Effect of Financial Distress Factors on Profitability of Microfinance Banks Licensed by Central Bank of Kenya

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Abstract: The study sought to examine the effect of financial distress factors on the profitability of microfinance banks (MFBs) licensed by the Central Bank of Kenya (CBK). The research adopted a causal research design and targeted the 13 MFBs licensed by CBK and operated between 2016 to 2020. The study targeted a period of five (5) years beginning from 2016 to 2020 forming panel data. The study was a census of all the 13 licensed Microfinance banks by CBK hence no sampling was carried out. The study collected annual secondary data from 2016 to 2020 from the 13 licensed Microfinance banks by CBK. The data was panel in nature and Microsoft Excel was used as a secondary data collection template as it is capable of inputting and managing the data. The collected panel data for the period between 2016 and 2020 was analyzed using Microsoft Excel. Descriptive statistics included mean, standard deviation, minimum and maximum. Regarding inferential statistical analysis, the OLS regression model was adopted to estimate the coefficients and associated p-values to enable the fitting of the model and forecasting. The analysis of variances revealed that financial distress factors (financial leverage, liquidity and non-performing loans) have a significant impact on profitability captured by ROA. Further, the effect of liquidity on the profitability of licensed MFBs was inverse but not statistically significant. The study also revealed that financial leverage had a direct and statistically significant effect on the profitability of licensed MFBs. Finally, the study revealed that the impact of non-performing loans on profitability was inverse and statistically significant. The study thus concluded that distress factors including financial leverage, liquidity and non-performing loans have a major effect on profitability among the licensed MFBs in Kenya.

Keywords: Financial Distress, Profitability, Financial Leverage, Liquidity and Non-Performing Loans.

1. Introduction

Financial distress may lead a firm to default on a contract, and it may involve financial restructuring between the firm, its creditors, and its equity investors (Bartram, Brown & Waller, 2015). Bartram, Brown & Waller (2015) further noted that cash flow volatility could lead to situations where a firm's available liquidity is insufficient to fully meet fixed payment obligations, such as wages and interest payments, on time. Likewise, lowering the chance of financial distress can increase the optimal debt-equity ratio and therefore the associated tax shield of debt (Imdad, Akash, Hamid & Mahmood, 2020). Furthermore, financial distress may stimulate profitability problems in firms through cash flow and revenue deterioration or operating income. It is expected that financial distress in firms will have an effect on operating income causing short-term insolvency which reduces the firm's ability by constraining working capital and increasing indebtedness. Financial distress is a broad concept that comprises several situations in which firms face some form of financial difficulty and cannot meet or have difficulty paying off their financial obligations, especially to their creditors. Financial distress means there is a tight cash situation and if prolonged may lead to bankruptcy and even liquidation. Ombaba and Kosgei (2017) define financial distress as severe liquidity problems that cannot be resolved without a sizable financial restructuring of the entity's assets and operations. Financial distress may lead a firm to default on obligations and it usually needs financial restructuring between the firm, its creditors, and its equity investors (Bartram, Brown & Waller, 2015). Further, cash flow volatility associated with financial

distress may lead to situations where a firm's available liquidity is insufficient to fully meet fixed payment obligations, such as wages and interest payments when they fall due. Financial distress in banking institutions can be measured using three main indicators including non-performing loans, liquidity and financial leverage. Nonperforming loans are a percentage of the gross loans which have a higher likely hood of becoming default (Zelie, 2019). A higher non-performing loans to gross loans ratio implies a greater financial distress situation. Financial leverage in the banking sector is often measured by the ratio of equity to total assets. Banks that have higher levels of capital as a ratio to total assets post better financial results than their counterparts who have less capital at their disposal (Staikouras & Wood, 2003). Finally, liquidity as used in banking refers to the degree to which an asset or security can be easily sold in the market without the sale affecting its price. Insufficient liquidity of commercial banks is considered to be one of the major reasons why they fail. Liquidity in the baking sector is often measured by the ratio of cash and cash equivalents to total deposits (Mariano, Izadi & Pratt, 2021).

