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Liquidity Management and Financial Performance of Microfinance Institutions in Kenya

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Abstract

Sound liquidity management is integral for any financial institution's stability and profitability, since deteriorating liquidity management is the most frequent cause of poor financial performance. As with any financial institution, the biggest risk in microfinance sector is lending money and not getting it back leading to liquidity problems as most of them have no access to lender of the last resort which is the Central Bank of Kenya. The study sought to investigate the effect of liquidity management on financial performance of microfinance institutions in Kenya. The target population of the study was all the twenty-six microfinance in Kenya that are members of Association of Microfinance Institutions and were licensed by the Central Bank of Kenya as at 2017. A census of all the twenty-six 26 Microfinance Institutions in Kenya was conducted for five years from 2012 to 2016. Secondary data on the study variables was gathered from the audited financial statements of the Microfinance Institutions. The study employed random effect model on a 5-year panel data from 2012 to 2016 on all the 26 Microfinance Institutions in Kenya. The study found a positive relationship between capital adequacy and financial performance and a negative relationship between asset quality, maturity gap and financial performance. The study would help Microfinance Institutions as they would use the research findings to develop liquidity management strategies to enable Microfinance Institutions improve on their financial performance.

Keywords: Liquidity management; Asset quality; Maturity gap; Capital adequacy; Financial performance; Micro finance institution.

1. Introduction

The Micro-finance theory has been in existence for centuries in various regions of the globe for instance, "susus" in Ghana, "tandas" in Mexico, "tontines" in West Africa and "pasanaku" in Bolivia. One of the earliest and longest serving micro-credit organization providing small loans to rural poor dwellers with no collateral was the Irish loan fund system started in the early 1700's by Jonathan swift. His concept began slowly in 1840s and became a widespread institution of about 300 branches all over Ireland in less than ten years. The main aim of his idea was to advance small loans at an interest for short periods. However, the pioneering of modern microfinance is often credited to Dr. Mohammad Yunus, who began experimenting with lending to poor women in the village of Jobra, Bangladesh during his tenure as a professor of economics at Chittagong University in the 1970s. Microfinance sectors in the Middle East, North Africa, Eastern Europe and Central Asia, are reasonably small since the microfinance idea started much later in these regions (Goddard *et al.*, 2009).

In Kenya the microfinance sector is one of the most dynamic in Sub-Saharan Africa. It includes a variety of financial institutions forms and a fairly large branch network to serve the poor. However, regulation of microfinance activities in Kenya started in the year two thousand and six. The absence of regulation allowed innovations to take place and MFIs were set up easily without any restrictions, such as minimum capital requirements therefore the microfinance industry thrived in that environment (Nyaga, 2008). Following the enactment of the Microfinance Act on 2nd May two thousand and eight in Kenya, a number of existing MFIs applied for licenses to let them take deposits from members and the general public. The major purpose of the microfinance act was to regulate the establishment, business and operations of MFIs in Kenya through licensing and supervision. Most of the MFIs in Kenya are self-regulated and rely heavily on international donor support which poses a legal challenge (Central Bank of Kenya, 2011). By 2010 there were 24 large microfinance banks Kenya.

1.1. Statement of the Problem

In Kenya, there has been a great increase in non-performing loans in deposit taking MFIs over the last two decades, leading to a rise in liquidity management problems. As a result, the investment decisions of the organization are negatively affected leading to poor financial performance of the MFI (AMFI, 2013). Financial service providers

are very important in any economy. Their function is very much similar to that of blood arteries in the human body, because they pump financial resources for economic growth from the depositories to where they are required (Shanmugam and Bourke, 1992). MFIs are key providers of financial information to the economy. They play a crucial role in emerging economies where borrowers have no access to capital markets. There is enough proof that well-functioning financial institutions accelerate economic growth, while poorly functioning financial institutions impede economic progress and exacerbate poverty (Barth *et al*., 2004).

In two thousand and sixteen (2016) Kenya experienced cases of banks closure, mergers and others rebranded. An example being Chase bank that closed on April seven two thousand and sixteen, after suffering a bank run and had to close shop until Kenya Commercial Bank came to its rescue. Imperial bank also went under liquidation in the year twenty seventeen and had to close its operations. This brought a lot of anxiety and uncertainty in the financial market especially the banking and microfinance sector. Moreover, in Kenya, unlike banks, MFIs do not have access to the lender of last resort that is the CBK. Consequently, in times of market difficulties and financial constraints MFIs have nowhere to get cash from. This makes MFIs more prone to liquidity shortage, and no matter how small the liquidity need is or how small the microfinance enterprise is, lack of liquidity can cause great damage to any microfinance bank. It is against this background that the study sought to examine the effects of liquidity management on financial performance of MFIs in Kenya.

1.2. Objectives of the Study

The study was guided by the following general and specific objectives:

1.3. General Objective

To determine the effects of liquidity management on financial performance of MFIs in Kenya

1.4. Specific Objectives

The study was anchored by the following specific objectives

1. To determine the effect of asset quality on financial performance of MFIs in Kenya.
2. To establish the effect of maturity gap on financial performance of MFIs in Kenya.
3. To evaluate the effect of capital adequacy on financial performance of MFIs in Kenya.

