

Influence of Operational and Liquidity Risk on Financial Performance of Microfinance Banks in Kenya

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Abstract:

Micro Finance Institutions play a significant role in boosting economic status of many people with low income, but their profitability has remained volatile due to financial risks among other factors. Very few microfinance banks in Kenya are profitable and many of them have collapsed and others have merged to improve in their profitability. Therefore, the purpose of the study was to examine the influence of financial risks on profitability of Microfinance Institutions in Kenya. The specific objectives are to examine the influence of operational risks and liquidity risks on profitability of Microfinance Institutions in Kenya. The study was informed by the contingency theory and agency theory. The research used descriptive survey design and sampled 13 microfinance banks using census sampling technique. Secondary data was collected using secondary data collection sheet for period between 2016 and 2020. Ten percent of sample size was used for the pilot study. Descriptive and inferential statistics was analyzed using STATA 15. Descriptive entailed central tendency (means) and dispersion (standard deviation) were used. Inferential statistics such as regression and correlation analyses was used to determine both the nature and the strength of the relationship between the dependent and independent variables. Correlation analysis is usually used together with regression analysis to measure how well the regression line explains the variation of the dependent variable. The linear and multiple regression plus correlation analyses were based on the association between two (or more) variables. Analyzed data was presented using tables and graphs. The findings revealed that operational risk and liquidity risk have significant negative profitability of microfinance banks in Kenya. This implied that as these financial risks increases, the profitability of microfinance banks decreases. The study concluded that financial risk influence profitability of microfinance banks in Kenya. The study recommended that managers of microfinance banks should lower the proportion of operating fixed cost in relation to operating variable cost so as to manage operational risk. Further, manager of microfinance banks should avoid holding too much liquid assets as highly liquid assets are associated with lower returns than risky assets.

Key Word: Financial Risk, Operational Risk, Liquidity Risk, Financial Performance, Microfinance Banks

Date of Submission: 10-11-2021

Date of Acceptance: 26-11-2021

I. Introduction

Profitability is an essential measure of the financial health, competitiveness, efficiency, cost effectiveness and productivity of a business enterprise. Invariably, profitability is very instrumental in determining the growth and sustainability of microfinance institutions (MFI). Evidently, MFIs that experience sound financial performance exhibit high profits, portfolio quality and operational efficiency as well as improved competitive edge (Quayes, 2015). Additionally, good financial performance of microfinance institutions leads to realization of MFIs' profit maximization objective, reduction in the dependency rate, improved competitive edge and promotion of entrepreneurial ventures as well as economic development in a country (Bassem, 2012; Otieno et al., 2016). As a result of sound profitability, MFIs are able to improve the welfare of people through wealth creation and poverty reduction. Profitability of microfinance banks is heavily dependent on a number of financial related factors. A good performing microfinance industry is vital in sustaining the stability of the micro banking system.

A profitable microfinance industry is key in maintaining the stability of the microbanking system. Low profitability weakens the ability of microfinance institutions to absorb negative shocks that may be either internally or externally caused. This would eventually affect solvency of the company. Profitability reflects how MFIs are run within the environment that they operate which then represents the capabilities of the institution in terms of efficiency, risk management capabilities, competitive strategies, quality of management and levels of capitalization among others. The role of the microfinance industry is to promote small scale investments that generate sufficient revenues from unrealized market activities while yielding a return on the investment (Muriu,

2011). A profitable MFI can therefore be defined as its capacity to cover all of its expenses by its revenue and to generate a margin to finance its growth. In other words, it can be referred to as the capacity of a microfinance institution to carry out its activities without the need for subsidies in the form of concessional loans or donations (Ayayi & Sene, 2010).

However, global empirical evidence observes that microfinance institutions experience poor financial performance, epitomized by low profitability, low portfolio quality, low operating efficiency and high operating costs. Similarly, in Africa, MFIs also manifest poor financial performance as evidenced by low efficiency ratios, declining net operating margins and declining portfolio. Poor financial performance deteriorates the capacity of MFIs to absorb negative shocks, which subsequently affect solvency (Yenesew, 2014). Better financial performance leads the lenders to recover full cost or make profit, and building institutions that can sustain themselves for a considerable period without continued reliance on government subsidies or donor funds. MFIs financial performance is based on the extent to which service users directly pay the full cost of providing services (Adhikary, 2014). As such financial risks influence profitability of microfinance banks.

In Africa, Microfinance institutions were entirely financed originally by grants, donor's subsidies and low-interest loans (Zeller & Mayer, 2002), and also they ensured that their financial services are accessible to majority of the poor by charging the lowest cost to their financial services. In Africa most of Microfinance depends on donors, government and development agents for support as they make minimum or no profits (Armendariz & Morduch, 2005). In 1990's as a result of financial reforms in East Africa, The emergency of Microfinance resulted with the aim of efficient and effective financial systems which are sustainable and contribute to reduced poverty and enhance economic growth to the poor and low-income earners. Since then, there have been significant growth of MFI's in East Africa. some of examples to show the significant growth of MFI's in East Africa are, in Kenya the number of MFI's have increased to 22 MFI's 1.3 million having loaned 1.9 billion in 2012 and Rwanda with 24 MFI's 0.8 million having loaned 0.87 billion as per Market information Exchange (2016).

In Nigeria and South Africa, savings and credit cooperatives are generally more community-based. In contrast to Asia, the lack of population density means that rural and agricultural finance is particularly challenging, and thus many MFIs are urban-based and focused. Perhaps as a result, the July 2003 Micro Banking Bulletin identified only 8 sustainable institutions and estimated that only around 25 million clients are being served throughout the continent. However, these numbers may underestimate or ignore the large numbers being served by cooperatives and postal banks. Nonetheless both international and domestic banks are starting to take an interest in the potential of the low-income market in Africa (Wright, 2005). Further, according to Brown et al. (2009) loans and advances are major business activities among Ghanaian universal banks and other financial institutions around the globe. It is normally seen in the quantum of credits and advances which reflects in the financial statements and annual reports of both local and multinational banks in Ghana and the increment in the quantity of advances profited to borrowers in both formal and casual parts of the economy; thus the allowing of loans is a noteworthy business for most widespread banks. Loan portfolio regularly shapes a more noteworthy bit of a bank's assets and a wellspring of wage for business banks (Brown et al., 2009).