Profitability is the ability of a business to generate enough revenues to offset the expenses of running the organization and compensate the owner (s). Profitability is an aspect of overall performance where a business organization generates adequate revenues to cover the cost of operations and compensate for the risk-taking behaviours of the shareholders. According to Tonchia and Quagini (2010), the stakeholders of a firm in general and shareholders in particular expect to earn a return on investment after the firm offsets the cost of operations including payment to employees, suppliers, financiers, and government taxation. All the stakeholders have a claim on the profits generated by a firm (Tanui, Magadi, Tanui & Rotich, 2018). The profit figure can also be negative in cases where total revenues generated cannot settle the total cost incurred by a firm completely, negative profits can be called losses (Quagini & Tonchia, 2010). The profitability in banking is often measured by Return on assets (ROA) and return on equity (ROE) can be a positive figure when sales revenues are more than total costs incurred. Return on assets is the ratio of profits after tax to the total assets of the bank (Estrin & Pelletier, 2018). The return on assets is usually presented as a percentage. The higher the ROA, the higher the efficiency of the bank in utilising assets to generate revenues (Waswa, Mukras & Oima, 2018). The second proxy of profitability is ROE. Return on equity is the ratio of after-tax profit to the total equity of the bank. A higher ROE implies the bank is efficiently using equity to generate revenues for the business (Dianova & Nahumury, 2019). The study will adopt ROA to measure the profitability of MFBs licensed by central bank in Kenya. Micro-finance is the provision of a broad range of financial services such as deposits, loans, payment services, money transfers, and insurance to poor and low-income households and their microenterprises. There are four types of MFIs: formal institutions such as micro-finance banks, non-government organizations, cooperative organizations and informal sources such as moneylenders. The microfinance industry in Kenya is under the umbrella of the Association of Microfinance Institutions of Kenya (AMFI) Kenya. AMFI presently has 62 member institutions serving more than six million five hundred thousand poor and middle-class families with financial services throughout the country.

Twelve of these member institutions are registered as Microfinance Banks [MFBs] (AMFI, 2018). The Microfinance Act authorizes the Central Bank of Kenya to license, regulate, and supervise the activities of formally constituted deposit-taking microfinance institutions in Kenya. The Act itself simply empowers the Central Bank as a regulator, but specific rules subsequently released by the bank serve to govern micro-finance activity. In particular, the Bank has imposed core capital requirements designed to ensure adequate liquidity of depository MFBs and established minimum corporate governance standards and ownership limits (AMFI, 2018). The financial sector in Kenya has seen tremendous growth over the years. This growth has been driven by the innovation and dynamism of the banking sector. Despite the impressive growth, the banking sector in Kenya has faced numerous challenges. The most significant challenge is financial distress (Kithinji & Waweru, 2017). Among the banking institutions, MFBs have faced profitability problems that may be blamed on financial distress. The financial performance of MFBs has fallen in a major way in the last four years. The MFBs recorded a ROA of -2.0% in 2018 compared to -0.9 % in 2017. The decline in the overall financial performance of MFBs experienced a midst increase in deposit funding by 5.3 per cent, growth in loans by 3.1 per cent and a fall in asset quality by 3% (CBK, 2018). The fall be profitability among MFBs may be explained by financial distress factors including financial leverage, non-performing loans and liquidity (CBK, 2019). The empirical review has examined various financial distress factors on their effect on profitability. However, a few gaps have been identified; first, most of the studies have been based on commercial banks with slightly different operating environments from MFBs. Secondly, most studies in Kenya were performed before the COVID-19 pandemic which has had a major impact on banking sectors, especially regarding non-performing loan accumulation with various businesses that had taken loans being affected. Thirdly, few studies have examined the combined effect of the financial distress factors that are of focus in the current study. The current study thus sought to bridge the gap in the literature by examining the effect of financial distress factors on the profitability of MFBs licensed by CBK.

2. Literature Review

2.1 Theoretical Review

The theoretical review examines theories that underpin the relationship between financial distress factors and profitability. The study focused on the Modigliani-Miller Theory, The Miller- Orr Model and Information Asymmetry Theory.

2.1.1 Modigliani-Miller Theory

The theory has a major proponent in Modigliani and Miller (1958). The theory was developed into two variant forms, the capital relevant and capital irrelevant positions. The capital-relevant variant holds that the structure of capital for a firm is critical in explaining the firm value while capital irrelevant theory holds that capital structure does not affect the value of the firm. The irrelevant theory variant assumes the absence of corporate taxes hence a firm does not get any value from leverage. The relevant variant explains that the structure of capital is very critical in explaining a firm's value (Hirshleifer, 1966). The theory further argues with corporate tax, organizations practice leverage to benefit from tax exemptions. The theory further holds that optimising the structure of capital of a business impacts WACC. Equity capital tends to be cheaper compared to debt capital (Miller, 1977). Equity capital is less costly but does not allow the firm to get an exception from corporate tax as all the income earned is taxed. Moreover, debt capital allows the business to enjoy tax exemptions as the income earned debt repayment interest is first deducted before corporate tax is charged on the profits earned. Hence, a levered firm (which relies much on debts) pays less tax compared to fully unlevered firms. However, debt finance exposes the firm to the risk of liquidation from financiers (Auerbach & King, 1983). A firm must therefore find the right mixture of equity and debt financing that ensures that WACC is optimised to ensure maximum profitability. The theory was relevant for the current research as it explains the level of leverage that an MFB should accept. Based on the theory, the MFB firm ought to balance equity and debt financing such that the WACC of capital is at its minimum point. The firm can maximise profits when their an optimal capital structure.

