

CREDIT APPRAISAL TECHNIQUES AND ASSET QUALITY OF DEPOSIT TAKING MICROFINANCE INSTITUTIONS IN KENYA

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ABSTRACT

Deposit-taking microfinance institutions have maintained a pivotal role within Kenya's financial sector by facilitating access to financial services, encouraging savings mobilization, and contributing to wealth generation. Considering the sector's significance in driving economic growth, substantial attention has been directed towards understanding the quality of their assets. This study aimed to explore how collateral evaluation and debt service coverage influence the asset quality of deposit-taking microfinance institutions in Kenya. Specifically, the study sought to examine the impact of collateral assessment and debt service coverage on asset quality. The research was grounded in the Lender-Based Theory of Collateralization and Credit Risk Theory. A panel technique and descriptive research design was used to determine the causal relationship between the variables in the study. The study utilized secondary data collected from annual reports covering the period from 2019 to 2023. The target population constituted the 12 Deposit Taking MFIs operating in Kenya. The census method was applied to select all the DT MFIs in Kenya for a period of five years beginning 2019 to 2023. Data analysis for this investigation was conducted utilizing descriptive and inferential statistical methodologies, encompassing techniques such as the Pearson correlation coefficient and regression analysis. The study concluded that collateral evaluation ($\beta = 0.055$, $p = 0.015$) and debt service coverage ($\beta = 0.132$, $p = 0.000$) significantly and positively impacted asset quality of deposit taking microfinance institutions in Kenya. Based on the findings, it is recommended that deposit-taking microfinance institutions strengthen collateral valuation procedures and enhance debt service assessment frameworks to improve asset quality and reduce non-performing loans.

Key Words: Collateral Evaluation, Debt Service Coverage, Asset Quality, Deposit-Taking Microfinance Institutions, Non-Performing Loans, Credit Appraisal Techniques, Kenya.

Background of the Study

In today's environment, each company is focused on achieving financial sustainability to ensure its ongoing operations. This goal is pursued through various strategies aimed at either boosting revenue, reducing costs, or both (Mishkin & Eakins, 2022). Microfinance institutions are no different in this regard. They are actively exploring ways to expand and diversify their products and services while simultaneously working to reduce costs and improve efficiency. This drive for sustainability is also why deposit-taking has become increasingly popular in the modern microfinance industry (Bofondi and Gobbi, 2020).

Within the global economic landscape, financial institutions assume a pivotal intermediary role, facilitating the exchange of goods and services through payment systems and acting as catalysts for financial investments by accepting deposits, mobilizing savings, extending credit, and providing financial guidance (Clarke, 2022). Business entities typically encounter various vulnerabilities in their daily activities. While some risks these entities face are minor and do not significantly impact their operations, others can be catastrophic (Hartarska, 2021). These significant risks particularly affect businesses in the financial sector, especially microfinance institutions (MFIs). A prominent risk for MFIs is credit risk, which refers to the possibility of a borrower defaulting on debt payments. This risk predominantly impacts the lender, potentially leading to losses in both principal and interest, interruptions in cash flow, and higher expenses associated with collection efforts (Qureshi, Aziz, & Mian, 2022).

Bessis (2021) describe asset quality as the extent to which financial objectives are met, highlighting its significance in financial risk management. Companies demonstrating effective credit management, well-managed investments, and a focus on risk mitigation are deemed to have high asset quality. Conversely, firms with poor credit management and inadequate risk practices are classified as having low asset quality. Thus, a company's asset quality is closely tied to its ability to manage credit risk.

Brealy and Myers (2020) explained that credit appraisal typically entails assessing a borrower's repayment history and evaluating the reliability and sustainability of their income sources. The lender ensures they are confident in the borrower's intentions, often by conducting a personal interview. Financial intermediaries use four primary credit appraisal techniques to evaluate small businesses. These techniques are designed to mitigate issues that may result in either credit rationing, as highlighted by Stiglitz and Weiss (2021), or excessive lending, referred to as overlending by de Meza and Webb (2021). Credit appraisal methods are commonly described as transaction-based lending, where loan approval decisions rely on readily available information at the time of loan application, without depending on the soft data accumulated during an ongoing relationship with the borrower.

In Ghana, Abaidoo and Oppong (2022) emphasize that lending has become increasingly risky for commercial banks, as loan repayment is often uncertain. In many cases, repayment relies on factors that are outside the borrower's control. Consequently, good debt management has emerged as a crucial duty for Ghanaian banking systems. Inadequate loan management, which accounts for a significant portion of banks' assets, could result in an increase in non-performing loans, negatively affecting the asset quality of commercial banks in the country (Abaidoo & Oppong, 2022).

In Kenya, the introduction and approval of the Microfinance Deposit Taking Institutions (MDTI) Act by Parliament in 2006 marked the establishment of Microfinance Deposit Taking Institutions (MDTIs), which are permitted to gather and manage savings from depositors (Mutua, 2019). The initiative to modernize and enhance the operations of microfinance institutions led to the formation

of MDTIs, which are regulated under the MDTI Act of 2006 by the Central Bank of Kenya (CBK, 2006). According to ADB (2000) and Otero and Maria (2002), the execution of the policy was considered crucial for the accumulation of savings and the effective administration of public deposits through the enforcement of fundamental minimum levels of prudential regulations.

Barus et al. (2017) observe that loans and advances constitute a significant portion of the assets held by microfinance institutions (MFIs) and serve as primary indicators of their overall asset health. However, subsequent to the financial reform initiatives undertaken in Kenya, a notable increase in non-performing assets has been observed, exerting a substantial adverse impact on the development trajectory of the MFI sector and consequently affecting their overall asset quality. In response, Barus et al. (2017) advocate for the proactive management of asset quality by MFI management teams in Kenya to safeguard the stability and integrity of these essential financial intermediaries.