2. Review of Literature

Three theories were used to inform the study and they included Liability Management Theory, Liquidity Preference Theory and Commercial Loan Theory of Liquidity

2.1. Liability Management Theory

The link between liquidity and financial performance has been widely debated resulting in literature that is both mixed and inconclusive. One view is that liability management theory focuses on banks issuing liabilities to meet liquidity needs as postulated by Diamond and Rajan (2001). Liquidity and liability management are closely related. One major facet of liquidity risk control is the development of a prudential level of liquid assets. Asset and liability management is one of the major risk management measures at any bank. It is one of the essential tools for decision making that sets out to maximize stakeholder value. It is crucial to track the external factors of the asset and liability management in the market to remain in the long term and to prepare for negative effects. According to Goddard *et al*. (2009) Banking sector analysis could be the instrument used to measure the sustainability of the country's financial sector.

The advocates of this theory postulate that, through proper asset liability management, liquidity, profitability and solvency of banks can ensure that commercial banks manage and reduce risks like credit risk, liquidity risk, interest rate risk and currency risk. The liabilities of a bank have different categories of varying cost, depending on the tenor and maturity pattern. Similarly, these comprise different classes with different returns depending on the maturity and volatility factors. The mainstay of this theory is the matching of liabilities and assets (SBP, 2010). This theory will aid in understanding how MFIs in Kenya balance assets and liabilities as most of their members will require periodic loans to carry out their business so as they issue out loans they have to strike a balance with the demand deposits of members who may opt to use their deposits instead of loans.

2.2. Liquidity Preference Theory

The theory was proposed and developed by John Maynard Keynes in 1936. Keynes described liquidity preference theory as individuals' value money for both the transaction of current business and its use as a store of wealth (Bibow, 2005). Thus, individuals will sacrifice the ability to earn interest on liquid cash that individuals want to spend in the present, and that individuals want to have it on hand as a precaution. On the other hand, when interest rates increase, individuals become willing to hold less cash for these purposes in order to earn a profit**.** The liquidity preference theory attempts to describe the reasons as to why financial institutions need to hold cash. In the study "The general Theory of employment, interest and money" Keynes (1936) identified three reasons why liquid cash is important, the speculative motive, the precautionary motive and the transaction motive. Money needed by MFIs for their daily activities in order to complete economic transactions is known as the demand for money for transaction motives and is usually depends on the size of the income, time gap between the receipts of income and spending habits. While the precautionary motive postulates that when MFIs want to keep some liquid money to meet some

unforeseen emergencies, contingencies and accidents while speculative motive is when the MFIs keep cash with them to take advantage of the changes in the prices of bonds and securities.

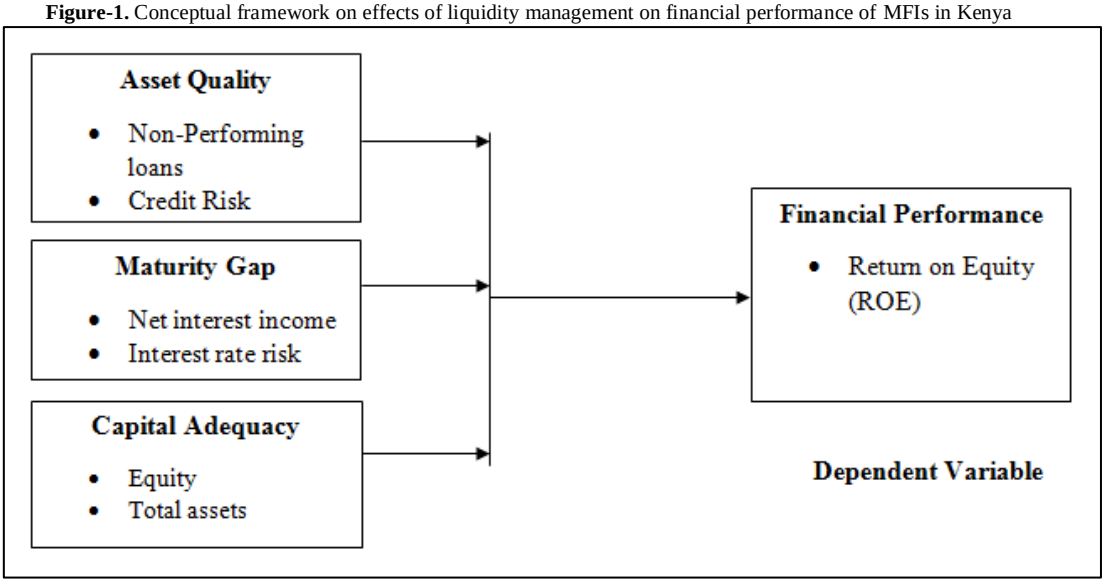
2.3. Commercial Loan Theory of Liquidity

In Commercial loan theory of liquidity, financial institutions seek to rank their assets in terms of liquidity that is the ease with which it can be converted to cash. The proponents of this theory include Adam Smith and they argue that the most liquid of assets is money in cash. The next most liquid assets are deposits with the central bank, treasury bills and other short-term bills issued by the central and state governments and large firms, and call loans to other banks, firms, dealers and brokers in government securities. The less liquid assets are the various types of loans to customers and investments in long term bonds and mortgages. Thus the principle sources of liquidity of a bank are its borrowings from the other banks and the central bank and from the sales of the assets. But the amount of liquidity which the bank can have depends on the availability and cost of borrowings.

2.4. Conceptual Framework

In this study, the framework presupposes that financial performance will be the dependent variable, while the independent variables are asset quality, maturity gap and capital adequacy, as shown in Figure 1.

