IOSR Journal Of Economics and Finance (IOSR-JEF)
e-ISSN: 2321-5933, p-ISSN: 2321-5925.Volume 16, Issue 5 Ser. 2 (Sept. – Oct. 2025), Pp 01-12
www.Iosrjournals.Org

Financial Risks, Diversification And Performance Of Commercial Banks In Kenya

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Abstract
The study investigated the effect of financial risks and diversification strategies on the financial performance of commercial banks in Kenya. Specifically, the study sought to examine the effects of financial risks on performance, determine how income and asset diversification mediates the relationship between financial risks and performance. The study utilized a population of 39 commercial banks in Kenya, gathering secondary data from financial reports over a seven-year period (2016–2022) to analyze key variables, including credit, liquidity, market, capital, and operational risks; income and asset diversification and financial performance. Panel regression analysis, specifically the fixed-effects model, was employed to test the hypotheses. The findings revealed that market risk, capital risk, and operational risk significantly and negatively affected financial performance, while credit and liquidity risks showed no significant effect. Income diversification emerged as an effective mediating factor in mitigating the negative impacts of specific risks, while asset diversification was found to have minimal effect. The study concluded that targeted management of specific financial risks, coupled with strategic income diversification is essential for enhancing bank performance. Recommendations include policy measures to strengthen regulatory guidelines on risk management, incentives for income diversification, and an integrated approach combining risk management, diversification to optimize performance. For further research, the study suggests exploring qualitative insights from bank managers, conducting comparative studies across countries, examining additional diversification strategies and firm attributes, extending the time frame, and employing advanced econometric methods to capture dynamic relationships.

Keywords: *Financial risks, diversification strategies, financial performance*

Date of Submission: 09-09-2025 Date of Acceptance: 19-09-2025

I. Introduction

Financial risks are at the epicenter of modern management of business organizations (Truica & Trandafir, 2009). Banking institutions are vulnerable to different financial risks including liquidity, credit, forex, interest rate, and market risks that adversely affect their financial performance (Djan et al., 2015). Thus, to enhance financial performance, one of the most essential success indicators for any banking entity remains in its ability to effectively manage the inherent financial risks facing its business. Failure to manage effectively financial risks can lead to bank failure (Hunjra et al., 2020). Diversification is one of the strategies used by financial institutions to manage financial risks and it is hypothesized that effective use of diversification strategy lowers financial risks and enhances financial performance (Amin et al., 2014). Financial risks, if not addressed, can cause financial institutions to collapse and underperform (Haque & Wani, 2015). The risks a banking entity faces affects its operations, particularly in a highly competitive and operating environment (Badriyah et al., 2015).

Financial risk denotes the possibility of loss caused by the bank's financial transactions such as depositing, borrowing, lending, and investing among other factors (Haque & Wani, 2015). The major financial risks comprise; credit risk, liquidity risk, capital risk, market risk, and operational risk (Haque & Wani, 2015; Amin et al., 2014). Credit risk is proxied by the percentage of defaulted loans to aggregate loans, and a higher percentage indicates a higher probability of default (AlKhouri & Aurori, 2019). Liquidity risk means that a bank is unable to reduce its liabilities and increase its assets and is measured using the liquidity coverage ratio (Haque & Wani, 2015). Market risk refers to uncertainty in a financial institution's portfolio earnings due to changes or fluctuations in market conditions related to factors such as exchange rates; interest rates is measured using value at risk (VAR). Capital risk denotes the possibility of a banking entity losing its capital, which is measured through

the capital adequacy ratio (Duho et al., 2020). Operational risks denote the possibility of losses arising from bank systems', processes and individuals, and is assessed by the cost/revenue ratio (Ali & Oudat, 2020).

Diversification is a corporate strategy aimed at expanding operations and attaining the goal of profit maximization (Pung & Mishra, 2016). Bank diversification remains the most important approach to increase profitability and minimize risk by engaging in traditional banking and mutual fund operations (Chen & Lai, 2017). Diversification minimizes unpredictable and predictable fluctuations, which ultimately lead to synchronization of financial entity's income flows (Siddique et al., 2017). Income and assets diversification are the commonly used measures of diversification among banking institutions (Laeven & Levine, 2007; Moudud, 2019; Hunjra et al., 2020). Income diversification shows the expansion of an entity's income portfolio and is equivalent to the ratio of noninterest income to aggregate operating revenue, whereas noninterest income is a summation of income from investments, fee-based earnings, and other noninterest earnings. Operating income entails the sum of noninterest and net interest earnings (Majumder & Li, 2018). Asset diversification refers to the proportion of noninterest generating assets to aggregate assets, and a higher percentage shows a more diversified bank's asset portfolio (AlKhouri & Aurori, 2019; Duho et al., 2019).

