

**THE CORRELATION BETWEEN INCOME DIVERSIFICATION
ON THE EFFICIENCY OF MICROFINANCE BANKS IN KENYA**

BY

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DECLARATION

This research project is my original work and has not been presented for any degree in any other university.

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This research project has been submitted for examination with my approval as university supervisor.

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DEDICATION

I want to express my gratitude to my parents and siblings for their support, without them I couldn't have accomplished much.

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LIST OF ABBREVIATIONS

CBK	Central Bank of Kenya
DEA	Data Environmental Analysis
HHI	Herfindahl-Hirschman Index
NPLs	Non-Performing Loans
ROA	Return on Assets
SMEs	Small and Medium Enterprises

ABSTRACT

Increasing the percentage of fees, net trading profits, and other non-interest revenue in a bank's net operating income is referred to as "income diversification" in the banking industry. According to finance theory, a bank's risk-adjusted performance should increase and its degree of risk should decrease as its income sources diversify. Most microfinance banks are known to generate majority of their income from interest sources, however there has been a gradual shift in recent years, as they are now diversifying by venturing into non-interest sources of income generation. This claim—that nearly 40% of these banks' net income comes from non-interest sources—is supported by an analysis of their financial statements. The study looked at how income diversity affected Kenyan publicly traded banks' operational effectiveness. The study sample comprised of 14 microfinance banks located in Kenya. The study's time frame was from 2018 to 2022. There was a descriptive design used in the investigation. The control variables included liquidity, capital sufficiency, and bank size. According to the study's results, the independent variables may account for about 20.1% of the efficiency variation, with irrelevant factors responsible for the remaining 79.9%. The R-square value for the study was found to be 0.201. It was established that the model was of statistical significance and, therefore, adequate for the investigation, with an ANOVA analysis p-value of 0.022. Efficiency and income diversity have a weak and statistically insignificant relationship, according to the Herfindahl-Hirschman Index (HHI). The effectiveness of a bank and its size were found to be positively and strongly correlated by the study. Efficiency and capital sufficiency revealed a negative connection that was not statistically significant. It was shown that liquidity has a small but favorable impact on efficiency. The study suggests that each bank should create a customized income diversification plan. Additionally, investors are encouraged not to worry about income diversification when selecting investment options because it does not imply improved efficiency.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Microfinance Banks offer financial services to micro and small enterprises (MSEs) and low-income households. This could encourage economic activity among the impoverished and contribute to the reduction of poverty. Numerous experiences and studies have shown how important savings and credit options are for those who are impoverished. Hence, the robust advancement of microfinance institutions is crucial for fostering investment, generating employment, and driving economic progress. The utilization of institutional credit and other financial services has a substantial potential for reducing poverty in Kenya. (Omino, 2005). Microfinance banks rely on efficiency measures to analyze their strengths and weaknesses. Determinants of banks efficiency vary amongst different banks; however, there seems to be a point of convergence with regards to determinants that drive higher efficiency. The common determinants that drive higher efficiency include introduction of progressive technologies, a favorable policy environment and diversification of income activities (Tarazi, 2014).

Resource-based theory, the theory of market power, and modern portfolio theory serve as the foundation for this investigation. Resources Based View according to (Wernerfelt, 1984), opine that organizations make purposeful managerial attempts to obtain a long-term competitive edge. In addition, firms having more resources are better able to compete better in the market. According to the market power argument, banks that diversify their revenue streams and have a larger market share do not always operate more efficiently. According to Hicks (1935), banks with a higher market share are by nature less efficient because they might manipulate prices to benefit from their dominating position in the market and increase profits. Modern portfolio theory states that banks can lower risk by spreading out their sources of income.

The impact of diversification of earnings on banks' efficiency is different according to the amalgamation and purposeful emphasis hypotheses. According to the conglomeration hypothesis banks should direct more efforts towards their core business activities if they want to improve their efficiency while the conglomeration hypothesis takes the view that diversifying of income sources by the banks increases their

competitive advantage and boosts the banks' efficiency. Such change to non-interest earning activities amplifies efficiency. However, the strategic focus hypothesis takes a different view. The hypothesis is of the view that diversifying income sources create agency problems where the managers add new business segments for their own selfish gains. The hypothesis further posits that diversification costs outweigh their benefits; hence banks should not diversify (Denis, Denis, & Sarin, 1997).

1.1.1 Income Diversification

As described by Ebrahim and Hasan (2008), diversification of revenue, is the process of pursuing new revenue streams in addition to traditional revenue streams. In order to sustain their businesses over time, banks will be forced to diversify their revenue sources away from interest income. Indeed, income diversification entails combining or creating money from a variety of sources (Baele, Jonghe, & Veneta, 2006). This entails a transition away from interest-based income sources connected with traditional intermediation operations and towards a new non-interest-based income-generating activity (Doumpos, Gaganis, & Paviours, 2013).

The Herfindahl-Hirschman Index (HHI) is used to assess or quantify income variance, according to Stroh and Rumble (2006). The interest expense and non-interest income sections of net operating earnings are explained by HHI. HHI views income diversification as a relative measure that equalizes the exposure of all sources of income. Additionally, it helps with the assessment and verification of the concentration and diversification of income sources within banks. A bank's diversification away from sources that generate interest and toward sources that do not is measured by the HHI. A low Herfindahl-Hirschman Index (HHI) suggests that the financial institution is sufficiently diversified and focuses on both net and non-interest revenue, whereas a high HHI index suggests that the financial institution is concentrating on one income source and is therefore less diverse.

1.1.2 Efficiency of Microfinance Banks

Efficiency is a performance indicator that illustrates how many outputs can be produced with the least amount of inputs. Although the phrases productivity and efficiency are commonly used synonymously in literature, they have two distinct meanings. While

efficiency, a more general term that refers to the combined performance of all production components, is used to estimate productivity. Analyzing the labor variable's performance yields the productivity. Efficiency in banking is a measure of the total, whereas productivity evaluates the work of its employees including capital, management outcomes, and employee performance (De Young & Hunter, 2002).