Figure-1. Conceptual framework on effects of liquidity management on financial performance of MFIs in Kenya



2.5. Financial Performance

Financial performance evaluates how well a firm is generating value for the shareholders. It can be examined using various financial measures such as profit after tax (PAT), return on assets (ROA), return on equity (ROE), earnings per share (EPS) and any market value ration that is generally accepted (Pandey, 1985). The financial performance of financial institutions can be examined using a combination of financial ratios analysis, benchmarking, and measuring performance against a budget or a mix of these methodologies. Sanghani (2014) examined the effect of liquidity on financial performance of non-financial institutions listed at the Nairobi Securities Exchange (NSE). Secondary data was collected from NSE and multiple regression analysis was used in the data evaluation. The study affirm that liquidity positively influence the financial performance of non-financial companies listed at the NSE. The study found that current liabilities over current assets positively influence the financial performance of non-financial firms and also showed that an increase in operating cash flow ratio positively influence the financial performance of non-financial companies listed at the NSE. The study recommended that there is need for non-financial companies listed at the NSE to increase their current assets so as to increase their liquidity as it was found that a rise in current ratio positively affect the financial performance. Financial performance of a firm can be viewed from many angles like profitability, dividend growth, sales turnover and return on investments among others. However, there is still debate among scholars regarding how the performance of entities should be measured and the factors that affect the financial performance of companies (Liargovas and Skandalis, 2008).

2.6. Asset Quality

The ratio of provision for bad debts to loan advances to customers is adopted as a proxy for asset quality. This measure reflects changes in the health of the bank loan portfolio and credit quality. Thus, it is also an indicator of credit risk in banks. Credit risk is the risk that an asset or a loan becomes irrecoverable in the case of outright default, or the risk of delay in the servicing of the loan (Heffernan, 1996). Credit risk can have crippling effect thus leading to insolvency (Bessis, 2002). The higher the provision for bad debt to loan advances ratio, the higher the credit risk and the higher the accumulation of unpaid loan and interest. Additionally, present value of the asset declines, thereby undermining the solvency of a bank. According to Kosmidou (2008), poor asset quality can have adverse impact on bank's profitability by reducing interest income revenue.

Asset affects the profitability of a financial institution. Assets comprise among others current asset, credit portfolio, fixed asset, and other investments. Loan is the major asset from which income is generated. The quality of loan portfolio determines profitability. The highest risk facing a financial institution is the losses derived from delinquent loans (Dang, 2011). Thus, nonperforming loan ratios are the best surrogates for asset quality. Low nonperforming loans to total loans shows that a healthy portfolio of a financial institution. The lower the ratio the better the bank performing (Sangmi and Tabassum, 2010). Results from a study by Ongaki (2012) showed that there is a positive association between profit ratio and asset quality ratio. An increase in asset quality ratio leads to an increase in profit margin. The firm's asset is another bank specific variable that influence the financial performance of the firm. The bank asset comprised of among others current asset, credit portfolio, fixed asset, and other investments. Often a growing asset (size) is related to the period of existence of the firm. Mostly loan of the financial institution is a key asset that generates the major share of the banks income (Jeanne and Svensson, 2007).

2.7. Maturity Gap

The main cause of liquidity risk is the maturity imbalance between assets and liabilities. The majority of the assets are funded by deposits most of which have a lifespan of one year or less with a possibility to be called at any time. This situation is known as the imbalance between assets and liabilities or liquidity gap. This imbalance created by this assets and liabilities at any one time or period can be examined with the help of the maturity gap between assets and liabilities. For this study maturity gap will be measured as banks advances to customers over customer deposits. Higher liquidity gap might create liquidity risk to most MFIs in Kenya (Central Bank of Kenya, 2013). Maaka (2013), found that profitability of the commercial bank in Kenya is negatively affected due to increase in the liquidity gap and leverage.

The maturity shift of short-term deposits into long-term loans makes banks susceptible to liquidity risk (Basel Committee on Banking Supervision, 2008). The market liquidity risk refers to the inability to sell assets at or near the fair value, and in the case of a relevant sale in a small market; it can emerge as a price slump (Brunnermeier and Pedersen, 2009). According to Goodhart (2008) there are two basic features of liquidity risk and they are maturity transformation (the maturity of a bank's liabilities and assets) and the inherent liquidity of a bank's asset (the extent to which an asset can be sold without incurring a significant loss of value under any market condition). As such, the two facets of a bank's liquidity are associated. Banks do not need to be worried about the maturity transformation if they have the assets that can be sold without bearing any loss.

2.8. Capital Adequacy

The ratio of equity to total assets is employed as a measure for any financial institution's capital adequacy. This measures the percentage of the total assets that is financed with equity capital. Capital adequacy therefore describes the sufficiency of the amount of equity that can absorb shocks that financial institution may experience. It is expected that the higher the Equity to Asset ratio, the lower the need for external funding and therefore the higher the profitability of the financial institution. In addition, well-capitalised financial institution faces a lower cost of going bankrupt which reduces their cost of funding (Kosmidou, 2008). Banks with higher capital to asset ratio are treated as relatively secure and tend to have a better margin of cushion, remaining profitable even during difficult economic times. Conversely, financial institution with lower capital adequacy are considered riskier compared to the highly capitalized banks.

