INVESTMENT DIVERSIFICATION AND FINANCIAL PERFORMANCE OF MICROFINANCE BANKS IN KENYA

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ABSTRACT

This study examined the effect of investment diversification on profitability of microfinance banks in Kenya. The specific objectives were to determine the effect of investment in Fixed deposits, investment in shares, investment in government securities and real estate investment on profitability of microfinance banks in Kenya. The study adopted a casual research design approach where the target population was based on 13 microfinance banks in Kenya. This study covered a 5-year period from 2017 to 2021. The study used secondary data that was extracted from the websites of the respective Microfinance banks. Both descriptive and inferential statistics were computed using STATA 15. Descriptive statistics included mean, standard deviation, Maximum and minimum. Inferential analysis included Pearson correlation and linear regression analyses. The study used panel regression analytical model. This study conducted serial correlation tests, heteroscedasticity tests and multicollinearity test to evaluate the data collected before the actual analysis. The findings revealed that investment diversification has positive effect on financial performance of microfinance banks in Kenya although there was mixed outcome in regards to significant effect. Investment in fixed deposits, real estate and shares were found to have significant effect whereas government securities was found to have insignificant positive effect. In this regard, the study concluded that investment diversification has positive effect on financial performance of microfinance banks in Kenya. The study therefore recommended management of microfinance banks microfinance banks should compare each of the fixed deposit options basing on desired risk, interest rate, and tenure, and choose a fixed deposit only after weighing the benefits and drawbacks of various fixed deposits on the market. High liquidity produced by microfinance banks' client deposits should be invested in a variety of government securities and bonds, which are backed by the government, the study suggested. The study recommended that microfinance banks can buy short-term Treasury bills directly or through a bank or broker.

Key Words: *Fixed Deposits, Investment in Shares, Government Securities, Real Estate Investment*

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INTRODUCTION

Microfinance banks have been recognized worldwide as important avenues of economic growth (ICA Report, 2018). microfinance banks play a significant role in the provision of financial services to the poor (target groups). They provide savings and credit and investment opportunities to individuals, institutions and group members. microfinance banks's perform an active financial intermediation function, particularly mediating from urban and semi-urban to rural areas and between net savers and net borrowers while ensuring that loan resources remain in the communities from which the savings were mobilized (Lomuria, Wanyama & Mamuli, 2020).

Financial institutions in the U.S has transitioned away from the traditional and ancient approach of producing returns based on interest. Non-interest income, such as fees and commissions, as well as stock trading, has become more prominent. The decision has contributed to higher levels of revenues in the recent days. Most financial institutions in global arena, according to Saghi-Zedek (2015), are increasing generating profits from non-core lending activities. Around 1752, prior to the independence declaration in the United States, it is presumed that the cooperative business was established. Available old records point to the practice of cooperative farming in Babylon. There is also evidence of the establishment of loans and savings associations by the Chinese that are synonymous with the contemporary ones. In North America, land clearance in preparation for crops planting, beans threshing as well as raising of barns all called for efforts cooperatively. microfinance banks play other vital roles in society that has made them not only critical but indispensable development tools. For instance, co-operatives are reported to provide employment to above a hundred million people with individual membership standing at eight hundred million internationally. In 2006, the turnover of 300 top cooperatives in the world was reported to be US $963billion which is an equivalent of Canada's GDP.

In Africa, that is in the regional perspective Landi (2017) analyzed effects of investment diversification on profitability of Microfinance banks in Kenya and found out that they directly affected profitability and revenue growth. DeYoung (2015) study on the effect of investment diversification on earnings volatility noted that financial institutions earnings grew once they engaged different types of investments. Reports indicate that around 7 percent of the populace in Africa has affiliation to cooperatives. The reports further give an indication to the effect that the movements are constrained due to the absence of effective representation despite being large in terms of numbers. Credit unions are growing rapidly in Ghana according to Darko, et al (2016), the registered credit unions in Ghana as of 2014 were 455. As of 2014, the total membership of credit unions in Ghana was 490,167. The total number of employees was 2,384. Members' deposits (shares and savings) were GH$ 475,966,676.

In Kenya, the number of microfinance banks has been on the rise. To ensure efficiency of cooperatives, there is need to secure the principle of maintaining sufficient liquidity levels to cater for current obligations and producing investment income equal to market yields (Stalebrink & microfinance banks, 2006). Members' savings are the major source of funds in microfinance banks which are used by microfinance banks in various investments such as loan to members, financial and liquid investments. While undertaking all these investments, managers should ensure safety and good returns for their money (Auka & Mwangi, 2013). The deposit-taking microfinance banks in Kenya have mostly invested in real estate, shares, government securities and fixed deposits and therefore the need to conduct an empirical study investigating whether these investments have a significant influence on their efficiency.

Microfinance banks have registered different success rates while investing in non-core capital. Deposit-taking microfinance banks have faced more challenges in promoting non-core capital

investment due to scathing competition from commercial banks. A school of thought seems vehemently opposed to this form of investment in established literature. They propose that the guiding law ought to be revised to improve the supervisory hand of the Ministry so that investment that is not linked to the microfinance banks' core business should be explicitly forbidden (KUSCCO, 2020).

Statement of the problem

Microfinance institutions play a crucial role in the expansion and improvement of the economy as a part of the banking system. The Central Bank of Kenya estimates that by the year 2020, over 63% of Kenyans would have benefited in some way from microfinance institutions. There was a notable drop of 2.0% in the Return on Assets for the microfinance industry between 2020 and 2021, from 3% to 1%. There was also a reduction of 18% in the return on shareholders' funds from 28% to 10%. As of December 31, 2021, total assets were Ksh.73.9 billion, down from Ksh.74.9 billion as reported for the year ended 2020. Compared to the loss of Ksh.2.2 billion reported as of the 31st of December 2020 (CBK, 2021), the industry as a whole registered a loss of Ksh.877 million before taxes as of the 31st of December 2021. The other institutions reported losses, with just four reporting profits. Faulu Microfinance Bank Limited, Maisha Microfinance Bank Limited, and Rafiki Microfinance Bank Limited were the top three microfinance institutions that exacerbated the loss scenario. Before taxes, losses at these three financial institutions were Ksh.522m, Ksh.178m, and Ksh.153m, respectively.

Scanty systematically documented information exists that attributes investment diversification to dismal performance of microfinance banks financially in Kenya. Some of the studies conducted on profitability of microfinance banks have continuously produced mixed results. Kebiro (2019) showed that alternative income produced positive and statistically substantial values although the study focused on investment in Fixed deposits. Duho et al. (2021) indicated that the investment in government securities had a negative effect on ROA indicator and ROE indicator although the study focused on investment in government securities.

Further, Muchomba (2018) studied the determinants of Commercial Banks' investment portfolios in Kenya. The study observed that small banks did not significantly benefit from alternative investments although the study limited itself to real estate investments as an investment diversification. While the above findings provide valuable insights on investment diversification, it is only partial and inconclusive. The current study leveraged on this gap and examined the influence of investment diversification on financial performance of microfinance banks in Kenya.

Objectives of the Study

The general objective of the study was to examine the effect of investment diversification on financial performance of microfinance banks in Kenya. The study was guided by the following specific objectives;

- To determine the effect of investment in fixed deposits on financial performance of microfinance banks in Kenya.
- To evaluate the effect of investment in shares on financial performance of microfinance banks in Kenya.
- To assess the effect of investment in government securities on financial performance of microfinance banks in Kenya.
- To establish the effect of real estate investment on financial performance of microfinance banks in Kenya.

LITERATURE REVIEW

Theoretical review

Modern Portfolio Theory

The Modern Portfolio theory was developed by Markowitz (1952) and first presented in his seminal paper on portfolio selection. The theory has since been modified by several researchers to be what is now commonly referred to as the Modern Portfolio

Theory (MPT). MPT currently forms a cornerstone of finance and is widely accepted and applied in the field of finance and economics. The model suggests that organizations must diversify their portfolios to achieve maximum returns while at the same time reducing the risk in the portfolio. According to the portfolio theory, diversification is achieved through the allocation of resources to securities that promise maximum returns and minimum variance (Madan, 2018). Markowitz further posits that the securities with the highest expected returns are not necessarily the ones with the least variance. Due to the intercorrelation of the securities' returns, diversification cannot eliminate all variance, and therefore the portfolio with maximum expected returns is not necessarily the one with the least variance (Llano-Paz, Calvo-Silvosa, Antelo & Soares, 2017).

The Portfolio theory portends that high-risk investments usually promise equally high- returns while low-risk assets equally promise low returns. All portfolios, therefore, exhibit all the characteristics of the individual assets used in their formation in terms of risk and return. Any investor who wishes to construct an optimal portfolio will be contending with a portfolio that neither promises the highest returns nor the lowest risk. The optimal portfolio will, however, seek to achieve a balance between the expected return and the acceptable level of risk (Cuchiero, 2019).

The framework of portfolio theory includes numerous assumptions on investors and markets. While some of these assumptions are explicit, others are implicit (Mangram, 2013). The portfolio theory makes the following assumptions; investors are rational (they seek to maximize returns while minimizing the risk), investors have timely access to information pertaining their investments, markets do not charge transaction costs and no tax is applicable for the transactions, investors will only accept higher risks if the expected returns are high, investors can borrow or lend capital at the risk-free rate of interest and markets are very efficient.