Financial performance refers to a subjective indicator that determines a bank's operational efficiency. It assesses the financial strength and soundness of any sector in fiscal terms, thus helping to make comparisons (Haque & Wani, 2015). High performance shows the efficiency of executives to use the company resources that contribute to overall economic performance (Mirza & Javed, 2013). The key financial performance metrics entail the return on assets (ROA) ratio, return on equity (ROE), and the Tobin Q (Amin et al., 2014). Tobin's Q is a market-based performance indicator and it is the summation of the book value debt and the market value of equity in proportion to the par value of aggregate assets (Siddique et al., 2017). ROA shows the proportion of net earnings to assets while return ROE shows the proportion of net earnings to stockholders' funds (Hunjra et al., 2020). ROA specifies the capability of the entity executives to generate returns from the entity's assets and ROE shows the yield on equity owners (Adzobu et al., 2017).

In Kenya, the financial sector is largely dominated by banking institutions as major financial intermediaries acting as a bridge between deficit fiscal units and the surplus economic entities (Muriithi, 2016). Commercial banks in Kenya have diversified their services to cater to various customer needs and stay competitive. They offer retail banking services to individuals, corporate banking services to businesses, and specialized services for small and medium-sized enterprises. Banks have also ventured into investment banking, asset management, bancassurance, mobile banking, digital banking, diaspora banking, and trade finance/international banking to provide a comprehensive range of financial solutions (Echwa & Atheru, 2020). However, commercial banks in Kenya have suffered serious losses in recent years due to poor management practices. According to the CBK (2023), at least five previously well-performing banks, including Chase Bank, Imperial Bank, Dubai Bank, Spire Bank, and Charterhouse Bank, experienced severe losses or were placed under receivership between 2015 and 2022 due to inefficiencies, unstable credit lines, and inability to effectively hedge financial risks (Echwa & Atheru, 2020; CBK, 2023).

Research Problem

Efficient financial risks management is critical for the monitoring in banks, control, and performance appraisal by regulators, stockholders, and shareholders (Eisenkopf, 2008). Various theories among them the modern portfolio theory, the capital assets pricing theory, market power theory supports that financial risks should be mitigated to enhance firm performance. However, despite abundant theoretical literature on the significance of risk management, there is a large discussion in academic literature concerning the contribution of financial risk management to firm profitability (Truica & Trandafir, 2009). In addition, failure to manage risk at large companies has been making headlines around the world for many years, especially in the financial sector. As such, poor risk management practices and engagement in reckless risk-taking were blamed for the failure of large organizations among them Olympus, Enron, WorldCom, Satyam, Parmalat, and several others (OECD, 2014).

Several studies have been carried across the world on how firm performance is affected by various financial risks. For example, Fayman and He (2011) examined whether prepayment risk affected USA banks' performance and documented a positive and significant interrelationship through the study focused on prepayment risk. In Ghana, Zhongming et al. (2019) examined whether financial risks affected bank performance and revealed a unidirectional interrelationship between risks and bank performance but the study used time series modeling. In Kenya, Onsongo et al. (2020) also examined whether financial risk affects listed firms' performance liquidity and operational risks significantly affected performance but the focus was listed commercial and services firms at the NSE. Further, Mwaurah et al. (2017) investigated financial risks and their effects on stock returns and found a significant interrelationship between stock returns and financial risks but the study focused only on listed banks and stock returns as opposed to financial performance.

This study was motivated by the failure of five Kenyan banks between 2015 and 2022—namely Dubai Bank, Imperial Bank, Chase Bank, Charterhouse Bank, and Spire Bank—attributable to poor financial risk

management, mismanagement, and governance weaknesses (CBK, 2023). These failures disrupted financial intermediation, eroded public confidence in the banking system, and highlighted persistent vulnerabilities in the sector's risk management practices. Although there are previous studies in this area, there exist conceptual, contextual, and methodological gaps that warrant further investigation. Conceptually, most prior studies have focused on the direct relationship between financial risks and bank performance without incorporating the potential mediating role of diversification strategies leaving the joint interaction of these variables underexplored. Contextually, much of the empirical work has concentrated on non-financial firms or banking sectors in other jurisdictions whose regulatory frameworks and market conditions differ significantly from Kenya's, limiting the applicability of their findings to the local context. Methodologically, earlier studies have reported inconsistent results—some finding negative relationships, others positive—which can be linked to variations in variable measurement, model specification, and analytical approaches. These gaps, coupled with the real-world implications of bank failures in Kenya, underscore the need for an evidence-based analysis that integrates financial risks, diversification, and firm characteristics to explain performance outcomes. Accordingly, this study sought to answer the question: What relationship is the effect of diversification on the relationship between financial risks and financial performance of commercial banks in Kenya?

II. Literature Review

Theoretical Review

Modern Portfolio Theory

This theory was conceptualized by Markowitz (1952) as an investment model that seeks to maximize the likely returns of a portfolio for given portfolio risk, or equally mitigate risk, by carefully choosing proportions of different assets for a given level of expected return (Byers, Groth & Sakao, 2015). The MPT argues that the application of constraints limits the scope of investments and limits the ability to create a diversified portfolio necessary for optimal risk reduction (Kazan & Uludağ, 2014). It is a theory that describes how risk-averse investors can construct portfolios that reduce the total risk for an expected return, accentuating that risk is a natural part of the greater reward (Moudud, 2019). In the theory, investors can reduce risk exposure from an individual asset by investing in a portfolio that is well-diversified and comprising multiple assets (Moudud, 2019).