2.1.2 The Miller- Orr Model

The model as developed by Merton, Miller and Daniel Orr (2013) was meant to deal with cash outflows and cash inflows, which keep on changing randomly from one day to another. The model works based on the premise that cash needs daily are normally distributed in the firm over a given period. On any specific day, the net cash flow may be an amount that was expected or it may be different assuming a lower or a higher value than expected value. The model operates in terms of upper (U) and lower (L) control limits with the targeted net cash balance being (Z). As postulated by this model, a business's net cash balances oscillate between the upper and lower limits arbitrarily. As long as the cash balance is somewhere between the upper and lower limit, the business does not make any transactions however, when the net cash balance goes beyond the upper limit, the business is expected to sell units of marketable financial assets equivalent to (U-Z). This deliberate action is expected to reduce the cash balance to the expected level (Z). On the other hand, when the net cash balance in the business goes below the lower level (L), the firm should sell (Z-L) units of financial assets at its disposal to generate liquid cash to take the net cash balance back to Z level. Therefore, transaction costs incurred during this process of buying or selling financial assets to and from net cash balances depend on the number of expected transactions made in marketable securities during the period (Hillier et al 2010). This model was relevant in in this study by informing the variable liquidity level. The liquidity (cash balances) may depend upon the cost of making transfers between cash and securities holding, the opportunity cost of holding cash and intense variability in the firm's cash flows. The model also enables MFBs to maintain cost-efficient transactional cash balances.

2.1.3 Information Asymmetry Theory

The theory builds on the economics of imperfect information that began to emerge during the 1970s with the seminal contributions of Akerlof (1970). According to the theory, information asymmetry causes the market to become inefficient; since all the market participants do not have access to the information, they need for their decision-making process. A situation that arises when one party has insufficient knowledge about the party involved in a transaction makes it impossible to make accurate decisions when conducting the transaction (Nyamweya and Obuya, 2020). Financial intermediaries make lending decisions and the borrower is likely to have more information than the lender about the risks of the project for which they receive funds (Obuya and Olweny, 2017). In the presence of asymmetric information, the market may break down completely with the three distinct consequences emerging including adverse selection, moral hazard and monitoring cost. According to Mavlanova, Benbunan-Fich and Koufaris, (2012), an asymmetric information problem arises before the transaction occurs. It occurs when a potential borrower who is likely to produce an undesirable (adverse) outcome in the form of bad debt risk is the one who actively seeks out and is the most likely to be selected. Moral hazard on the other hand arises after a transaction. Moral hazard arises when a borrower engages in activities that reduce the likelihood of a loan being repaid. Kwambai and Wandera (2013) posit that the theory of asymmetric information indicates that it may be complex to distinguish between good and bad borrowers which may result in adverse selection and moral hazard problems. As a result, moral hazard and adverse selection lead to a reduction in the efficiency of the transfer of funds from surplus to deficit units. This is because lenders may decide in some circumstances that they would rather not make a loan and credit rationing may occur (Matthews & Thompson, 2008). Asset quality refers to the timely manner in which borrowers are meeting their contractual obligations (Alhassan et al.,

2014). The asset quality is therefore inversely related to the amount of non-performing Loans (NPLs). Adverse selection and moral hazards have led to a significant accumulation of nonperforming loans in banks. The level of NPLs in the loan portfolio of a commercial bank affects profitability. The theory explains how NPLs arise due to problems of moral hazards and adverse selection. The commutation of Nonperforming loans means that loan losses rise and profitability falls.

2.2 Empirical Review

The sections examine empirical literature on financial distress factors and the profitability of financial institutions. The financial distress factors to be considered include liquidity, leverage and non-performing loans.