Capital Asset Pricing Model (CAPM)

The capital asset pricing model (CAPM) is a model that gives an appropriate cost of capital for each project for the given project's relevant risk characteristics. The model states that an investment's cost of capital is lower when it offers better diversification benefits for an investor who holds the overall market portfolio - less required reward for less risk contribution. Market beta is its measure of risk contribution. Projects contributing more risk (market beta) require a higher expected rate of return; projects contributing less risk require a lower expected rate of return. The capital asset pricing model pictures investors as solely concerned with the level and uncertainty of their future wealth. The underlying principle in the CAPM is that company or industry specific events have very little impact on an asset's required return. The relevant risk is the market risk, which refers to the sensitivity of the asset's returns to the returns of the market as a whole, which is reflected in beta (Brealey, Myers & Allen, 2011).

The CAPM explains that the super-efficient portfolio obtained through the combination of risk-free and risky assets is located at the point of tangency between the Capital Market Line (CML) and the efficient frontier. In Capital Asset Pricing Model (CAPM) total risk associated with an asset can be split up in two components: systematic (non-diversifiable) and unsystematic (diversifiable) risk. If the number of assets included in the portfolio is high and these assets are not perfectly correlated, the unsystematic component of the portfolio risk diminishes. The CAPM shows that investors only get compensated for holding systematic risk, since the firm's specific component of risk can be eliminated through diversification (Monda, Giorgino & Modolin, 2013).

Q Theory of Investment

This theory was proposed by Tobin and Brainard (1968). The hypothesis emanates from neoclassical theory as it integrates the alteration cost which explains output losses. Twine, Kiiza and Bashaasha (2015) argued that organizations select levels of

investment which makes use of the present firm value. The hypothesis proposes that market approximation of equities is the main element of firms' investment. Therefore, decisions of investment are stimulated when funding bases are extremely valued in the market residence than it would charge to produce it (Erickson & Whited, 2000).

The hypothesis is related to the rate of investment of Q function. Q function is the ratio of market price of fresh added investment capitals to their extra cost. According to Eklund (2013) the theory of investment gives suggestion that metric q done to recap the existence of occasions for investments for exact organizations. Tobin also argued that q is greater than 1 which means that fixing new capital will have more profit to the exact organization. Henceforth 1<q shows that the firm should accumulate more wealth and vice versa (Balfoussia & Gibson, 2016).

Keynesian Theory of Investment

The Keynesian investment theory was developed by Maynard Keynes in 1936. It posits that investment is driven by interest rate and Marginal efficiency of capital (MEC) (Arrow, 2017). MEC is the discount rate which could make the present value from expected returns of a capital asset equal to the price of supply. It is used in ranking projects from the most viable to the least. The MEC rule is to accept projects on condition that MEC exceeds interest rate. Low interest rates attract investments as firms can borrow at low rates since savings will only give low returns (Fuller, 2013).

Firms have a target of maximizing returns; this is possible by considering suitable investments due to their irreversible nature (Arrow, 2017). Marginal efficiency of capital decrease with the level of investment; this is because most of the projects with great opportunities are given a first hand at the earlier stages. The theory has been criticized in its consideration of supply price as an ex-ante decision; this is untrue as it requires an investor to have knowledge on the other investors' intentions in the industry to be aware of the supply price (Chick, 2002)

Conceptual Framework

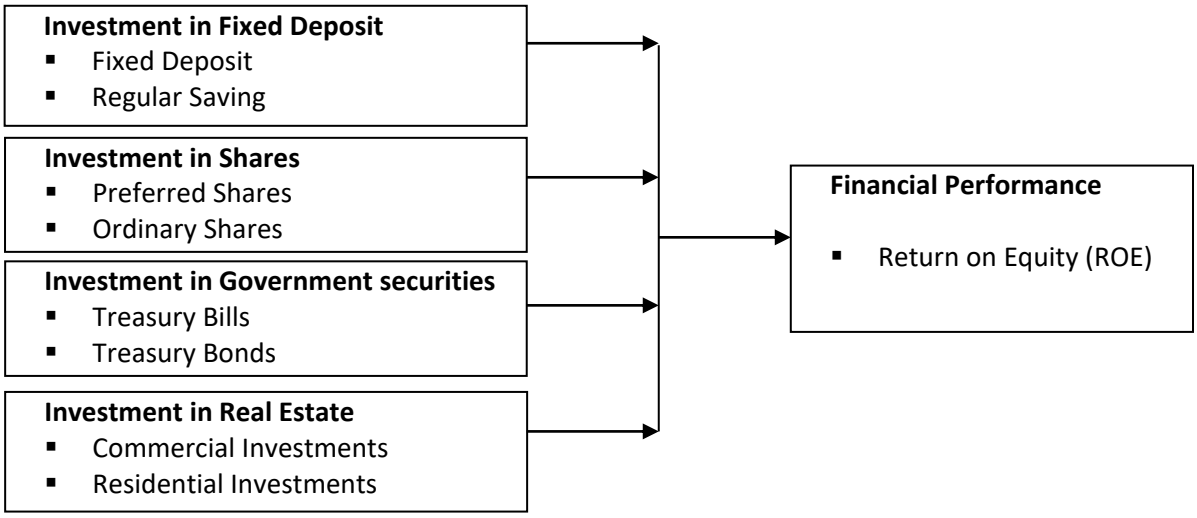

Figure 1: Conceptual Framework

Investment in Fixed deposits: A fixed deposit (FD) is a financial instrument issued by banks which provides investors with a higher rate of interest than a regular savings account, until the given maturity date. Fixed deposits are one of the oldest and safest investment instruments provided by the banks. The interest rates on fixed deposits are higher than the interest provided on savings

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account or current account balances. It may or may not require the creation of a separate account usually it is associated with the saving account of FD Holder. Basically, it is known as a term deposit. When it comes to savings, most conservative investors instantly think of Bank Fixed Deposits (FDs). Traditionally, Bank FDs have been the most preferred mode of investing one's hard-earned money.

Investment in Shares: Shares are units of equity ownership in a corporation. For some companies, shares exist as a financial asset providing for an equal distribution of any residual profits, if any are declared, in the form of dividends. Shareholders of a stock that pays no dividends do not participate in a distribution of profits. Instead, they anticipate participating in the growth of the stock price as company profits increase. Shares represent equity stock in a firm, with the two main types of shares being common shares and preferred shares. As a result, "shares" and "stock" are commonly used interchangeably (Kebiro, 2019).

Investment in Government securities: Lending to the government by buying treasury bonds has been considered as one of the innovative investment diversification by microfinance banks. Investment in government securities is a risk-free investment option in Kenya. Investing in government securities is actually a loan you give to the Kenya government through the Central Bank. The government promises to pay you back with interest after a certain period. To invest in government securities in Kenya, one must open a CDS Account with Central Bank of Kenya. Just like government securities, treasury bonds are also issued by the government to raise money. The difference is that government securities are longer term instruments over 1 year and the minimum investment amount is Sh. 50,000. Investment in treasury bonds is therefore a good investment idea in Kenya for those who are busy and want to earn some passive income without breaking a sweat. The most important thing is to do research and make wise decisions, understand thoroughly how the investment works and diversify the investment.

Investment in Real Estate: Real estate is "property that consists of land and the buildings on it together with its natural resources like water, minerals, crops and so on". Buying real estate is an investment strategy that can be both satisfying and lucrative (Beattie, 2022). The existence of a market portfolio will all available assets to investment is suggested by modern portfolio theory (Markowitz, 1952). In the United States, real estate assets represent a notable part of investment companies' diversified portfolios. There are two basic categories of real estate; residential and commercial property are the two real estate basic categories.

Financial Performance: Financial performance can be synonymous with how well a corporate organization is doing in achieving its financial targets and shareholders' expectations. Corporate financial performance can be looked at as the level of performance of an organization at a point in time. This could be measured in terms of overall profits and losses or asset utilization (Iliemena & Ijeoma, 2019). The measures of financial performance of an organization are as varied as the motive for the measurement. Financial performance measures quantitatively compare the performance of an organization against predetermined standards. Indices of measure include but not limited to return on Equity (ROE) and Return on Assets (ROA). However, our current study adopts ROA to measure financial performance as according to Poddi and Vergalli (2009), ROA is one of the variables that provide a credible measure of financial performance. Return on Assets (ROA) is an indicator of how profitable a company is relative to its total assets. It is calculated by dividing company's total earning by the total asset.

Empirical review

Globally, In Coimbatore Region, India, Parimalakanthi and Kumar (2015) assessed investment priorities and individual attitudes. gold and silver shares, fixed deposit account, savings account, government securities and corporate

bonds were the investigated investment avenues. The study found that bank deposits were preferred by investors, followed closely by gold and silver investments.

Parimalakanthi and Kumar (2015) conducted a study on investment preference in Coimbatore City, India. The study embraced descriptive research design. Friedman test was used for data analyzing primary data. Investment avenues studied were; government securities, corporate bonds, insurance policies, real estate, saving account, and fixed deposit. The study concluded that investors prefer fixed deposits as a form of investment.