Collateral evaluation is the process of assessing the value of an asset that a borrower offers as security to a lender in exchange for a loan. This evaluation helps the lender determine the amount of loan they can safely provide, based on the current market value of the collateral (Jones & Zeitz, 2020). Debt service refers to the total amount of funds needed to fulfill payment obligations, including both principal and interest on outstanding loans, bond interest, or maturing principal. It encompasses the cash necessary to manage the repayment of debt principal and interest within a specified timeframe (Hochman & Timilsina, 2021).

Statement of the Problem

The quality of assets held by a microfinance institution (MFI) serves as a direct indicator of how effectively its management can identify and address credit risks and shortcomings (Harris, 2021). These institutions must continuously evaluate their asset quality, given its critical role in determining their overall financial health (Bassem, 2022).

According to the Central Bank of Kenya (CBK), the trend of non-performing loans (NPLs) in Kenya has been on a steady upward trajectory over the past decade, indicating growing financial distress within the credit market. Data from the Central Bank of Kenya (2023) shows that the ratio of gross non-performing loans to total loans increased from about 12.5 percent in 2020 to 13.1 percent in 2022 to 16.5% in 2023. This rise has been attributed to a combination of economic slowdown, high interest rates and inflationary pressures, which have weakened borrowers' ability to service loans (KNBS, 2023).

If the problem of rising non-performing loans (NPLs) in Kenya is not addressed, it could have far-reaching negative consequences for the broader economy. Persistently high NPL levels erode banks' profitability, as more resources are diverted to loan loss provisions instead of productive lending (Central Bank of Kenya, 2023). In the long term, a high NPL ratio may lead to tighter lending standards, slowing down economic expansion. The inability to solve the NPLs problem could therefore stifle private sector growth, increase unemployment, and constrain Kenya's overall economic recovery and fiscal sustainability (CBK, 2023).

Microfinance institutions have experienced significant financial setbacks primarily due to compliance challenges (Central Bank of Kenya, 2021). With losses experienced among microfinance institutions, for instance, the decline in the number of assets and low deposits further magnified the challenge (Nairobi Securities Exchange, 2023). CBK (2023) reported this was largely contributed by the fluctuating net incomes reported in the industry of Kshs. -141.69M in 2019, Kshs. -305.41M in 2020, Kshs. -224.63M in 2022, and Kshs. -73.96M in 2023.

Through the provision of credit, savings, and insurance services to low-income individuals and

small enterprises, MFIs have empowered micro and small businesses, which collectively account for over 30% of Kenya's GDP and employ more than 80% of the workforce (Kenya National Bureau of Statistics [KNBS], 2023).

A substantial body of research has examined asset quality. For instance, a study conducted by Ahlberg and Anderson (2020) investigated asset quality, credit assessment, Basel III regulations, and small business finance within a sample of 95 small and large banks in Sweden. However, the current study will be conducted within the Kenyan context, thus addressing a significant geographical gap in the existing literature. Agwu (2020) explored how the implementation of credit risk management strategies affected the asset quality of commercial banks in Kenya, but no research has specifically focused on collateral evaluation and debt service coverage concerning the asset quality of deposit-taking microfinance institutions in Kenya, thus highlighting a conceptual gap. Therefore, this study aims to fill this gap by investigating the effect of collateral evaluation and debt service coverage on the asset quality of deposit-taking microfinance institutions in Kenya.

Objectives of the Study

The general objective of this study was to establish the effect of collateral evaluation and debt service coverage on asset quality of deposit taking microfinance institutions in Kenya.

Specific Objectives

The study was guided by the following specific objectives:

- i. To assess the effect of collateral evaluation on asset quality of deposit taking microfinance institutions in Kenya.
- ii. To assess the effect of debt service coverage on asset quality of deposit taking microfinance institutions in Kenya.

Research Questions

The research questions of the study were:

- i. What is the effect of collateral evaluation on asset quality of deposit taking microfinance institutions in Kenya?
- ii. What is the effect of debt service coverage on asset quality of deposit taking microfinance institutions in Kenya?

Theoretical Review

Lender Based Theory of Collateralization

This theoretical framework was formulated by Roman Inderst and Holger Mueller in 2007. This theory directly contradicts the traditional perspective on collateralization, as posited by other scholars, including Besanko and Thakor (1987). The traditional view posits that collateral serves as a screening mechanism, enabling borrowers to convey private information regarding the viability of a project to potential lenders. In contrast, the lender-based theory emphasizes the crucial role of collateral as a strategic tool employed by lenders to get competitive edge within an imperfectly competitive loan market.

To remain competitive within such a market, local banks are compelled to offer interest rates that are comparable to those offered by distant transactional banks. However, when evaluating projects with marginal profitability, local banks may be constrained to reject such proposals due to their

limited ability to charge higher interest rates. In such instances, local banks can effectively attract borrowers by offering reduced collateral requirements while simultaneously compensating for the increased risk through the application of higher interest rates. On the other hand, they might offer lower interest rates while requiring higher collateral from customers who are more inclined to work with distant lenders. This approach enables banks to tailor their offerings to different borrower types, balancing risk and appeal based on the customers' preferences and borrowing behavior.

This theory was relevant to the study because collateral evaluation helps lenders determine the adequacy, value, and suitability of pledged assets before extending credit, thereby protecting loan portfolios and improving asset quality.