This theory explains that a positive link exists between institutional diversification and firm value since the company has an information advantage when obtaining funds and thus circumvent the higher costs of external funds, which at times is greater internal financing costs (Mehmood, Hunjra & Chani, 2019). The theory holds that banks gain the benefit of risk reduction if there is no perfect correlation between noninterest income sources and interest earnings (Hunjra et al., 2020). The theory supports that by diversifying in diverse economic segments; banks can offset the effects of specific shocks to their loan portfolios because borrowers are in essence spread across diverse economic segments. Hence, a well-diversified bank should be more sensitive to the economic fluctuations in different sectors that they operate. Therefore, the MPT provides a context for explaining the interactions between financial risks, diversification, and financial performance.

Market Power Theory

This theory originated from the seminal work of Porter (1980), who supported the use of diverse approaches to differentiate an entity's position among its opponents. This theory suggests that positioning an entity in its environment requires the use of a combination of strategies to differentiate the company's position among its competitors (Yuliani et al., 2013). In theory, more diversification affects the organizational and structural complexity, leads to higher integration costs, and strains resources for the top management (Chakrabarti et al., 2007). This model assumes implicitly that a greater degree of marketplace concentration is the source of marketplace power. The theory has however been criticized for positing that the main determinant of market power is the dominance of participants in distinct markets (Yuliani et al., 2013).

The theory states that organizational success depends on the integration of micro and factors as contingency variables. The theory also supports that firms can gain competitive strength by entering other markets through diversification (Mulwa & Kosgei, 2016). The ultimate goal of this approach is to generate cost efficiency and financial strength (Yuliani et al., 2013). Applied to the banking sector, the MP hypothesis contends that banking entities with market power charge higher loan fees and on non-conventional activities and lower interest rates on both loans and customer deposits, which leads to increased profitability. The theory supports that a combination of effective financial risk management strategies, as well as diversification strategies influence the financial performance of banks.

Empirical Studies

Using a post-fact explanatory design, Mulwa and Kosgei (2016) investigated the link between diversification and Kenyan bank's performance as well as the moderating influence of credit and solvency risks on diversification and performance. This study collected panel data from 34 Kenyan banks for 9 years. Using

panel data methods, the findings indicated that assets and income diversification adversely and significantly affected the banks' ROA while geographic diversification had a direct and significant influence on both ROE and ROA. Further, the study found the interrelationship between bank performance and income diversification, was positively influenced by credit risk while geographical, and assets diversification were significantly moderated by credit risk. Further, the study found that the solvency risk significantly affected the interrelation between bank performance and geographical diversification.

Adzobu et al. (2017) examined loan portfolio diversification and its effects on financial risks and profitability of banking institutions in Ghana. The study adopted the dynamic and static estimations techniques, namely fixed and random effects estimators, the Prais-Winsten regression, the system-generalized methods of moments, and the feasible generalized least squares to analyze panel data gathered from 30 banks for the from 2007-2014 (7 years). The outcomes indicated that loan diversification had an insignificant impact on bank profitability and risks.

Siddique et al. (2017) explored whether diversification and firm performance affect banks' risk. The authors obtained data from 60 non-financial listed companies in Pakistan between 2011 and 2015, which were categorized as non-diversified and diversified companies. The study employed the paired sample t-test as well as the generalized linear multivariate model (GLMM) for data analysis. The findings showed that the sampled non-diversified corporations outperformed diversified companies, i.e. undiversified corporations had posted better performance than diversified entities. The authors concluded that the diversified entities did not enjoy the economies of scale benefits compared to undiversified entities.

Sharma and Anand (2018) studied income diversification as an operational response to reduce concentration risk and its effects on the performance of banking entities in BRICS countries. The authors collected secondary data from 169 banks in the sampled countries between 2001 and 2015. The generalized system method of moments and the fixed effects techniques were used for the analysis of data. The findings indicated that diversification had a direct impact on profitability and risks, particularly for large-sized banks. However, diversification had an adverse influence on bank risk and profitability in smaller banks. The researchers concluded that diversification was an effective risk reduction tool, but regulators and managers should not insist on a one-size-fits method for all banking entities.

Using the System Generalized Method of Moments technique, AlKhouri and Arouri (2019) studied whether diversification affects banks' profitability and risks. The study was undertaken in both Islamic and traditional banks in the Gulf Cooperation Council (GCC). Data was collected from 69 Islamic and conventional banks from 2003 to 2015 (12 years). The results indicated that non-interest earnings diversification negatively affected the banks' performance while asset diversification positively affected the banks' performance. Further, it was documented that asset diversification added more value to Islamic banks compared to traditional banks. In general, both non-interest and income diversification negatively affected all the banks' stability but assets diversification significantly enhance Islamic banks' stability.

Hamdi et al. (2017) studied diversification, banking performance, and risk among banking institutions in Tunisia. The study used secondary data collected from 20 Tunisian banks from 2005 to 2012 and the dynamic panel data approach used for analysis. The findings revealed that relative performance (RROE and RROA), credit specialization, bank size, new payment channels, and credit cards were the key non-interest income determinants. The findings further indicated diversification enhances banks' performance (ROE and ROA).