Capital ratio has long been used as a valuable measure for evaluating capital adequacy and it shows the general safety and financial wellbeing of financial institutions. In most cases well capitalized banks are generally expose to lower expected costs of financial distress and such an advantage will then be translated to financial performance of the firm. A firm that portrays a strong capital base is able to take advantage of profitable investments that can yield high returns and rewards in future (Holmstrom and Tirole, 2000). Capital ratio is used to protect depositors and promote the stability and effectiveness of financial systems around the globe. Mostly financial analysts will use two types of capital that is tier one capital and tier two capital. Tier one capital, which can absorb losses without a bank being required to stop trading, and tier two capital, which can take in losses in the event of winding-up and so provides a more less cushion of protection to depositors (Kashyap *et al.*, 2002).

3. Research Methodology

The study followed a longitudinal study, Longitudinal study design was useful for this study as it aided in observation of the analysed data collected from the population and the causal effect of the independent variable on the dependent variable since the nature of research relied on secondary data of published financial reports of MFIs in Kenya. Data for five years from year two thousand and twelve to year two thousand and sixteen was used.

3.1. Sample and Data Collection

The target population for this study comprised of 26 MFIs in Kenya registered by CBK as at 2017. The study only considered MFIs which had full financial statements from two thousand and twelve to two thousand and sixteen. The study adopted a census where all the 26 MFIs in Kenya were studied. Secondary data was collected from the MFI's. Secondary data obtained involved 5-year financial data from 2012 to 2016. The research was conducted in all the twenty-six MFIs in Kenya registered under the Micro Finance Act 2008 and approved by CBK.

3.2. Measurement of Variables

The study focused on asset quality, Maturity gap and capital adequacy for a period of five years from 2012 to 2016. The measurement used for each variable is as given in Table 1.

Table-1. Measurement of Variables

Variable	Measurement
Asset Quality (AQ)	Provision for bad debts / Advances to customers
Maturity Gap (MG)	Cash reserves / Customer deposits
Capital Adequacy (CA)	Equity / Total assets
Financial Performance	ROE=Net profit / Equity

3.3. Model Specifications and Analytical Techniques

To determine the effect of liquidity management on financial performance, Liquidity management is regressed in the subsequent model to test the hypothesis. The analytical model used was as specified in equation (1).

$Y_{it} = \beta_0+\beta_1 AQ_{it}+ \beta_2 MG_{it}+ \beta_3 CA_{it} + \varepsilon_{it}$ ---------- **Equation 1**

Where; Y_{it} is Financial Performance of MFI $_i$ at time t as expressed by ROE β_0 is Intercept constant, AQ_{it} is Asset Quality of MFI i at time t MG_{it} is Maturity Gap of MFI $_i$ at time t CA_{it} is Capital Adequacy of MFI $_i$ at time t $\beta_1 - \beta_3$ is corresponding coefficients parameters ε_{it} was the error term where i is cross sectional and t time identifier.

3.4. Diagnostic Tests

It was important to ensure non-violation of the assumptions of the classical linear regression model before attempting to estimate the equation. Estimating the equation when the assumptions of the linear regression are violated runs the risk of obtaining biased, inefficient and inconsistent parameter estimates (Brooks, 2008). Hence multi-collinearity, normality, auto correlation and heteroscedasticity tests were carried out to ensure clear specifications of the analytical model given in equation 1.

3.4.1. Multi Collinearity

Multi collinearity test was conducted in this study by the variance inflation factor. The results of the multi collinearity are presented in table 2. Collinearity statistics indicated variance inflation factor (VIF) <2 an indication that the variable were not highly correlated therefore no existence of multi collinearity.

Table-2. Multi collinearity test results

Variable	VIF	1/VIF
Asset quality	1.9843	0.504
Maturity Gap	1.1449	0.8734
Capital adequacy	1.8261	0.5476
Mean VIF	**1.6518**	

3.4.2. Normality

Parametric tests such as correlation and multiple regression requires normal data. When data is not normally distributed it can distort the output for any further testing. The results presented in table 3 show the variables had p value which was greater than 0.05 and thus it was concluded that the variable were normally distributed. To test for normality, the Kolmogorov-Smirnov test was used.

Table-3. Results of the Kolmogorov-Smirnov test for Normality

Variable	K-S Statistic	Significance
Asset quality	2.191	0.076
Maturity gap	2.225	0.075
Capital adequacy	2.167	0.057
Financial Performance	2.139	0.095

3.4.3. Heteroscedasticity

The data used for the research was cross sectional thus the existence of heteroscedasticity. Classical linear regression model assumes that the error term is homoscedastic meaning that it has a constant variance consequently if the error variance is not constant, then heteroscedasticity is present. Therefore, generating a linear regression model without checking for heteroscedasticity will lead to biased output the Breusch-Pagan test was used to test for heteroscedasticity. Table 4 shows the results obtained from the Breusch-Pagan test. The results in Table 4 indicate that the P value is greater than 0.05 (0.7585). It was found that the variables under this study did not suffer from heteroscedasticity

Table-4. Results of the Breusch-Pagan test for heteroscedasticity

Breusch-Pagan test for Heteroscedasticity
Prob>Chic2=0.7585

3.4.4. Auto Correlation

The test for auto correlation was conducted using the Durbin-Watson test (1951). For this study the Durbin – Watson test was used to check that the residuals of the models were not auto correlated since independence of the residuals s one of the basic hypothesis for regression analysis. The Durbin Watson test ranges in value from 0 to 4, A Durbin Watson value of 2 indicates non-auto correlation whereas a value tending to 0 is an indicator of positive correlation. A value tending towards 4 indicates negative autocorrelation. Results indicate that the overall value was 2.1106 was as shown in Table 5 therefore the data was not auto correlated

Table-5. Results of the Durbin-Watson for autocorrelation

Variable	**Durbin-Watson**	**P Value**
Overall	2.1106	0.000

4. Results and Discussions

The study sought to determine the effects of liquidity management on financial performance of MFIs in Kenya.