Credit Risk Theory

Although individuals have been encountering credit risk dating back to ancient times, research on this topic has been quite sparse. First introduced by Melton in 1974, this theory is considered one key in financial management. It proposes that managers should diligently track all relevant information, including regularly assessing the ongoing creditworthiness of borrowers and ensuring they stick to the agreed-upon terms of their loans. Furthermore, the theory describes how financial institutions should respond when faced with risks during the loan repayment period. Lending inherently comes with a set of risks, especially when borrowers fail to honor their obligations on time (Olweny, 2011).

The theory further argues that uncertainties, often arising from defaults, can stem from elements outside of the authority of the leadership. In light of this, microfinance institutions are encouraged to protect themselves by shifting these risks to third parties. When applied to lending institutions, the theory offers guidance on prudent risk management and continuous monitoring of borrowers.

This theory was relevant to the study because debt service coverage reflects the borrower's ability to meet principal and interest obligations. Proper assessment of debt service capacity helps reduce default risk, strengthen repayment performance, and safeguard asset quality of deposit-taking microfinance institutions.

Conceptual Framework

A visual illustration that illustrates how the relationship between the independent and dependent variables is explored (Mugenda & Mugenda, 2003). As illustrated in Figure 2.1, asset quality served as the dependent variable, while the independent variables included the, collateral evaluation, and Debt Service Coverage.

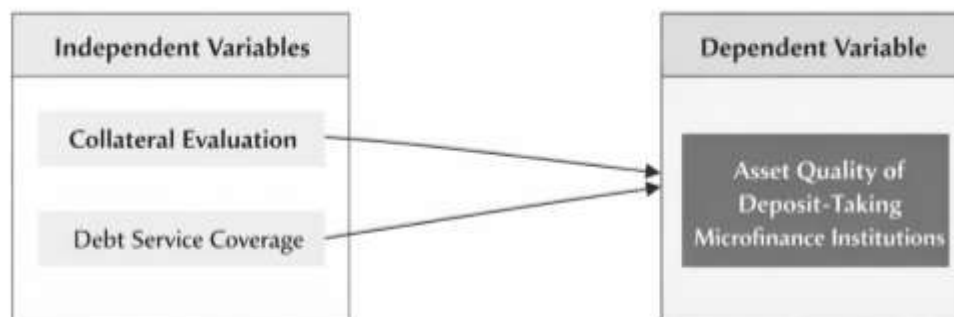


Figure 2.1: Conceptual Framework

Collateral Evaluation

Collateral Evaluation refers to the process of assessing the value and suitability of an asset that is

pledged as security for a loan or financial obligation, Fabozzi, (2015). The primary goal of collateral evaluation is to determine whether the collateral provides adequate coverage for the loan, meaning that in the event of default, the lender can recover the outstanding debt by selling the collateral, Ganka, (2020). The evaluation process typically considers the market value, liquidity, and legal standing of the asset. The collateral evaluation will be measured by assesses the value and quality of the collateral provided by the borrower.

Debt Service Coverage

Debt Service Coverage (DSC) refers to the capacity of an individual, company, or government to manage its debt obligations, specifically the ability to make regular interest and principal payments on loans. This concept is commonly represented by a ratio known as the Debt Service Coverage Ratio (DSCR), which compares a borrower's net operating income, or cash flow, to the total amount of debt service obligations they must fulfill (Damodaran, 2021). The DSC helps assess whether the borrower generates sufficient income to cover its debt payments, providing a clear indication of financial health and the ability to manage debt effectively. Debt Service Coverage will be measured by Net operating Income (EBIT& EBITDA) and Debt Service.

Asset Quality

Asset quality refers to the assessment of the credit risk tied to a financial institution's assets, particularly its loan and investment portfolios. It measures the likelihood that these assets will retain their value and generate income without significant default or loss. Asset quality is crucial in determining the overall financial health of a bank or other lending institutions, Saunders (2021). Asset quality will be measured by total non-performing loans.

Empirical Review of Literature

Collateral Evaluation on Asset Quality

Elsas and Krahnén (2022) conducted research to investigate the influence of collateral on the quality of borrowers within the German banking sector. The study findings revealed no significant correlation between collateral and borrower quality. They observed that the utilization of collateral within debt contracts serves multiple purposes, including fostering strong lender-borrower relationships and facilitating debt restructuring and renegotiation processes. Cressy and Toivanen (2001) similarly found no significant correlation between credit risk and collateralization among UK banks.

Benmelech and Bergman (2019) and Cerqueiro et al. (2016) investigated the impact of collateral redeployability on loan pricing within the airline industry. Their results support the value proposition of pledging collateral by showing that debt tranches backed by more easily redeployable collateral had greater loan-to-value ratios, smaller loan spreads, and better credit scores. Cerqueiro et al. (2016) capitalized on a legal reform in Sweden that restricted the assets eligible for seizure by creditors in the absence of a court-ordered bankruptcy declaration. Using information on a particular bank's loan circumstances, they found that the bank later raised interest rates on loans affected by the law change and decreased the assessed value of collateral.

Machauer and Weber (2022) found no significant relationship between loan collateralization and borrower risk. Their study focused on exploring the interconnections between interest rates, lines of credit, and collateral in relation to the overall risk profile of the borrower. However, the study confirmed that borrowers with higher risk profiles typically incur higher interest rates compared to lower-risk borrowers. In another study, Brick and Palia (2021) observed that borrowers with established and enduring relationships with lenders are subject to lower premium rates and less

stringent collateral requirements.

Santos (2019) notes that there is considerable variation in the types of collateral used and the kinds of firms that offer collateral. The most common forms of collateral include accounts receivable and inventory (30%) and real estate (15%). In contrast, fixed assets other than real estate (8.7%) and cash or marketable securities (1.9%) are less frequently used. Around 24% of loans are secured with a blanket lien. Stiglitz (2021) emphasizes the significant differences in collateral types across various firms, such as private versus public companies and small versus large businesses. For example, fewer than 10% of loans to private firms are unsecured, while about 50% of loans to public firms lack collateral. Likewise, less than 4% of loans to small firms (with assets under \$50 million) are unsecured, whereas 43% of loans to large firms (with assets exceeding \$500 million) are unsecured.