Regionally in East Africa, Microfinance institutions in Uganda are always often faced with high operating costs to provide financial services to the people. As more microfinance institutions grow, they tend to become formal financial institutions. Each microfinance institution has a unique profile and operational structure that determines which types of controls are appropriate to increase profitability (Mazlan, 2014). Further, Microfinance sector in Tanzania has recently experienced tremendous growth. This is due to the increased number of firms engaging in microfinance services including commercial banks and other profit oriented firms (Tehulu, 2013). Recent statistics shows that profitability of microfinance institutions in Tanzania has improved. More than half of them are self-financed and highly efficient and effective in terms of costs and operations but their sustainability in terms of profits need to be examined (Triodos, 2011).

The Kenyan microfinance sector is one of the most vibrant in Sub-Saharan Africa. It includes a diversity of institutional forms and a large branch network to serve the poor (FSD Kenya, 2012). The microfinance act (2006) and the microfinance regulations (2008) set out the legal, regulatory and supervisory framework for the microfinance industry in Kenya (Association of Microfinance Institutions, 2013). The need for microfinance in Kenya has been driven by a series of interrelated constraints on the development of a banking and finance sector. These key constraints have been the structure and composition of the Kenyan banking and finance sector; a lack of the appropriate regulation and governance required for quality improvements in banking and finance and the conservative commercial business practices of profit focused banking institutions (Alastair, 2015).

Microfinance institutions in Kenya deliver services to rural or otherwise very inaccessible customers (Ouma, 2015). They offer financial services which are personalized to the unique limitations and needs of deprived and small businesses. One of their key advantages over commercial banks is their flexibility, their more forgiving nature and their ability to offer tailor made education, training and support to their clients. Most

of the microfinance institutions do not require borrowers to pledge their assets as collateral thus allowing entrepreneurial individuals to have access to small loans for business start-up. Although the 2006 Microfinance Act in Kenya allowed deposit taking MFIs (DTMs), such MFIs appeared in the country in 2009 when Kenya. Women Finance Trust and Faulu Kenya which were the two pioneering MFIs transformed to deposit taking (Central Bank of Kenya - CBK, 2013). DTMs are licensed by the CBK to mobilize savings from and offer credit services to the general public, thus promoting competition, efficiency and access (CBK, 2015). Currently, CBK has licensed 13 microfinance banks and 9 microfinance institutions with importance being placed on savings and credit facilities for the poor hence stressing the need for comprehensive advancement of microfinance institutions as dynamic components for employment, investment and economic growth (CBK, 2021)

Statement of the Problem

When the Kenyan constitution was promulgated in the year 2010, its main objective was to decentralize services and take them closer to the people. This was to be achieved through raising optimal revenue by county governments in order to supplement the allocation from the national government (Oduyo, et al., 2013). However this is an objective which is yet to be achieved as counties are still grappling with inability to raise the optimal revenue required to meet their demands (Kosaye, 2018). According to the financial report of the Controller of Budget, Counties raised Kshs.35 billion in the financial year 2015/16, which was 69.3% of the aggregate target of Kshs.50.5 billion (Controller of Budget, 2016). 13 Counties realized less than 50% of their target; 23 realized between 50% and 80%. In the financial year 2017/2018 Nairobi County's annual budget was Kshs.35.79 billion whereby own revenue accounted for Kshs.19.76 billion which was 55% of the total budget (Controller of Budget, 2018). Though this was an increase in revenue collection as compared to the previous financial year's collection of Kshs.10.9 billion, it was still short of the full potential of its revenue collection (Korongo, 2017).

Nairobi County has been facing inadequate finance to service its obligations, in spite of having several revenue streams which include; parking, rates, business permits, building permits, bill boards and other incomes. Failure to maximize on raising the desirable revenue collection which would shield the county government from having a budget deficit and stagnation of projects as well as minimizing employees unrest, which has been witnessed over the years has negatively affected the county (Kerongo & Ngotho, 2014). The failure of the county government to raise optimal desirable revenue have also had an adverse effect on financial planning where the public has been negatively affected by inadequate service delivery and over-burdening the national government by the increase of demands.

Studies done on revenue collection include; Kosaye, (2018) who did a study on the factors affecting revenue collection of Marsabit county governments in Kenya. The study found that there was need to automate revenue collection as this would save on revenue collection costs and time spent in revenue collection. Mburugu and Gekara (2016), also conducted a study on determinants influencing revenue collection on the performance of Kenya Revenue Authority. Despite there being studies on revenue collection, no study has been conducted to establish the determinants of revenue collection in Nairobi County. The study by Kosaye (2018) is not generalizable to Nairobi County because the circumstances prevailing revenue collection in the two counties such as population and development is different. This study sought to fill this gap by examining the factors determining revenue collection in Nairobi County.

Objectives of the Study

- i) To examine the influence of operational risks on profitability of Microfinance Institutions in Kenya.
- ii) To determine the influence of liquidity risks on profitability of Microfinance Institutions in Kenya.

Hypotheses of the Study

H₀₁: There is no significant relationship between operational risks and profitability of Microfinance Institutions in Kenya.

H₀₂: There is no significant relationship between liquidity risk and profitability of Microfinance Institutions in Kenya.