Kalluruand Bhat (2009), opine that a firm's efficiency is determined by several elements, including skilled and competent staff, effective technology adoption and execution, properly designed procurement procedures, and income diversification among others. In order to adequately evaluate a bank's efficiency, it is vital to comprehend and analyse its non-interest costs in relation to non-interest income (Daniel, Longbrake & Murphy, 1973). In this study, the non-parametric DEA technique introduced by Farrell (1957) will be applied. To begin, a collection of inputs linked to a collection of outputs will be defined, and calculations will be performed completely theoretically. The DEA method measures and analyses the relative performance of decision-making units (DMUs) by comparing their input and output data.

The input vectors will include; labour, Short-term financing comes from customers and fixed assets such as whereas loans and the acquisition of assets will be the results. The efficient banks receive a score of 1, while the inefficient banks be assigned a number between 0 and 1. The efficiency scores vary from 0 to 1. Analysing the efficiency of a firm using DEA is ideal since DEA is based on individual firms. The limitation to this approach is that where a given input or output was not incorporated and it becomes incorporated into the model, then the ranking will not be the same in the two different scenarios.

1.1.3 Income diversification and Efficiency

On the connection between income diversity and company efficiency, the Conglomeration perspective and the Strategic Focus view take opposing stances. According to the amalgamation theory, large corporations can diversify their business lines and reduce costs while increasing revenue by taking advantage of their scale (Berger et al., 2000, Teece, 1980). This would improve the firm's financial efficiency and reduce information asymmetries in the capital market (Gertner, Scharfstein, & Stein, 1994). According to the strategic focus hypothesis, an organization can only

become more efficient by concentrating on its core competencies and business lines. Even while it discourages a company from pursuing endeavors outside of these areas (John & Ofek, 1995).

It is impossible to exaggerate the effect that diversification has on banks' performance. It has been proposed that diversifying a bank's revenue streams reduces their efficiency. Because, income diversification makes governance and supervision of banking operations less effective due to the complex nature of its operations (Hughes et al., 2003). Also, increased information asymmetry and agency problems resulting from increased banking activities (diversified income sources) further undermine the banks operational efficiency.

According to Prahalad and Hamel (1990), banks were obliged to sell and provide items in which they lacked the necessary knowledge to compete as a result of diversifying outside of their main business. Lower operating efficiency was the outcome. Palich et al. (2000) concurred with the premise, claiming that operational efficiency decreased as a result of business operations diversification into industries unrelated to the banks' primary business activities or into which they were not strong. Nonetheless, certain research findings indicated a favorable correlation between diversification and efficiency. Chronopoulos et al., (2011) found high levels of efficiency for banks absorbed into the European Union between 2001 and 2007 which had diversified their income sources. Lee et al., (2014) in his study of Asia for the period 1995 to 2009 also finds a positive relationship.

1.1.4 Microfinance Banks in Kenya

A business that consistently represents its owner as accepting deposits is eligible to be classified as a deposit-taking microfinance business or microfinance bank under the Microfinance Act (2006). The Microfinance Act of 2006 governs microfinance banks, and they are subject to identical standards as traditional banks under the Central Bank's prudential control, although not being fully registered banks. These banks use deposits from customers to create capital so they can offer loans on their own (Alastair, 2015). According to the World Bank, micro-finance institutions (MFIs) are financial institutions that providing low-income households small-scale financial services, small-

scale farmers, and other individuals who do not have access to traditional banking services. They accomplish this by using a variety of methods.

Demand deposits are accepted by microfinance banks, which use them to create capital for consumer credit extensions (Alastair, 2015). Kenya stands sixth internationally and top in Africa. In terms of microfinance operations (Ayele, 2014). Of the approximately 250 MFIs in Kenya, only 56 are registered with the umbrella organization, the Association of Microfinance Institutions. As of December 2015, there were twelve microfinance organizations in Kenya that accepted deposits. Some of the leading companies in the industry are listed by Njenje and Bengi (2016) as Rafiki Microfinance Bank, Century MFI, Sumac MFI Bank Limited, Uwezo MFI, Small and Medium Enterprise Program (SMEP), Kenya Women Finance Trust (KWFT), and Faulu Kenya. Providing financial services to low-income individuals and Micro and Small Enterprises (MSEs) that are successfully involved in non-farm endeavors is the aim of Kenya's microfinance industry. MFIs have made substantial product and service innovations over time, and MSEs use these advances (Gibson, 2012). Over the previous three years, the microfinance sector's total assets showed steady expansion, with banks holding a dominant position in the market (Agola, 2014).

1.2 Research Problem

There have been conflicting results from earlier studies on the connection between bank efficiency and income diversity. Elsas et al., (2010) argued that banks could venture into business activities outside their core area of specialization and still increase their efficiency. When banks diversify between segments, Rajan et al. (2000) discovered that capital misallocation among divisions is more common. As a result, the costs of wasteful investment increases. Proponents of the aggregation view contend whose banks that range their earning streams see bigger productivity improvements during times of crisis, in opposition to banks whose rely solely on a single business stream. (Calomiris, 1998).

According to strategists, banks can only increase their efficiency by focusing on their primary business areas and areas of expertise (Denis, Denis, & Sarin, 1997). The need for this investigation is bolstered by the opposing viewpoints of the many proponents. Microfinance institutions serve as alternative financial institutions to traditional banks,

with some functioning as subsidiaries of major investment banks. Through these bank-operated institutions, individuals residing in underdeveloped areas can gain access to the financial resources provided by the banks.

Microfinance institutions (MFIs) are increasingly shifting their focus towards lucrative sectors in order to maximize returns in accordance with the risk appetite of their shareholders. It is crucial for MFIs to create ample profits to enable the payment of dividends to shareholders and, if feasible, reinvest some funds into the firm to finance more expansion. As the environment of microfinance institutions evolves, it becomes necessary for management to maintain their alignment with the changing environment. With the growing market of MFIs, there will be an increasing demand for them to enhance their performance and take on more responsibilities. Enhancement in performance is contingent upon managers possessing knowledge of their present condition. It is essential to maintain accurate accounts in order for managers to identify the precise areas that require development.