Simsek (2023) developed a model that examines a static setting where agents hold differing views on the value of collateral. In his approach, agents have heterogeneous beliefs about the asset's worth, with pessimists lending to optimists who are looking to purchase an asset that will act as collateral. Default occurs endogenously when the value of the collateral drops below the borrower's promised repayment amount. This model highlights the complexities involved in collateralized lending, emphasizing how discrepancies in asset valuation between parties can lead to defaults, even in situations where collateral is initially involved. It suggests that the relationship between collateral and borrower risk is more dynamic than traditionally assumed. Simsek (2013) finds that what agents disagree about (e.g., the probability of good states versus bad states and the recovery values therein), matters more for asset prices than the level of disagreement. Our focus is markedly different. Taking the beliefs of borrowers and lenders as given, we study the role of borrower riskiness (rather than asset riskiness) in mediating disagreement. Stroebel (2020) shows that lenders with relatively superior information about the value of collateral earn higher returns on their secured loans. Jiang and Zhang (2023) find that mortgages collateralized by houses whose estimated values are more disperse – which the authors argue may be driven by information asymmetries – receive higher interest rates and are smaller in size. Our contribution to this strand of literature is to show that lenders' estimates of collateral values can also affect asset prices and returns, not just loan terms.

Jiang, Nelson, and Vytlačil (2009) present evidence suggesting borrowers tend to inflate their personal income levels, while Garmaise (2012) demonstrates a tendency for borrowers to inflate the value of their reported personal assets. Agarwal, Ben-David, Amromin, Chomsisengphet, and Evanoff (2013) document the significant role of predatory lending practices (manipulations employed by lenders) in contributing to borrower defaults during the financial crisis. Griffin and Maturana (2013) and Piskorski, Seru, and Witkin (2013) document the prevalence of mispricing occurrences within securitized mortgage pools, such as unreported second liens, inflated property appraisals, misrepresentation of owner-occupancy status, and property flipping activities. Furthermore, these studies reveal a correlation between these manipulative activities and an increased likelihood of borrower default. More broadly, the valuation process associated with any asset is inherently susceptible to bias arising from the influence and pressures exerted by the parties involved.

Barro and Benjamin (2020) observe that collateral fulfills its function by mitigating losses incurred when borrowers fail to honor their debt obligations or by increasing the cost of default for the borrower. Besanko and Thakor (2021) contend that borrowers readily offering collateral as security against credit facilities are less likely to default compared to riskier borrowers who may be reluctant to pledge their assets. Consequently, collateral plays a crucial role in differentiating between creditworthy and less creditworthy borrowers. Chege (2014) argues that the loan portfolio

constitutes the primary revenue source for a commercial bank. As the loan portfolio constitutes a substantial portion of a bank's assets, effective credit risk management is paramount to the bank's overall success and financial stability. In the absence of robust risk management practices, the bank's assets, particularly its loan portfolio, may be exposed to significant risks, potentially leading to substantial financial losses.

Memba et al. (2022) investigated the role of collateral pledged by SMEs on the performance of loan portfolios in commercial banks within Kisii County. Their findings revealed that the more easily collateral can be converted into cash, the lower the likelihood of default. This insight highlights the importance of collateral liquidity in reducing credit risk, as readily convertible assets provide a safety net for banks in the event of borrower default. The study suggests that effective collateral management plays a key role in enhancing the performance and security of commercial bank loan portfolios. Their investigation centered on a cohort of 14 commercial banks operating within Kisii County, as opposed to encompassing all commercial banks within the Kenyan jurisdiction. Khole (2014) undertook a research endeavor to explore the association between unsecured lending practices and loan performance within Kenyan commercial banks. The study findings revealed a significant positive correlation between unsecured lending and loan performance, indicating that unsecured loans do not necessarily result in elevated default rates as conventionally presumed. Instead, the findings suggest that with proper credit evaluation and risk management, commercial banks can achieve better loan performance even without the need for collateral.

Kirui and Kering (2020) conducted research to examine the influence of collateral on loan performance within the context of Moi University's Savings and Credit Cooperative Organization (Sacco) in Kenya. The study employed a descriptive research design and utilized statistical techniques such as Pearson correlation and chi-square analysis for data interpretation. The study concluded that collateralization serves as a critical prerequisite within debt contracts, facilitating effective Sacco management and mitigating credit risk, thereby reducing the likelihood of loan defaults.

Debt Service coverage on Asset Quality

The debt service coverage ratio (DSCR) serves as a metric for assessing a company's capacity to fulfill its debt obligations, encompassing both interest payments and principal repayments, by leveraging its operational cash flow (Delele, 2021; Okunev, 2022). This calculation is typically made when a company first acquires a loan from a bank or another lending institution. The DSCR constitutes a critical indicator of a company's financial well-being, as it incorporates interest payments, principal repayments, and dividend disbursements within its assessment (Firouzi & Meshkani, 2021). Bankers and investors frequently utilize it to assess a company's financial reliability and potential, as it provides valuable insights into the organization's capacity to support future expansion (Toton, 2002). The debt service coverage ratio (DSCR) serves as a critical metric for assessing a company's capacity to fulfill its financial obligations, encompassing both interest payments and principal repayments, by leveraging its operational cash flow (Delele, 2021; Okunev, 2022).