Kebiro (2019) sought to determine how investment diversification impact the efficiency of Saccos in Kenya. The study's population was all the 43 Saccos in Kenya. The independent variable for the study was investment in government securities. Firm efficiency was the response variable which was the primary focus of the study. The study utilized secondary data from 2014 to 2018 (5 years) on annual basis. A descriptive cross-sectional design together with the multiple linear regression model were used for the analysis of the variables. The results showed that investment in investment in government securities produced positive and statistically substantial values for this study.

Mwangangi (2018) conducted research to ascertain the correlation existing between investment in government securities and the value of banks listed at the Nairobi Securities exchange. Descriptive correlation research design was used and 10 listed banks at Nairobi Securities Exchange were sampled. Regression Analysis was utilized to ascertain the correlation existing between investment in government securities and the value of firms. This research founded an inverse, insignificant correlation between investment in government securities and profitability. The study reviewed that an increase in profits as a result of investment in government securities is negatively affected by trade credit risks and the associated costs, therefore having a negative effect to the profitability.

Gachenga (2022) sought to assess the relationship between investment diversification and liquidity of farmers-based microfinance banks. Descriptive cross-sectional survey research design was employed where the study population consisted of 49 finance managers and 49 credit managers of the 49 farmers-based microfinance banks respectively. Further, the study utilized Yamane formula to determine the sample size where cluster sampling was employed to sample the microfinance banks and simple random sampling were used to sample 78 out of 98 respondents. The regression models revealed that; investment in shared had a p-value of 0.000 revealing that there exists a significant nexus between predictor variables and liquidity of farmers-based Microfinance banks in Kenya.

Kebiro (2019) sought to determine how investment diversification impact the efficiency of Saccos in Kenya. The study's population was all the 43 Saccos. The independent variable for the study was investment in shares. The study utilized secondary data from 2014 to 2018 (5 years) on annual basis. A descriptive cross-sectional design together with the multiple linear regression model were used for the analysis of the variables. For this analysis the researcher used the SPSS version 21 software. The results showed that investment in shares produced positive and statistically substantial values for this study.

Rop, Kibet and Bogonko (2016) associated financial soundness of commercial banks with investment diversification in Kenya targeting the commercial banks. A positive relationship was noted between government securities, insurance investment, and real estate investment and buying of Shares with financial performance of commercial banks in Kenya. Purchase of Shares was noted as the best investment others in that order included real estate, insurance and lastly government securities ventures.

Muli(2016) assessed the effect of real estate decisions of investment on Microfinance banks in Kenya financial performance in Kitui, Kenya. The aim of the investigation was to see how real estate

investment diversification influenced Microfinance banks in Kenya financial performance. An empirical study design with a time period from 2006 to 2015was conducted. The study's population consisted of 12 Microfinance banks in Kenya. The independent variable was investment diversification which included decisions to invest in the real estate. The study outcome depicted a significantly good link between real estate investment diversification and financial performance. The research gap was to ascertain how real estate investment influences the financial performance of Microfinance banks in Kenya in Kitui. The relevance of the study was that real estate decision of investment increases the financial performance of Microfinance banks in Kenya.

METHODOLOGY

The study adopted causal research design which explores cause effect relationships. From Central Bank of Kenya directory of licensed microfinance banks, the total thirteen microfinance banks were considered as the target population as well as the sample size of the study and financial data analyzed for a period of 5 years making a total of 65 observations. This study took the entire population of the thirteen microfinance banks as the sample size using census technique.

This study used secondary data. The data was drawn from past audited financial reports (Income Statement, Statement of Financial Position, and Cash Flow Statement) as they are published by the respective microfinance banks. They were used for calculation to discover the quantifiable manner changes. The secondary data was retrieved from financial records of microfinance banks, consideration period was between the financial years 2017 to 2021 (5 years period of time). The income statements and balance sheets tool was used for data mining guided by secondary data collection schedule.

The research utilized quantitative data analysis techniques. The gathered data was processed, cleaned, coded and calculated using STATA 15. A descriptive statistical analysis described data in understandable form, using frequencies, percentages, means and standard deviations; whereas inferential statistics, correlation, linear and multiple regression analyzes are calculated for variable relations.

The following multiple regression equation was used to shape the connection between the dependent variable [Financial performance] and independency variables [investment in Fixed deposits, investment in Government securities, investment in Shares and investment in Real Estate];

$$\gamma_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \varepsilon$$

Where γ= Financial performance as measured by ROE

B_0=Constant-the y intercept
X_1 is investment in Fixed deposits
X_2 is investment in Government securities
X_3 is investment in Shares
$X_4$is investment in Real Estate
ε= error term
$\beta_1 \ldots \beta_4$ = Beta Coefficients

FINDINGS AND DISCUSSION

Descriptive Statistics

In order to describe the features and characteristics of the data set, the study computed descriptive statistics. It provided a summary of the data and measures used in the study. Some of the descriptive statistics that were used were measure of spread as well measure of central tendency. In this study, measure of spread used included minimum, values, variance, standard deviation and maximum values. The measures of central tendency in this data set include mean. The study calculated standard deviation, mean, maximum and minimum values between 2017 and 2021 for all the variables both dependent variables, financial performance, and the independent variables, investment in fixed deposits, investment in shares, investment in government securities and real estate investment. The descriptive statistics for the variable are presented in Table 1.

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Table 1: Descriptive Statistics- Investment in Fixed Deposits

Year	N	Min	Max	Mean	Sd	Skewness	Kurtosis
2017	13	0.013363	0.085146	0.047909	0.027633	0.258902	1.486928
2018	13	0.003975	0.128458	0.048564	0.034174	1.156679	3.772525
2019	13	0.009847	0.122266	0.054665	0.033325	0.40644	2.591455
2020	13	0.01174	0.098044	0.054857	0.032317	-0.02401	1.443765
2021	13	0.013321	0.130977	0.05969	0.035372	0.325752	2.646386
Total	65	0.003975	0.130977	0.053137	0.03175	0.48858	2.548135

From Table 1, investment in fixed deposits was calculated by taking the ratio of investment in Fixed deposit to regular saving. From 2017 to 2021, investment in fixed deposits ranged from 0.003975 to 0.130977 with a mean of 0.0531375 and standard deviation of 0.03175. There was presence of normality as indicated by Skewness less than 2.0 and kurtosis less than 6.0.

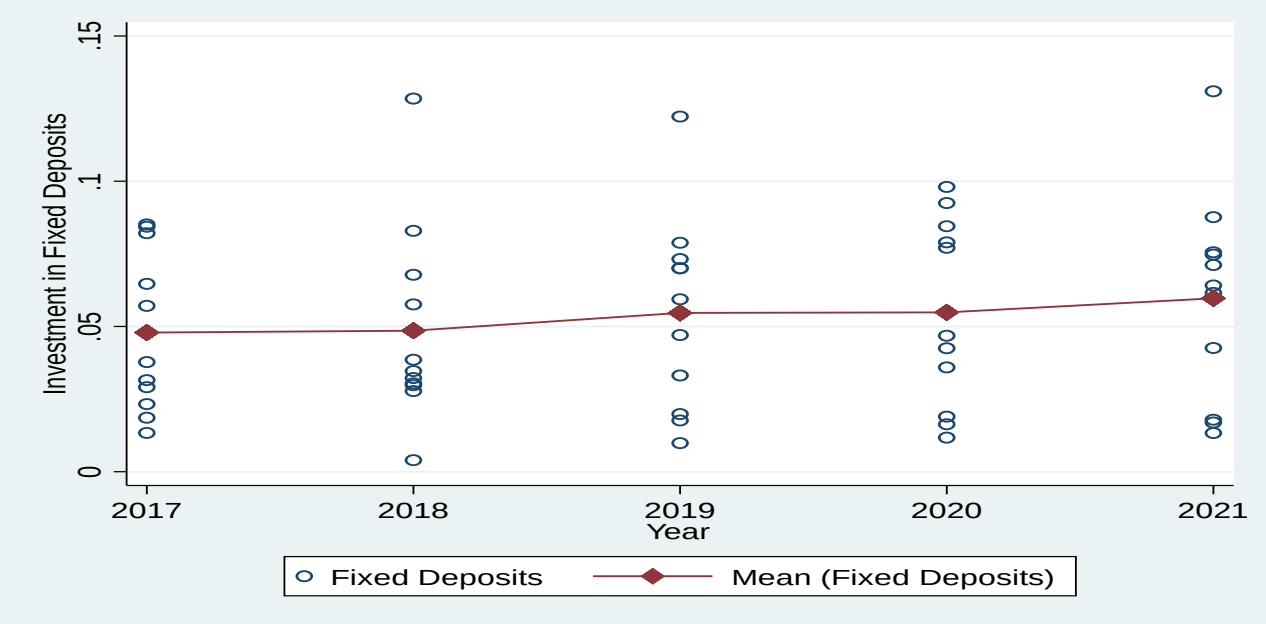

Figure 2: Scatter Plot for Investment in Fixed Deposits

As shown in figure 2, investment in fixed deposits among 13 microfinance banks increased from 2017 to 2019 and from 2019 to 2020 it reduced before increasing in 2021.