Assefa, Hermes, and Meesters (2010) state that the microfinance industry has grown significantly in several countries and is now a large subsector of the official financial markets. But all of the participants in the microfinance sector are being impacted by the industry's rapid change (Yenesew, 2014). There are now a lot more businesses providing microfinance services. Competition in several countries (Porteous, 2006). While numerous microfinance organizations have achieved commendable loan repayment rates, only a small proportion have managed to generate profits thus far (Cull, Demirgüç-Kunt & Morduch, 2007). Commercial banks provide fierce competition for MFIs. MFIs may face increased competition for borrowers as a result of commercial banks' development of their microloan operations (Addisalem, 2015). Market share and profitability fluctuations reveal fierce rivalry in Kenya's microfinance industry. The conventional commercial banks, Mpesa, and other telecommunication money transfer platforms are in competition with the microfinance institutions (MFIs) sector (Okombo, 2015).

AMFI (2013) states that credit-only institutions have shown gradual improvement over time, while banks and DTM experienced improvement in 2010-2011 followed by a minor decline in 2011-2012. Kenyan microfinance banks are under intense pressure to lower prices due to competition, yet their financial structure prevents them from doing

so. IMFI brought this to light in 2013. Therefore, it is essential to investigate the elements influencing Kenya's microfinance institutions' financial success. According to Elsassian and Wang (2012), income diversification can boost the efficiency of a bank through economies of scale, exchange of client information, and lastly by diversifying the operations of the bank. Acharya et al., however, discovered a negative correlation between operational efficiency and income diversification (2006). Huang and Chen (2006) looked at how banks' reliance on various non-interest revenue streams affected their efficiency. The banks between the least or largest percentages of interest and non-interest earnings from commercial activities were found to have distinct effectiveness indices than the banks with medium interest rates and non-interest income. Palich et al., (2000) found that expanding business operations into areas that were not the banks' core competencies or less closely tied to their primary business activities resulted in a decrease in operational efficiency.

Profitability and income diversification are positively correlated, according to Kiberia (2012). This helps banks to reduce profitability issues and intense competition, ultimately leading to improved financial performance. In contrast to the findings of Kipleting (2016), they discovered no link between the diversity of income and how well banks performed. Based on Kiweu (2012) and Kiberia (2012), the amount of net interest earned and non-interest revenue are positively correlated. Given that there was no statistically significant link discovered, however, raises the possibility that non-interest earnings are not as important in guaranteeing the stability of total operating income.

The success of microfinance institutions (MFIs) is positively correlated with asset diversification, according to Magambo (2013).

The divergence of opinions among numerous researchers justified the need for more investigation into the subject matter. In addition to the discrepancies in the research results, the majority of empirical data on income diversification has been concentrated on developed economies. The effect of diversity on the banking sector's efficiency has not drawn much attention or discourse. Furthermore, NSE-listed commercial banks have not been the subject of any local study. Closing this gap is the aim of this research.

Thus, the question is: How does income diversity affect Kenya's microfinance institutions' effectiveness?

1.3. Research Objective

The goal of the study was to determine how revenue volatility affected Kenyan microfinance institutions' profitability.

1.4 Value of the Study

The results of the study will give customers and bank manager's insight with industry knowledge and direction for creating innovative diversification strategies that will enhance banks' overall performance. The data can also be used as a guidance when commercial banks are deciding on income diversification initiatives.

In actuality, the study's findings will help these banks' management by providing direction on how to diversify banks in order to increase their efficiency. It will further the understanding of how commercial banks' efficiency is impacted by diversification. Bank management will therefore be able to implement value-enhancing techniques.

From an academic perspective, this study adds to current financial theories and offers fresh data on how revenue diversification affects banks' efficiency. In order to determine whether the current results and those of earlier studies align with the study they would perform, future researchers who are interested in the association can utilize the study findings as a basis for their own research on the topic. This study broadens the body of information already known on the subject.

CHAPTER TWO LITERATURE REVIEW

2.1 Introduction

The chapter provides an explanation of the underlying assumptions of the research as well as how these theories influence the findings. There is also an empirical evaluation that includes queries on the subject made by a number of professionals. In addition, a comprehensive analysis of the existing literature is conducted, along with an examination of the conceptual framework.

2.2 Theoretical Review

The contemporary portfolio theory and the notion of market authority will serve as the theoretical cornerstones of this study.

2.2.1 Modern Portfolio Theory

In 1952, Markowitz developed the hypothesis. The theory states that variety in minimum values and maximum projected returns are both necessary for an effective portfolio. Assets having a high value that are riskier or a low value that are less risky are both included in the efficient portfolio. Therefore, avoiding assets that are expected to yield lower returns or underperform in comparison to the others might help achieve efficiency. Consequently, a situation known as diversity— where decisions are made about the resources and assets to be used to complete a task—appears (Brealey and Myers, 2003).

The theory and the current study are related in that by carefully selecting various asset sizes, banks that diversify their primary revenue streams can lower the risk associated with a given rate of expected return or increase the expected return on their portfolio while maintaining a given degree of risk. By include a percentage of non-interest profits in net operating income, even while revenue from intermediaries operations is anticipated to be more consistent than revenue from non-intermediation operations, diversifying can help reduce bank variability. Which increases the bank's efficiency (Koponen, 2003). This theory contends that banks can gain a competitive edge and increase productivity by utilizing diversification as a performance-enhancing strategy.

Banks have become more dependent on non-intermediation business operations because they allow them to generate income from trading, fees, and other non-interest sources. The goal of holding non-positively correlated portfolio combinations is to lower portfolio risk.

2.2.2 Market Power Theory

Market power theory is based on Porter's (1980) thesis, which claims that a business can strategically position itself in its environment by employing a variety of tactics that distinguish a firm distinct from its competitors. Diversification, according to Caves

(1981) and Miller (1973), increases opportunities for reciprocal buying and predatory pricing while reducing industry rivalry when several major conglomerates compete in several markets. Montgomery (1994) identified three ways for to gaining market power by firms via diversification: Cross-subsidizing is the practice of using earnings from one market to pay exploitative prices in another; bilateral restraining of fierce rivalry; and reciprocal purchasing between divisions of conglomerate businesses that despise one another. These techniques enable firms to outperform the competition, resulting in profits that are significantly higher than the market's average. As a result, diversification is viewed in this theory as a tool for increasing the firm's profitability and efficiency.