Lenders utilize the DSCR as a primary indicator to evaluate a company's ability to honor its interest and principal payment obligations (Yenni et al., 2021). Koh, Kose, Nagle, Ohnsorge, and Sugawara (2020) explored the effects of debt buildup in 100 emerging and developing nations. Their findings showed that swift debt accumulation, whether from public or private sector sources, raised the likelihood of a financial crisis. Additionally, a larger share of short-term external debt, higher debt repayment demands, and reduced reserve levels were also identified as factors

contributing to this increased risk.

Drehmann, Juselius, and Korinek (2023) carried out a study to explore the relationship between new borrowing, debt servicing, and the effects of credit booms. The results indicated that borrowing for financial resources has a positive impact on economic activity, fostering growth. However, it is important to recognize that borrowing creates an inevitable repayment schedule, which can lead to lower future economic output. The prolonged debt servicing period is linked to two main features of credit booms: the positive correlation between new borrowing and the length of loan agreements. Their study provided evidence supporting these trends, showing that debt repayment peaks four years after a credit boom, coinciding with a significant drop in economic performance and an increased risk of a crisis.

Clements et al. (2023) assert that high foreign government debt servicing costs lead to a substantial rise in interest payments, causing fiscal deficits that are unsustainable. They explain that an increase in government spending on foreign debt obligations reduces public savings and raises domestic interest rates. As a result, the rising cost of borrowing crowds out private investment, slowing down the rate of economic growth. Clements et al. (2003) contend that the expenses tied to servicing foreign government debt have a detrimental effect on economic progress. This negative effect is mainly due to the worsening terms of trade for the borrowing nation, which results in higher domestic tax rates and reduced returns on investments. In cases of severe distress, when countries resort to using natural assets like minerals and crops to settle external debt, the rate of resource exhaustion is significantly increased.

Teles and Mussolini (2021) suggest that long-term economic growth is hindered by a decrease in the government's ability to spend productively, due to the increase in interest payments on domestic public debt. In the broader context, this research includes a factor that has been relatively overlooked in most of the literature reviewed. Debt service ratios are significant because they serve as vital measures of a country's ability to meet its debt repayment requirements.

Yadi (2008) conducted research to investigate the impact of external debt and its servicing on the Nigerian economy. Utilizing time series data, the researcher employed Ordinary Least Squares (OLS) and Generalized Least Squares (GLS) techniques to analyze the relationship. The findings revealed that both external debt and its repayment exert an adverse and unfavorable influence on Nigeria's overall economic growth.

Agu (2022) investigated the connection between debt repayment, capital inflows, and economic development in Nigeria. The study utilized the Two-Stage Least Squares (2SLS) estimation technique and discovered that external debt repayment negatively affects economic development. However, capital stock and labor were shown to positively and significantly influence economic growth. Furthermore, both the exchange rate and economic growth were positively correlated with external debt repayment, while the stock of external debt showed a negative relationship with economic growth. The study also revealed that capital inflows were negatively affected by external debt service but positively impacted by economic growth.

Maana, Owino, and Mutai (2021) investigated the impact of domestic debt service coverage on Kenya's economic growth over an eleven-year timeframe, from 2009 to 2020. The study applied the Generalized Method of Moments (GMM) regression model for data analysis. The findings indicated that various factors, such as previous GDP levels, the government expenditure-to-GDP ratio, money supply, enrollment in secondary education, private sector credit, the debt-to-GDP ratio, and trade, influenced economic growth. Furthermore, the study revealed that an increase in domestic debt led to higher interest payments but did not crowd out private investments, attributed to the favorable financial development conditions in Kenya.

Nepal and Bhattarai (2021) carried out a survey to explore the impact of different Liquidities on the performance of commercial banks. The study used both descriptive and comparative research designs, while the current research will focus solely on a descriptive design. Data was gathered from fourteen commercial banks over a five-year period, spanning from 2015 to 2020. Through regression analysis, they found that credit standards, as a control strategy, negatively impacted commercial bank performance. The study concluded that the Liquidity significantly determines the overall performance of commercial banks. The current study, however, will specifically focus on asset quality.

Agu (2022) explored the relationships among debt servicing, capital inflow, and economic growth in Nigeria. The primary objective was to establish how these variables are interrelated. The study applied the Two-Stage Least Squares (2SLS) estimation method. The results revealed that external debt servicing negatively affected economic growth, while capital stock and labor had a positive influence on economic growth. This study integrates debt servicing, capital inflow, and economic growth, while the present research will concentrate on the effect of debt servicing on asset quality.

Elsas and Krahnert (2022) conducted research to examine the impact of collateral on borrower quality within the German banking sector. The study findings revealed no discernible correlation between the presence of collateral and the quality of the borrower. They observed that the underlying rationale for utilizing collateral in debt contracts extends beyond risk mitigation, encompassing the facilitation of strong lender-customer relationships, as well as the facilitation of debt restructuring and renegotiation processes. Cressy and Toivanen (2001) similarly found no discernible correlation between credit risk and collateralization among UK banks. The collateral on borrower quality German banks and UK banks while the current study was in Kenya.

RESEARCH METHODOLOGY

Research Design

Silva (2017) and Akhtar (2016) define research design as the foundational framework that guides the conduct and execution of a study, providing a clear roadmap for data collection, measurement, and analysis to effectively address the research questions. The fundamental goal of a research design is to guarantee that the information obtained enables investigators to resolve the primary research question as clearly as possible, while also minimizing any potential for bias (Imenda, 2014). The study used a descriptive research design. This design is particularly useful in answering various questions related to the how, when, where, and what of the research topic. By employing this approach, the study aims to provide a detailed overview of the issues under investigation (Cooper & Schindler, 2011).