III. Research Methodology

This study adopted a positivism philosophy and a descriptive correlational research design. The population for this study comprised 39 commercial banks in Kenya as of December 31, 2022 hence the study undertook a census of the 39 banks. The study entirely used panel secondary data which was gathered from the annual accounting reports of the individual banks and the banking sector annual supervision reports by the Kenyan Central Bank (CBK). . The data was collected from all the 39 commercial banks for 7 years from 2016 to 2022 through a data collection sheet.

The study's dependent variable (financial performance) was measured using the return on assets (ROA) ratio. The study's independent variables were operationalized as follows; credit risk through the nonperforming loans ratio, liquidity risk through the liquidity risk ratio, market risk through the value at risk (VAR), capital risk through the proportion of core capital to total weighted risk-assets while operational risk was operationalized through the ratio of cost to income. Corporate diversification the intervening variable was measured through income diversification (proportion of noninterest earnings to total income from operations) and assets diversification (proportion of noninterest generating assets to aggregate assets).

Data analysis entailed descriptive statistical tools including the standard deviation, mean, maximum, and minimum values that were used to summarize data. Inferential statistical tools entailed the panel regression technique that was used to assess the variables interrelationships. Firsts, multiple linear regression was used to examine the direct effect of financial risk on financial performance. Second, the Baron and Kenny (1986)

procedure was used to examine the intervening effect of corporate diversification on the relationship between financial risk and bank performance.

IV. Findings And Discussion

Descriptive Results

Table 1 provides a summary of descriptive statistics for the study variables, covering 273 observations derived from 39 commercial banks in Kenya that maintained complete data across a seven-year period (2016–2022).

Table 1: Descriptive Statistics

Stats	N	Min	Max	Mean	Sd	Cv	Se(Mean)
Roa	273	0.087561	20.52476	0.507366	1.52935	3.014297	0.092561
Credit Risk	273	0.000803	4.037767	0.194625	0.287982	1.479676	0.01743
Liquidity Risk	273	0.010366	0.410838	0.096118	0.054282	0.564747	0.003285
Market Risk	273	0.539777	1.852932	1.304587	0.437365	0.335251	0.026471
Capital Risk	273	-0.74455	0.945028	0.191703	0.138207	0.720945	0.008365
Operational Risk	273	0.012075	22.03015	0.898128	2.381618	2.651758	0.144142
Income Diversification	273	-169.718	1.428079	-0.01718	10.33147	-601.452	0.625289
Asset Diversification	273	-0.43883	1.003206	0.518054	0.215973	0.416893	0.013071

Source: Research findings (2024)

Return on assets (ROA), a key indicator of financial performance, has a minimum of 0.0876 and a maximum of 20.5248, with a mean of 0.5074 and a standard deviation of 1.5294. This high coefficient of variation (3.0143) indicates significant variability in profitability levels across commercial banks, reflecting diverse performance outcomes. Credit risk, measured by the non-performing loans to total loans ratio, shows a minimum of 0.0008 and a maximum of 4.0378, with a mean of 0.1946 and a standard deviation of 0.2880. The CV of 1.4797 suggests moderate variability, indicating that while most banks maintain relatively low credit risk levels, some experience higher risk exposure. Liquidity risk, with a minimum of 0.0104 and a maximum of 0.4108, has an average of 0.0961 and a standard deviation of 0.0543. A CV of 0.5647 suggests lower variability compared to other risks, implying that most banks maintain similar liquidity profiles, essential for meeting short-term obligations. Market risk shows a mean of 1.3046 with a standard deviation of 0.4374, ranging from 0.5398 to 1.8529. The CV of 0.3353 indicates relatively stable market risk levels, though some banks exhibit slightly higher risk levels, possibly due to variations in investment strategies and market exposure.

Capital risk demonstrates a minimum of -0.7446 and a maximum of 0.9450, with a mean of 0.1917 and a standard deviation of 0.1382. With a coefficient of variation of 0.7209, capital risk shows moderate variability, indicating differences in capital adequacy and resilience against unexpected losses across banks. Operational risk has a broad range from 0.0121 to 22.0302, with a mean of 0.8981 and a standard deviation of 2.3816, resulting in a high coefficient of variation of 2.6518. This significant dispersion reflects variability in cost efficiency and operational stability among banks, potentially due to differences in management practices and operational scale.

Income diversification ranges widely from -169.7180 to 1.4281, with a mean of -0.0172 and a substantial standard deviation of 10.3315, indicating a very high CV (-601.452). This suggests extreme variability in income diversification strategies among banks, with some exhibiting negative diversification, possibly from heavy reliance on specific income sources. Asset diversification has a minimum of -0.4388 and a maximum of 1.0032, with a mean of 0.5181 and a standard deviation of 0.2160. The CV of 0.4169 suggests moderate variability, indicating differing approaches to risk mitigation through asset allocation among banks.

