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The Moderating Effect Of Liquidity Risk On The Relationship Between Cost Efficiency And Financial Performance Of Microfinance Banks In Kenya

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Abstract:
Background: *A number of empirical studies on performance of Microfinance banks have been carried out though inconclusively. While cost efficiency is seen to influence the financial performance of Microfinance banks (MFBs), other factors seem to influence this relationship either directly or indirectly. Empirical studies indicate that liquidity risk is a key determinant of any financial institution's performance. MFBs today are making losses while only a very small percentage record little or no profits at all. Stakeholders which include the Kenya government, financiers, clients and potential clients/investors are concerned about profitability trends of these pivotal financial institutions in the development and growth of the Kenyan economy. This study sought to establish the moderating effect of liquidity risk on the relationship between cost efficiency and financial performance of Microfinance banks in Kenya. The study was premised on Cost Management and Efficiency, Modern Portfolio and Agency theories.*
Materials and Methods: *The study used positivist paradigm while adopting descriptive research design. The population of the study was all the fourteen Microfinance banks in Kenya (CBK, 2023). Quantitative secondary data was collected from all the MFBs which operated in the Kenyan economy consistently from the year 2013 to 2022. Collection of data was carried out using a data collection sheet specifically designed to obtain the relevant information. Cost efficiency was measured using cost income ratio (CIR). Financial performance was measured using return on assets (ROA) and market share index (MSI) while liquidity risk was measured using liquidity ratio (LR). Descriptive statistics through the use of percentages, mean scores and standard deviations were done.*
Results: *From the regression analysis, a unit increase in CIR results in 0.0209 reduction in ROA, indicating a significant negative relationship between cost income ratio and financial performance of MFBs. Similarly, a unit increase in CIR results in 0.0193 reduction in Market Share Index. This position is in line with the Cost Management and Efficiency theory which suggest that, efficient management of costs ensures that resources are allocated optimally reducing wastage, thus enhancing profitability. A unit change in the interaction between LR and CIR results in 0.0001 increase in ROA. Correspondingly, a unit change in the interaction between LR and CIR increase MSI by 0. 0001.*
Conclusion: *The moderating effect liquidity risk on the relationship between cost efficiency and financial performance was found to be positive and significant. This converges with Modern Portfolio theory which indicate that sufficient liquidity levels and adequate portfolio mix enhances firms' profitability.*
Key Words*: Liquidity Risk, Cost Efficiency, Financial Performance, Microfinance Banks*

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I. Introduction

In Kenya, microfinance institutions are formed with a purpose of strengthening and encouraging direct involvement of groups and individuals in well-grounded businesses and upgrading their social and economic status by providing sustainable financial and social support[1]. Basically, firms face economic success or downturns, enhancement or failure, consistent development or financial turmoil depending on how efficiently they apply their costs in relation to turnover[2]. Financial performance is said to be majorly dependent on operational costs. [3], opines that liquidity risk in a financial institution is the inability of the firm to match generated cash flows with planned and unplanned demand for cash. According to [4], liquidity risk in microfinance banks refers to the unforeseen deviation or instability of revenue. Liquidity is a remarkable aspect which determines the financial position of banks[5,6]. Liquidity discloses the capability of a bank to discharge its obligations against depositors. The image of a microfinance bank is greatly reflected by the risk of its liquidity[7]. The role of microfinance as an important development intervention for the poor thus seems to be under considerable threat, hence the need for solutions to counter these challenges. The theories guiding the study are: Cost Management and Efficiency theory, Modern Portfolio theory and Agency theory.

Problem Statement: [8] point the major obstacles that confront microfinance banks as sustainability and outreach. Due to the nature of their business, microfinance banks are exposed to many potential risks of operational losses; insufficient liquidity, deposits withdrawal without notice, state of the economy like recession, COVID – 19 pandemic global crisis and other factors that create uncertainty in borrowers' loan repayment. These risks affect the performance, banks' survival and the banking sectors' stability; and their negative effects can spill over to the entire economy. Attaining sustainability and offering financial services to the poorest based on low-income level is difficult[9]. Extant empirical studies describing the effect of liquidity risk on the relationship between cost efficiency and financial performance of microfinance banks have been carried out in various dimensions including the effect on profitability. There are however inconsistencies by previous studies on the level and magnitude of the influence of liquidity risk on the relationship between cost efficiency and financial performance**.**