2.2.1 Liquidity and Profitability

Banafa (2016) investigated the effect of Leverage, Liquidity and Firm Size of non-financial firms listed at the Nairobi Stock Exchange. The study used panel data over five years (2009 to 2013) to examine the effect of Leverage, Liquidity, Firm size, Day's accounts receivables and accounts payables on Returns on Equity and Assets on the financial performance of listed non-financial firms. leverage, Liquidity and firm size Influence the financial performance of listed non-financial firms at the Nairobi Securities Exchange positively. Kahuthu (2016) sought to examine if core capital requirement, liquidity levels, allowance for loan loss and member retention had any significant impact on the deposit-taking Sacco's financial income. The study used comparative design and a linear regression model to establish the impact of prudential requirements on Sacco's Financial Performance. Core capital, credit management, membership growth and liquidity were not strong predictors of financial performance before regulations but after the prudential regulations, they all became strong predictors.

Caliskana and Lecuna (2020) investigate the determinants of the banking sector profitability in Turkey for the years between 1980 and 2017. In this context, we use return on assets (ROA) and return on equity (ROE) as profitability indicators and form two models separately by taking them as dependent variables. Within this framework the study employed bank size, deposit conversion ratio, and liquidity as banking sector variables; whereas inflation rate, interest rate and exchange rate as control variables. To examine the study models, the study ran a regression analysis. According to findings showed that banking sector variables such as assets, efficiency and liquidity are more crucial for profitability. Ramadhanti, Marlina and Hidayati (2019) examined the effect of Capital Adequacy, Liquidity and Credit Risk toward Profitability. The population in this study are banking companies listed on the Indonesia Stock Exchange 2015-2017. The technique of determination of the sample using the method of purposive sampling obtained 27 banking companies with a research period of three years to obtain 81 units of samples. Panel Regression Analysis showed that capital adequacy has a significant positive effect on profitability, liquidity has a positive and significant effect on profitability credit risk has a negative effect and significant to profitability.

SM and Razimi (2018) examined the effect of capital, liquidity, and efficiency on profitability in Islamic Commercial Banks in Indonesia. This type of research is quantitative descriptive research. This study uses secondary data, and the period used 3 years, namely the period 2013-2015. Data analysis used is Regression analysis to analyse the factors that influence the profitability of Islamic Commercial Banks in Indonesia. Capital has a positive and significant effect on profitability, liquidity has a positive and significant influence on profitability, and efficiency has a negative and significant effect on profitability. Junaidi, Sulastri, Isnurhadi and Adam (2019) examined the effect of liquidity proxy Loan to Funding Ratio, asset quality proxy by Non-Performing Loan and efficiency proxy by Operating Cost to Operating Income toward Sustainability Growth rate. The sampling technique is purposive based on the criteria so that the selected 22 banks with the study period 2012-2107. Unit analysis of as many as 132 observations. The analysis of data using panel data regression. The findings of the study showed that liquidity, asset quality Non-Performing Loans and efficiency proxy had a significant negative effect on suitable loan growth.

2.2.2 Financial Leverage and Profitability

Kirimi, Simiyu and Dennis (2017) examined the effects of debt finance on financial performance measured ROE. The study investigated the effect of interest rate, loan tenure, debt/equity ratio, and interest coverage ratio on the financial performance of savings and credit cooperative societies in Maara Sub-County, Tharaka Nithi County, Kenya. A causal research design of a target population of 10 Sacco's and a census survey were used. A positive relationship was revealed between the debt-equity ratio and ROE respectively. Chesang (2016) examine the effect of financial leverage on the profitability of agricultural firms listed at the Nairobi Securities Exchange. The study used a descriptive research design. The study targeted 66 listed firms at the Nairobi Securities Exchange and a target population of all the seven agricultural firms listed at the Nairobi Securities Exchange. The study used a regression model to determine the effect of independent and dependent variables under study. The study also collected secondary data. The study established that the debt-to-equity ratio and current ratio have a statistically significant effect on the profitability of agricultural firms listed at the Nairobi Securities Exchange while long-term debt to total capital employed and firm size did not have a statistically significant effect on the profitability of agricultural firms listed at the Nairobi Securities Exchange.