Correlation Analysis

Table 2 presents the Pearson correlation coefficients are provided for each pair of variables, along with the significance levels (Sig. 2-tailed). The results show that the correlation between financial performance (ROA) and credit risk is negative and significant, with a correlation coefficient of -0.168 ($p = 0.005$). This suggests that higher credit risk is associated with lower financial performance, indicating that banks with higher levels of non-performing loans may experience reduced profitability. For liquidity risk, the correlation with ROA is negative but not statistically significant (Pearson correlation = -0.019, $p = 0.756$). This implies that liquidity risk does not have a meaningful impact on the financial performance of banks in this dataset, as changes in liquidity risk levels do not significantly correlate with changes in ROA. The correlation between market risk and ROA is also negative but not significant, with a Pearson correlation of -0.047 ($p = 0.441$). This indicates that market risk, which reflects exposure to fluctuations in market conditions, does not have a significant direct effect on financial performance in this sample.

Capital risk shows a significant negative correlation with ROA, with a Pearson correlation of -0.184 (p = 0.002). This relationship suggests that higher capital risk, indicating weaker capital adequacy, is associated with lower profitability. Banks with lower capital buffers may struggle to sustain financial performance due to their vulnerability to financial shocks. Operational risk has a strong, significant negative correlation with ROA, with a Pearson correlation of -0.578 (p = 0.000). This substantial negative relationship suggests that higher operational risk is closely linked to lower financial performance, likely due to increased costs and inefficiencies affecting bank profitability. Income diversification is positively correlated with ROA, with a Pearson correlation of 0.128 (p = 0.035), indicating a significant but modest positive relationship. This suggests that banks generating income from diverse sources beyond traditional interest income may experience slightly higher profitability, possibly due to enhanced revenue stability. Asset diversification also shows a significant positive correlation with ROA, with a correlation coefficient of 0.263 (p = 0.000). This positive relationship implies that banks that diversify their assets effectively may achieve better financial performance, potentially by reducing risk exposure and improving returns across different asset categories.

Table 2: Correlation Analysis

	ROA	Credit risk	Liquidity risk	Market risk	Capital risk	Operational risk	Income diversification	Asset diversification
ROA	1							
Credit risk	-.168**							
Liquidity risk	-.019	-.048	1					
Market risk	-.047	-.126*	.093	1				
Capital risk	-.184**	-.215**	-.073	.123*	1			
Operational risk	-.578**	.070	.174**	.016	-.365**	1		
Income diversification	.128*	.125*	.088	.016	-.216**	.481**	1	
Asset diversification	.263**	-.077	.313**	.008	.149*	-.009	-.292**	1

Source: Research Findings (2024)

Hausman Specification Test

The Hausman Specification Test was used to determine whether a fixed-effects or random-effects model is more appropriate for panel data analysis. The null hypothesis (Ho) of this test is that the difference in coefficients between the fixed-effects (b) and random-effects (B) estimators is not systematic, implying that the random-effects model is suitable because it is efficient and consistent. A p-value (Prob>chi2) below 0.05 indicates rejection of the null hypothesis, suggesting that the fixed-effects model is preferred, as the random-effects model would be inconsistent.

Table 3: Hausman Specification Test

b = consistent under Ho and Ha;obtained fromxtreg					
B =inconsistent under Ha, efficient under Ho;obtainedfromxtreg					
Test:Ho:difference in coefficients not systematic					
		chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B)			
		26.96			
		Prob>chi2 = 0.0000			

Source: Research Findings (2024)

In Table3, the Hausman test yields a chi-squared statistic of 26.96 with a p-value of 0.0000, which is well below the 0.05 threshold. This result leads to the rejection of the null hypothesis, indicating that there is a systematic difference in the coefficients. Therefore, the fixed-effects model is more appropriate for this analysis, as it provides consistent and reliable estimates in the presence of unobserved heterogeneity that correlates with the explanatory variables.

Hypothesis Testing

The objective of the study was to analyze the mediating effect of diversification on the relationship between financial risk and financial performance of commercial banks in Kenya. The researcher utilized Baron and Kenny's (1986) technique to explore the mediating effect. Multiple regression analyses were carried out in

four phases, with the significance of the coefficients assessed at each stage. The first two phases utilize simple linear regression, whereas the third and fourth steps used multiple regressions.

Step I depicted through $FP= \beta_0 + \beta_1 FR_i + \varepsilon_{3i}$
Step II depicted through $D_i= \beta_0 + \beta_1 FR_i + \varepsilon_{3ii}$
Step III depicted through $FP= \beta_0 + \beta_1 D_i + \varepsilon_{3iii}$
Step IV depicted through $FP= \beta_0 + \beta_1 FR + \beta_2 D_i + \varepsilon_{3iv}$
Where; FP = Financial Performance; D = Diversification indicator i; FR = Financial risk indicator i; a =I intercept; β_1,β_2= coefficients and ε_3=Error term

Financial Risks, Income Diversification and Financial Performance

The first phase of this objective examines the potential mediating effect of asset diversification on the relationship between financial risks and financial performance (ROA)