II. Literature Review

Theoretical Framework

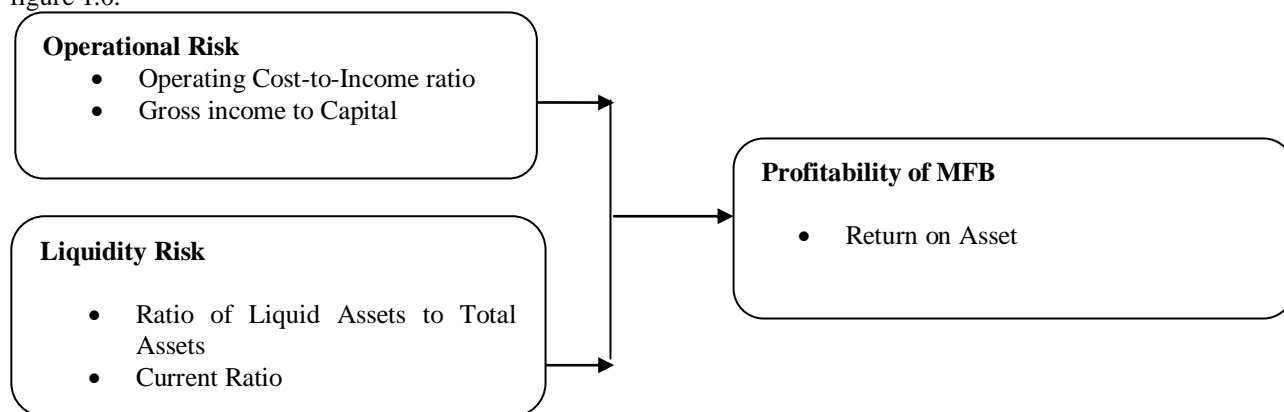
The study was guided by agency and contingency theory. This theory was proposed by Jensen and Meckling in 1976 to determine the agent relationship between two parties; one is the principal party that delegates duties and responsibilities while the other is the agent. That is, Agency theory analyses the relationship between two parties: investors and managers. The agent (manager) undertakes to perform certain duties for the principal (investors) and the principal undertakes to reward the agent (Jensen & Meckling, 1976). The agency relationship as provided by its originators tends to have varied disadvantages in relation to the self-interest and level of optimism that lies in an agent. For example, the agent could choose to act in a way that is not of principal's best interest, or rather, the agent may act partly in the interest of his principal. On the other

hand, the agency theory posits that a firm mainly embroils a connection of contracts that lies between its economic resources, owners who are considered as the principals, and managers, perceived as he agents given that they are charged with the control of organization’s assets (Jussi & Petri, 2014). The concept holds that the agents in several occasions possess the capacity to access more information as opposed to the principals, thus establishing that the information asymmetry mainly impinges on the principals’ capacity to assess whether the interest of their organization are served by their agents. Hence, it is evident that this theory views organizations as a necessary structure in the maintenance of the required contracts, and this way, it is easier to undertake control that lessens the unprincipled behaviors of the agents (Jussi & Petri, 2014). That is, according to Jensen and Meckling (1976) to harmonize the principal interests of the principals and the agents, there is a need to establish a comprehensive contract that agent principal connection is primarily held together by the inclusion of a professional as well as other auditing and control systems that help in monitoring the agent. The agency theory operates under the perception that the agents and their principals operate on a rational manner, thus using contracting as an approach aimed at maximizing their wealth.

Kaplan and Mike (2014) introduced contingency theory which argues that internal audits may be more successful in combination with the intrinsic nature of financial risks to the company. It would be essential, in internally audited, to discover a "adaptation" between contingent variables and internal audit management practices of companies and to develop proposals that would lead to desired results. According to the theory, firms embrace focusing on financial risks from the beginning and establishing a separate process to check organizational resilience to these risks, whereas others keep their financial risk management function that initially isolates itself from the other line of business units. The theory concludes that to effectively manage financial risks, it depends on a contingent of organizations’ circumstances and context (Kaplan & Mike, 2014). Seemingly, the theory still requires empirical data especially in the financial risk analysis.

Conceptual Review

This is a diagrammatic representation of the linear relationships between independent variables (Operational and liquidity risk) and the dependent variable (profitability of microfinance banks) as illustrated in figure 1.0.



Independent Variables

Dependent Variable

Figure 1.0: Conceptual Framework

The operational risk a multiple that measures how much the operating income of a company will change in response to a change in sales (Mandelker & Rhee, 2011). Operational risk is a fast emerging area in service industry. Awareness of operational risk as a separate risk category has been relatively recent in most firms. Unlike market, the operational risk factors are largely linked to internal policies and procedures of the firm. Losses arising from a firm’s operational risks may, on occasion, exceed those stemming from credit losses. It is, therefore, a vital focus for management in ensuring a properly controlled approach to the risks inherent in their business. The processes of identifying and measuring operational risks are at a very nascent stage. The firms are only in the early stages of developing an operational risk management framework (Marliana, 2011). The operational risk is a leverage ratio that measures how a percentage change in sales volume will affect the firm’s operating profits (EBIT), at a certain level of sales. The measure has been used by several authors (Akbari & Mohammadi, 2013; Lee & Park, 2014). Maigo (2018) used the measure to find the effect of operating leverage on stock prices of firms listed on the Nairobi Securities Exchange.

Liquidity risk is the risk that a business will have insufficient funds to meet its financial commitments in a timely manner. All businesses need to manage liquidity risk to ensure that they remain solvent (CPA Australia, 2010). Liquidity risk can be divided further into funding liquidity risk and asset liquidity risk. Asset

liquidity risk designates the exposure to loss consequent upon being unable to affect a transaction at current market prices due to either relative position size or a temporary drying up of markets. Having to sell in such circumstances can result in significant losses. Funding liquidity risk designates the exposure to loss if an institution is unable to meet its cash needs. This can create various problems, such as failure to meet margin calls or capital withdrawal requests, comply with collateral requirements or achieve roll-over of debt (Manish & Ghanshyam, 2013). Liquidity Risk is risk brought about due to lack of marketability of an investment that cannot be bought or sold quickly enough to avoid or minimize a loss. It is a situation where a business may have insufficient funds to meet its financial commitments or obligations in a prompt manner. The two elements of liquidity risk include Asset liquidity and funding Liquidity risk. The long-term funding risk includes the risk that loans may not be available when the business requires them or that such funds will not be available for the required term or at acceptable cost. Liquidity is the ability of an institution to fund increases in assets and meet obligations as they fall due, without incurring unacceptable losses (BCBS, 2008).