In Kenya, poor performance has continued to hit the sector[10,11]. The sector has also experienced extremely high competition evidenced by the shifting market share and profitability[12]. The competition is within the MFI sector, mainstream commercial banks and the telecommunication money transfer platforms such as M-Pesa[13]. The sector reported a combined loss before tax of Ksh. 1.4 billion and Ksh. 339 million for the year 2018 and 2019 respectively. Pretax loss on average for 2021 and 2022 was Ksh. 877 million and Ksh.980 million respectively. Furthermore, return on assets (ROA) on average was negative 2% and negative 0.4% respectively during the same period. In 2021 and 2022, ROA was negative 1% for each of the years. Combined Return on Equity (ROE) for 2018 and 2019 was negative 13.8% and negative 3% respectively (CBK, 2019; CBK, 2022). According to AMFI (2019), Microfinance banks continue to register poor financial performance due to aggressive competition, bad debts from clients as well as the banks' inability to satisfy their customers. Although some efforts to improve the sector's financial performance have been made, among them the adoption of cost reduction initiatives like automation of service delivery, process reengineering as well as enactment of MFI regulations to reduce unhealthy competitive environment and affordable interest rates, these efforts do not seem to have yielded significant results.

Study Objective: The objective of this research was to investigate the moderating effect of liquidity risk on the relationship between cost efficiency and financial performance of microfinance banks in Kenya.

Research Question: Based on the study objective, the following research question was formulated; To what extent does liquidity risk influence the relationship between cost efficiency and financial performance of microfinance banks in Kenya?

Hypothesis Statement: The following hypothesis statement was formulated in its null structure to guide the study; There is no significant moderating effect of liquidity risk on the relationship between cost efficiency and financial performance of microfinance banks in Kenya.

II. Materials And Methods

The study utilized descriptive design in order to assess the moderating effect on the relationship between cost efficiency and financial performance of microfinance banks in Kenya. Secondary data collected from the firms' annual reports and CBK website was used. Collection of already existing data averted any form of manipulations. The target population for the study consisted all microfinance banks registered by the Association of Microfinance Institutions – Kenya (AMFI -K) and regulated by CBK. Purposive sampling technique was applied to select all the nine microfinance banks that consistently operated in Kenya between 2013 – 2022. By applying Hausman test, the Random effects model was found to be the most appropriate approach for panel data regression in this study. Cost efficiency was measured using cost income ratio (CIR) while financial performance was proxied by profitability and measured using return on assets (ROA) and market share index (MSI). Liquidity risk was measured using liquidity ratio (LR).

Decision Rule: Accept null hypothesis if the P-value is greater than the stipulated level of significance of 5% (0.05). Also, reject the null hypothesis and the alternative hypothesis if the P-value is less than or equal to the stipulated significance level.

Operational Model for the Study:
Model 1: ROA = β0 + X1(CIR) + X2(LR) + X3 (LR *CIR)
Model 2: MSI= β0 + X1(CIR) + X2(LR) + X3(LR *CIR)
Where;
β_0 = Intercept
LR = Liquidity Ratio

CIR = Cost Income Ratio
ROA = Return on Assets
MSI – Market Share Index

III. Results

Cost Income Ratio, Liquidity Ratio and Return on Assets

The hypothesis of interest was on the interaction influence of liquidity ratio on the relationship between cost income ratio and return on assets. The hypothesis is:

H_{01a}: There is no significant effect of liquidity risk (liquidity ratio) on the relationship between cost efficiency (cost income ratio) and financial performance (return on assets) of microfinance banks in Kenya

The relationship between cost efficiency (cost income ratio) and financial performance (return on assets) with liquidity ratio interactions were analyzed using panel regression model (See Table 1).