4.1. Descriptive Results

The section outlines the descriptive statistics of the effects of liquidity management on financial performance of MFIs in Kenya. Financial performance was measured using return on equity as the dependent variable whereas liquidity was measured using Asset quality, maturity gap and capital adequacy.

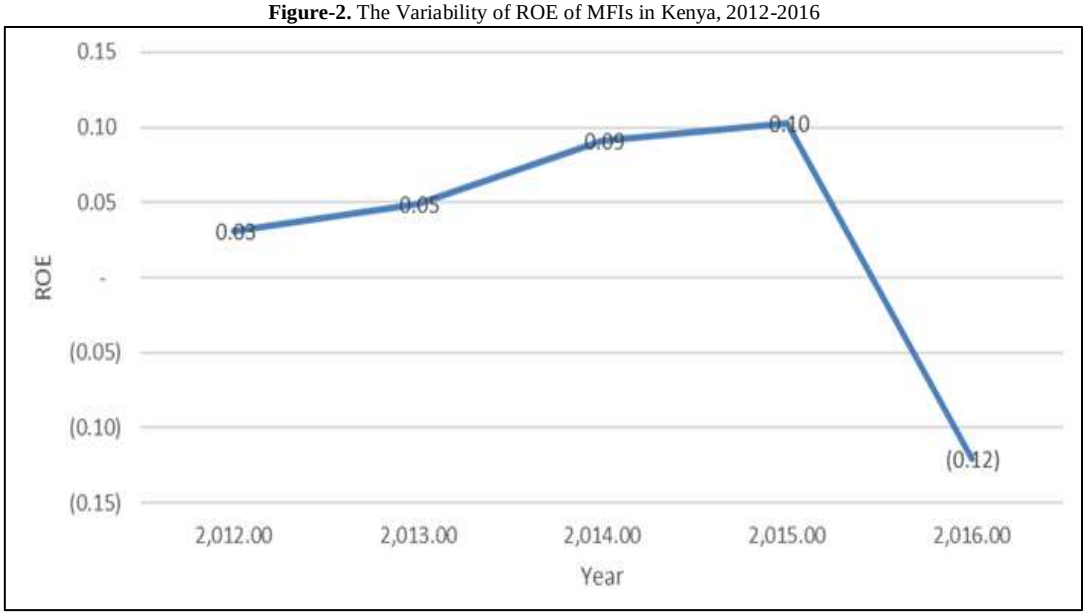
4.1.1. Financial Performance

Financial performance was measured using Return on Equity (ROE). Overall the profit of MFIs in Kenya ranged from 3.1% to 12.1% (Table 6). The mean profitability was 7.9%. the disparity in profitability was moderate with an index of 18.72%. Overall profits were on the increase from 2012 to 2016. The findings reveal that from the year 2012 to the year 2016 the financial performance of MFIs slightly improved from 2012 to the year 2015 however in 2016 there was a slight drop. There has been a huge increase in non-performing loans in deposit taking MFIs in Kenya over the last few years. This has greatly increased liquidity problems, thus negatively impacting on investments decisions of the firm leading to poor financial performance of the MFI (AMFI, 2013). This shows that MFIs have been gradually increasing their loan products coupled with few cases of defaulters.

Table-6. Descriptive statistics for Return on Equity from Secondary Data

Year	**2012**	**2013**	**2014**	**2015**	**2016**	**Overall**
Mean	0.031	0.049	0.091	0.103	-0.121	0.012
Std. dev	0.069	0.100	0.01	0.527	0.23	0.187

Figure-2. The Variability of ROE of MFIs in Kenya, 2012-2016



4.1.2. Asset Quality

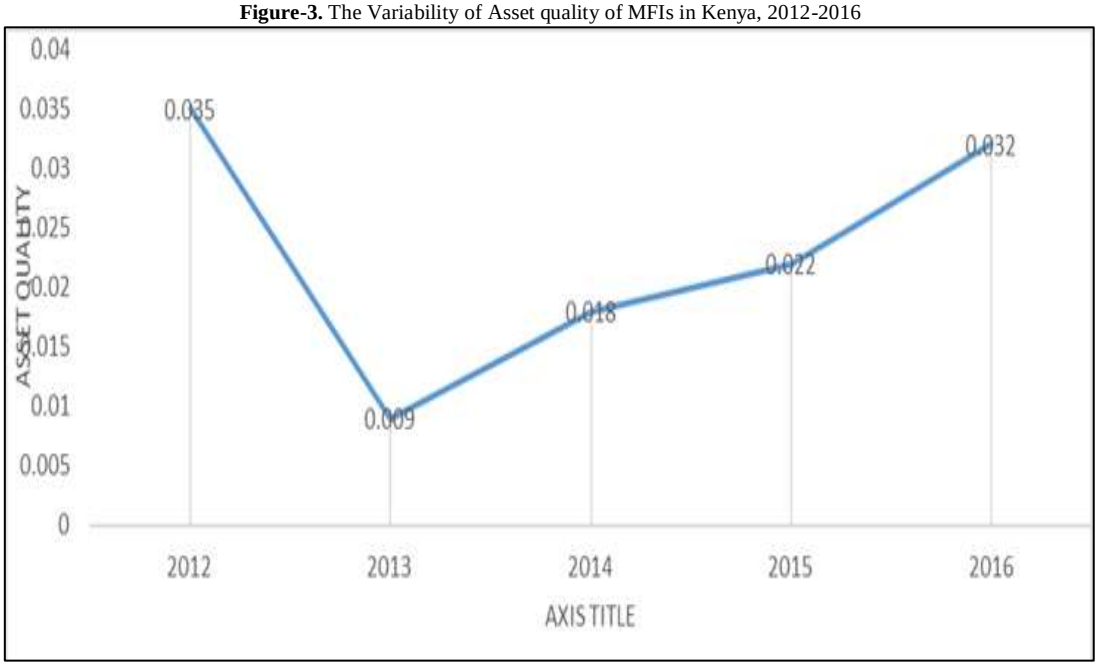
Asset quality of MFIs in Kenya ranged from 0.9% to 3.2% (Table 7). Asset quality had a mean of 2.32% and a disparity of 3.7%. This can be attributed to the introduction of the credit reference bureau that blacklist loan defaulters hence members try to honour their loan pledges to avoid being blacklisted as this will weaken their credit