Among the fundamental aims or targets of financial management is profitability. This is particularly because maximizing owner's wealth is the major (Bosco & Faustin 2016). By definition, profitability is an institution's ability to earn returns from its respective investments in excess of the costs of the investments (Tulsian, 2014). According to Kipesha and Zhang (2013), profitability is realized when the firm is able to lower the cost of transactions, and provide quality products/services which satisfies customer preferences hence generating more revenue. In their perspective, Bosco and Faustin (2016) asserted that firms attain profitability when their opportunity cost of capital and risk taking at least equals their income (net of subsidies and tax). Apart from donations, the survival of MFIs is largely dependent on the MFIs' profitability and their utilization of commercial sources to finance their operations (Kipesha & Zhang, 2013). This implies that profitability is fundamental in the expansion and growth of MFIs. It is no surprise that most financial institutions including commercial banks and MFIs use profitability to measure their performance (Ross, Westerfield & Jaffe, 2010; Gwaya & Mungai, 2015). Profitability of financial institutions is usually measured in form of ratios. According to David and Muendo (2018), these ratios for measuring profitability of financial institutions mostly are Return on Assets (ROA) and Return on Equity (ROE). ROA indicates how capable the management of the institution to convert the institutions' assets into net earnings. Thus, it is derived by dividing the firm's annual income by the total assets (Sunday et al., 2013). On the other hand, ROE is the proportion of net income returned as a percentage of shareholders' equity. In other words, it measures the company's profitability by indicating the volume of profits generated by the firm from the shareholders' money. Thus, ROE is derived by dividing the net income by shareholder's equity (David & Muendo, 2018).

Empirical Review

Ufo (2015) investigated the determinants of profitability of manufacturing firms in Ethiopia for the period from 1999 to 2005. Due to data heterogeneity, non-continuity and because the Hausman test favors it over the Random Effect technique, the panel data General Least Square (GLS) regression method is used. The result proves that operating risk has a positive and significant influence on debt service coverage. To save infant manufacturing firms, policy makers have the opportunity to influence the financing policy of the firms in the promotion of equity financing by controlling leverage. Banks should supervise the efficiency of firms in mitigating the debt burden through application of various techniques during loan evaluation process. Dagogo (2014) investigated the effects of operational risk and contribution margin on profitability and risk of Nigeria's emerging companies. Emerging companies were described in this study as small and medium-sized enterprises that are high-potential and high-growth in character listed in the Nigerian Stock Exchange's Alternative Investment Market. First, the study shows that operational risk (DOL) contributes less to profit before interest and tax (PBIT) of emerging companies than contribution margin (CM), yet DOL contributes more to their operating risk profile than CM does. Second, only CM was found to have caused significantly positive changes in operating risk. It was, therefore, concluded that emerging companies face challenges in recovering fixed costs or take unusually longer period to breakeven.

Wangige (2016) established the causes of profitability among listed companies in Kenyan market. The study used causal research design. The population of the study was 42 non-financial firms listed in NSE and covered a period between 2004 and 2012. Among the variables, Tobin Q (investment), leverage and systematic risk were significant as and they explained the profitability of the companies listed at NSE. There was a negative non-significant relationship between the dependable variable (profitability) and independent variables (operational risk). From the output provided by the study's panel Logit model, it's clear that the factors that explain or lead to profitability among firms are not restricted to a specific category of classification. Otom (2014) sought to confirm whether financial ratios can be used to predict profitability in the non-financial sector of Kenyan companies listed in the Nairobi Stock Exchange. The study examined some financial ratios in financial reports of groups of financially distressed companies and actively sound companies in Kenya for the period 2003 to 2011 with the aim to determine the most significant and reliable ratios for predicting

profitability. Companies were selected from the non-financial sector. The study confirmed that there are variables that reveal conditions which are conducive to profitability. The study found that the variables that reveal profitability are those related to operational risk. The study also confirms that financial ratios can predict profitability for non-financial sector Kenyan firms listed in the Nairobi Stock Exchange..

Mohammed, Ali and Mahshid (2014) posit that banks tend to facilitate the slow process of transferring funds from lenders to borrowers. Sufian (2017) examined the determinants of Korean banking sector where bank-specific and macroeconomic determinants were evaluated. The research findings revealed that liquidity levels significantly affect the bank's profitability this is consistent with Dang (2016) who found that adequate level of liquidity is positively related with bank profitability. Other authors found contradicting findings where the relationship between liquidity and bank profitability in Kenya was insignificant (Ongore & Kusa, 2016). Kim (2015) investigated the impact of liquidity on banks performance in European Union countries panel data for the three year period to 2009 and sample data from 23 European Union countries was used. The findings were a negative relationship between liquidity ratios and performance. On the hand other authors (Chortareas, Girardone & Ventouri, 2016) in their research on liquidity risk and performance where the ratio of loans to deposits as a proxy for liquidity was significant and positively related to net interest margins. Umar, Muhammad, Asad and Mazhar (2015) in their study on impact of liquidity risk management on firms' performance in the conventional banking of Pakistan. Two banks were used in the study for the period 2009 to 2013 the results indicated that current ratio was negative and significant to performance. Similar studies have shown significant negative correlation between current ratio as a proxy of liquidity risk and performance (Naceur & Kandil, 2009; Pasiouras & Kasmidou, 2017).

Arif and Anees (2019) undertook a research on liquidity risk and its effects on banks profitability in Pakistan. The research found that there existed significant negative relationship between liquidity, deferred loans, liquidity gap and profitability. In a similar research done by Ahmed and Ahmed (2016) where 22 banks in Pakistan were used for the period 2004 to 2009. The findings were bank deposit and cash had a significant positive relationship to performance while non-performing loans ratio had a negative relationship to performance similarly (Chen, Shen & Kao, 2015) studied the pattern of liquidity risk of bank on performance for commercial banks in 12 advanced economic countries for the years 1994-2006 and found that liquidity risk is a determinant of bank performance. Alper and Anbar (2014) examined special and macroeconomic determinants of Turkey's bank for the years 2002-2010 using panel data and found that liquidity had positive effects on the bank's performance, similar results from research by (Naser, Mohammad & Ma'someh, 2018) based on 15 banks of Iran during the years 2003-2010 liquidity risk had a significantly negative effect on performance. Maaka (2016) in his unpublished thesis on relationship between liquidity risk and financial performances of commercial banks in Kenya panel data for 33 Kenyan banks for the period 2008 to 2012, the results were Liquidity gap and leverage had significant negative results to performance. In a similar research done in Kenya by (Mwangi, 2017) where 43 commercial banks were used for the period 2010 to 2013 the findings were asset quality and banks to total Assets as proxies of liquidity were negatively correlated to performance at 99% confidence level.