Table 2: Descriptive Statistics- Investment in Shares

Year	N	Min	Max	Mean	Sd	Skewness	Kurtosis
2017	13	0.219924	2.659025	1.052967	0.734187	0.904257	3.099572
2018	13	0.177969	2.61553	0.904741	0.668341	1.50928	5.010731
2019	13	0.243456	5.077997	1.324055	1.389584	1.951381	5.993449
2020	13	0.274575	6.256925	1.53261	1.78061	1.922922	5.614633
2021	13	0.273729	5.363286	1.555543	1.617479	1.430084	3.823076
Total	65	0.177969	6.256925	1.273983	1.296056	1.229256	4.855588

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From Table 2, investment in shares was calculated by taking ratio of preferred shares to ordinary shares. Between 2017 and 2021, investment in shares ranged from 0.164464 to 0.572293 with a mean of 0.30156 and standard deviation of 0.083504. There was presence of normality as indicated by Skewness less than 2.0 and kurtosis less than 6.0.

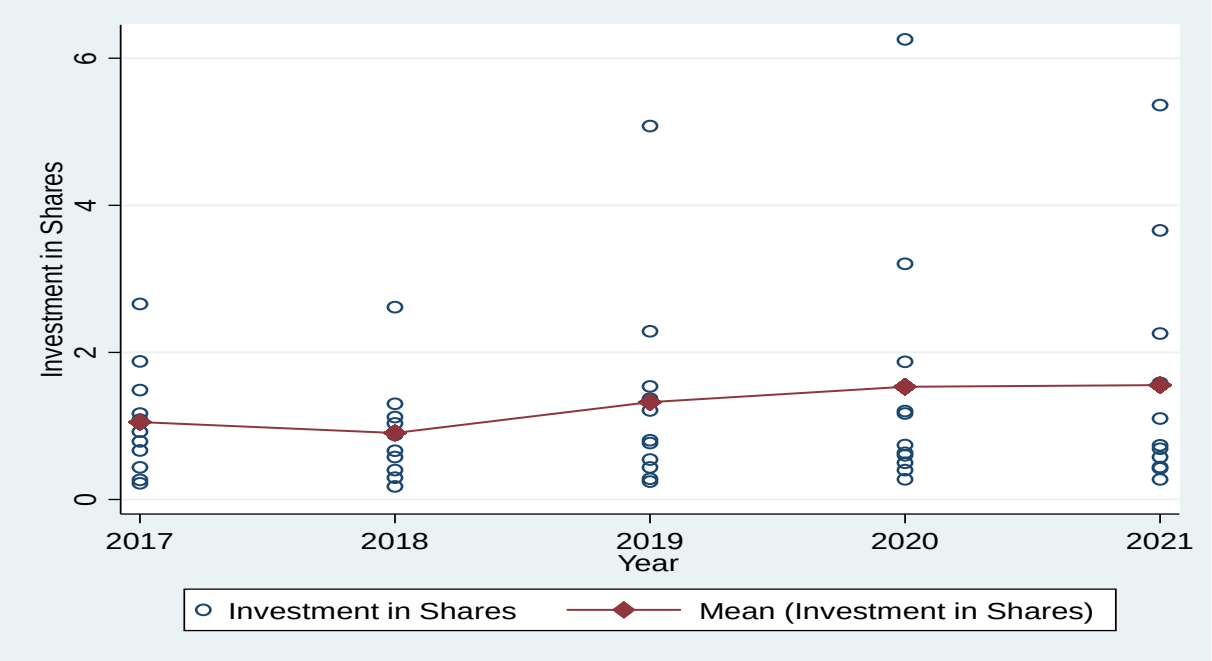

Figure 3: Scatter Plot for Investment in Shares

As shown in figure 3 investment in fixed deposits among 13 microfinance banks increased from 2017 to 2019 and from 2019 to 2020 it reduced before increasing in 2021.

Table 3: Descriptive Statistics- Government Securities

Year	N	Min	Max	Mean	Sd	Skewness	Kurtosis
2017	13	0.094435	11.39018	1.912155	3.175424	2.74182	8.753111
2018	13	0.245863	3.796505	1.072957	0.940562	2.441958	7.814553
2019	13	0.231662	4.580436	1.178279	1.179838	2.408606	7.678179
2020	13	0.27717	4.41437	1.424703	1.267023	1.564936	4.064056
2021	13	0.465758	2.307768	1.102078	0.557605	0.730715	2.959582
Total	65	0.094435	11.39018	1.338034	1.656285	1.480663	4.25241

From Table 3, Investment in government securities was calculated as by taking ratio of treasury bills to treasury bonds. Between 2017 and 2021, investment in government securities ranged from 0.038403 to 0.244367 with a mean of 0.144812 and standard deviation of 0.066203. There was presence of normality as indicated by Skewness less than 2.0 and kurtosis less than 6.0.

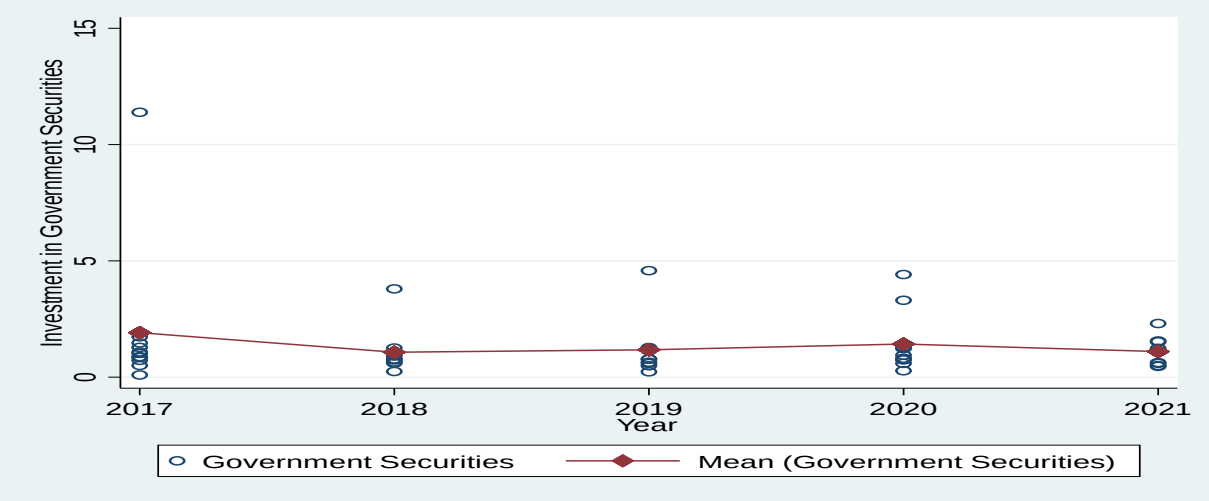

Figure 4: Scatter Plot for Investment in Government Securities

As shown in figure 4, investment in fixed deposits among 13 microfinance banks increased from 2017 to 2019 and from 2019 to 2020 it reduced before increasing in 2021.

Table 4: Descriptive Statistics- Investment in Real Estate

Year	N	Min	Max	Mean	Sd	Skewness	Kurtosis
2017	13	0.514068	3.536663	1.832693	1.165459	0.382494	1.473915
2018	13	0.365043	4.103494	1.858239	1.331127	0.582018	1.783112
2019	13	0.767789	7.657518	2.484775	2.33315	1.428709	3.544359
2020	13	0.814097	3.750397	1.682414	0.985697	1.09565	2.783433
2021	13	0.905033	3.554089	1.794805	0.860616	0.901793	2.621882
Total	65	0.365043	7.657518	1.930585	1.409505	1.878346	4.354862

From Table 4, Real estate investment was calculated by taking ratio of commercial Investments to Residential Investments. Real estate investment ranged from 0.0111 to 0.134526 with a mean of 0.057943 and standard deviation of 0.023619. There was presence of normality as indicated by Skewness less than 2.0 and kurtosis less than 6.0.

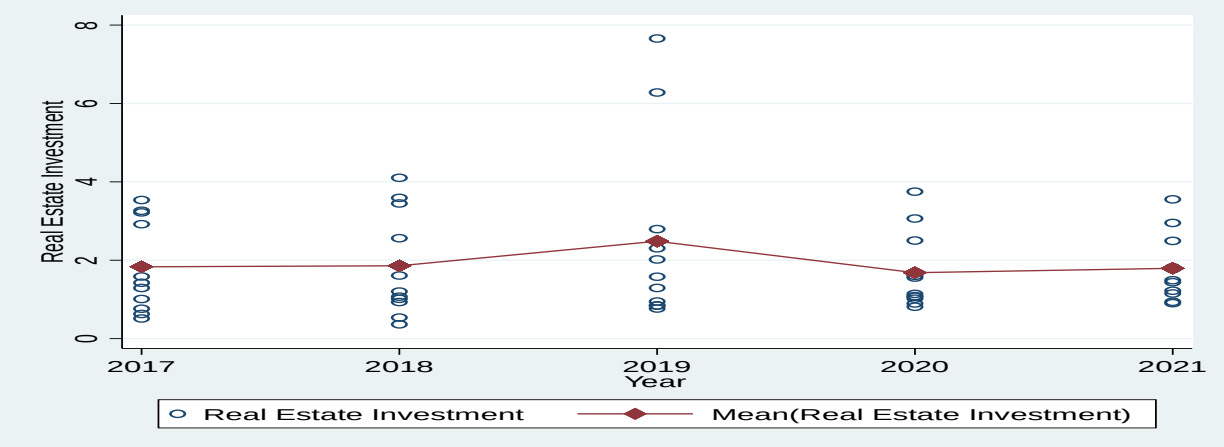

Figure 5: Scatter Plot for Investment in Real Estate

As shown in figure 5, investment in fixed deposits among 13 microfinance banks increased from 2017 to 2019 and from 2019 to 2020 it reduced before increasing in 2021.