ratings. The interest cap bill and the CBK benchmark lending rate led to a general decline loan advanced as most of the banks instead preferred to invest in government treasury bills and bonds instead of lending to the market which is perceived to be riskier leading to a general decline in loans advanced to the public. The study established that the MFIs on average have a low exposure to credit risk as indicated by the means of less than 35%. In addition, MFIs need to review their loan products regularly in order to meet unexpected customer demands which might have been unforeseen during the initial stages of developing the loan products for example cases where customers delay in repaying their loans or new members requiring loans earlier than anticipated. MFIs need to predict the loan proceeds that the various loan products will generate so that any extra proceeds from the loan products can be invested for future returns. The risk created by the large loan product can have crippling effect on the MFI which may lead to insolvency or even closure.

Table-7. Descriptive statistics for Asset quality from secondary data

Year	2012	2013	2014	2015	2016	Overall
Mean	0.035	0.009	0.018	0.022	0.032	0.023
Std. Dev	0.048	0.070	0.022	0.022	0.023	0.037

Figure-3. The Variability of Asset quality of MFIs in Kenya, 2012-2016



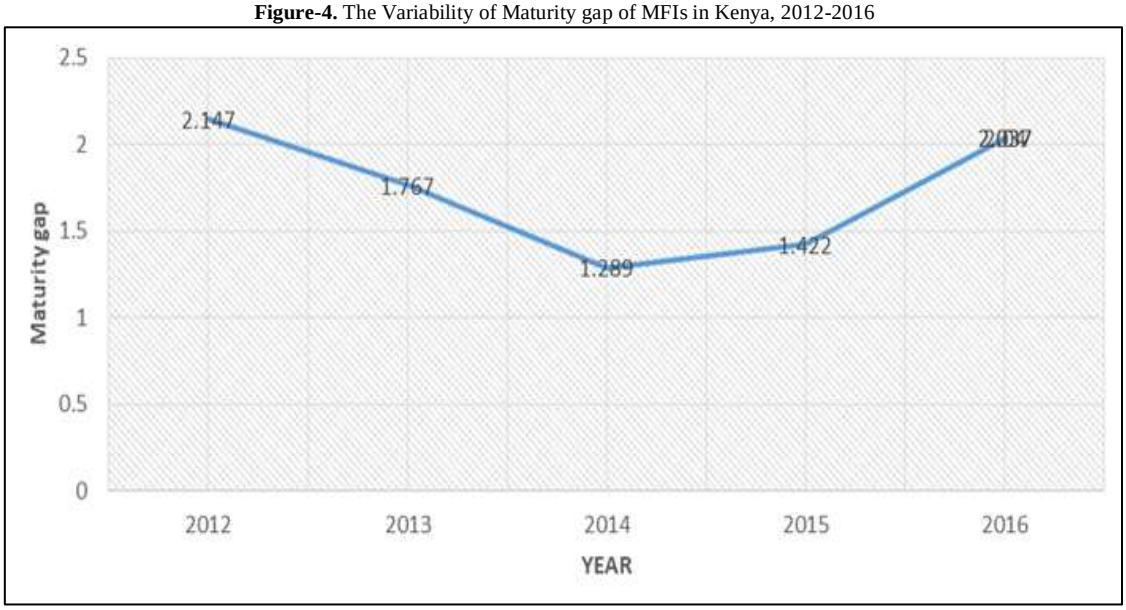
4.1.3. Maturity Gap

Maturity gap of MFIs in Kenya ranged from 128.9% to 214.7% (Table 8). The mean was 173.24 with a disparity of 96.3%. The data indicates that banks advances to customer deposits over the five-year period declined from 2013 to 2015 and improved as from 2016 this can be attributed to the electioneering period of 2013 that saw a general decline in economic growth. The recorded standard deviation indicates that there were fluctuations in maturity gap among MFIs in Kenya over the study period. This view is consistent with a study by Majakusi (2016) which concluded that liquidity is a bigger component of maturity gap ensures that financial institutions lag their asset and liabilities to ensure a balance between the assets and liabilities. MFIs could team up with mobile service providers in order to reduce competition and also tap into the young generation that is in need of small amounts of loans regularly and pay within a short period of time. Therefore, MFIs need to shore up more liquid assets to cover for the increase in the maturity gap which can be done by encouraging members to save a certain minimum amount before they get loans. MFIs also need to keep an inventory on the better performing loans against those with higher default rates and look at ways of reducing the loan that under form in order to maximize lending opportunities to the better performing loans. The findings of the study are in agreement with Maaka (2013) which found out that performance of banks is negatively affected due to increase in the liquidity gap and leverage and Central Bank of Kenya (2013) which established that higher liquidity and maturity gap might create liquidity risk to most MFIs in Kenya.