III. Material And Methods

The research used descriptive survey design. This design includes gathering information that answers inquiries regarding the members of the studies, and is also suitable for exploring associations between study variables. From Central Bank of Kenya directory of licensed microfinance banks, the total thirteen microfinance banks were considered as the target population as well as the sample size of the study and financial data analyzed for a period of 5 years making a total of 65 observations. This study took the entire population of the thirteen microfinance banks using census technique. The data was drawn from past audited financial reports (Income Statement, Statement of Financial Position, and Cash Flow Statement) as they are published by the respective microfinance banks. They were used for calculation to discover the quantifiable manner changes. The secondary data was retrieved from financial records of microfinance banks, consideration period was between the financial years 2016 to 2020 (5 years period of time). Data was analyzed by regression panel data analysis tool. Data analysis included both descriptive and inferential statistics where model specification estimation and rationale of variables were done. Descriptive statistics included measure of central tendency; mean and measure of variability; standard deviation, maximum and minimum. These descriptive statistics was used to develop indices and measures to summarize the collected data (Kothari, 2007). The study used inferential statistics which are regression analysis and correlation analysis to test null hypotheses. These statistical tests were at 5% significance level. Secondary data was transformed into natural logarithm. The level of significance of 5% was used as a benchmark. If the P value is less than 0.05 at 5% significance level, reject the null hypotheses and accept the alternative and vice versa.

IV. Result and Discussion

Descriptive Analysis

The descriptive statistics entailed Minimum, Maximum, Mean and standard deviation between 2015 and 2018. The results also showed overall descriptive statistics as obtained from panel data of said periods.

Table 1: Descriptive Statistics

Operational Risks				
Stats	Operating Cost-to-Income ratio		Gross income to Capital	
Minimum	0.137143		-1.25	
Maximum	22		8.19	
Mean	1.888928		0.326251	
Standard Deviation	2.854588		1.24278	
Liquidity Risks				
Stats	Liquid Assets to Total Assets		Current Ratio	
Minimum	0.01		0.013544	
Maximum	1.08		10.71429	
Mean	0.344262		0.58168	
Standard Deviation	0.253018		1.430646	
Profitability				
Variable	Minimum	Maximum	Mean	Standard Deviation
ROA	-0.42857	0.039039	-0.08246	0.114781

Table 1, liquidity risk was measured using liquid assets to total assets and current ratio. Liquid Assets to Total Assets ratio ranged from 1.0% to 108% with a mean of 34.4% and standard deviation of 25.3%. On the other hand, current ratio ranged from 0.013 to 10.71 with a mean of 0.58 and standard deviation of 1.430. From Table 1, operational risk was measured using operating cost-to-income ratio and gross income to capital. Operating cost-to-income ratio ranged from 0.136 to 22.0 with a mean of 1.89 and standard deviation of 2.85. On the other hand, Gross income to Capital ratio ranged from -1.25 to 8.19 with a mean of 0.33 and standard deviation of 1.24. From Table 1, observing overall statistics as obtained from panel data, profitability (proxied as ROA) ranged from -42.9% to 3.9% with a mean of -8.2%. The distribution had a standard deviation of 11.4%. The Figure 2.0 shows virtual presentation of profitability between 2016 and 2020 for microfinance banks. There was high variability in the profitability of MFBs as indicated in Figure 2.0

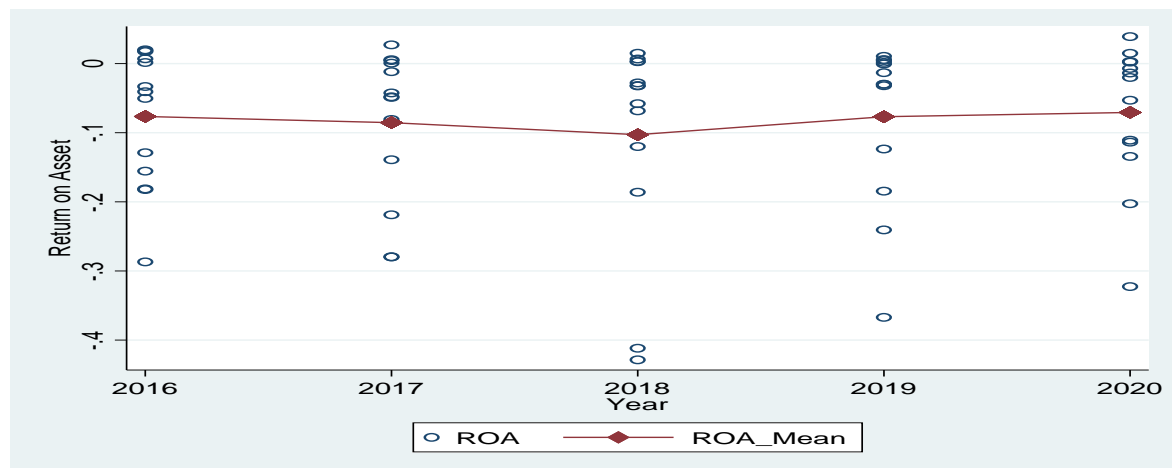


Figure 2: Scatter Plot for Profitability

Inferential Analysis

Unit Root Test

The study carried out a unit root test to ensure that there was no presence of unit roots (the panel data are stationary). Unit root test were conducted to ensure that the series were stationary and check the problem of having a spurious regression. A variable can only be said to be stationary when it has no unit root. The study used Im, Pesaran and Shin (IPS) is based on propositions

- Ho: All panels contain unit roots
- Ha: At least one panel is stationary

The results are as shown in Table 2.0.

Table 2: Unit Root Tests

	Statistics	P-Value	Significant
Operating Risk	118.1517	0.000	**
Liquidity Risk	114.7313	0.000	**
Profitability	32.4595	0.0012	**

* sig at 5% level, ** sig at 1% level

Table 2.0 shows the summary results for Stationarity test. A p-value of more than 0.05 indicates the presence of unit roots (H0) while a p-value of less than 0.05 was an indication that there was no presence of unit roots for Im, Pesaran and Shin (IPS). The results indicated that there was absence of unit root for all the study variables.