Because diversification enables businesses to enter new markets, providing them a competitive advantage over rivals not just due to their unique positioning within the market as well as their existence in other marketplaces, the market power hypothesis is pertinent to this subject. As a result, companies will have a range of business segments, all of which will bring in different kinds of revenue for the organization. Market domination is the prerequisite for conglomerate power, according to Gribbin (1976). Because of their dominance, businesses are encouraged to use predatory tactics to enter new markets, aided by their resources, influence, and existing market position. Additionally, this will drive the business into previously untapped revenue streams, leading to income diversification.

2.3 Determinants of Bank Efficiency

The factors that determine a bank's efficiency are covered in this part, and they include the bank's size, liquidity, and asset quality.

2.3.1 Size of the Bank

The size of the company has a major impact on how effective it is. Bigger businesses are more efficient, but smaller businesses aren't able to compete with bigger businesses in this area. Chi (2004) looked into the relationship and found that shareholder rights and efficiency are both impacted by a company's size. Yi and Tzu (2005) assert that a company's performance is independent of its size. The connection between productivity and size is significant because variations in size have a significant impact on efficiency. Because they employ more knowledgeable and qualified workers than small banks,

large banks are able to compete more successfully. This implies that they may perform better in terms of turning a profit and managing costs (Evanoff & Israilevich, 1991). Cole & Gunther (1995) provided support for this claim, arguing that because of their greater flexibility in the financial markets, larger banks were less vulnerable to credit problems than smaller banks.

Larger banks, according to Casu and Girardone (2006), benefit from economies of scale, have greater prospects for growth, and can participate in joint production activities. In comparison to smaller banks, they attain higher levels of efficiency as a result. Banks of a larger size have also been chastised. They're thought to be more sophisticated, which makes managing them more difficult. Furthermore, excessive bureaucracy in larger banks may render them inefficient, resulting in poor performance (Delis & Papanikolaou, 2009). Bank size and efficiency have a substantial positive relationship, according to Berger, Hancock, and Humphrey (1993).

Smaller banks are less efficient than larger banks, according to studies mentioned above. Isik and Hassan (2003) came with an opposite conclusion. When compared to medium-sized banks, larger and smaller banks were found to be less efficient. The metric utilized, however, was technical efficiency rather than operational efficiency. According to Kumbhakar and Wang (2007), a bank's efficiency and its size have a negative but weak association. As a result of their operational benefits, Compared to larger banks, smaller banks are more efficient.

2.3.2 Firms Liquidity

The ability of an organization to finance asset expansions and timely payment of obligations is known as liquidity.

Liquid assets encompass currency, funds receivable from other financial institutions, deposits held by other banks, amounts owed by central banks, and tradable securities (Oloo, 2007). Therefore, it is essential for the continued sustainability of any banking organization. The consequences of a lack of available funds at a certain bank can have wide-ranging impacts, as the significance of having enough funds extends beyond the limits of an individual bank. The minimum liquidity ratio mandated by law in Kenya is 20%. While banks have effectively upheld a liquidity ratio that surpasses the regulatory threshold, there is a compromise involved in sustaining elevated liquidity levels.

Kamau (2009) defines this trade-off as the relinquishment of the opportunity to invest in assets that generate high yields.

Banks can make their balance sheet more liquid by transforming fewer liquid assets into more liquid liabilities. Liquid banks can be considered more efficient if other parameters are held constant, since they can produce greater output consisting of both liquid and other assets. Brissimis et al. (2008) discovered a negative correlation amongst bank efficiency as well as risks associated with liquidity. but positively correlated by Ariff and Can (2008). Excess liquidity exhibits a positive association when regressed against the x-inefficiency index, according to Aikeli (2008), corroborating the notion that banks accumulate excess liquidity. This may result in inefficiencies in banks.

2.3.3 Asset Quality

Asset quality has a big influence on a bank's overall financial health and is a crucial predictor of credit risk. The degree of credit risk and the bank's debtors' cost-effectiveness determine the value of the assets that a bank controls. trends in non-performing loan volume, and the bank's accountability towards particular risks all affect the quality of assets under its control (Athanasoglou et al., 2008). The primary reason behind Kenyan bank collapses has been the low quality of assets. A study conducted in 1986 by Waweru and Kalani (2008) found that the main reason Kenyan banks went bankrupt was because they were giving non-performing loans to politicians and insiders.

The lowest practical value for this ratio is the ideal situation. Any risk related to the loan books will be reflected in larger interest margins if a bank is managed well. A declining ratio indicates that margins are not offsetting the risk to a sufficient degree. Impairment loans, or diminished loan reserves, are a useful tool for assessing the asset quality of banks. The organization's efficacy will be evaluated using the percentage of loan loss reserve to non-performing loans (NPLs), rather than other indicators. The bank performs better as the ratio rises, which raises customer satisfaction with its effectiveness (Collins, 2010).

Research on the connection between asset quality and bank efficiency has yielded a range of results. DeYoung (1997) established a negative association between asset quality and cost efficiency. He contends that the NPLs have an impact on the cost-effectiveness of banks that are still in operation as well as the portion of failing banks. Altunbas et al., (2000) finds a positive correlation between NPLs and banks efficiency in Japanese commercial banks.

2.4 Empirical Review

Various conclusions have been drawn from research on the connection between bank efficiency and income diversity conducted both domestically and internationally.

2.4.1 Global Studies

Sang (2017) sought to determine how income diversification and bank efficiency are related. 34 Vietnamese commercial banks were the study focus. The limited period for the research covered the year 2007-2015. The 34 banks technical efficiency index was determined via the DEA technique. In the analysis, the Tobit regression model is utilized. Operating efficiency benefits from income diversity.