Table-8. Descriptive statistics for Maturity Gap from secondary data

Year	2012	2013	2014	2015	2016	Overall
Mean	2.147	1.767	1.289	1.422	2.037	1.732
Std. Dev	1.516	0.866	0.329	0.493	1.611	0.963

Figure-4. The Variability of Maturity gap of MFIs in Kenya, 2012-2016



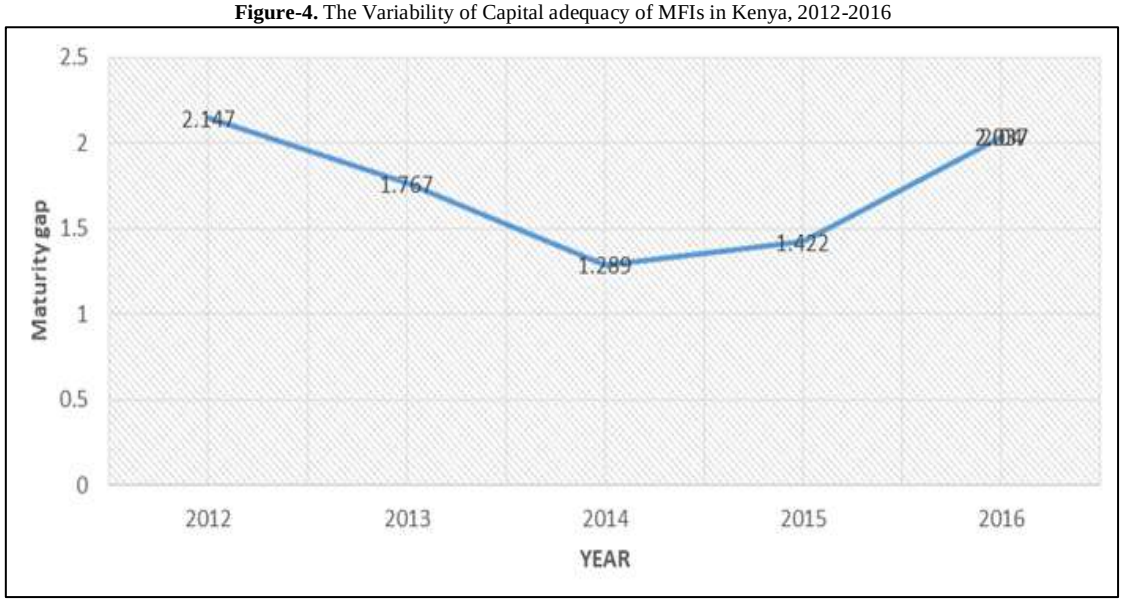
4.1.4. Capital Adequacy

Capital adequacy ratio is used as an indicator of banks financial strengths in terms of withstanding operational and functional losses without jeopardizing customer's deposits and overall banks stability. Overall, the capital adequacy of MFIs in Kenya ranged from 26.1% to 33.1% (Table 9) The mean capital adequacy was 30.48% with a disparity of 24.16%. This implies that the ability of the MFIs in Kenya to absorb reasonable operational and functional losses without risking the institutions' stability had been improving over the study period, also it implies that the management of the MFIs in Kenya have the ability to meet the need for additional capital. Also it implied that MFIs prefer less risky investments to avoid liquidity shortages. These findings are in agreement with Kosmidou (2008) that established that well capitalized financial institutions face a lower cost of going bankrupt which reduces their cost of funding, Charlene (2005) noted that commercial banks with higher levels of equity can minimize their cost of capital which might have a positive impact on profitability (Mwangi, 2014) which established that capital adequacy as a component of long term debt against total Shareholder equity of Deposit taking MFIs in Kenya.

Table-9. Descriptive statistics for Capital Adequacy for secondary data

Year	2012	2013	2014	2015	2016	Overall
Mean	0.301	0.267	0.300	0.331	0.325	0.305
Std. Dev	0.271	0.211	0.172	0.264	0.290	0.242

Figure-4. The Variability of Capital adequacy of MFIs in Kenya, 2012-2016



4.2. Regression Analysis Results

The results of Regression Analysis are as presented in Table 10. Fixed effect (fe) and random effects (re) methods were conducted on the data. To choose between fixed effect and random effects results a Hausman test was conducted which rejected the fixed effects model in favour of the random effects model. Hence variation across MFIs was uncorrelated and random with the independent variable included in the model. This proved no significant

differences across MFIs. Panel unit roots, cointergration, and cross sectional dependence were not a concern for the study due to the small time span of Five years of the panel data Baltagi (2005) .

Table-10. Regression Coefficients

Model	Coefficients	Std. Error	[95% Conf.	t	P>|t|
Constant	3.4645	1.563	.2140	2.22	.038
Asset Quality	-.0486	.0396	-.1311	-1.23	.232
Maturity Gap	-.0130	.0062	-.0258	-2.10	.048
Capital adequacy	.0559	.0180	.0185	3.11	.005

a. Dependent Variable: Financial Performance

The results in Table 10 provide the coefficients of the variables used in the study which were asset quality, Maturity gap and Capital adequacy.