Table 5: Descriptive Statistics- Financial Performance

Year	N	Min	Max	Mean	Sd	Skewness	Kurtosis
2017	13	0.0611	0.859597	0.379437	0.289543	-0.03596	1.967864
2018	13	0.0598	0.695107	0.352719	0.275197	-0.1835	1.500097
2019	13	0.0749	0.873288	0.449038	0.319609	-0.41284	1.779824
2020	13	0.0800	1.009409	0.516915	0.368108	-0.40413	1.79415
2021	13	0.0706	1.006982	0.454377	0.370832	0.034474	1.638159
Total	65	0.0598	1.009409	0.430497	0.320151	-0.08347	1.798607

From Table 5, financial performance which is the dependent variable was determined using the ratio of net income to shareholder equity. From Table 5, observing overall statistics as obtained from panel data, between 2017 and 2021, financial performance ranged from 0.0498 to 1.009 with a mean of 0.439 and standard deviation of 0.3201. There was presence of normality as indicated by Skewness less than 2.0 and kurtosis less than 6.0.

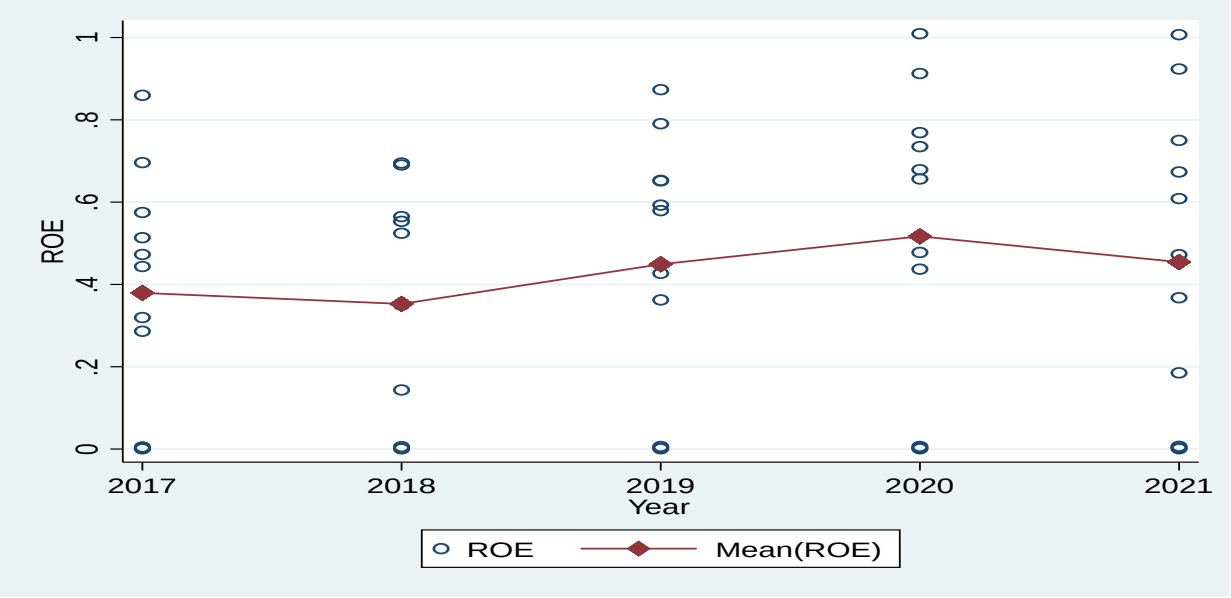

Figure 6: Scatter Plot for Financial Performance

As shown in figure 6, financial performance among 13 microfinance banks decreased from 2017 to 2018 then increased from 2018 to 2020 thereafter it reduced in 2021.

Correlation Analysis

Correlation analysis was employed in assessing the linearity association among the variables. Table 6 results were to give spearman correlation coefficient ranging from -1 to +1, whereby −1 is total negative correlation, 0 is no correlation, and 1 is total positive correlation. There is a strong correlation if the results are greater than 0.9 and a weak correlation if the results are less than 0.

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Table 6: Pearson Correlation Analysis

		FP	IFD	IS	IGS
	Pearson Correlation	0.6313	1		
Investment in	Sig. (2-tailed)	0.005			
fixed deposits	N	65	65		
Investment in	Pearson Correlation	0.7397	0.5613	1	
shares	Sig. (2-tailed)	0.0005	0.0154		
	N	65	65	65	
Investment in	Pearson Correlation	0.5738	0.1411	0.3687	1
government	Sig. (2-tailed)	0.0128	0.5766	0.1322	
securities	N	65	65	65	65
	Pearson Correlation	0.5251	0.5439	0.3756	0.7372
Real estate	Sig. (2-tailed)	0.0252	0.0196	0.1245	0.0005
investment	N	65	65	65	65

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

IFD=Investment in fixed deposits, **IS**=Investment in shares, **IGS**=Investment in government securities, **IRE**=Real estate investment, **FP**=Financial performance

The results indicated that the investment in fixed deposits has a significant positive effect on the financial performance of microfinance banks in Kenya (r = 0.6313, P=0.005). Investment in shares has a positive and significant on the financial performance of microfinance banks in Kenya (r =0.7397, P=0.000). Investment in government securities has a positive and significant effect on the financial performance of microfinance banks in Kenya (r =0.578, P=0.0128). Real estate investment has a positive moderate and significant effect on the financial performance of microfinance banks in Kenya (r =0.5251, P=0.0252).

Linear Regression Analysis

Effect of Investment in fixed deposits on financial performance

The study sought to examine the effect of investment in fixed deposits on financial performance of microfinance banks in Kenya. Having gone by the fixed effect model basing on the Haussmann LM test, the results of the fixed effect model are presented in Table 7.

Table 7: Regression Fixed Effect of Investment in Fixed Deposits On Financial Performance

Fixed-effects (within) regression		Number of obs =	65
Group variable: microfinance banks		Number of groups =	13
R-sq:		Obs per group:	
within =	0.1059	min =	5
between =	0.8631	avg =	5
overall =	0.3986	max =	5
		F(1,51) =	5.61
		Prob > chi2 =	0.0178

FP	Coef.	Std. Err.	T	P>t	[95% Conf. Interval]	
IFD	0.085225	0.035977	2.37	0.018	0.014712	0.155739
_cons	-0.09858	0.058385	-1.69	0.091	-0.21301	0.015853

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The analysis shows that the panels were strongly balanced for this bivariate analysis as shown by the number of observations per group. They were a total of 65 observations used in this analysis considering 13 groups of entities implying strongly balance panels. The minimum, maximum and average numbers of observations per groups were all equal to 5.

The R^2 is generally a measure of the variation of the dependent variable financial performance that is explained by the variation of the predictors in the model. The result obtained from fixed effect model indicated that investment in fixed deposits accounted for 39.86% (Overall R square=0.3986 of the variation in financial performance of microfinance banks in Kenya. The ANOVA statistics measure the general significance of the model. The F-statistic to the model shows is 5.61 which is greater than 0 implying that the estimated parameters in the model are at least not equal to zero. This infers that investment in fixed deposits has an effect on financial performance of microfinance banks in Kenya.

The estimated coefficient of investment in fixed deposits is significantly not equal to zero (β=0.085225, t= 2.37, p-value= 0.018). The P-value is less than 0.05 which implies that the estimated coefficient is significant at 5% significance level. The estimated coefficient of Investment in fixed deposits here implies that a unit increase in Investment in fixed deposits would cause the levels of financial performance to increase by 0.085225units. The p-value of the constant is less than 0.05 which shows a significant constant term. The regression model is as shown below

Financial performance= -0.09858+0.085225Fixed Deposits

Therefore, there is significant effect of investment in fixed deposits on financial performance. This implies that increase in investment in fixed deposits would results to increase in financial performance of microfinance banks in Kenya.

Effect of Investment in shares on financial performance

The study sought to evaluate the effect of investment in shares on financial performance of microfinance banks in Kenya. Having gone by the fixed effect model basing on the Hausman LM test, the results of the fixed effect model are presented in Table 8.