Mule and Mukras (2015) investigate the relationship between financial leverage and the financial performance of listed firms in Kenya. The study used annual data for the period 2007 – 2011. Using various panel procedures, the study finds reasonably strong evidence that financial leverage significantly and negatively affects the performance of listed firms in Kenya. However, financial leverage negative but insignificant effect on ROE. Shibutse, Kalunda and Achoki (2019) evaluated the effect of leverage and firm size on the financial performance of DT-SACCOs in Kenya. A positivist research philosophy was adopted for this study utilizing a mixed research design. The target population for this study constituted the 174 DT SACCOs licensed by SASRA in Kenya. The sample frame was obtained from the SASRAs 2017 list of licensed DT-SACCOs. Inferential regression results show a significant negative relationship between leverage and financial performance and, a significant positive relationship between firm size and financial performance. Budhathoki, Rai, Lamichhane, Bhattarai and Rai (2020) examined the impact of liquidity, leverage, and total assets size of the bank on profitability. This study employed bank scope data of all 28 commercial banks operating in Nepal from 2010 to 2016. Altogether, the 168 observations were used in the study. Three ordinary least-squares models were applied to analyze the impact of liquidity, leverage, and the total size on the bank's profitability. The first regression model reveals that liquidity was observed to hurt the bank's ROA. Higher equity to assets ratio measuring leverage positively affected ROA and NIM.

2.2.3 Non-performing Loans and Profitability

Obuya and Olweny (2017) examined the effect of banks' lending behaviour on loan losses of listed commercial banks in Kenya. The study employed a descriptive research survey design. The target population encompassed 11 listed commercial banks in Kenya. The study was a census of listed commercial banks in Kenya. The data was extracted from CBK Annual reports and audited financial statements of individual commercial banks in Kenya. The inferential analysis; and correlation analysis were used to test the relationship between banks' lending behaviour and loan losses of commercial banks in Kenya. A simple OLS model was used to establish the causal effect relationship between lending behaviour and loan losses of listed commercial banks in Kenya. The results of the study showed that total customer loans and Quality of loans had statistically significant effects on loan losses of listed commercial banks in Kenya.

Ekinci and Poyraz (2019) examined the impact of credit risk on banks' profitability in the Turkish Banking Sector for the period 2005-2017. To determine the relationship between credit risk management and profitability, ROA and ROE are used to represent the bank's profitability and NPL/TL is used to represent the credit risk. The dataset is obtained from the Banks Association of Turkey (TBB) and the Central Bank of Turkey (CBRT). Along with credit risk, control variables (bank-specific and sector-specific) and macroeconomic variables are included in the model. The estimation results showed that there is a negative relationship between credit risk and ROA as well as between credit risk and ROE. Chabachib, Yudha, and Udin (2020) examined the effect of Non-Performing Loans, Net Interest Margin (NIM), Non-Interest Income, and Loan Deposit Ratio on Return on Assets with size as a control variable for the period period 2012 – 2017. The sample of this study is 228 domestic and foreign banks listed on the Indonesia Stock Exchange for the period 2012 – 2017. The result of the analysis shows that NPL hurts ROA; NIM has a positive effect on ROA. Further, size becomes a control variable and there is no difference between domestic and foreign banks.

Munangi and Sibindi (2020) examined the impact of credit risk on the financial performance of 18 South African banks for the period 2008 to 2018. Panel data techniques, namely the pooled ordinary least squares (pooled OLS), fixed effects and random effects estimators were employed to test the relationship between credit risk and financial performance. The results of the study documented that credit risk was negatively related to financial performance. Thus, the higher the incidence of non-performing loans, the lower the profitability of the bank. Bank leverage and financial performance were negatively related. Afolabi, Obamuyi and Egbetunde (2020) examined the effect of credit risk on the financial performance of microfinance banks in Nigeria. Published financial reports of six purposively selected microfinance banks, covering the periods 2012 to 2018 were used as panel data for the regression model. The panel Ordinary Least Squares (OLS) regression technique was used to estimate the influence of the credit risk proxy by non-performing loans and loan-loss provisions on the financial performance proxy by returns on assets of the banks. The results of the analysis revealed that non-performing loans have a significant and negative effect on returns on assets.

2.3 Research Gap

The empirical review has examined various financial distress factors on their effect on profitability. However, a few gaps have been identified; first, most of the studies have been based on commercial banks with slightly different operating environments from MFBs. Secondly, most studies in Kenya were performed before the COVID-19 pandemic which has had a major impact on banking sectors, especially regarding non-performing loan accumulation with various businesses that had taken loans being affected. Thirdly, few studies have examined the combined effect of the financial distress factors that are of focus in the current study. The current study thus seeks to bridge the gap in the literature by examining the effect of financial distress factors on the profitability of MFBs licensed by CBK.