From the results in Table 10 the linear regression equation for this study is as shown in equation 2.

$$Y_{it} = 3.4645 - .0486\ AQ_{it} - .0130\ MG_{it} + .0559\ CA_{it} \quad \text{.....} \quad \textbf{Equation 2}$$

The findings indicate that the constant (3.4645) is statistically significant (t=2.22, p< 0.005), implying that holding all the independent variables (asset quality, maturity gap and capital adequacy) at zero financial performance (ROE) will be 3.4645 units. Asset quality was statistically insignificant; therefore, it has no influence on financial performance. The findings contradict with a studies by Mwangi (2014), Olongo (2013) and Korir (2018) which found a significant positive relationship between asset quality and financial performance. This can be attributed to the introduction of interest cap rate in the year two thousand and sixteen (2016) where the banks were not supposed to charge a certain rate above the set bench mark lending rate therefore the MFIs loan products were affected and reduced as they preferred to lend to the Government that was less risky than lending to the members who have challenges meeting their monthly contributions. This law significantly reduced the MFIs revenues from the various loan portfolios.

The coefficient for maturity gap (-.0130) is statistically significant (t=-2.10, p<0.05) indicating that holding all the other independent variables (Asset quality and capital adequacy) constant at zero an increase in maturity gap by 1 unit will result to a decrease in financial performance by -.0130 therefore decreasing the maturity gap between assets and liabilities would improve financial performance. The findings contradict with studies by Song'e (2015), Wanjohi (2013) and Korir (2018) which found a significant positive relationship between liquidity and financial performance. Decrease in maturity gap leads to an increase in financial performance this can be attributed to the fact that most MFIs rarely experience cases where members have applied for a loan and there is delay in loan disbursement, Cases of delay in loan disbursement included inadequate collateral, lack of guarantors or missing details in loan application forms.

The coefficient for capital adequacy (.0559) is statistically significant at (t=3.11, p<0.05) indicating that holding all the other independent variables constant (Asset quality and maturity gap) 1unit increase in capital adequacy will result to an increase in financial performance by .0559 hence financial performances is dependent on capital adequacy. The findings are consistent with a study by Mwangi (2014) and Majakusi (2016) which found a significant positive relationship between Capital and financial performance this can be attributed to the fact that share capital in most Financial institutions which are a going concern does not decrease but either remain constant or increase due to issuance of rights issue.

5. Discussion

The study contributes to the debate on the relationship between liquidity management and financial performance. The findings indicated that asset quality had a negative but insignificant effect on financial performance of MFIs in Kenya. MFIs have no access to the central bank as a lender of the last resort therefore MFIs should ensure that their loan products portfolio are secured to avoid cases of defaulters and in extreme cases complete default and also liaise with the credit reference bureau in order to avoid customers with a history of defaulting on loan repayments.

The findings indicated that maturity gap had a negative but significant effect on financial performance. Data analysis showed that MFIs suffer from liquidity shortages as the time the members demand for cash and the time the cash is actually availed was longer therefore increasing the liquidity gap, therefore decreasing the maturity gap between assets and liabilities would improve financial performance.

The study findings indicated that capital adequacy had a positive and significant effect on financial performance, therefore a unit increase in capital adequacy will result to an increase in financial performance. The study found that most MFIs are funded by members' deposits, thus had adequate assets to cover for losses that results in liquidation the main reason for this is because most MFIs do not share the surplus profits to the customers inform of either interest on deposits on dividends to members and the amounts of Interests they earn they plough back as retained earnings therefore increasing their capital base

6. Conclusion and Recommendations

Therefore, it is recommended that MFIs should adopt strategies for monitoring, constantly reviewing and reporting liquidity management levels to ensure both long and short term survival is not put at risk. These strategies will aid in minimizing cases of excess or deficit in liquidity, MFIs should strive to schedule maturity periods of their

reserve assets in order for them to correspond to the periods funds will be required this will reduce the gap between the periods of acquiring the liquid assets compared to the time the liquid assets are due for demand. This can be done by creating awareness to their customers through customer fora and members' education on the various options that are available and MFIs should ensure that members' deposits are adequate to fund most of their operations MFIs should also ensure that they have adequate assets to cater for all their financial needs these assets will include both long term assets and short term assets that can be easily replaced with cash in case the need arises where quick cash is demanded. Government subsidies like tax waivers for MFI could also be adopted as they are critical is attainment of vison 2030.

The study would help MFIs as they would use the research findings to develop liquidity management strategies to enable MFIs improve on their financial performance. The study would also be useful to the institutions of higher learning in extension of the academic knowledge for the benefit of all the academicians. The study also would have policy implications and recommendations which can be used by Government policymakers in structuring policies to create an enabling environment to enable MFIs operate in the Country more efficiently. County Governments and National Government will benefit as a whole in the sense of regulation adherence, member fund protection and ensuring the institution contributes towards achievement of vision 2030.

Despite the effort made in the study its scope was limited to only twenty-six MFIs which had full financial statements from two thousand and twelve to two thousand and sixteen and its data was available from the CBK, CBK's Annual Supervision reports and also the AMFI annual reports the data sources for a period of five (5) years from 2012-2016. Further studies may examine a wider scope of MFIs and maybe explore an international sample. Future research should address the abovementioned limitations thus give more diverse evidence.

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