Musah, Anku-tse, and Senyo (2015) examined the connection within stability in finances and diversifying revenue in Ghanaian banks. The period covered by the study was from 2002 to 2011. Profit margin and non-interest income were found to have a link that was significantly positive. This shows that advances in income diversity across the study period really helped financial performance, and that revenue from unconventional industries is crucial in sustaining Ghanaian banks' profit stability. The findings also reveal that bank profit margins in Ghana are unaffected by size, provisions for loan losses, or inflation.

Elyasiani and Wang (2012) determined income diversification effect on US banks efficiency. The study's time frame was from 1997 to 2007. DEA was to be used in the calculation of the bank efficiency. The results showed that variety and bank technical efficiency were negatively correlated. Furthermore, the overall productivity change in the study was unaffected by variations in diversity across time.

But negatively impacted on the change of technical efficiency. Research results indicated that diversification lowers bank efficiency.

Mercieca, Schaeck, and Wolfe (2007) looked into how tiny credit unions in Europe performed after switching to non-interest profitability. From 1997 to 2003, a sample of 75 small banks was included in the study. The results showed that non-interest earnings and bank performance were negatively correlated. Furthermore, there was no discernible benefit to diversifying both within and across business areas. The findings also demonstrated that small banks could enhance their performance by investing more in the industries in which they currently hold a clear competitive advantage.

2.4.2 Local studies

With an emphasis on the Bahati Sub-county, The economic factors influencing the growth of microfinance institutions (MFIs) in Kenya were evaluated by Njenje and Bengi (2016). The results of the investigation confirmed a robust and positive correlation between financial literacy and MFI expansion. Nevertheless, no statistically significant relationship was seen between interest rates and the rise in MFI.

Okombo (2014) investigated the effects of lower transaction costs on the financial performance of deposit-taking microfinance institutions (MFIs). The results of the study demonstrated a substantial and significant connection between improved financial performance and lower transaction costs. Agola (2014) examined the connection between lending rules and the fiscal health of Kenyan micro financing firms. The study's findings demonstrated a direct correlation between financial achievement, credit policy, collection policy, and credit risk management.

The factors influencing the financial success of co-ops and deposit-taking microfinance institutions were examined by Ongaki (2012). The results of this investigation demonstrated a clear relationship between the profit ratio and the interest and non-interest income ratios. The noninterest expense ratio, the profit ratio, and the liquidity ratio were found to be negatively correlated. Gibson (2012) investigated the elements influencing the day to day durability of microfinance organizations in Kenya. The capital/asset ratio and operating expenses/loan portfolio are the primary markers of operational success and monetary stability, according to the study's conclusions.

Baraza (2014) investigated the relationship between the funding agreement and Kenyan microfinance companies' financial results. The debt to equity ratio and financial performance were found to be negatively correlated by the study. This implies that

when a business takes on more debt to finance its operations, Its earnings are poor. The research also showed a favorable correlation across profitability and the savings to assets ratio. This shows that the financial performance of a microfinance institution is favorably connected with an increase in deposits.

Kongiri (2012) determined whether camel variables and bank efficiency are related. 37 Kenyan commercial banks were selected in the study. Period for the research is 2007 to 2011. The data came from bank financial statements and CBK reports. Data analysis. The data analysis approaches used were descriptive statistics and regressions. The data analysis approaches used were descriptive statistics and regressions. The efficiency ratio exhibited a negative link with capital sufficiency but a positive correlation with asset and management quality. profits, and liquidity ratios, according to the researchers.

Waithira (2014) investigated the association between microeconomic variables and banks efficiency in Kenya.44 banks were used as the population. The period of the study was from 2008 -2013. Administrative records, bank statements, and comments and files from CBK were used as further information in the study. Utilizing a descriptive design, the data was examined. In the analysis, SPSS (V21) was also utilized. The study's conclusions indicated that credit risk decreased Kenyan banks' operational effectiveness. Although size, capitalization, and management caliber all positively and significantly benefited banks' efficiency.

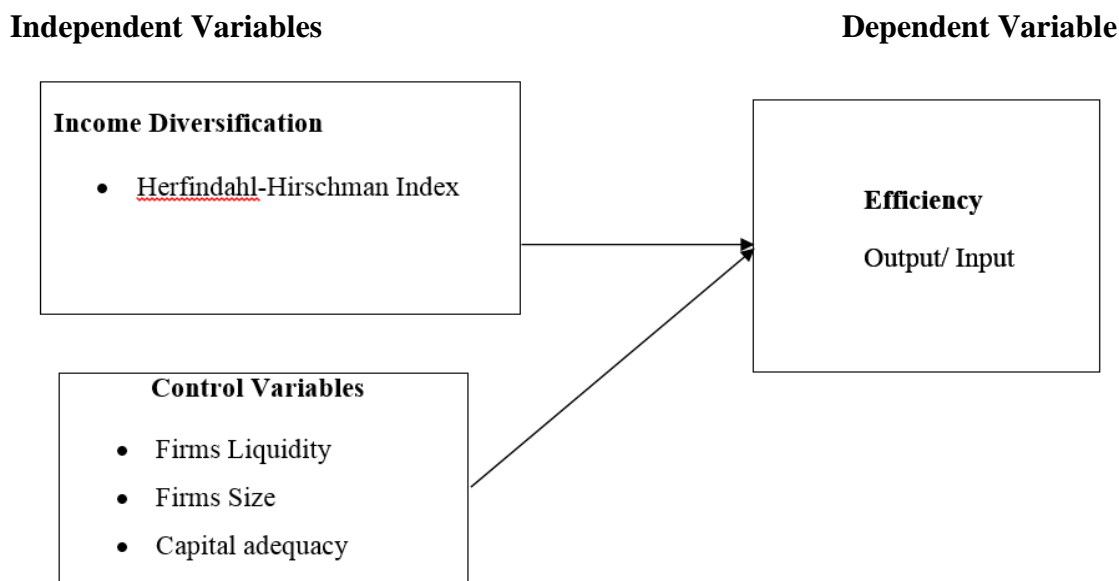
Mutega (2016) looked into the connection between the financial results of a bank and its asset variety. A descriptive research methodology was chosen for the data analysis. The research sample consisted of Kenyan banks. 2011 to 2015 was the study period. Inferential statistical also utilized UN the study. The study discovered that increasing financial asset diversification improves bank financial performance.