Table 4: Financial Risk and Financial Performance

Fixed-effects (within) regression		Number of obs		=	273	
Group variable: BankID		Number of groups		=	39	
R-sq:		Obs per group:				
within = 0.1554		Min		=	7	
between = 0.3104		Avg		=	7	
overall = 0.2651		Max		=	7	
		F(5,229)		=	8.43	
corr(u_i, Xb) = 0.3460		Prob > F		=	0.000	
ROA	**Coef.**	**Std. Err.**	**t**	**P>t**	**[95% Conf. Interval]**	
Credit risk	-0.00031	0.019558	-0.02	0.987	-0.03884	0.038229
Liquidity risk	-0.01493	0.032671	-0.46	0.648	-0.07931	0.049442
Market risk	-0.074917	0.033137	-2.26	0.025	0.009626	0.140209
Capital risk	-0.080386	0.02408	-3.34	0.001	0.03294	0.127833
Operational risk	-0.11524	0.026411	-4.36	0.000	-0.16728	-0.0632
cons	-1.3307	0.105515	-12.61	0.000	-1.53861	-1.1228

Source: Research Findings (2024)

The first step confirmed significant relationships between financial risks and ROA, which establishes the baseline for potential mediation. As shown in Table 4, market risk (p = 0.025), capital risk (p = 0.001), and operational risk (p = 0.000) have significant negative relationships with financial performance (ROA), while credit and liquidity risks are insignificant. This step confirms that specific financial risks significantly affect bank performance, setting the stage for further mediation testing with income diversification.

Table 5: Financial Risk and Income Diversification

Fixed-effects (within) regression		Number of obs		=	273	
Group variable: BankID		Number of groups		=	39	
R-sq:		Obs per group:				
within = 0.5141		Min		=	7	
between = 0.1551		Avg		=	7	
overall = 0.2321		Max		=	7	
		F(5,229)		=	48.45	
corr(u_i, Xb) = -0.7024		Prob > F		=	0	
Income diversification	**Coef.**	**Std. Err.**	**t**	**P>t**	**[95% Conf. Interval]**	
Credit risk	-0.002547	0.025143	-0.1	0.919	-0.04699	0.052088
Liquidity risk	-0.06026	0.042002	-1.43	0.153	-0.14302	0.0225
Market risk	-0.012412	0.0426	-0.29	0.771	-0.07153	0.09635
Capital risk	-0.02609	0.030957	-0.84	0.4	-0.08709	0.034905
Operational risk	-0.514934	0.033954	-15.17	0.000	0.448032	0.581837
cons	-0.02106	0.135649	-0.16	0.877	-0.28834	0.246221

Source: Research Findings (2024)

Table 5 assesses the relationship between financial risks and income diversification, treating income diversification as the dependent variable. The results show that only operational risk has a significant impact on

income diversification, with a coefficient of -0.51493 and a p-value of 0.000. This suggests that higher operational risk reduces income diversification, potentially because operational inefficiencies may limit banks' ability to pursue diversified income sources. Other financial risks (credit, liquidity, market, and capital) do not significantly relate to income diversification, indicating that they do not strongly influence banks' income diversification strategies in this context. This finding is crucial as it highlights that only operational risk might play a role in mediating financial performance through income diversification.

Table 6: Income Diversification and Financial Performance

Fixed-effects (within) regression		Number of obs		=		273
Group variable: BankID		Number of groups		=		39
R-sq:		Obs per group:				
within = 0.0002		Min		=		7
between = 0.0411		Avg		=		7
overall = 0.0164		Max		=		7
		F(1,233)		=		0.04
corr(u_i, Xb) = 0.1283		Prob > F		=		0.8379
ROA	**Coef.**	**Std. Err.**	**t**	**P>t**	**[95% Conf.**	**Interval]**
Income diversification	0.007917	0.03865	0.2	0.838	-0.06823	0.084065
_cons	-1.31967	0.017081	-77.26	0	-1.35332	-1.28601

Source: Research Findings (2024)

Table 6 examines the direct effect of income diversification on ROA. The results show that income diversification alone does not have a statistically significant effect on financial performance (ROA), with a coefficient of 0.0079 and a p-value of 0.838. This suggests that, independently, income diversification does not significantly affect ROA. Therefore, while it may still play a mediating role, income diversification alone does not appear to enhance financial performance directly. This finding is essential for interpreting the mediation model, as it suggests that income diversification's impact on ROA may depend on interactions with other financial risks rather than having an independent effect on performance.

Table 7: Financial Risks, Income Diversification and Financial Performance

Fixed-effects (within) regression		Number of obs		=		273
Group variable: BankID		Number of groups		=		39
R-sq:		Obs per group:				
within = 0.2590		Min		=		7
between = 0.5287		Avg		=		7
overall = 0.4848		Max		=		7
		F(6,228)		=		13.28
corr(u_i, Xb) = 0.4523		Prob > F		=		0.000
LNROA	**Coef.**	**Std. Err.**	**t**	**P>t**	**[95% Conf.**	**Interval]**
Credit risk	-0.001	0.01836	-0.05	0.957	-0.03718	0.035176
Liquidity risk	-0.001483	0.030807	-0.05	0.962	-0.05922	0.062185
Market risk	-0.071536	0.031112	-2.3	0.022	0.010232	0.132839
Capital risk	-0.087494	0.02264	-3.86	0.000	0.042884	0.132103
Operational risk	-0.25551	0.035101	-7.28	0.000	-0.32468	-0.18635
Income diversification	0.272407	0.048252	5.65	0.000	0.177329	0.367484
_cons	-1.32497	0.099055	-13.38	0.000	-1.52015	-1.12979