3. Methodology

The research adopted a causal research design. This method is preferred since establishes how a variable causes the changes in other variables in the research. Causal studies enable the researcher to establish whether or not the explanatory variables lead to variation in the outcome variable (Cooper & Schindler 2003). The focus was on how changes in financial distress factors including liquidity, financial leverage and non-performing loans caused a change in profitability of MFBs in Kenya. The research targeted the 13 MFBs licensed by CBK and operated between 2016 to 2020. The study targeted a period of five (5) years beginning from 2016 to 2020 forming panel data. This period suited the purpose of the research as it incorporates recent financial reforms in the microfinance sub-sector. Sample are the elements picked from the population that represent the population. The study was a census of all the 13 licensed Microfinance banks by CBK hence no sampling was carried out. When the population size is small, then the researcher can study all the elements in the population like in the current study. The study collected annual secondary data from 2016 to 2020 from the 13 licensed Microfinance banks by CBK. The data was panel in nature and Microsoft Excel was used as a secondary data collection template as it is capable of inputting and managing the data. Annual panel data sources running from 2016 to December 2020 were adopted in the current study. Data was sourced from the annual banking report by the Central Bank of Kenya. Data to compute Return on assets included Total assets and net operating income before tax. Data to compute financial leverage included equity and total assets. Data to compute liquidity included cash & cash equivalents and deposits. Data to compute the non-performing loans ratio included net non-performing loans and gross loans. The collected data was recorded on a Microsoft Excel sheet capable of inputting and managing the data. The collected panel data for the period between 2016 and 2020 was analyzed using Microsoft Excel. Descriptive statistics included mean, standard deviation, minimum and maximum. Regarding inferential statistical analysis, the OLS regression model was adopted to estimate the coefficients and associated p-values to enable the fitting of the model and forecasting. The study was based on the regression model presented in equation [1].

$$\mathbf{ROA_{it}} = \alpha_o + \alpha_1 \mathbf{LQ_{it}} + \alpha_2 \mathbf{LEV_{it}} + \alpha_3 \mathbf{NPL_{it}} + \mu_{it} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots[1]$$

Where:
ROA- Returns on Assets
LQ – Liquidity
LEV – Financial Leverage
NPL- Non-performing Loans
the μ-error term, α_i -coefficients measuring the magnitude of changes in the dependent variable.
α_0 – intercept term, t – Current time
i- Cross-sectional Units (licensed MFBs)

The independent variable is financial distress factors (liquidity, leverage and non-performing loans). The dependent variable is profitability. The variables were operationalised in Table 1.

Table 1: Operationalization of Variables

Variable	Notation	Measurement	Expected Sign
Dependent variable			**ROA**
Profitability	ROA	Return on Assets = net income divided by total assets	
Independent variables			
Liquidity	LQ	Cash and cash equivalents to total deposits Ratio.	+
Leverage	LEV	Equity to Total Assets Ratio	+
Non-performing Loans	NPLs	Nonperforming loans as a percentage of the gross loans	-

4. Results

4.1 Descriptive Analysis

The chapter presents the findings of the studies including the measures of dispersal, central tendency and regression. The regression was based on the OLS model that assumes no significant differences in the cross-sectional units. The chapter also presents the discussions of the study findings. The descriptive analysis was based on measures of central tendency and

dispersal including maximum, minimum, mean and standard deviation. The findings are presented in Table 2.

Table 2: Summary of Descriptive Analysis

	ROA	LEV	LQ	NPL
Mean	-0.10938	0.217095	0.503426	0.477705
SD	0.150465	0.29798	0.369369	0.994452
MIN	-0.60204	-1.2037	0.061224	0
MAX	0.039409	0.836449	1.625	8

Note: **ROA-** Return on assets, **LEV-**Financial Leverage, **LQ-** Liquidity, **NPL-** Non-performing loans

Profitability was measured by Return on assets. The mean ROA for MFBs was -0.10938 meaning that most firms were in loss making. The standard deviation of 0.150465 implies that individual licensed MFBs had their profitability spread around the mean by about 15%. The minimum ROA was -0.60204 capturing the licensed MFB with the lowest ROA in the study period. The maximum was 0.039409 capturing the licensed MFB with the highest ROA in the study period. Financial leverage was measured by the ratio of equity to total assets. The mean financial leverage was 0.217095 implying that on average, equity as a percentage of total assets was about 21.7%. The standard deviation of 0.29798 around the mean that individual MFB had financial leverage spread around the mean by about 29.7%. The minimum financial leverage was -1.2037 capturing the licensed MFB with the lowest financial leverage level. The maximum financial leverage was 0.836449 capturing the licensed MFB with the highest financial leverage. Liquidity was measured by the ratio of cash& cash equivalents to total customer deposits. The mean liquidity was 0.503426 implying that on average, cash and cash equivalents as a percentage of customer deposits of licensed MFBs was about 50.3%. The standard deviation of 0.369369 showed that the liquidity of individual firms was about 36.9 % around the mean. The minimum liquidity was 0.061224 implying the individual MFB with the lowest liquidity had a liquidity of 6.12% as a percentage of total deposits. While the maximum liquidity of 1.625 implies that the MFB with the highest liquidity had liquid assets of about 1.625 times the customer deposits. Nonperforming loans were measured as a ratio of non-performing loans to gross loans. The mean non-performing loans was 0.477705 with a standard deviation of 0.994452 around the mean. The minimum non-performing loans was 0 capturing the licensed MFB with the lowest NPL.   The maximum non-performing loans was 8 capturing the licensed MFB with the highest non-performing loans.