Sentero (2013) looked into the connection between Kenyan banks' efficiency and capital sufficiency. The study examined forty-three banks. The analysis of the data was done by descriptive statistics. The DEA method was also used to measure financial effectiveness. The research conducted found a strong correlation between Kenya's capital adequacy ratio and bank efficiency.

2.5 Conceptual Framework

The following figure shows the independent, dependent, and control variables.

Figure 2.1: Conceptual Framework



Source (Author, 2023)

2.6 Summary of Literature Review

The amount of research on income diversification in banks has been extensively studied, as the literature analysis demonstrates. Diversity in wealth has an effect on bank efficiency. The subject of conflicting results in the past due to empirical assessments that have included both local and foreign research. Furthermore, contrary to Kenya, the bulk of prior research has concentrated on the banking industries of developed nations in Europe, Asia, and the US. The studies' contradictory conclusions highlight the need for additional research in order to fairly assess the results. The aim of this research was to clarify the impact of revenue diversification—both positive and negative—on the efficiency of microfinance organizations in Kenya.

The goal of this study was to provide a clear picture of how revenue diversification affects Kenya's microfinance institutions' operational efficiency, both positively and negatively.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This section covers the target population, data collection techniques, research design, and data analysis procedures.

3.2 Research Design

The research will make use of a descriptive design. This involves acquiring information about a phenomenon through a meticulous approach. The focus of this research is predominantly on the events that took place, rather than the methods or reasons behind them. The researcher will refrain from altering any of the variables; instead, they will solely provide a description of the sample and/or variable. Descriptive studies analyze demographic features, highlight issues within a unit, organization, or population, or explore variations in traits.

3.3 Population

From 2018 to 2022, Kenya's 14 listed microfinance banks will make up the population. This time frame was selected due to the quick increase in non-intermediation activity in the banking industry. During this time, interest rate caps compelled banks to diversify their revenue streams by looking for other sources of income.

3.4 Data Collection

The microfinance institutions' websites, the CBK supervisory data bank, and their financial statements will be the sources of the secondary data. Using a longitudinal technique, the study will look at the evolution of revenue source diversification over a five-year period.

3.5 Data Analysis

After sorting and cleaning, the data will be put into the scientific analysis program, SPSS version 22. Inferential and descriptive statistics, as well as means and standard deviations, will be used to analyze the data, and tables will be utilized to display the findings. Regression analysis will be performed using this model. The independent variable, income diversification, will be determined using the HHI Index. A Herfindahl

Index that is near to zero indicates that banks are well-diversified across industries (Schertler, 2006).

3.5.1 Analytical Model

The degree of the association will be ascertained by applying the following linear regression equation to the data.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where Y = Efficiency (Output/ Input)

β_0 = Constant, the value of Y when the value of X is zero

β_i (i= 1, 2, 3, 4) = Coefficients of determinants of efficiency.

X_1 = Herfindahl-Hirschman Index

X_2 = Size of the Firm (log of total assets)

X_3 = Liquidity (Net Liquid Assets / total deposits)

X_4 = Capital adequacy (Total capital / Risk weighted asset) |

ε = Error term

For each of the 14 microfinance institutions, the Herfindahl Hirschman Index (HHI) was calculated to assess the level of revenue diversity. The following model was used:

$$HHI_{INCi} = 1 - \left\{ \left(\frac{NII}{NOI} \right)^2 + \left(\frac{NONII}{NOI} \right)^2 \right\}$$

Where HHI_{INCi} = level of income diversification, NII = Net interest Income, NONII =

Non-Interest Income, NOI = Net Operating Income.

3.5.2 Significance Test

A student t-test with a significance level of 5% was used to determine the statistical significance for each of the independent factors explaining efficiency. The F-test will be used to determine the overall significance of the analysis of variance.

CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

This chapter's primary subjects were data analysis and result interpretation. Information was taken out of the relevant bank's report. The study was conducted between 2018 and 2022.

4.2 Descriptive Statistics

The study shows the mean, maximum and lowest values, skewness, kurtosis, and standard deviation of the data using descriptive statistics.

Table 4.1: Descriptive Statistics

Descriptive Statistics						
	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
Efficiency	.36	1.00	.84	.15	-1.24	1.89
HHI	.15	.50	.40	.08	-1.41	2.04
Size	10.62	13.13	12.05	.57	-.50	-.04
Liquidity	.21	.74	.38	.098	1.67	3.45
Capital adequacy	.11	.23	.16	.023	.35	.81

Source (Author, 2023)

We observe from table 4.1 above that efficiency and size have the highest mean, amongst the variables. This implies that the size of a bank has a big influence on how efficient its microfinance division is. Numerous additional macro- and microeconomic factors also affect the efficiency variable. Thus, as a bank grows, so does its efficiency. The size of the bank and efficiency standard deviation values also ranked first amongst the other independent and dependent variable, an indication that their volatilities are at the peak.

Additionally, bank size is dictated by the level of investment in the company while efficiency is determined by several macro and micro economic factors. This suggests that on average, investment into other non-interest sources (HHI) deviates from the mean by about 0.4. HHI also depicts a high standard deviation since it is affected by several factors, including whether the bank is foreign or domestically owned, as well as the regulatory environment. Liquidity and capital adequacy ratios ranked last in terms of standard deviation and mean values. When kurtosis and skewness are found to be between +2 and -2, a normal distribution is indicated. Thus, data analysis continues (Kothari, 2004).

4.3 Correlation Analysis

The Pearson coefficient r indicates how strongly the variables are related, and the p values indicate whether or not this relationship is significant. The link amongst the variables was investigated using the Pearson's correlation matrix. Table 4.2 below presents the results, which show a positive association across excise duty and the independent variables r values (excise duty, exchange rate = 0.877; HHI, size, liquidity, and capital sufficiency = 0.982). Size, capital adequacy, liquidity, and HHI were the four independent factors that showed a positive connection with efficiency.