Source: Research Findings (2024)

In the final mediation step, Table 7 tests the joint effect of financial risks and income diversification on ROA. Here, market risk, capital risk, and operational risk continue to have significant negative effects on ROA, with operational risk showing the strongest negative impact. Interestingly, income diversification shows a significant positive effect on ROA in this combined model, with a coefficient of 0.2724 and a p-value of 0.000. This suggests that income diversification enhances financial performance when analyzed jointly with financial risks. The results indicate partial mediation, as income diversification affects ROA positively in the presence of financial risks, particularly operational risk. Thus, income diversification partially mediates the relationship between operational risk and financial performance.

In summary, the results support a partial mediation effect, specifically for operational risk. Thus, the hypotheses relating to the intervening role of income and asset diversification on operational risk and financial performance are rejected, confirming partial mediation. However, the remaining hypotheses are not rejected, as

other financial risks do not significantly interact with income or asset diversification to affect ROA. These findings underscore the significance of managing operational risk to leverage diversification as a tool for improving performance in Kenyan banks.

Financial Risks, Asset Diversification and Financial Performance

The second phase of this objective examines the potential mediating effect of asset diversification on the relationship between financial risks and financial performance (ROA).

Table 8: Financial Risk and Financial Performance

Fixed-effects (within) regression		Number of obs		=	273	
Group variable: BankID		Number of groups		=	39	
R-sq:		Obs per group:				
within = 0.1554		Min		=	7	
between = 0.3104		Avg		=	7	
overall = 0.2651		Max		=	7	
		F(5,229)		=	8.43	
corr(u_i, Xb) = 0.3460		Prob > F		=	0	
ROA	**Coef.**	**Std. Err.**	**t**	**P>t**	**[95% Conf. Interval]**	
Credit risk	-0.00031	0.019558	-0.02	0.987	-0.03884	0.038229
Liquidity risk	-0.01493	0.032671	-0.46	0.648	-0.07931	0.049442
Market risk	-0.074917	0.033137	-2.26	0.025	0.009626	0.140209
Capital risk	-0.080386	0.02408	-3.34	0.001	0.03294	0.127833
Operational risk	-0.11524	0.026411	-4.36	0.000	-0.16728	-0.0632
_cons	-1.3307	0.105515	-12.61	0.000	-1.53861	-1.1228

Source: Research Findings (2024)

In Table 8, the initial fixed-effects regression shows the direct relationship between financial risks and ROA. Here, market risk (p = 0.025), capital risk (p = 0.001), and operational risk (p = 0.000) have significant negative impacts on financial performance, indicating that higher levels of these risks are associated with reduced profitability. This result confirms that a relationship exists between these financial risks and ROA, which is necessary to proceed with the mediation analysis.

Table 9: Financial Risk and Asset Diversification

Fixed-effects (within) Regression			Number of obs		=	273
Group variable: BankID			Number of groups		=	39
R-sq:			Obs per group:			
within = 0.2156			min		=	7
between = 0.0070			avg		=	7
overall = 0.0536			max		=	7
			F(5,229)		=	12.59
Asset diversification	**Coef.**	**Std. Err.**	**t**	**P>t**	**[95% Conf. Interval]**	
Credit risk	-0.024075	0.027138	-0.89	0.376	-0.0294	0.077547
Liquidity risk	-0.265867	0.045335	-5.86	0	-0.176541	0.355194
Market risk	-0.0208	0.045981	-0.45	0.651	-0.1114	0.069797
Capital risk	-0.043987	0.033414	1.32	0.189	-0.02185	0.109824
Operational risk	-0.17089	0.036649	-4.66	0	-0.2431	-0.09868
cons	-0.09878	0.146413	-0.67	0.501	-0.38727	0.189711

Source: Research Findings (2024)

Table 9 explores the relationship between financial risks and asset diversification, treating asset diversification as the dependent variable. Results indicate that liquidity risk (p = 0.000) and operational risk (p = 0.000) have significant negative impacts on asset diversification, with liquidity risk showing a stronger effect. This finding suggests that higher liquidity and operational risks reduce banks' ability or inclination to diversify their assets. The other risks (credit risk, market risk, and capital risk) do not significantly affect asset diversification. These results imply that banks facing high liquidity and operational risks may be less diversified in their asset holdings, which could affect financial performance.