Table no 1: Shows cost income ratio, liquidity risk and return on assets. The study found a linear relationship between cost income ratio and return on assets with liquidity ratio as the interaction variable in the relationship (R=0.8373). A coefficient of determination ($R^2 = 0.7011$) indicates that cost income ratio and interaction with liquidity ratio explain 70.11% of variation in return on assets. The model coefficients are different from zero ($\chi^2 = 201.67$, p<0.001) and thus the model is consistent. The overall model, is significant for return on assets and cost income ratio (F=64.83, p< 0.001), is significant for return on assets and liquidity ratio (F=49.10, p< 0.001), and significant for return on assets and the interaction between cost income ratio and liquidity ratio (F=84.25, p< 0.001). A unit increase in cost income ratio decreases return on assets significantly ($\beta = -0.07525, Z = -14.0838,\ p < 0.001$). A unit increase in liquidity ratio decreases return on assets ($\beta = -0.0167, Z = -1.5168,\ p = 0.1293$). A unit increase in cost income ratio and liquidity ratio interaction increases return on assets significantly ($\beta = 0.0001, Z = 9.2453,\ p < 0.001$). The panel regression is expressed as:

ROA = 5.9148 – 0.07525*CIR – 0.0167*LR + 0.0001*LR*CIR

Where ROA is the return on assets, CIR is cost income ratio, LR is liquidity ratio and LR*CIR is the interaction between liquidity ratio and cost income ratio. A unit change in cost income ratio results in 0.07525 reduction in return on assets. A unit change in liquidity ratio results in 0.0167 reduction in return on assets. A unit change in the interaction between liquidity ratio and cost income ratio results in 0.0001 increase in return on assets. We conclude that liquidity ratio interaction with cost income ratio has a significant influence in the increase of the return of assets among microfinance institutions in Kenya.

Table no 1: Cost Income Ratio, Liquidity Ratio and Return on Assets

Model Summary						
Model	R	R Square	Adj. R Square	Chi-Square	df	Sig.
Random	0.8373	0.7011	0.6906	201.67	3	0.000

ANOVA					
Model	Sum of squares	df	Mean square	F	Sig.
CIR	1002.1	1	1002.1	64.83	0.000
LR	758.9	1	758.9	49.10	0.000
LR*CIR	1302.2	1	1302.2	84.25	0.000
Residuals	1329.3	86	15.5		

Panel Analysis				
Variable	Estimate	Std. Error	Z-value	Sig
(Intercept)	5.9148	0.8811	6.7128	0.000
CIR	-0.07525	0.0053	-14.0838	0.000
LR	-0.0167	0.01104	-1.5168	0.1293
LR*CIR	0.000103	0.000	9.2455	0.000

Dependent Variable: Return on assets; CIR- Cost income ratio and LR- Liquidity ratio

Cost Income Ratio, Liquidity Ratio and Market Share Index

The hypothesis of interest is on the interaction influence of liquidity ratio on the relationship between market share index and cost income ratio. The hypothesis is:

H_{01b}: There is no significant effect of liquidity risk (liquidity ratio) on the relationship between cost efficiency (cost income ratio) and financial performance (market share) of microfinance banks in Kenya

The relationship between cost efficiency (cost income ratio) and financial performance (marker share index) with liquidity ratio interactions were analyzed using panel regression model.

Table no 2: Shows Cost Income Ratio, Liquidity Ratio and Market Share Index. The study found a linear relationship between cost income ratio and market share index with liquidity ratio as the interaction variable in the relationship (R=0.2560). A coefficient of determination ($R^2 = 0.0702$) indicates that cost income ratio and

interaction with liquidity ratio explain 7.02% of variation in market share index. The model coefficients are not different from zero ($\chi^2 = 6.4964$, p=0.0898) and thus the model is not consistent. The overall model is not significant for market share index and cost income ratio interactions with liquidity ratio. A unit increase in cost income ratio decreases market share index ($\beta = -0.0509, Z = -1.9368,\ p = 0.0528$). A unit increase in liquidity ratio decreases market share ($\beta = -0.0846, Z = -1.5696,\ p = 0.1165$). A unit increase in cost income ratio and liquidity ratio interaction increases market share index significantly ($\beta = 0.00011, Z = 2.0323,\ p = 0.04212$. The panel regression is expressed as:

MSI= 19.954 – 0.0509*CIR – 0.0846*LR + 0.00011*LR*CIR

Where MSI is the market share index, CIR is cost income ratio, LR is liquidity ratio and LR*CIR is the interaction between liquidity ratio and cost income ratio. A unit change in cost income ratio results in 0.07525 reduction in market share index. A unit change in liquidity ratio results in 0.0167 reduction in market share index. A unit change in the interaction between liquidity ratio and cost income ratio results in 0.0001 increase in market share index. We conclude that liquidity ratio interaction with cost income ratio has a significant influence in the increase of the market share index among the microfinance banks in Kenya.