Target Population

Blumberg et al. (2003) define the target population as the entire collection of individuals or entities that constitute the subject matter of a research study. For the purpose of the current study, the target population constituted the 12 Deposit Taking MFIs operating in Kenya. The census method was applied to select all the DTMFIs in Kenya for a period of 5 years beginning 2019 to 2023. The census method was applied to select all deposit-taking microfinance institutions in Kenya over a five-year period to ensure comprehensive coverage of the study population and eliminate sampling bias.

Sample and Sample Techniques

The study utilized the census method to select all 12 Deposit-Taking Microfinance Institutions in Kenya. The census method is typically employed when the population under study is relatively

small. In this case, it is ideal as the entire population consists of only 12 Deposit-Taking Microfinance Institutions in Kenya, making it manageable and suitable for this research. The recent five years' period was investigated making it easier to get adequate and accurate information necessary for the research.

Data Collection Instrument

The selection of the data collection method is contingent upon the research objectives, the researcher's skillset, and the availability of resources (Kumar, 2011). Secondary data was obtained from annual financial reports. This secondary data was primarily quantitative and descriptive in nature, sourced from MFI annual financial statements, audited financial statements, and Central Bank of Kenya banking sector reports spanning a five-year period from 2019 to 2023. Furthermore, specific data was sourced from the published financial statements of the twelve DTMs over the preceding five years (2019-2023).

Numerical Expression of Variables in a Dataset for Regression Analysis

To examine the relationship between collateral evaluation, debt service coverage, and asset quality in deposit-taking microfinance institutions, each variable must be quantified numerically for regression analysis. The dependent variable, asset quality, is commonly measured using the non-performing loan ratio, calculated as:

$$NPLR = \frac{\text{Non-Performing Loans}}{\text{Total Loans}} \times 100$$

Collateral evaluation is operationalized through the collateral coverage ratio, defined as:

$$Collateral\ Coverage\ Ratio = \frac{\text{Collateral Value}}{\text{Total Loans}} \times 100$$

Debt service coverage is measured using the debt service coverage ratio, calculated as:

$$DSCR = \frac{\text{Net Operating Income}}{\text{Total Debt Service}}$$

These numerical measures enable panel regression analysis.

Data Analysis

The gathered panel data was meticulously reviewed to remove inaccuracies, inconsistencies, missing details, and gaps in information. To answer the study's research questions, the data was examined using both quantitative and qualitative approaches. Descriptive analysis assisted the researcher in producing summary statistics, including mean, median, and mode. The study adopted the panel data fixed effect model to determine the nature of the relationship between collateral evaluation, debt service coverage, and asset quality.

RESULTS AND FINDINGS

Descriptive Statistics

The results in Table 1 present the descriptive statistics on collateral evaluation, debt service

coverage and asset quality of deposit taking microfinance institutions in Kenya.

Asset quality was measured using the non-performing loan (NPL) ratio. The descriptive statistics for the NPL ratio showed a mean of 0.069 (SD = 0.020), indicating that, on average, 6.9% of the loan portfolio for the sampled deposit-taking microfinance institutions was classified as non-performing. The ratio ranged from a minimum of 0.016 to a maximum of 0.113.

Collateral evaluation was operationalized through the collateral coverage ratio, defined as the total value of collateral divided by the total loan portfolio. The mean ratio was 0.684 (SD = 0.118), with a minimum of 0.491 and a maximum of 0.922. This indicates that, on average, the collateral held by the institutions covered 68.4% of their total loan portfolio.

Debt service coverage was measured using the debt service coverage ratio (DSCR), calculated as net operating income divided by total debt service. The mean DSCR was 1.470 (SD = 0.678), with a minimum of 0.505 and a maximum of 3.362. A ratio above 1.0 indicates that the average borrower generates sufficient income to cover debt obligations.

Table 1: Descriptive Statistics

Variable	Mean	Std.Dev.	Min	Max	Observations
Asset Quality	0.069	0.020	0.016	0.113	N=70, n=14, T=5
Collateral Evaluation	0.684	0.118	0.491	0.922	N=70, n=14, T=5
Debt Service Coverage	1.470	0.678	0.505	3.362	N=70, n=14, T=5

Source: Research Author (2025).

Trend Analysis

The trend analysis was utilized as a visual expression of the trends for each of the study variables.

Collateral Evaluation

The trend plot of the collateral coverage ratio from 2019 to 2023 reveals notable fluctuations in asset-backed lending security. The ratio increased steadily from 2019 to 2021, peaking near 0.71. A sharp decline in 2022 to approximately 0.665 was observed, followed by a rebound in 2023 to around 0.695.

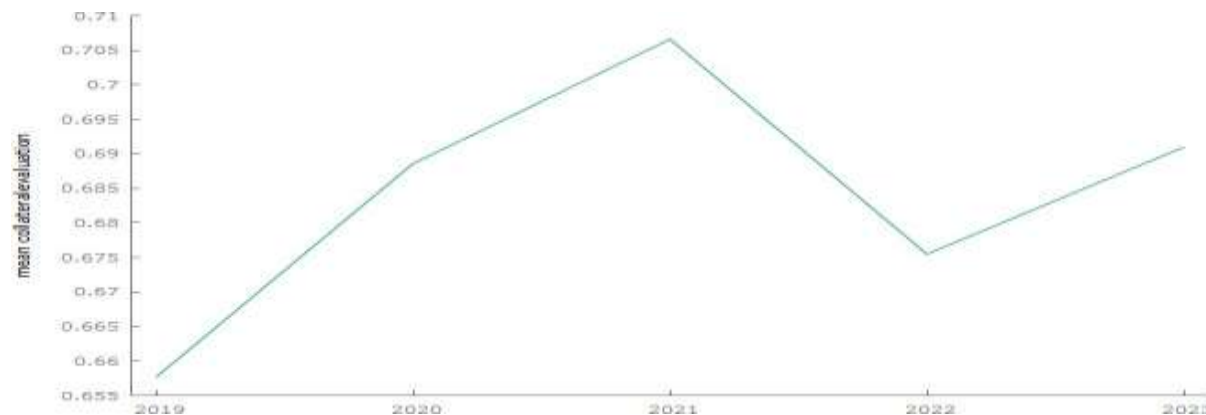


Figure 1: Collateral Evaluation Trend

Source: Research Author (2025).