Table 10: Asset Diversification and Financial Performance

Fixed-effects (within) regression		Number of obs		=	273	
Group variable: BankID		Number of groups		=	39	
R-sq:		Obs per group:				
within = 0.0005		Min		=	7	
between = 0.1158		Avg		=	7	
overall = 0.0690		Max		=	7	
		F(1,233)		=	0.12	
corr(u_i, Xb) = 0.2635		Prob > F		=	0.7306	
ROA	**Coef.**	**Std. Err.**	**t**	**P>t**	**[95% Conf. Interval]**	
Asset diversification	0.01568	0.045487	0.34	0.731	0.1053	0.073934
_cons	-1.33346	0.036684	-36.35	0	-1.40573	-1.26118

Source: Research Findings (2024)

Table 10 assesses the direct impact of asset diversification on ROA. The results reveal that asset diversification alone does not significantly influence financial performance, as indicated by a coefficient of 0.01568 and a p-value of 0.731. This non-significant relationship suggests that asset diversification by itself does not have a direct effect on profitability. However, it may still have an indirect effect through its interaction with other financial risks in the combined model. This finding highlights that while diversification is often recommended as a risk management strategy, it may not independently enhance profitability without considering other risk factors.

Table 11: Financial Risk, Asset Diversification and Financial Performance

Fixed-effects (within) regression		Number of obs		=	273	
Group variable: BankID		Number of groups		=	39	
R-sq:		Obs per group:				
within = 0.1734		Min		=	7	
between = 0.4195		Avg		=	7	
overall = 0.3605		Max		=	7	
		F(6,228)		=	7.97	
corr(u_i, Xb) = 0.4288		Prob > F		=	0.00	
ROA	**Coef.**	**Std. Err.**	**t**	**P>t**	**[95% Conf. Interval]**	
Credit risk	-0.00223	0.019423	-0.11	0.909	-0.03604	0.040502
Liquidity risk	-0.013087	0.034738	-0.38	0.707	-0.05536	0.081535
Market risk	-0.072725	0.032867	-2.21	0.028	0.007963	0.137486
Capital risk	-0.085022	0.023963	-3.55	0.000	0.037804	0.13224
Operational risk	-0.13325	0.0274	-4.86	0.000	-0.18724	-0.07926
Asset diversification	0.10539	0.047214	2.23	0.027	0.19842	0.01236
cons	-1.34111	0.104713	-12.81	0.000	-1.54744	-1.13479

Source: Research Findings (2024)

Table 11 examines the combined effect of financial risks and asset diversification on ROA. In this model, market risk, capital risk, and operational risk maintain significant negative relationships with ROA, with operational risk having the strongest adverse effect. Notably, asset diversification now has a significant positive effect on ROA, with a coefficient of 0.10539 ($p = 0.027$). This finding suggests that asset diversification positively impacts financial performance when analyzed jointly with financial risks, particularly in the presence of market, capital, and operational risks. This positive association implies partial mediation, as asset diversification helps mitigate some of the negative effects of these risks on profitability.

In summary, these findings indicate partial mediation by asset diversification in the relationship between certain financial risks and ROA. The study rejects hypotheses H2h, H2i, and H2j, confirming that asset diversification has a mediating effect on market, capital, and operational risks, respectively. However, the other hypotheses (H2f, H2g) are not rejected, as no significant mediating effect was found for credit and liquidity risks. These results underscore the importance of asset diversification as a strategy for banks to offset the adverse effects of specific financial risks, thereby improving financial performance.

V. Conclusions And Recommendations

This study concludes that financial risks, specifically market, capital, and operational risks, play a critical role in shaping the financial performance of commercial banks in Kenya. The significant negative impact of these risks on profitability indicates that banks must prioritize targeted risk management strategies to mitigate these specific financial risks effectively. Credit and liquidity risks, on the other hand, did not significantly affect profitability, suggesting that these risks may be relatively well managed in the sector or have a less pronounced effect on financial performance. This finding underscores the importance of a focused approach to managing the most impactful risks, particularly market fluctuations, capital adequacy pressures, and operational inefficiencies, to sustain and improve profitability.

The study further concludes that income diversification serves as a valuable strategy for commercial banks to enhance their resilience against certain financial risks. By diversifying income sources, banks can effectively mitigate the negative impacts of market, capital, and operational risks on financial performance. However, asset diversification did not yield a significant effect on profitability, implying that income-generating activities are more impactful than asset-based strategies in improving performance. This outcome highlights the strategic advantage of income diversification over asset diversification and suggests that banks should focus more on broadening their income streams to bolster financial stability and growth.

This study provides several recommendations for policymakers aiming to enhance the stability and profitability of the banking sector in Kenya. First, regulators should prioritize policies that address the most impactful financial risks—market, capital, and operational risks—by setting standards and guidelines for risk management in these specific areas. The significant negative effects of these risks on profitability underscore the need for targeted regulatory frameworks that mandate stringent capital adequacy, operational efficiency, and market risk management practices. Such measures would help commercial banks in Kenya establish more robust defenses against financial vulnerabilities, contributing to the sector's overall resilience. Further, to support banks in implementing effective diversification strategies, policymakers should encourage practices that facilitate income diversification. For instance, financial regulators can create incentives for banks to expand into various income-generating activities, such as offering advisory services, insurance products, or wealth management options. By fostering a regulatory environment that encourages diverse revenue streams, policymakers can help banks mitigate the adverse effects of financial risks and enhance their stability. This study's findings on the benefits of income diversification suggest that supporting diversification at the policy level could strengthen the entire banking sector.

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