4.2 Regression Analysis

The study adopted OLS multivariate regression analysis to examine the effect of financial distress factors (leverage, liquidity and non-performing loans) on profitability licensed MFB in Kenya. The dependent variable was profitability licensed MFB in Kenya while the independent variables were distress factors including leverage, liquidity and non-performing loans. The findings are presented in Tables [3 -5].

Table 3: Model Summary

Regression Statistics	
Multiple R	0.422194348
R Square	0.387125807
Adjusted R Square	0.338485877
Standard Error	0.140728199
Observations	66

The overall Pearson correlation coefficient (Multiple R= 0.422) in Table 4.2 shows that the independent variable financial distress factors (financial leverage, liquidity and non-performing loans) were positively and moderately correlated with the dependent variable profitability. Further, the coefficient of determination ($R^2 = 0.38712$) reveals that financial distress factors (financial leverage, liquidity and non-performing loans) explained 38.71% of the total variation in profitability. The remaining variation in profitability of 61.28% is captured by other variables affecting profitability but not studied in this research.

Table 4: Analysis of Variances (ANOVA)

	df	SS	MS	F	Significance F
Regression	3	0.266341	0.08878	4.482853	0.006521
Residual	62	1.227874	0.019804		
Total	65	1.494215			

The analysis of variances given in Table 4 revealed that financial distress factors (financial leverage, liquidity and non-

performing loans) have a significant impact on profitability captured by ROA. This is evidenced by a p-value lower than 0.05 level of significance (F=4.482853, p-value = 0.006521<0.05). The study thus concluded that distress factors (financial leverage, liquidity and non-performing loans) have a major effect on profitability among the licensed MFBs in Kenya.

Table 5: Regression Coefficients

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	-0.107259624	0.03108	-3.45104	0.001011	-0.16939	-0.04513
LEV	0.187728322	0.072695	2.58241	0.012186	0.04243	0.333043
LQ	0.057219866	0.026162	2.18713	0.031224	0.03949	0.095047
NPL	-0.029459026	0.011351	-2.59528	0.010507	-0.06614	0.007224

Note: **ROA-** Return on assets, **LEV-**Financial Leverage, **LQ-** Liquidity, **NPL-** Non-performing loans

Table 5 presents the regression coefficients associated with the explanatory variables. The effect of liquidity on profitability was inverse and statistically significant (α_1= 0.05721, t = 2.18713, p = 0.031224 < 0.05). Financial leverage had a direct and statistically significant effect on profitability (α_2= 0.1877, t= 2.582414, p= 0.012186<0.05). The study also revealed that the impact of non-performing loans was inverse and statistically significant (α_3= -0.029459, t= -1.6053, p= 0.010507< 0.05).