Debt Service Coverage

Between 2019 and 2023, the mean Debt Service Coverage Ratio exhibited notable fluctuations. The DSCR declined slightly from approximately 1.45 in 2019 to 1.40 in 2020. A significant peak

occurred in 2021 at around 1.70. Subsequent declines to 1.45 in 2022 and 1.35 in 2023 highlight increasing financial strain.

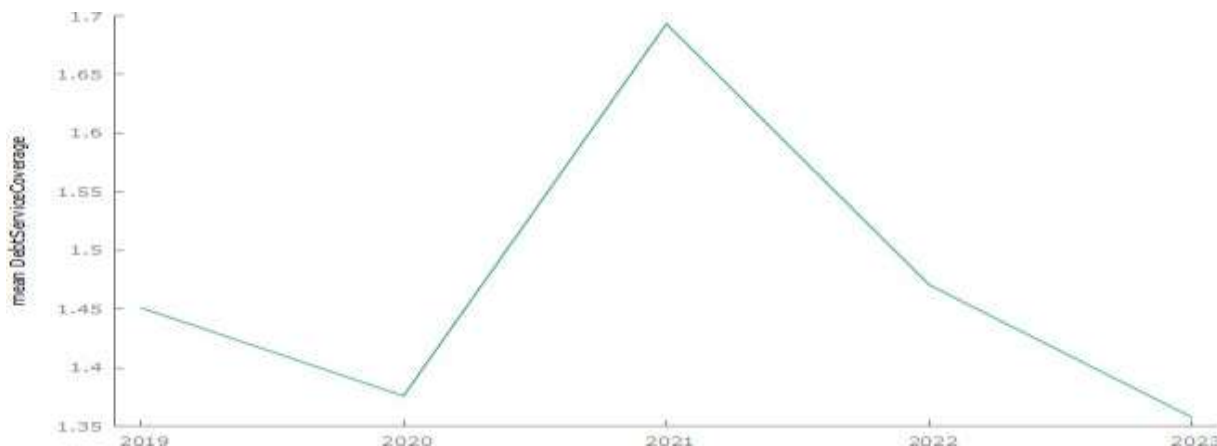


Figure 2: Debt Service Coverage Trend

Source: Research Author (2025).

Asset Quality

The trend of asset quality measured by the NPL ratio declined from 2019 to 2020, sharply increased in 2021, then gradually declined in 2022 and 2023.

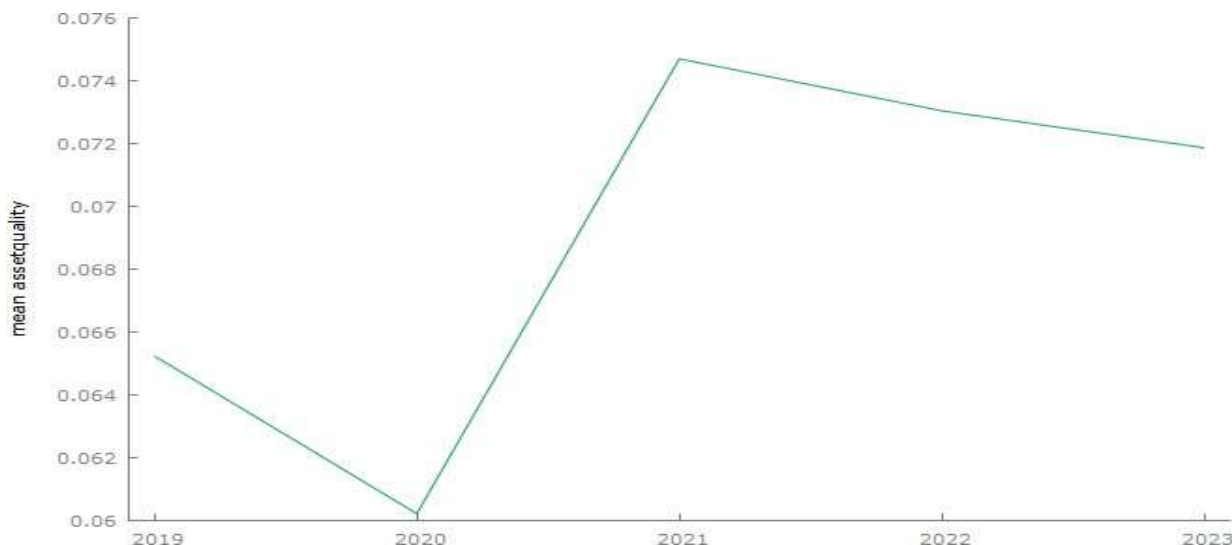


Figure 3: Asset Quality Trend

Source: Research Author (2025).

Correlation Analysis

A positive and significant correlation exists between collateral evaluation and asset quality ($r = 0.641$, $p = 0.000$), suggesting that rigorous collateral assessment practices significantly improve loan portfolio quality. This supports the findings of Berger and Udell (2020), who emphasize that robust collateral valuation mitigates credit risk in financial institutions.

Lastly debt service coverage has a positive and significant correlation with asset quality ($r = 0.576$, $p = 0.021$), reinforcing that MFIs with stronger debt repayment capacity maintain healthier loan books. This corroborates Merton’s (2019) argument that adequate cash flow coverage reduces default risk, thereby preserving asset quality.