Hausman Test (Choice of Model)

A Hausman test was carried out to determine whether to use the fixed effect or random effect model to address objectives of this study. The appropriate approach of choosing between fixed and random effect model is running a Hausman specification test to determine the more efficient model (Borenstein, Hedges, Higgins, & Rothstein, 2010). Under the test, the null hypothesis is that there is no significant correlation between the individual effects and the independent variables. A rejection of the null hypothesis confirms the argument in favor of the fixed effect against the random effect model. The results are as shown in Table 3.

Table 3: Hausman Test

	Coefficients ----			
	(b) Fixed	(B) Random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
Operating Risk	-0.44673	-0.0402624	-0.40647	0.0051724
Liquidity Risk	-0.41406	-0.0155119	-0.39855	0.0128175

b = consistent under Ho and Ha; obtained from xtreg
 B = inconsistent under Ha, efficient under Ho; obtained from xtreg
 Test: Ho: difference in coefficients not systematic
 $\chi^2(4) = (b-B)'[(V_b-V_B)^{-1}](b-B)$
 = 14.94
 Prob>chi2 = 0.0048

Results in the table 3 indicated a prob>chi2 value of 0.0048 which is less than critical P value at 0.05 level of significance which implies that the null hypothesis that a Fixed Effect model is the best was rejected. The study hence used a fixed effect regression model.

Linear Regression Analysis

Linear regression analysis was conducted to establish how operational risk and liquidity risks influence profitability of microfinance banks using R-square and regression coefficients.

Effect of Operational risk on Profitability

The study sought to examine the influence of operational risks on profitability of Microfinance Institutions in Kenya. The first null hypothesis denoted, H_{01} : There is no significant relationship between operational risks and profitability of Microfinance Institutions in Kenya. Having gone by the fixed effect model basing on the Haussmann LM test, the results of the fixed effect model are presented in Table 4.

Table 4: Regression Fixed Effect of operational risk on Profitability

Fixed-effects (within) regression	Number of obs =	65
Group variable: MFB_ID	Number of groups =	13
R-sq:	Obs per group:	
within = 0.1073	min =	5
between = 0.8407	avg =	5
overall = 0.474	max =	5
	F(1,51) =	8.99
corr(u_i, Xb) = 0.4757	Prob > chi2 =	0.0042

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ROA	Coef.	Std. Err.	T	P>t	[95% Conf. Interval]	
OR	-0.01127	0.003758	-3.00	0.004	-0.01881	0.00373
_cons	-0.06117	0.010806	-5.66	0.000	-0.08286	0.03948
sigma_u	0.081822					
sigma_e	0.06569					
Rho	0.608065	(fraction of variance due to u_i)				
F test that all u_i=0: F(12, 51) = 6.00			Prob > F = 0.0000			

The analysis shows that the panels were strongly balanced for this bivariate analysis as shown by the number of observations per group. There were a total of 65 observations used in this analysis considering 13 groups of entities implying strongly balance panels. The minimum, maximum and average numbers of observations per groups were all equal to 5. The R² is generally a measure of the variation of the dependent variable profitability that is explained by the variation of the predictors in the model. The result obtained from fixed effect model indicated that operational risk accounted for 47.4% (Overall R square=0.474) of the variation in profitability of Microfinance Institutions in Kenya. The ANOVA statistics measure the general significance of the model. The F-statistic to the model shows is 8.99 which is greater than 0 implying that the estimated parameters in the model are at least not equal to zero. This infers that operational risk has an influence on profitability of Microfinance Institutions in Kenya. The estimated coefficient of operational risk is significantly not equal to zero ($\beta=-0.01127$, $t= 3.000$, $p\text{-value}= 0.004$). The P-value is less than 0.05 which implies that the estimated coefficient is significant at 5% significance level. The estimated coefficient of operational risk here implies that a unit increase in operational risk would cause the levels of profitability to decrease by 0.011 units. The p-value of the constant is less than 0.05 which shows a significant constant term. The regression model is as shown below

$$ROA = -0.06117 - 0.01127OR$$

The study therefore rejected the null hypothesis that operational risk does not influence profitability of Microfinance Institutions in Kenya and concluded that there is significant influence of operational risk on profitability. This implies that increase in operational risk would results to decrease in profitability of Microfinance Institutions in Kenya. The results confirmed findings of Omondi and Muturi (2013) indicated operational risk has got significant influence with financial performance as measured by ROA of listed firms in Nairobi Stock Exchange. Similarly, Aziidah (2017) found that there was a strong relationship between profitability and operational risk of Kenyan Energy and Petroleum firms listed on the NSE for a five year period, from 2012-2016. However, the findings contradicts results from Enekwe, Agu and Eziedo (2014) which revealed that operational risk has no significant effect on financial performance of quoted pharmaceutical companies in Nigeria. Similar results were obtained by Raheel and Shah (2015) who indicated that there was no significant impact of operational risk on the profitability of the companies listed on the Karachi Stock Exchange

Influence of Liquidity Risk on profitability

The study sought to determine the influence of liquidity risks on profitability of Microfinance Institutions in Kenya. The second null hypothesis denoted, **H₀₂**: There is no significant relationship between liquidity risk and profitability of Microfinance Institutions in Kenya. Having gone by the fixed effect model basing on the Hausman LM test, the results of the fixed effect model are presented in Table 5.

Table 5: Regression Fixed Effect of Liquidity Management on Profitability

Fixed-effects (within) regression		Number of obs =		65		
Group variable: MFB_ID		Number of groups =		13		
R-sq:		Obs per group:				
within =	0.0562	min =		5		
between =	0.2831	avg =		5		
overall =	0.1159	max =		5		
		F(1,51) =		3.03		
corr(u_i, Xb) = 0.2361		Prob > chi2 =		0.0141		
ROA	Coef.	Std. Err.	T	P>t	[95% Conf. Interval]	
LR	-0.18992	0.022022	-8.624	0.014	-0.63565	0.255806
_cons	-10.53863	-1.019758	-10.33	0.000	-12.474237	-8.6030

sigma_u	0.438485		
sigma_e	0.179306		
Rho	0.856739	(fraction of variance due to u_i)	
F test that all u_i=0: F(12, 51) = 23.78		Prob > F = 0.0000	