Furthermore, a p value of $0.03 < 0.05$ indicated that the correlation between efficiency and size was significant for size and weak for HHI ($p=0.439$), liquidity (0.191), and capital adequacy (0.892). There was no complete relationship between any two explanatory variables, as we discovered when we looked for multicollinearity. This demonstrates that there is no multi-co-linearity problem with our model.

Table 4.2 Correlation Analysis

		Correlations				
		EFFICIENCY	HHI	SIZE	LIQUIDITY	CAPITAL ADEQUACY
EFFICIENCY	Pearson Correlation	1	.107	.397**	.179	.019
	Sig. (2-tailed)		.439	.003	.191	.892
HHI	Pearson Correlation	.107	1	.558**	.347**	.194
	Sig. (2-tailed)	.439		.000	.009	.156
SIZE	Pearson Correlation	.397**	.558**	1	.201	.131
	Sig. (2-tailed)	.003	.000		.142	.341
LIQUIDITY	Pearson Correlation	.179	.347**	.201	1	.315*
	Sig. (2-tailed)	.191	.009	.142		.019
CAPITAL ADEQUACY	Pearson Correlation	.019	.194	.131	.315*	1
	Sig. (2-tailed)	.892	.156	.341	.019	

4.4 Regression Analysis

Liquidity, bank size, and liquidity have regressed efficiency, which are three predictor factors. The investigation produced the models summary statistics, which are shown in Table 4.3 below. With a R square of 0.201, it can be concluded from the data in Table 4.3 that the independent variables account for 20.1% of the variability in efficiency. Other variables that were not considered account for 79.9% of the variability in

efficiency. A Durbin Watson statistic of 1.329 indicates that the variable residuals were serially related because the result was less than 1.5.

Table 4.3: Model Summary

Model Summary^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.448 ^a	.201	.137	.137270	1.329

a. Predictors: (Constant), capital adequacy, bank size, liquidity, HHI

b. Dependent Variable: Efficiency

The model's fitness is assessed using variance analysis; the results are displayed in table 4.4 below. The results' crucial F value (6.591) is exceeded by the F statistic of 3.147. The model is fitted with a confidence level of 95 percent, indicating the presence of at least one statistically significant independent variable. Therefore, independent variables are effective joint predictors for enhancing efficiency. Furthermore, the significant value of 0.022 is below the threshold of $p=0.05$, indicating that the model is suitable.

Table 4.4: Regression of ANOVA Results

ANOVA^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.237	4	.059	3.147	.022 ^b
	Residual	.942	50	.019		
	Total	1.179	54			

a. Dependent Variable: EFFICIENCY

b. Predictors: (Constant), CAPITAL ADEQUACY, SIZE, LIQUIDITY, HHI

The coefficient components for this regression on bank size are shown in Table 4.5 below. Liquidity, HHI, and capital adequacy. -0,576 is the regression model's constant. Size, liquidity, capital adequacy, and HHI have coefficients of -0.414, 0.128, 0.262, and -0.383, in that order. The following are the basic linear equations for the five structures:

= -0.576 - 0.414 X1 + 0.128 X2 + 0.262 X3-0.383 X4 is the efficiency.

HHI has a p value of 0.183 and a coefficient of -0.414. The fact that the p value is higher than 0.05 suggests that efficiency has had a negative and inconsequential influence. Similar to this, capital adequacy and efficiency have a weak, negative correlation, as seen by the p value of 0.6655 and the coefficient value of -0.383, both of which are greater than 0.05.

However, size and liquidity association with efficiency is positive with coefficients of + 0.128 and + 0.262. Nevertheless, liquidity depicts an insignificant association with efficiency while size depicts a significant association.

Table 4.5: Regression Coefficients

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.576	.439		-1.313	.195
	HHI	-.414	.306	-.216	-1.352	.183
	SIZE	.128	.040	.489	3.213	.002
	LIQUIDITY	.262	.211	.174	1.243	.220
	CAPITAL ADEQUACY	-.383	.878	-.058	.436	.665

4.5 Discussion of Findings

Regression results revealed a negative and insignificant association between income diversification as measured by HHI and efficiency of banks listed at the NSE. We can infer from this that a reduction in revenue generated by banks results into increase in their level of diversification. Consequently, the bank's exposure to risk is enhanced or increased resulting into decrease in their level of efficiency. The finding is like that of

Stiroh and Rumble (2006) and Stolyk (2003) who found no benefit in diversification. Denis, Denis, and Sarin (1997) however, found evidence of increased efficiency as a result of increased income diversification by banks.

For the bank size variable, the results of regression and correlation were comparable. They both had a strong and favorable relationship with efficiency. This demonstrates that the efficiency of the listed banks is enhanced by an increase in bank size. Efficiency often rises with bank size, which is consistent with recent research by Chiarozza (2008). It might be argued that larger banks enjoy economies of scale and can geographically diversify more readily than smaller ones. These findings are consistent with those of Das, Nag, and Ray (2004), who found that bank efficiency and size in India were positively correlated. However, Isik and Hassan (2003) reached a different conclusion. After analyzing Turkish banks, they came to the conclusion that medium-sized banks are more effective than banks of any size.

Additionally, both regression and correlation analysis found that liquidity ratio impacted positively and insignificantly on the efficiency of listed banks in Kenya. The results closely match earlier researcher's findings such as those of Gorton and Huang (2002) who opined that bank with more liquidity are more efficient and less exposed to credit risks.

The efficiency of Kenya's listed banks was shown to be inversely correlated with the capital adequacy ratio, according to the results of the regression study. Therefore, bank efficiency decreases as the capital adequacy ratio increases. Reason being insufficient capital exposes the bank-to-bank failure whilst holding too much capital increases the costs of holding it. All this impacts on banks efficiency negatively.

The results resonate with those of Sushil and Bivab (2013) who established that CAR impacted the performance of Nepalese banks negatively and that of Gropp and Heider found that while there is a strong link between banking regulations and supervisions and bank efficiency, more stringent capital regulatory practices appear to significantly reduce bank efficiency.