Table 8: Regression Fixed Effect of investment in shares on financial performance

Fixed-effects (within) regression		Number of obs =	65
Group variable: microfinance banks		Number of groups =	13
R-sq:		Obs per group:	
within =	0.4346	min =	5
between =	0.9797	avg =	5
overall =	0.5471	max =	5
		F(1,51) =	19.33
		Prob > chi2 =	0.000

FP	Coef.	Std. Err.	T	P>t	[95% Conf.	Interval]
IS	0.331273	0.075345	4.40	0.000	0.183599	0.478946
_cons	0.018203	0.030804	0.59	0.555	-0.04217	0.078578

The analysis shows that the panels were strongly balanced for this bivariate analysis as shown by the number of observations per group. The result obtained from fixed effect model indicated that investment in shares accounted for 54.71% (Overall R square=0.5471) of the variation in financial

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performance of microfinance banks in Kenya. The ANOVA statistics measure the general significance of the model. The F-statistic to the model shows is 19.33 which is greater than 0 implying that the estimated parameters in the model are at least not equal to zero. This infers that investment in shares has an effect on financial performance of microfinance banks in Kenya. The effect is significant at P<0.05.

The estimated coefficient of investment in shares is significantly not equal to zero (β=0.331273, t=4.40, p-value= 0.000). The P-value is less than 0.05 which implies that the estimated coefficient is significant at 5% significance level. The estimated coefficient of investment in shares here implies that a unit increase in investment in shares would cause the levels of financial performance to increase by 0.331273 units. The p-value of the constant is less than 0.05 which shows a significant constant term. The regression model is as shown below

Financial performance = 10.018203+0.331273Investment in Shares

Hence. there is an effect of investment in shares on financial performance. This implies that increase in investment in shares would results to increase in financial performance of microfinance banks in Kenya.

Effect of Investment in government securities on financial performance

The study sought to determine the effect of investment in government securities on financial performance of microfinance banks in Kenya. Having gone by the fixed effect model basing on the Haussmann LM test, the results of the fixed effect model are presented in Table 9.

Table 9: Regression Fixed Effect of Investment in government securities on financial performance

Fixed-effects (within) regression		Number of obs =	65
Group variable: microfinance banks		Number of groups =	13
R-sq:		Obs per group:	
within =	0.0161	min =	5
between =	0.6611	avg =	5
overall =	0.3292	max =	5
		F(1,51) =	1.83
		Prob > chi2 =	0.1763

FP	Coef.	Std. Err.	T	P>t	[95% Conf.	Interval]
IGS	0.26498	0.195958	1.35	0.176	0.11906	0.649086
_cons	2.646792	1.974114	1.34	0.18	-1.2224	6.515984

The result obtained from fixed effect model revealed that investment in government securities accounted for 32.92% (Overall R square=0.3292) of the variation in financial performance of microfinance banks in Kenya. The ANOVA statistics measure the general significance of the model. The F-statistic to the model is 1.83 which is greater than 0 implying that the estimated parameters in the model are at least not equal to zero. This postulates that investment in government securities has an insignificant effect on financial performance of microfinance banks in Kenya. This effect is insignificant at P>0.05.

The estimated coefficient of investment in government securities is significantly not equal to zero (β=0.26498, t= 1.35, p-value= 0.176). The P-value is greater than 0.05 which implies that the estimated coefficient is insignificant at 5% significance level. The estimated coefficient of investment in government securities here implies that a unit increase in investment in government securities would trigger the levels of financial

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performance to increase by 0.26498 units. The p-value of the constant is greater than 0.05 which shows an insignificant constant term. The regression model is as shown below

Financial performance =0.26498+0.26498ERD

Therefore, there is an insignificant effect of investment in government securities on financial performance. This implies that increase in investment in government securities would results to increase in financial performance of microfinance banks in Kenya.

Effect of real estate investment on financial performance

The study sought to determine the effect of real estate investment on financial performance of microfinance banks in Kenya. Having gone by the fixed effect model basing on the Haussmann LM test, the results of the fixed effect model are presented in Table 10.

Table 10: Regression Fixed Effect of Real estate investment on Financial performance

Fixed-effects (within) regression		Number of obs =	65
Group variable: microfinance banks		Number of groups =	13
R-sq:		Obs per group:	
within =	0.2792	min =	5
between =	0.997	avg =	5
overall =	0.2757	max =	5
		F(1,51) =	6.09
		Prob > chi2 =	0.0136

FP	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
IRE	0.14864	0.060223	2.47	0.014	0.03667	0.26306
_cons	0.099193	0.061311	1.62	0.106	-0.02097	0.219361

The analysis shows that the panels were strongly balanced for this bivariate analysis as shown by the number of observations per group. They were a total of 65 observations used in this analysis considering 13 groups of entities implying strongly balance panels. The minimum, maximum and average numbers of observations per groups were all equal to 5. The result obtained from fixed effect model indicated that real estate investment accounted for 27.57% (Overall R square=0.2757) of the variation in financial performance of microfinance banks in Kenya. The F-statistic to the model shows is 6.09 which is greater than 0 implying that the estimated parameters in the model are at least not equal to zero. This implies that real estate investment has a significant effect on financial performance of microfinance banks in Kenya. The effect is significant (P=0.014).

The estimated coefficient of real estate investment is significantly not equal to zero (β=0.14864, t= 2.47, p-value= 0.014). The P-value is less than 0.05 which implies that the estimated coefficient is significant at 5% significance level. The estimated coefficient of real estate investment here implies that a unit increase in real estate investment would initiate the levels of financial performance to a significant increase by 0.14864 units. The regression model is as shown below

Financial performance= 0.099193+0.14864IRE

Hence, there is a significant effect of real estate investment on financial performance. This implies that increase in real estate investment would results to increase in financial performance of microfinance banks in Kenya.

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Multiple Linear Regression

Regression analysis was used to check for the hypothesis concerning the connection of independent variables with dependent variables. The main aim of regression analysis is to show how and extent of which each variable separately effects the dependent variables. Regression analysis is used in estimating the weight of the effects of the independent variables on the dependent variable.

Model Summary

Model summary is used to show the percentage of dependent variable that can be explained by changes in the independent variable. In this regression, the four independent variables were entered as a block. Table 11 below shows the model summary of the adopted fixed effect model.

Table 11: Model Summary Fixed Effect of Investment diversification on financial performance

Fixed-effects (within) regression	Number of obs =	65
Group variable: microfinance banks	Number of groups =	13
R-sq:	Obs per group:	
within = 0.7404	min =	5
between = 0.5647	avg =	5
overall = 0.6473	max =	5
	F(4,48)=	7.84
	Prob > F=	0.003

The analysis shows that the panels were strongly balanced for this multivariate analysis as shown by the number of observations per group. They were a total of 65 observations used in this analysis considering 13 groups of entities implying strongly balance panels. The minimum, maximum and average numbers of observations per groups were all equal to 5. The result obtained from fixed effect model indicated that the investment diversification accounted for 64.73% (Overall R square=0.6473) of the variation in financial performance of microfinance banks in Kenya. The F-statistic to the model shows is 7.84 which is greater than 0 implying that the estimated parameters in the model are at least not equal to zero. This implies that four investment diversifications have an effect on financial performance of microfinance banks in Kenya. This effect is significant (P=0.003).

Regression Coefficients

Regression coefficients are estimates of the unknown population parameters and describe the relationship between a predictor variable and the response. In linear regression, coefficients are the values that multiply the predictor values. P-values and coefficients in regression analysis work together to tell which relationships in the model are statistically significant and the nature of those relationships. The coefficients describe the mathematical relationship between each independent variable (investment diversification) and the dependent variable (Financial performance). The p-values for the coefficients indicate whether these relationships are statistically significant. The results are presented in Table 12.

Table 12: Regression Coefficient

Financial Performance (FP)	Coef.	Std. Err.	T	P>t	[95% Conf. Interval]	
Fixed Deposit (IFD)	0.41389	0.151147	2.74	0.006	0.11013	0.71765
Shares (IS)	0.097746	0.037318	2.62	0.009	0.024604	0.170888
Govt Securities (IGS)	0.143117	0.080326	1.78	0.075	-0.01432	0.300554
Real Estate (IRE)	0.23824	0.080165	2.97	0.013	0.061799	0.414681
_cons	6.028315	2.650851	2.27	0.044	0.193831	11.8628

The study regression model as obtained from table above is as shown below.

$Y=6.028315+0.41389X_1+0.097746X_2+0.143117X_3+0.23824X_4$

Where Y is Financial performance

X_1 is investment in Fixed deposits

X_2 is investment in Government securities

X_3 is investment in Shares

X_4 is investment in Real Estate

From the findings, the constant is 6.028315 implying that holding the independent variables at 0, financial performance of microfinance banks in Kenya will be 0.6028315 units. Investment in fixed deposits had a regression co-efficient (β_1) of 0.41389, p=0.006 implying that when investment in shares, investment in government securities and real estate investment are controlled, a unit increase in investment in fixed deposits across time and among microfinance banks in Kenya would result in a significant increase of 0.41389 units in financial performance.

The study also established that investment in shares had a regression co-efficient (β_2) of 0.097746, p=0.009 implying that when investment in government securities, investment in fixed deposits and real estate investment are controlled, a unit increase in investment in shares across time and among microfinance banks in Kenya would result to significant increase of 0.097746 units in financial performance.