The analysis shows that the panels were strongly balanced for this bivariate analysis as shown by the number of observations per group. The result obtained from fixed effect model indicated that Liquidity risk accounted for 11.59% (Overall R square=0.1159) of the variation in profitability of Microfinance Institutions in Kenya. The ANOVA statistics measure the general significance of the model. The F-statistic to the model shows is 3.03 which is greater than 0 implying that the estimated parameters in the model are at least not equal to zero. This infers that Liquidity risk has an influence on profitability of Microfinance Institutions in Kenya. The influence is significant at $P < 0.05$. The estimated coefficient of liquidity risk is significantly not equal to zero ($\beta = -0.18992$, $t = -8.624$, $p\text{-value} = 0.014$). The P-value is less than 0.05 which implies that the estimated coefficient is significant at 5% significance level. The estimated coefficient of liquidity risk here implies that a unit increase in liquidity risk would cause the levels of profitability to decrease by 0.18992 units. The p-value of the constant is less than 0.05 which shows a significant constant term. The regression model is as shown below

$$\text{ROA} = -10.53863 - 0.18992LR$$

The study therefore rejected the null hypothesis that liquidity risk does not influence profitability of Microfinance Institutions in Kenya and concluded that there is an influence of liquidity risk on profitability. This implies that increase in liquidity risk would results to decrease in profitability of Microfinance Institutions in Kenya. The results agree with Lischewski and Voronkova (2012) who found out that stock liquidity risk does not significantly affect financial performance. Similar results were obtained by Khalid, Rashed and Hossain (2019) who showed that liquidity does not have a significant and positive or negative impact on the financial performance of return on assets (ROA), return on equity (ROE). Liquidity risk acts equally in different dependent variables using the panel data procedure for a sample of Dhaka stock market listed by all commercial banks (31) between 2010 and 2017 (31). The results do not agree with Yasser and Anna (2015) who investigated the influence of liquidity risk on bank performance. The study shows that banks experiencing high liquidity risk are characterized by low returns and vice versa. The study also contradicts Wang (2014) who investigated the effect of liquidity risk on performance using data from the London Stock Exchange. The results suggest a negative relationship between liquidity risk and performance.

V. Conclusion and Recommendation

Based on the empirical evidence, a number of logical conclusions can be made as follows and presented in terms of study objectives: In line with the first objective, influence of operational risk on profitability of Microfinance Institutions in Kenya the study concluded that operational risk has significant negative effect on profitability of Microfinance Institutions in Kenya. An increase in operational risk would results to significant decrease in profitability of Microfinance Institutions in Kenya. Therefore, operational risk has got significant negative influence on profitability of Microfinance Institutions in Kenya. The second objective of the study was to establish the influence of liquidity risk on profitability of Microfinance Institutions in Kenya. From the linear and multiple regression results, the study concluded that liquidity risk has significant negative influence on profitability of Microfinance Institutions in Kenya. An increase in liquidity risk would results to significant decrease in profitability of Microfinance Institutions in Kenya. Therefore, liquidity risk is a significant negative influencer of profitability of Microfinance Institutions in Kenya. Liquidity held by microfinance banks depicts their ability to fund increases in assets and meet obligations as they fall due. Liquidity is one of the important financial stability indicators since liquidity shortfall in one bank can cause systemic crisis in the microfinance sub sector due to their interconnected operations.

The following recommendations have been made based on the study conclusions as explained below: The study recommends that managers of microfinance banks should find ways of minimizing operational risk so as to ensure their income surpasses operating expenses. This can be done by managers of microfinance banks lowering the proportion of operating fixed cost in relation to operating variable cost. This can be achieved by reducing the cost associated with fixed assets which attracts fixed operating cost monthly as well as investing in fixed assets which have high returns. The study recommended that managers of Microfinance banks should ensure that they invest excess cash in productive assets. This ensures that they do not hold excess cash at the expense of fixed assets that can improve profitability. Managers should regularly gauge their capacity to raise funds quickly from each source thus identify the main factors that affect their ability to acquire funds and monitor the factors closely so as to ensure that sound liquidity. Microfinance supervisors should have a supervisory framework to enable them make assessments of banks' liquidity risk management and adequacy of their liquidity, in both normal times and periods of stress.