Table 2: Correlation Analysis

Variables	Asset Quality
Collateral Evaluation	0.641* (0.000)
Debt Service Coverage	0.576* (0.021)

Correlation significant at $p < 0.05$

Source: Research Author (2025).

Panel Regression Analysis

The regression results for fixed effect Table 4.10 indicate how various financial factors influence asset quality, with an R-squared of 0.777, suggesting that 77.7% of the variation in asset quality is explained by the independent variables collateral evaluation, and debt service coverage. The remaining 22.3% of variance is caused by factors not included in the model. The F-statistic 45.382, $p = 0.000$) confirms that the model is statistically significant, indicating that the predictors collectively influence asset quality (Wooldridge, 2016).

Collateral Evaluation and Asset Quality

The regression model shows that a unit change in collateral evaluation causes a 0.055 increase in asset quality ($\beta = 0.055$, $p = 0.015$), indicating that stricter collateral assessments enhance asset quality. This finding supports the argument that rigorous collateral valuation reduces credit risk, thereby improving the overall quality of a bank's asset portfolio (Jiménez et al., 2016).

Debt Service Coverage and Asset Quality

The model also shows that a unit change in debt service coverage ratio causes a 0.132 increase in asset quality ($\beta = 0.132$, $p = 0.000$), implying that firms with stronger debt repayment capacity maintain higher asset quality. This is consistent with studies showing that adequate cash flow coverage reduces non-performing loans (NPLs) and enhances asset stability (Kroszner et al., 2017).

Table 3: Regression Coefficient Analysis

Variable	Coef.	Std.Err	t-value	p-value
Collateral Evaluation	0.055	0.022	2.500	0.015
Debt Service Coverage	0.132	0.004	33.000	0.000
Constant	-0.035	0.017	-2.059	0.043
Model Statistic	Value			
R-squared	0.777			
F-test	45.382			
Prob > F	0.000			
Observations	70			

Research Questions

The study found that collateral evaluation has a significant and positive effect on asset quality of deposit taking microfinance institutions in Kenya. The study also found that debt service coverage has a significant and positive effect on asset quality.

Discussion of Findings

The findings established that rigorous collateral assessment practices significantly improve loan portfolio quality and reduce credit risk. The findings further established that institutions with stronger debt repayment capacity maintain healthier loan books and higher asset quality.

Summary of Findings

The second objective was to assess the effect of collateral evaluation on asset quality of deposit taking microfinance institutions in Kenya. Correlation results indicated a strong positive association, implying that rigorous collateral assessment practices contribute to improved loan portfolio quality. Regression analysis reinforced this finding, showing that stricter collateral evaluations enhance asset quality. This suggests that robust collateral valuation mitigates credit risk, leading to a healthier asset base for financial institutions. quality, highlighting that institutions with stronger creditworthiness experience lower default risks and greater financial stability.

The final objective to assess the effect of Debt Service Coverage on asset quality of deposit taking microfinance institutions in Kenya. The correlation findings indicated a positive and significant relationship, suggesting that MFIs with stronger debt repayment capacity maintain healthier loan portfolios. Regression analysis supported this, demonstrating that higher debt service coverage ratios lead to better asset quality. This implies that institutions with sufficient cash flow to service debt obligations are less likely to face loan defaults, thereby preserving asset stability.

Conclusion

The main objective of the study was to establish the effect of credit appraisal techniques on asset quality of deposit taking microfinance institutions in Kenya. The study findings concluded that credit appraisal techniques had a positive and significant effect on asset quality of deposit taking microfinance institutions in Kenya.

The first objective was to assess the effect of collateral evaluation on asset quality of deposit taking microfinance institutions in Kenya. The study further concluded that collateral evaluation significantly improves asset quality, adding to existing literature by highlighting the role of stringent collateral assessment in mitigating credit risk within microfinance institutions. This insight is particularly valuable for regulators and MFIs, as it underscores the need for robust loan appraisal systems to minimize defaults and maintain a healthy loan portfolio.

The final objective to assess the effect of debt service coverage on asset quality of deposit taking microfinance institutions in Kenya. the study concluded that debt service coverage enhances asset quality, contributing new evidence that adequate cash flow management is essential for reducing non-performing loans. This reinforces the importance of debt sustainability analysis in microfinance operations, offering practical implications for financial institutions seeking to optimize their lending practices.

Recommendations of Study

Given that collateral evaluation improves asset quality, regulators should enforce stricter collateral valuation guidelines to minimize credit risk. The Central Bank of Kenya could introduce standardized collateral assessment frameworks, ensuring MFIs conduct thorough due diligence before loan approvals. This would align with global best practices in risk-based supervision.

Finally, the study confirmed that debt service coverage is crucial for asset quality. The National Treasury should encourage MFIs to adopt debt sustainability assessments in their lending policies. Regulatory bodies could also introduce stress-testing requirements to ensure MFIs can withstand economic shocks without deteriorating asset quality.

Recommendation for Further Research

Future research should expand on this study by investigating additional factors that may influence asset quality in microfinance institutions. Potential areas of exploration include the impact of corporate governance structures, technological adoption, and macroeconomic fluctuations on asset quality. Methodologically, qualitative approaches, including interviews with MFI managers and

borrowers, could uncover operational challenges not captured in quantitative data. Advanced analytical techniques such as machine learning models might improve default prediction accuracy by incorporating non-traditional variables.

Comparative studies between different types of financial institutions or across African markets could reveal contextual differences in asset quality determinants. Such research would further develop the theoretical framework surrounding microfinance operations while providing practical insights for practitioners and policymakers alike.

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