From the findings, investment in government securities had a regression co-efficient (β_3) of 0.143117, p=0.075 implying that when investment in fixed deposits, Investment in shares and real estate investment are controlled, a unit increase in investment in government securities across time and among microfinance banks in Kenya would result in an insignificant increase of 0.143117 units in financial performance.

Lastly, the results revealed that real estate investment had a regression co-efficient (β_4) of 0.23824, p=0.013 implying that when investment in fixed deposits, Investment in shares and investment in government securities are controlled, a unit increase in real estate investment across time and among microfinance banks in Kenya would result in a significant increase of 0.23824 units in financial performance.

Optimum Model

Since investment in government securities had insignificant positive effect on financial performance of microfinance banks in Kenya, the study excluded it in the final model so as to have optimum model of the study. The results are presented in Table 13.

Table 13: Optimum Model Regression Model

Fixed-effects (within) regression		Number of obs =	65
Group variable: microfinance banks		Number of groups =	11
R-sq:		Obs per group:	
within =	0.5912	min =	5
between =	0.9531	avg =	5
overall =	0.7591	max =	5
		F(3,49) =	44.12
		Prob > chi2 =	0.000

FP	Coef.	Std. Err.	T	P>t	[95% Conf.	Interval]
Fixed Deposits	4.121421	0.962814	4.28	0.000	2.234342	6.008501
Shares	3.103003	0.745333	4.16	0.000	1.642177	4.56383
Real Estate	1.3506	0.330346	4.09	0.000	0.79807	1.90313
_cons	-29.1503	7.334044	-3.97	0.000	-43.5248	-14.7759

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The coefficient of determination (R-sq = 0.7591) which was statistically significant Prob > chi2 = 0.0000<0.05. This is an indication that 75.91% of the variations in financial performance of microfinance banks in Kenya is explained by the three significant independent variables (Fixed Deposits, Shares and Real Estate). The increase in R square from 64.73% to 75.91% can be attributed to the exclusion of investment in government securities. This is also witnessed in the significance level which increased from F(4,51)=7.84, Prob>F=0.003 to F(3,49) =44.12, Prob > chi2 =0.000. The optimum model with exclusion of investment in government securities is as shown below.

Financial performance =-29.1503+4.121421X_1+3.103003X_2+1.3506X_3

Where X_1 is investment in Fixed deposits

X_2 is investment in Shares

X_3 is investment in Real Estate

Discussion of the Findings

What is the effect of investment in fixed deposits on financial performance of microfinance banks in Kenya?

The first research question sought to answer what is the effect of investment in fixed deposits on financial performance of microfinance banks in Kenya? To answer this question, the study conducted Pearson Correlation as well as linear regression analysis. Pearson correlation indicated that there is significant positive relationship between of investment in fixed deposits and financial performance of microfinance banks in Kenya (r= 0.6313, P=0.005). This implies that increase in investment in fixed deposits would results to increase financial performance of microfinance banks in Kenya. The study findings are in agreement with Parimalakanthi and Kumar (2015) found that bank deposits were preferred by investors. Parimalakanthi and Kumar (2015) concluded that investors prefer fixed deposits as a form of investment. Nekesa and Olweny (2018) indicated that Fixed deposits provide various accounts that fit savings needs of different members. This increases the capacity of microfinance banks to undertake more business to increase returns of the organization. The charges and fees on Fixed deposits can optimize the revenues of microfinance banks. Ochieng (2018) However, Mella (2016) found that universities invested heavily in investing in real estate, followed by investing in bonds. In the fixed deposit account, low investment levels were observed.

Further, linear regression indicated that investment in fixed deposits carries positive significant beta coefficient (β1) of 0.41389, p=0.006. Therefore, a unit increase in investment in fixed deposits across time and among microfinance banks in Kenya would result in a significant increase of 0.41389 units in financial performance of microfinance banks in Kenya This variable was included in the optimum model. Kibet and Maina (2018) concluded that investment fixed deposit contributed positively to financial performance. Jepkorir et al. (2019) revealed that investment in fixed deposits have a very strong relationship with financial performance of microfinance banks. Fixed deposits increase the microfinance banks capacity to undertake more business which increases their returns. Additionally, the fees and charges on these products optimize revenue hence improving the financial performance. Matumo, Njoroge and Maina (2013) showed that investment in Fixed deposits had an important positive impact on the microfinance banks economic performance. Lomuria, Wanyama and Mamuli (2020) revealed diversification in Fixed deposits had a positive, linear and significant (p-value is less than 0.05) association with the performance of microfinance banks.

How does investment in shares affect financial performance of microfinance banks in Kenya?

The second research question sought to answer how does investment in shares affect financial performance of microfinance banks in Kenya? Pearson correlation indicated that there is significant positive relationship between of investment in shares and financial performance of microfinance banks in Kenya (r=0.7397, P=0.0005).

This implies that increase in investment in shares would results to significant increase financial performance of microfinance banks in Kenya. Hussein (2017) revealed a positive relationship between investment in money and bond markets and financial performance. Purnamasari and Azis (2016) found out that there is a significant positive relationship between investment in money and bond markets and financial performance. Hussein (2017) discovered a positive relationship between investment in money and bond markets and financial performance. A study by Jemba (2010) noted that there was a good association between shares acquisition on commercial bank financial performance. The purchase of shares was ranked as the best investment. Riedel (2014) concluded that shares as mode of investment leads to financial improvement to the investor. Menggen (2017) found out that there was a positive association between risk and returns on shares in Sheng hen stock exchange. Islam (2017) found out that banks invested in securities/shares of listed companies. Musyoki (2011) averred that investment in shares and microfinance banks financial performance positively connected.

Further, linear regression indicated that investment in shares carried positive significant beta coefficient (β_2) of 0.097746, p=0.009. Therefore, a unit increase in investment in shares across time and among microfinance banks in Kenya would result to significant increase of 0.097746 units in financial performance. The study outcomes are in agreement with the literature presented. Kimani and Aduda (2016) looked into the relationship between the size of portfolio and financial performance of microfinance banks in Kenya. The findings revealed that money and bond markets brings about the highest returns after the stock portfolio thus it was found to influence the financial performance positively. Rop, Kibet and Bokongo (2016) depicted a positive link between investment in money and bond markets and financial performance. Kimani and Aduda (2016) revealed that money and bond markets bring about the highest returns after the stock portfolio thus it was found to influence the financial performance positively.

Gachenga (2022) revealed that; investment in shared had a p-value of 0.000 revealing that there exists a significant nexus between predictor variables and liquidity of farmers-based MF BANKSs Kebiro (2019) showed that investment in shares produced positive and statistically substantial values for this study. Morwabe and Muturi, (2019) using regression model indicated that investment in shares were statistically significant on financial performance. Cappiello, Kadareja, Sorensen and Protopapa (2017) revealed that the Euro area changes in respect of investment in shares, both in terms of volumes and credit standards. Chumba, Muturi and Oluoch (2019). Howver, Rose (2013) noted that credit institutions have embraced 24-7 services through automation, housing financing as well as mortgages with the aim of improving their incomes. The study concluded that, credit unions invest in permissible shares, however with limitation to the list provided by government regulations.

How does investment in government securities affect financial performance of microfinance banks in Kenya?

The third research question sought to answer to how does investment in government securities affect financial performance of microfinance banks in Kenya? Pearson correlation indicated that there is significant relationship between of investment in government securities and financial performance of microfinance banks in Kenya (r =0.5738, P=0.0128). This implies that increase in investment in government securities would results to significant increase financial performance of microfinance banks in Kenya. Olokoyo (2017) suggested that commercial banks should focus on mobilizing more investment in government securities as this will enhance their lending performance through the liabilities they receive where proper appraisal could help identify liabilities to be used in making quick return on investments in order to positively

influence on financial performance of these banks. Sola et al.(2012) in their study found a positive linear relationship between investment in government securities and firm performance derived from the fact that the benefits associated with investment in government securities surpass the costs of investment in government securities

Further, linear regression indicated that investment in government securities carried positive insignificant beta coefficient (β_3) of 0.143117, p=0.075. Therefore, a unit increase in investment in government securities across time and among microfinance banks in Kenya would result to insignificant increase of 0.143117 units in financial performance. Maina (2017) investigated investment in government securities effect on financial performance of microfinance companies. The study adopted a descriptive survey design using secondary data obtained from financial records of Microfinance institutions and CBK. The research findings indicated that the investment in government securities had a negative effect on ROA indicator and ROE indicator were on a growth pace from 2012 to 2016

Kebiro (2019) showed that investment in investment in government securities produced positive and statistically substantial values for this study. Shrestha (2018) indicated that both small firms and big firms were interested in the government investment. A conclusion was drawn that; income is the major factor in the government securities investment. Kapkiyai and Mugo (2015) founded a positive relationship between investment in government securities and firm's liquidity, profit margin and return on assets. However, Mwangangi (2018) founded an inverse, insignificant correlation between investment in government securities and profitability. The study reviewed that an increase in profits as a result of investment in government securities is negatively affected by trade credit risks and the associated costs, therefore having a negative effect to the profitability. Purnamasari and Azis (2016) indicated that the investment in government securities had a negative effect on ROA indicator and ROE indicator were on a growth pace from 2012 to 2016.