References

- [1]. Alves, D, Vieira L, Lima S, Cátia , and Raul R (2016). Financial Balance of Small Independent Microfinance banks: The Management View 21(7).
- [2]. Ayneshet, A (2020). Determinants of Profitability in Microfinance banks: A Case Study in
- [3]. Hawassa City Administration, Ethiopia. International Journal of Research in Business Studies and Management Volume 7 (3).
- [4]. Barney, J. B. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17, 99–120.
- [5]. Brady M (2016). Divesting for growth. The value of selling non-core units. TOPPAN. 747 Third Avenue, 7th floor, New York, NY 10017
- [6]. Chang, H., Ciana, M. A. & sHsiao, H. C. (2014). First financial restructuring and operating efficiency: Evidence from Taiwan commercial banks. Drexel University and National Taipei College of Business.
- [7]. Chalos P., C.J.P. Chen (2014). Employee Downsizing Strategies: Market Reaction and Post Announcement Financial Performance // *Journal of Business Finance and Accounting*, 43(2).
- [8]. Charles, B., Seth, K., & Darmoe, J. (2017). The role of positioning in the retail banking industry of Sub-Saharan Africa. *International Journal of Bank Marketing* 18(9).
- [9]. Cherono C (2019). Cash management practices and profitability of star rated microfinance banks in Nairobi city county, Kenya. MBA project. Kenyatta University.
- [10]. Coltman, M.M., and Jagels, M.G. (2018). *Hospitality Management Accounting*, John Wiley and Sons, Inc. NY.
- [11]. Conner, K. R. (1991). A historical comparison of resource-based theory and five schools of thought within industrial organization economics: do we have a new theory of the firm? *Journal of management*, 17(1), 121-154
- [12]. Cooper, D., & Schindler, P. (2014). *Business Research methods* (12th ed.). McGraw-Hill/Irwin, business unit of The McGraw-Hill Companies.
- [13]. Dillman, K (2000). *Proposal and Thesis writing: An introduction*. Nairobi: Pauline's Publications
- [14]. Africa.
- [15]. Dzhandzhugazova, E.A. (2018). Innovative marketing mix of microfinance banks: Seven sensual notes of hospitality. *Russian Regions: looking into the future*.
- [16]. Esoimeme, E. E. (2018). A comparative analysis of the prepaid card laws/regulations in Nigeria, the UK, the USA and India. *Journal of Money Laundering Control*, 21(4), 13-45.
- [17]. Fan, W., Dong, W. and Luo, W. (2018). The Causes of Market risk in Enterprises and Its Precaution. *Global Finance Review*1(1) :15-21.
- [18]. Ferreira, S., Viljoen, D., and Vuuren, G. (2016). The Effect of Operational Loss Events on the Reputation of South African Banks. *International Journal of Business and Management Studies* 8(1): 151-168.
- [19]. Georgiev P, Gueorguieva N, Maseviciute K (2017). Branding Strategies within International Microfinance bank Chains. A case of Lithuanian market. Business Administration thesis. JonKoping University.
- [20]. Gibson, D. (2016). Antecedents of microfinance bank performance. *International Journal of Hospitality Management*. 18(7).
- [21]. Hair, J.F., Black, W.C., Babin, B.J., Anderson, R.E., Tatham, R.L. (2006), *Multivariate Data Analysis*, 7th ed., Prentice-Hall, Upper Saddle River, NJ.
- [22]. Howe, J (2016). Divesting for growth. The value of selling non-core units. TOPPAN. 747 Third Avenue, 7th floor, New York, NY 10017
- [23]. Jensen, M. C. & Meckling, W. H., (1976). Theory of the firm: managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, Vol. 3
- [24]. Jussi, R and Petri, G (2014). *Performance Measurement in Service Businesses*, CIMA, Black Bear Press Ltd. King's Hedges Road, Cambridge.
- [25]. Kaliti, G (2017). Effect of risk management practices on performance of firms in the hospitality industry in Nairobi County, Kenya. MBA project, University of Nairobi.
- [26]. Kothari, C. (2007). *Research Methodology: Methods and Technology*. New Delhi: India: New Age Publication.
- [27]. Kumar S. & Narayan S. (2018). *Basics of tourism management*. New Delhi:
- [28]. Lima S, Luís, C, Cátia M, and Ana L (2021). Impact Factors on Portuguese Microfinance banks' Liquidity. *Journal of Risk and Financial Management* 14: 144
- [29]. Lorenzo G, Federica L and Elisabetta V (2017). Overcoming Borders: a Financial Analysis of Tourism Sector in Italy. *Journal of Economics and Development Studies*. 6(3).
- [30]. Makanyeza, C. (2017). Determinants of consumers' intention to adopt mobile banking services in Zimbabwe. *International Journal of Bank Marketing*, 4(1), 12-45.
- [31]. Malim, N, Abdul K, and Sarini A (2020), The determinants of Islamic microfinance banks profitability. *Management & Accounting Review* 21(3).
- [32]. Milagros, Rubén and Luis (2018). Risk determinants in the microfinance bank sector. *International Journal of Hospitality Management*; 70 (110-119)
- [33]. Mugenda, O M and Mugenda, A G (2008). *Research Methodology (2nd Edition), Qualitative and Quantitative Methods*. Nairobi: Acts Press.
- [34]. Muthama, R. A. (2016). Effects of cash management practices on operational performance of s elected public hospitals in Kisii County, Kenya (Doctoral dissertation, JKUAT).
- [35]. Njagi G, C (2019). Effects of risk management practices on performance of microfinance banks in Mombasa County, Kenya. Msc Finance project. University of Nairobi.
- [36]. Neuman, W, L (2005) *Social Research Methods: Quantitative and Qualitative Approaches* (6th Ed). Boston, MA; Ally & Bacon
- [37]. Oluoch, J. O. (2016). The impact of cash management practices on performance of SMEs: A survey of SMEs in Eldoret Central Business District. *Journal of Economics & Finance*, 7(6), 01-07.
- [38]. Ozlem O and Bumin, M (2016). The relationship between downsizing and financial performance of Turkish banks. *Banks and Bank Systems / Volume* 21(3).
- [39]. Rose, N (2016). Financial restructuring and Bank performance. Practical implications. *Journal of Strategic Management*, 29(1).
- [40]. Seth, G (2019). Analyzing the Effects of Social Media on the Hospitality Industry. UNLV Theses, Dissertations, Professional Papers, and Capstones. 1346.
- [41]. Shaymaa A, Jermien Hussien A and Dalia M (2020). Market risks Facing Small and Medium- Sized Travel Agencies in Egypt. *IAJFTH* 9(2).
- [42]. Slattery, P (2020). *Unreliable Measure, Flaws Interpretations and the Remedy*. Blackwell Publishing Inc.

- [43]. Tan, Y, Ali J, Abdollah H, and Wanke, P (2021). Microfinance bank Performance in the UK: The Role of Information Entropy in a Novel Slack-Based Data Envelopment Analysis. *Entropy* 23 (184).
- [44]. Tatyana B, Svetlana G, and Pavel N (2016). Microfinance bank Business Advertising Specificity and its Psychological Examination Procedure in microfinance banks in Russia. *International Review of Management and Marketing* ISSN: 2146-4405.
- [46]. Thoraneenitiyan, N., & Avkiran, N. K. (2016). Measuring the impact of restructuring and country-specific factors on the efficiency of post-crisis East Asian banking systems: Integrating DEA with SFA. *Socio-Economic Planning Sciences*, 49 (2).
- [47]. Ugoani, J and Ugoani, A (2017). Business process reengineering and Nigerian Banking system efficiency. *Independent journal of management & production*. Vol.8, no 4.
- [48]. Wheelock, & Wilson. (2017). The evolution of scale economies in US banking. *Journal of Applied Econometrics*. Wiley , 16-28.
- [49]. Yusuwan N., Adan, H., and Omar, A (2018). Clients Perspectives of risk management practice Malaysian Construction Industry. *Journal of Politics and law* 12(2).
- [50]. Zamore S.,Djan,k.,Alon,I, and Hobdary, B. (2018). Credit Risk Research : Review and Agenda. *Emerging Markets Finance and Trade*: 1-51.

Leonard P. Domoita, et. al. "Influence of Operational and Liquidity Risk on Financial Performance of Microfinance Banks in Kenya." *IOSR Journal of Economics and Finance (IOSR-JEF)*, 12(06), 2021, pp. 01-12.