Pearson correlation test revealed the association between efficiency and HHI, liquidity, size, and capital adequacy to be all positive. It is found that the factors that were absent in this study account for 79.1% of efficiency swings as the independent and dependent factors only explained 20.1% of the fluctuations in the dependent variable. Moreover, the importance of the F-value at 5% showed that the regression model was well-fitted.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter offers a succinct overview of the study project's limitations and conclusions. This chapter also emphasizes the strategies that regulators might implement to incentivize banks to broaden their revenue streams. The chapter ends with recommendations for the following line of inquiry.

5.2 Summary of Findings

The investigation examined how Kenyan microfinance banks' efficiency was affected by income diversification. The study's foundation included capital sufficiency, bank size, HHI, and liquidity. The efficiency was the dependent variable. The microfinance banks' annual reports provided the data. SPSS was used to examine the data. Annual data for the years 2018 through 2022 were used in this analysis.

Correlation research revealed a small but positive relationship between efficiency and capital adequacy, liquidity, and HHI. Additionally, a significant but positive link between efficiency and bank size was found. Despite being negative, the association between bank efficiency and size was statistically significant.

20.1% of the economic difference can be explained by the variables that are not dependent, with a corrected R-square value of 0.201. Leaving other factors unaccounted for in this study to account for the remaining 79%. The ANOVA analysis indicates that the F statistic yielded a statistically significant result. The obtained p-value was 0.0022. Therefore, the model is well-suited.

When the study's independent variables are set to zero, the regression analysis shows an efficiency of 0.576. Moreover, a one-unit rise in HHI will result in a drop in efficiency of 0.441. Similarly, a one-unit increase in bank size will yield an efficiency improvement of 0.028. On the other hand, efficiency will rise by 0.262 for every unit increase in liquidity. Finally, if all other factors stay the same, a one-unit rise in capital adequacy will result in a 0.383 fall in efficiency.

5.3 Conclusions

The study established that income diversification as measured using HHI affected the efficiency of the microfinance banks negatively. The association was established to be insignificant. This indicates that there is no benefit, in terms of efficiency, from diversification that banks have been adopting. This further indicates that the Kenyan banking industry is not yet efficient in management and using its assets to generate earnings, as it diversifies. Thus, the study comes to the conclusion that diversification of income sources has little bearing on the effectiveness of Kenyan microfinance institutions.

The study's findings indicate a statistically significant and favorable relationship between bank size and production. According to Casu and Girardone (2006), larger banks can participate in joint production operations, have more choices for expansion, and enjoy economies of scale. They therefore perform more efficiently than smaller banks. Consequently, they attain higher levels of efficiency in comparison to smaller banks. Additionally, Cole & Gunther (1995) provided support for this claim, arguing that because of their greater flexibility in the financial markets, larger banks were less vulnerable to credit problems than smaller banks.

The study further concludes that liquidity impacts on microfinance banks efficiency positively and insignificantly. As a result, we can deduce that the larger the liquidity, the better the bank's efficiency. To improve their operational efficiency, microfinance institutions should increase the percentage of liquid assets to deposits and short-term funding.

The study also found a negative association between the capital adequacy ratio and microfinance banks' efficiency. The association was however not significant. The ability of the bank to compete is impeded when the capital adequacy which ultimately curtails the banks growth capabilities. The study concluded that the financial adequacy ratio had little bearing on the effectiveness of Kenyan microfinance banks.

5.4 Recommendations for Policy and Practice

According to the report, diversification initiatives have a detrimental impact on microfinance banks' revenue, they should refrain from allocating resources in this direction. Additionally, the report suggests that banks examine their capital adequacy ratios, as they are having an adverse effect on their effectiveness. Thus, lower capital adequacy ratios would be preferred so as to attain higher efficiency levels for the microfinance banks in Kenya.

Furthermore, the report suggests that the CBK create an environment in which banks' processes are not impeded. CBK, for example, should ensure that interest rates remain stable in order to enhance lending. Microfinance banks can generate commissions and fees by improving their lending, as they make up a large amount of their non-interest earnings.

The paper recommends that Kenya develop a strategy to standardize the way financial statements from microfinance banks are presented. Everyone who want to use the information from these statements will find it easier to do so as a result.

5.4 Limitations of the Study

The sample taken by this study is 14 microfinance banks hence, the results can't be generalized for all banks in Kenya. If a larger sample was included then the results may be different from the present results.

The researcher cannot safely extrapolate the findings due to regression models' shortcomings, which include misleading and erroneous conclusions when the variable value changes. When additional data are included in the regression model, there may be no hypothesized correlation between two or more variables.

Another weakness of this study is that it did not consider all aspects that could affect efficiency, as there are other macro-economic elements that could affect efficiency that were not considered in the model.

5.6 Suggestion for Further Research

There are many more parties involved in the financial system, even though this analysis was restricted to microfinance banks. Therefore, research into how income diversity

affects the effectiveness of insurance companies, microfinance companies, and other financial institutions, as well as how these factors influence the overall performance and operational efficiency of these entities, is vital.

Future research should focus on how income diversification affects Kenya's Islamic banks' operational effectiveness. This study provides insightful information about how income diversification affects the efficiency of listed banks.

This study recommends a further study on the same topic but on other non-listed banks in Kenya, ... order to evaluate the entire impact of income diversification, as opposed to microfinance banks.

Not all of the independent factors affecting revenue collection and recommends further studies to incorporate other variables such as inflation, management competence, industrial practices, political stability, and other macroeconomic variables.

Lastly, the Vector Error Correction Model is one alternative model that might be used to explain the different correlations between the variables due to the constraints of the regression models.

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APPENDICES

Appendix I: Microfinance Banks

1. Kenya Women Microfinance Bank Limited
2. Faulu Microfinance Bank Limited
3. Rafiki Microfinance Bank Limited
4. SMEP Microfinance Bank Limited
5. Sumac Microfinance Bank
6. LOLC Microfinance Bank Limited
7. Maisha Microfinance Bank Ltd
8. Caritas Microfinance Bank Limited
9. Branch Microfinance Bank Limited
10. U & I Microfinance Bank Limited
11. Salaam Microfinance Bank Limited
12. Choice Microfinance Bank Limited
13. Daraja Microfinance Bank Limited
14. Muungano Microfinance Bank Limited

Source: CBK (2023)