of individual DTM  $i$  at time  $t$ .

$\beta_1$  = Slope Coefficients.

$\varepsilon_{it}$  = The error term.

#### 4. Results

The pooled OLS regression model was used to analyze the effect of liquidity risk on the performance of deposit-taking microfinance banks (DTMs) in Kenya. Here, the study interprets the key results from the analysis.

Table 4.1 Descriptive statistics Results

Variable	Obs	Mean	Std. Dev.	Min	Max
LIQUIDITYR-K	95.	2845263	.8347694	-.19	7
ROA	94	-.0837598	1552184	-.5333333	.2424942

Table 4.1 above provides insights into the central tendency, dispersion, and range of the key variables in the study: Return on Assets (ROA) and Liquidity Risk (LIQUIDITYRISK).

#### 4.1. Return on Assets (ROA)

**Mean:** The mean ROA is -0.0838, indicating that on average, the deposit-taking microfinance banks (DTMs) in Kenya are experiencing a negative return on assets. This suggests that these institutions are generally not profitable over the period studied.

**Standard Deviation:** The standard deviation of 0.1552 indicates the extent of variability in the ROA among the DTMs. A relatively high standard deviation in comparison to the mean suggests that there is significant variation in profitability among these institutions.

**Minimum and Maximum:** The minimum ROA is -0.5333, and the maximum is 0.2425. This wide range indicates that while some DTMs are facing substantial losses, others are managing to achieve positive returns, albeit modestly. The negative minimum value highlights the financial struggles of some DTMs, while the positive maximum shows that some institutions are able to generate profit.

#### 4.2. Liquidity Risk (LIQUIDITYRISK)

**Mean:** The mean Liquidity Risk is 0.2845, which indicates that, on average, DTMs are maintaining a liquidity position above the minimum required levels. This value represents the excess liquidity ratio, suggesting that on average, these banks hold liquidity that exceeds their short-term obligations by approximately 28.45%.

**Standard Deviation:** The standard deviation of 0.8348 suggests substantial variability in liquidity risk among the DTMs. This indicates that while some institutions are managing their liquidity effectively, others may have excess or insufficient liquidity.

**Minimum and Maximum:** The minimum value of -0.19 indicates that some DTMs are operating with a liquidity deficit, failing to meet their short-term obligations. In contrast, the maximum value of 7 indicates that other DTMs hold liquidity levels significantly higher than required, potentially reflecting overly conservative liquidity management or inefficiencies in asset utilization.

#### 4.3. Diagnostic Tests

The study performed four diagnostic tests such as Breusch-Pagan’s Heteroskedasticity, and Shapiro/Wilkins Normality test, the study first performed a regression test of ROA on Liquidity Risk as shown in Table 4.2.

Table 4.2 Heteroskedasticity Test Results

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Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

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Ho: Constant variance  
 Variables: fitted values of ROA

chi2 (1) = 1.07  
 Prob > chi2 = 0.3009

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Table 4.2 above indicate the results for Breusch-Pagan/Cook-Weisberg heteroskedasticity test with a chi-squared value of 1.07 with a p-value of 0.3009. This indicates that there is no evidence of heteroskedasticity in the residuals.