Table no 2: Cost Income Ratio, Liquidity Ratio and Market Share Index

Model Summary						
Model	R	R Square	Adj. R Square	Chi-Square	Df	Sig.
Random	0.2650	0.0702	0.0378	6.4964	3	0.0898

ANOVA					
Model	Sum of squares	Df	Mean square	F	Sig.
CIR	859	1	858.7	2.328	0.1307
LR	14	1	14.0	0.038	0.8462
LR*CIR	1523	1	1523.4	4.130	0.0452
Residuals	31718	86	368.8		

Panel Analysis				
Variable	Estimate	Std. Error	Z-value	Sig
(Intercept)	19.954	4.2238	4.7242	0.000
CIR	-0.0509	0.0263	-1.9368	0.0528
LR	-0.0846	0.0539	-1.5696	0.1165
LR*CIR	0.00011	0.0000547	2.0323	0.04212
Dependent Variable: Market share index; CIR- Cost income ratio and LR- Liquidity ratio				

IV. Discussion

The moderating effect of liquidity risk on the relationship between cost efficiency and financial performance was tested using the quantitative secondary data collected. The research investigation examined the relationship between cost efficiency and financial performance by testing two null sub - hypotheses based on the metrics used to measure financial performance **(**return on assets and market share index). The findings confirmed that liquidity risk moderated the relationship between cost efficiency and financial performance as measured using return on assets leading to the rejection of the first null sub – hypothesis (H_{01a}). Likewise, the findings also confirmed the moderating effect of liquidity on the relationship between cost efficiency and financial performance as measured by market share index leading to the rejection of the second null sub – hypothesis (H_{01b}).

The findings of this study are comparable to those obtained by [14] who established that the interaction between cost efficiency and liquidity risk increased financial performance significantly. Similarly, the outcome of this study corroborates that of [15] who found a significant moderating effect of liquidity risk on cost efficiency and financial performance connection as increased levels of the moderator reinforced CE – FP relationship. Similar findings are reported by [16] and [17] who suggested that liquidity risk moderate the relationship between cost efficiency and financial performance as increased levels of the moderator reinforced the relationship between the two variables. Additionally, the findings of [18] and [19] confirm the results of the current study since they concluded that, as liquidity risk increase, the relationship between cost efficiency and financial performance became significantly stronger with evidence from UAE Islamic banking system. Moreover, the current established results agree with that of [20] who suggested that liquidity risk moderated cost efficiency – financial performance relationship as the association became stronger with increased LR levels.

A plethora of previous empirical studies have yielded divergent findings in regard to the moderating role of liquidity risk on the relationship between cost efficiency and financial performance. Inconsistent with the above findings, [21] established that varying levels of liquidity risk had no significant effect on the relationship between cost efficiency and financial performance. Moreover, [12] established an insignificant negative influence of liquidity risk on the relationship between cost efficiency and the financial performance of microfinance banks in Kenya. The results of the current research do not reflect the conclusions drawn by [22] who reported that increased levels of liquidity risk insignificantly enhanced cost efficiency – financial performance relationship. Dissimilar

findings are reported by [23] who suggested that the relationship between cost efficiency and financial performance become marginally stronger though insignificantly as financial risk rises.

V. Conclusion

The study draws numerous conclusions based on the empirical findings. Ostensibly, there is convergence in findings with the prior empirical literature in regard to the moderating effect of liquidity risk on the relationship between cost efficiency and financial performance. The findings of this study support the theoretical propositions of Cost Management and Efficiency Theory, Modern Portfolio Theory and Agency Theory. Data analysis disclosed divergent findings based on the two proxies used for financial performance.

Liquidity risk had a significant moderating effect on cost efficiency – financial performance relationship based on the data analysis. The findings of this study support the argument that firms with a good liquidity ratio are able to pay their debts on time thus increasing clients' confidence and trust. This gives the firms a competitive edge thus resulting in superior performance in terms of profits and breath of outreach.

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