5. Discussion

The analysis of variances given revealed that financial distress factors (financial leverage, liquidity and non-performing loans) have a significant impact on profitability captured by ROA. This is evidenced by a p-value lower than 0.05 level of significance (F=4.482853, p-value = 0.006521<0.05). The study thus concluded that distress factors (financial leverage, liquidity and non-performing loans) have a major effect on profitability among the licensed MFBs in Kenya. Further, the effect of liquidity on profitability was inverse but not statistically significant (α_1= 0.05721, t = 2.18713, p = 0.031224 < 0.05). A one-unit increase in liquidity results in 0.05721 units increase in profitability of licensed MFBs in Kenya. The positive effect implies that when MFBs have adequate liquidity, they can utilise the excess liquidity to invest in financial assets like government bills and bonds to get additional revenues. MFBs can also use the excess liquidity to offer more loans to borrowers hence earning the firms additional interest revenues. The finding agrees with Banafa (2016) who established that Liquidity influences the financial performance of listed non-financial firms at the Nairobi Securities Exchange positively. Further, Caliskana and Lecuna (2020) noted that liquidity is more crucial for profitability. Ramadhanti, Marlina and Hidayati (2019) revealed that liquidity has a positive and significant effect on profitability credit risk has a negative effect and is significant on profitability. The study also revealed that financial leverage had a direct and statistically significant effect on profitability (α_2= 0.1877, t= 2.582414, p= 0.012186<0.05). A one-unit increase in financial leverage leads to a 0.1877 unit increase in profitability. The finding implies that MFBs that were more leveraged also tended to perform better. Increasing Financial leverage implies that more and more percentage of the profitability is exempt from taxation hence more profitability is available for distribution to shareholders of the MFBs. The finding agrees with Kirimi, Simiyu and Dennis (2017) who established a positive relationship was revealed between debt debt-equity ratio and ROE respectively. Chesang (2016) also showed that debt to equity ratio has a statistically significant effect on the profitability of agricultural firms listed at the Nairobi Securities Exchange. Finally, the study revealed that the impact of non-performing loans on profitability was inverse and statistically significant (α_3= -0.029459, t= -1.6053, p= p= 0.010507<0.05). A unit increase in non-performing loans led to a reduction in profitability by 0.02945 units. The findings imply that increasing non-performing loans as a ratio of the total loans leads to increasing loan loss expenses that eat into the profits of the MFBs in Kenya. Increasing NPLs hence leads to reducing profitability of the licensed MFBs in Kenya. The finding is in congruence with Ekinci and Poyraz (2019) who established that there is a negative relationship between credit risk and ROA as well as between credit risk and ROE. Chabachib, Yudha, and Udin (2020) showed that NPL has a negative effect on ROA.

6. Conclusions

The study through analysis of variances revealed that financial distress factors (financial leverage, liquidity and non-performing loans) have a significant impact on profitability captured by ROA. The study thus concluded that distress factors (financial leverage, liquidity and non-performing loans) have a major effect on profitability among the licensed MFBs in Kenya." Further, the effect of liquidity on profitability was inverse. The finding implies that when MFBs have adequate liquidity, they can utilise the excess liquidity to invest in financial assets like government bills and bonds to get additional revenues. MFBs can also use the excess liquidity to offer more loans to borrowers hence earning the firms additional interest

revenues. The study also revealed that financial leverage had a direct effect on profitability. The study thus concluded that MFBs that were more leveraged also tended to perform better. Increasing Financial leverage implies that more and more percentage of the profitability is exempt from taxation hence more profitability is available for distribution to shareholders of the MFBs. Finally, the study revealed that the impact of non-performing loans on profitability was inverse. The findings imply that increasing non-performing loans as a ratio of the total loans leads to increasing loan loss expenses that eat into the profits of the MFBs in Kenya. Increasing NPLs hence leads to reducing profitability of the licensed MFBs in Kenya.

Given the direct effect of liquidity on the profitability of licensed MFBs in Kenya, the study suggests to management of licensed MFBs in Kenya to hold adequate liquidity. The MFBs should hold liquidity in the form of cash and cash equivalents such as treasury bills and bonds that can be easily converted into cash when the need arises. The CBK as the regulator should also continue ensuring that licensed MFBs have adequate liquidity above the statutory levels to ensure their stability. The study also showed that the effect of financial leverage on the profitability of licensed MFBs in Kenya was positive. The study thus suggests that management of the licensed MFBs continue leveraging through accepting more deposits form the public. The deposits generated can thus be used for lending purposes to earn the MFBs more interest income which leads to increased profitability. The study also suggests to CBK to continue ensuring that licensed MFBs do not take on leverage beyond their capacity to protect the depositors of funds in the said firms. Finally, based on the negative effect of non-performing loans on the profitability of licensed MFBs in Kenya, the study suggests that management to advance high-quality loans. The firms should have stringent credit analysis policies that ensure that only credit worthy customer is given loans to protect the firms against non-performing loans. The study also recommends that the CBK continue requiring licensed MFBs to provide for loan loss provisions commensurate with the level of non-performing loans to protect the MFBs against loan losses. The current study was on the effect of financial distress factors on the profitability of licensed MFBs in Kenya. The study suggests to future researchers to introduce control variables in the model to improve the robustness of the model. The studies can also introduce more proxies of financial distress factors. The study also suggests that future studies should be based on other financial firms including Deposit taking Sacco's and commercial banks to establish whether findings hold across the board.
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Conflicts of Interest

"The authors declare no conflicts of interest."

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