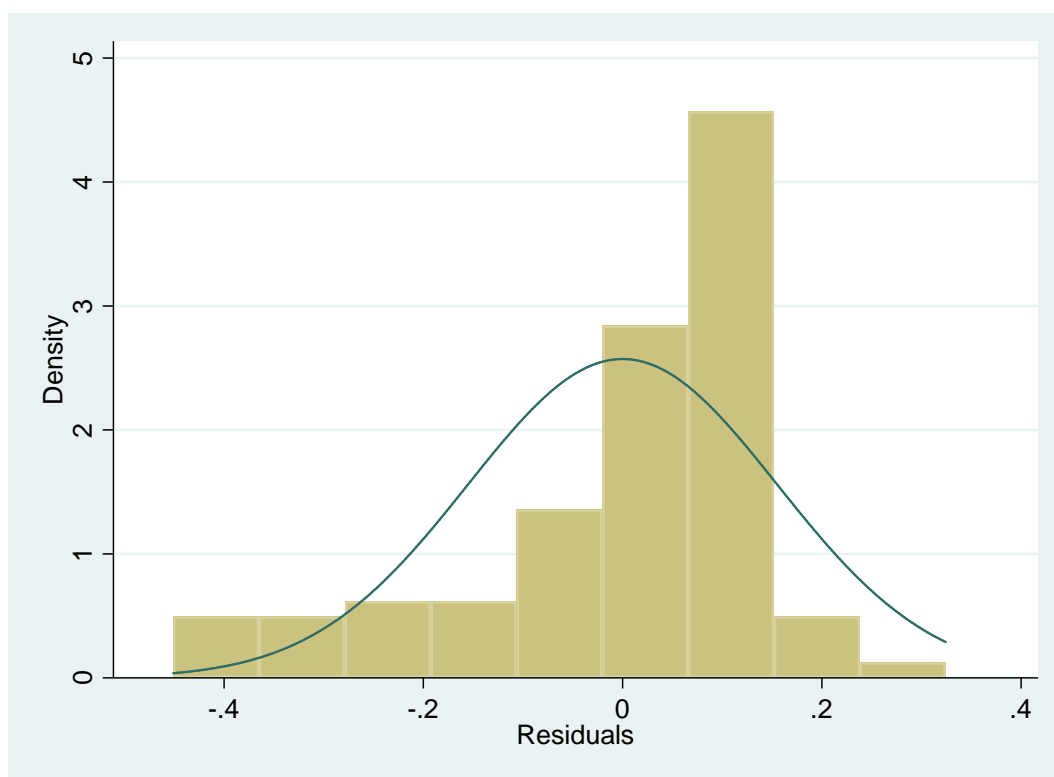


Figure 4.1 Normality test result

Table 4.3 Normality test

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Shapiro-Wilk W test for normal data

Variable	Obs	W	V	Z	Prob>z
resid	94	0.85665	11.241	5.349	0.00000

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Both figure 4.1 and table 4.3 of the Shapiro-Wilk test for normality yielded a W-value of 0.8566 with a p-value of 0.0000, suggesting that the residuals are not normally distributed. Therefore, the study transformed the data into Logarithms.

Table 4.4 Results for Pooled OLS

log ROA	Coef.	Std. Err.	t	P> /t/	[95% Conf. Interval]	
Log_LIQUIDITYRISK	0052492	.0623947	0.08	0.933	-.1186721	.1291706
cons	-.1055773	.0230303	-4.58	0.000	-.1513176	-.0598371

The table 4.4 above reveal the following:

**4.4. Log-Liquidity Risk:**

The coefficient for *log\_LIQUIDITYRISK* is 0.0052, suggesting a very small positive relationship between log-transformed liquidity risk and log-transformed return on assets (ROA).

However, this relationship is not statistically significant (p-value = 0.933), meaning there is no evidence to suggest that changes in liquidity risk significantly affect ROA.

**4.5. Constant (*\_cons*):**

The constant term is statistically significant (p-value = 0.000), indicating that when *log\_LIQUIDITYRISK* is zero, the expected value of *log\_ROA* is approximately -0.1056. This implies that, on average, the *log – transformed* ROA is negative when log-transformed liquidity risk is at its baseline.

**5. Discussion**

The results indicate that liquidity risk does not have a statistically significant impact on the performance (ROA) of deposit-taking microfinance banks in Kenya. This finding is consistent with some studies in literature but contrasts with others that found a significant relationship.

**5.1.Consistent Findings:**

A study by Kioko et al. (2019) found that while liquidity risk adversely affects financial outcomes, its direct impact on performance metrics like ROA can be minimal, emphasizing the complexity of factors influencing performance.

Similarly, Devinaga (2020) cautioned that effective liquidity management alone does not guarantee positive financial performance, highlighting the need for a multifaceted approach to risk management.

**5.2.Contrasting Findings:**

Gathigia (2021) found that liquidity risk significantly impairs the Return on Equity (ROE) of commercial banks, suggesting that liquidity management is crucial for financial stability and performance.



Umar et al. (2020) in Pakistan found a positive correlation between liquidity management indicators and financial performance, indicating that effective liquidity management can enhance ROA in different contexts.

The differences in findings could be attributed to variations in the operational structures and client bases of DTMs compared to other financial institutions. Additionally, the unique economic and regulatory environment in Kenya might influence the relationship between liquidity risk and performance.

## 6. Conclusion

The study aimed to determine the effect of liquidity risk on the performance of deposit-taking microfinance banks in Kenya. The pooled OLS regression results indicate that liquidity risk does not have a statistically significant impact on ROA. This finding underscores the complexity of factors affecting the performance of DTMs and suggests that a broader approach to risk management and operational strategies is necessary to enhance financial performance.

Future research should consider incorporating additional variables including moderating variables like size or ownership and exploring other risk factors to provide a more comprehensive understanding of the determinants of DTM performance. Furthermore, qualitative studies could offer insights into the contextual factors influencing the effectiveness of liquidity management practices in the microfinance sector in Kenya.

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