What is the effect real estate investment on financial performance of microfinance banks in Kenya?

The fourth research question sought to answer to what is the effect real estate investment on financial performance of microfinance banks in Kenya? Pearson correlation indicated that there is significant positive relationship between of investment in real estate and financial performance of microfinance banks in Kenya (r =0.5251, P=0.0252). This implies that increase in investment in real estate would results to significant increase financial performance of microfinance banks in Kenya. Rop, Kibet and Bogonko (2016) showed a positive relationship was noted between government real estate investment with financial performance of commercial banks in Kenya. Muli(2016) depicted a significantly good link between real estate investment diversification and financial performance. Bello (2015) demonstrated that both real estate and government securities covered secured loans. Andelinovic, Samodol and Pavkovic (2018) revealed that loans in real assets had a positive and significant impact on the profitability of Croatian commercial banks. Kebiro (2019) to determine how investment diversification impact the efficiency of microfinance banks in Kenya. The results also showed that investment in real estate produced positive and statistically substantial values for this study

Further, linear regression indicated that investment in real estate carried positive significant beta coefficient (β_4) of 0.23824, p=0.013. Therefore, a unit increase in investment in real estate across time and among microfinance banks in Kenya would result to significant increase of 0.23824 units in financial performance. Kipkorir, Namiinda and Njeje (2015) examined the relationship between real estate investment decisions and financial performance of microfinance banks in Baringo County. The key finding from the examination was that investment in real estate contributes up to 9.8

percent of the financial performance of the microfinance banks. Muli (2016) depicted a significant positive association between real estate investment decisions and financial performance. Odhiambo (2017) used data from annual reports for a 5-year study on the association between real estate finance and financial performance of 11 commercial banks registered on Nairobi Securities Exchange. The study found that real estate finance has an influence on the financial performance of publicly traded commercial banks, with mortgage finance having a particularly high impact. Njiiri (2015) affirmed the existence of a positive and consequential relationship between real estate investments and the financial performance of financial firms. Research findings established that real estate investment influence the financial performance of commercial banks.

However, Bhuyan et al. (2019) studied the effect of real estate investments as an investment diversification in commercial banks. The study observed that small banks did not significantly benefit from diversification using MREITs. Further, the research revealed that MREITs turn out to be the worst asset class to be used in investment diversification. Odhiambo (2015) investigated the effect of real estate finance on the financial performance of listed commercial banks in Kenya. The results showed that real estate finance did not have a significant effect on the financial performance of listed commercial banks. The study findings concurred with conclusions drawn by a study conducted by Mburu and Owiti (2016) that return on stock and savings are inversely related to mortgage uptake in Kenya while interest rate and inflation are significantly related to mortgage uptake in Kenya. Onchomba, Njeru and Memba (2018) examined the influence of real estate investment on financial performance of commercial banks in Kenya and a corresponding hypothesis was formulated and tested. Kipkorir, Namiinda and Njeje (2016) evaluated microfinance banks' profitability looking at various investments in Baringo County. It was noted that the above factors had a perfect influence on performance of microfinance banks with fixed deposits taking lead followed by lending to members then lending to the government, real estate lagged behind.

SUMMARY

The first objective of the study was to determine the effect of investment in fixed deposits on financial performance of microfinance banks in Kenya. Panel data Pearson correlation results showed a significant positive relationship between investment in fixed deposits and financial performance of microfinance banks in Kenya. Fixed effect simple regression analysis indicated that investment in fixed deposits has significant positive effect on financial performance of microfinance banks in Kenya. Fixed effect multiple regression analysis revealed that when other variables are controlled in the model, a unit change in investment in fixed deposits would results to a significant change in financial performance in the same direction. Hence, investment in fixed deposits has got significant positive effect on financial performance of microfinance banks in Kenya.

The second objective of the study was to evaluate the effect of investment in shares on financial performance of microfinance banks in Kenya. Panel data Pearson correlation results revealed a moderate significant positive relationship between investment in shares and financial performance of microfinance banks in Kenya. Fixed effect linear regression analysis indicated that investment in shares significantly accounts for change in financial performance of microfinance banks in Kenya. Fixed effect multiple regression analysis revealed that when other variables are controlled in the model, a unit change in investment in shares would results to a significant change in financial performance in the opposite direction. Thus, investment in shares has got significant positive effect on financial performance of microfinance banks in Kenya. Therefore, the second null hypothesis was rejected.

The third objective of the study was to assess the effect of investment in government securities on

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financial performance of microfinance banks in Kenya. Panel data Pearson correlation results revealed a significant positive relationship between investment in government securities and financial performance of microfinance banks in Kenya. Fixed effect linear regression analysis revealed that investment in government securities insignificantly accounts for variation in financial performance of microfinance banks in Kenya. Fixed effect multiple regression analysis revealed that when other variables are controlled in the model, a unit change in investment in government securities would results to insignificant change in financial performance by in the same direction. Hence, investment in government securities has got insignificant positive effect on financial performance of microfinance banks in Kenya.

The fourth objective of the study was to establish the effect of real estate investment on financial performance of microfinance banks in Kenya. Panel data Pearson correlation results indicated a significant positive relationship between real estate investment and financial performance of microfinance banks in Kenya. Fixed effect linear regression analysis indicated that real estate investment significantly accounted for variance in financial performance of microfinance banks in Kenya. Fixed effect multiple regression analysis revealed that when other variables are controlled in the model, a unit change in real estate investment would results to a significant change in financial performance in the same direction. Thus, real estate investment has significant effect on financial performance of microfinance banks in Kenya.

CONCLUSION

Based on the empirical evidence, a number of logical conclusions can be made as follows and presented in terms of study objectives:

The first research question was what is the effect of investment in fixed deposits on financial performance of microfinance banks in Kenya? The study established that investment in fixed deposits has significant positive effect on financial performance. An increase in investment in fixed deposits as compared to regular saving would results to significant increase in financial performance. This investment option has favorable returns; it attracts less or no risk at all, hence there is an assurance of returns.

The second research question was to how does investment in shares affect financial performance of microfinance banks in Kenya. From the linear and multiple regression results, the study established that investment in shares affected financial performance of microfinance banks positively and significantly. Therefore, investment in shares has a significant positive effect of financial performance of microfinance banks in Kenya. An increase in investment in preferred shares as opposed to ordinary shares would results to significant increase in financial performance.

The third research question was how does the investment in government securities affect financial performance of microfinance banks in Kenya. From the linear and multiple regression results, the study established that investment in government securities affected financial performance of microfinance banks positively but not significantly. An increase in investment in government securities would results to insignificant increase in financial performance. Although investment in government improve microfinance banks financial performance, the effect is not felt in a significant way. The insignificant impact could be accredited to unpopularity of government securities among microfinance banks as compared to commercial banks.

The last research question was what is the effect real estate investment on financial performance of microfinance banks in Kenya. The study established that real estate investment has significant positive effect on financial performance as indicated by multiple linear regressions. An increase in real estate investment specifically commercial investments would results to significant increase in financial performance. Hence, real estate

investment is a significant predicator of financial performance of microfinance banks in Kenya

RECOMMENDATIONS

The following recommendations have been made based on the study conclusions as explained below:

The study recommended that management of microfinance banks should keep the investment in fixed deposits at maximum in order to enhance their financial performance. In this regard, microfinance banks should compare each of the fixed deposit options basing on desired risk, interest rate, and tenure, and choose a fixed deposit only after weighing the benefits and drawbacks of various fixed deposits on the market.

The management of the microfinance banks should strive to improve the financial performance of their microfinance banks through investment in shares preferably, preference shares since they offer investors a diversified investment option typically for a minimum initial investment amount and there is possibility to increase the value of the principal amount invested. This comes in the form of capital gains and dividends well before common shareholders see any money.

According to the results of the research, high liquidity produced by microfinance banks' client deposits should be invested in a variety of government securities and bonds, which are backed by the government, the study suggested. The study recommended that microfinance banks can buy short-term Treasury bills directly or through a bank or broker.

The study recommends that microfinance banks can invest in rental properties to generate regular income and capital appreciation while maximizing capital through leverage. microfinance banks could invest in Real Estate Investment Groups (REIGs) to gain more hands-off income and appreciation than owning rentals. This will result provide investment firms with long term financial security since they are not affected by inflationary tendencies.

Suggestion for Further Studies

The study assessed effect of investment diversification on financial performance of microfinance banks in Kenya. The study was limited to 13 microfinance banks in Kenya. In this connection, future studies should consider commercial banks and deposit taking Saccos in Kenya.

The current study did not control or moderate other variables that may have impact on the relationship between investment diversification and financial performances. Therefore, future studies should consider firm size, corporate governance as moderating variable and macro-economic indicators such as interest rate, foreign exchange and taxation as control variables which may have impact on financial performance and investment diversification.

The study didn't exhaust all the independent variables influencing financial performance of microfinance banks in Kenya as far as investment diversification is concerned and a recommendation is given that more studies be carried out to constitute other variables for instance investment in financial assets.

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