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THE MEDIATING ROLE OF FINANCIAL PERFORMANCE ON THE RELATIONSHIP BETWEEN LOCATION DIVERSIFICATION AND FINANCIAL STABILITY OF COMMERCIAL BANKS IN KENYA

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Abstract

The banking environment has become increasingly competitive, leading commercial banks to strengthen their focus on diversified activities and business lines. Driven by factors like market saturation, the need to build new revenue sources, and the pursuit of profitability, they are expanding into new geographic markets. The objective of this study was to establish the mediating role of financial performance on the relationship between location diversification and financial stability among commercial banks in Kenya. The research adopted an ex post facto correlational research design, covering 38 commercial banks and analyzing panel data from the period 2014 to 2023. Location diversification was measured by the natural logarithm of the number of bank branches in different geographical areas. Financial performance was measured using Return on Assets (ROA), while financial stability was assessed using Altman's Z-Score, which measures a bank's distance to default. Data analysis was conducted using E-Views statistical software, and the study hypotheses were tested using F-test and multiple linear regression analysis. Results showed that location diversification does not have a significant effect on the financial stability of commercial banks in Kenya (β = -0.0501, p-value = 0.488. Mediation analysis revealed that financial performance does not mediate the relationship, as location diversification had no significant effect on the mediator, financial performance (β = 0.0126, p = 0.8387). However, financial performance itself had a significant, direct positive effect on financial stability (β = 0.0434, $p < 0.01$). It was thus concluded that financial performance does not mediate the relationship between location diversification and financial stability of commercial banks in Kenya. The findings support the agency theory, which highlights conflicting interests between parties in the context of location diversification. The study therefore recommends that commercial banks should undertake location diversification only if it is expected to lower risk, improve financial performance, and enhance financial stability.

Keywords: *Diversification, Location Diversification, Financial Performance, Financial Stability*

Introduction

Commercial banks perform the essential intermediation function of mobilizing savings and lending, forming the backbone of an economy (Nnoje *et al*., 2021). To execute this function amidst increasing competitive pressures, the banks must be robust, innovative, and efficient. A key strategy employed is location diversification, expanding operations into different regions or countries to secure a stable funding base, improve liquidity, and foster financial stability (Doerr, 2024). This expansion is driven by the need to hedge against risk, satiate shareholder return expectations (Osifo & Evbayiro-Osagie, 2020), and tap into new markets (Hanieh, 2020).

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Theoretical and empirical literature suggests a complex nexus between location diversification, financial performance, and financial stability. On one hand, location diversification is expected to reduce banks' exposure to idiosyncratic risks and enhance resilience to financial shocks. It can lead to a stabilizing effect through increased loan supply and investment (Doerr & Schaz, 2021), stimulate corporate innovation (Deng *et al.,* 2021), and improve bank returns and efficiency (Sharma & Anand, 2020; Wang & Lee, 2023). Studies in Kenya indicate it is adopted for profitability (Allen *et al.,* 2021) and financial stability (Koskei, 2020; Kinini *et al.,* 2023). Agency theory on the other hand highlights potential conflicts where managers may pursue costly diversification for personal benefit rather than shareholder value (Jensen & Meckling, 2019), leading to negative returns (Wright & Ferris, 1997). Empirically, location diversification can increase monitoring costs, structural complexities, and risk (Bonfim & Félix, 2020; Zhang *et al.,* 2021), potentially decreasing bank financial stability (Le *et al.,* 2020) and leading to inefficiency (Bernini & Brighi, 2018). The physical spread can make monitoring difficult (Mehmood *et al.,* 2019) and may not always improve financial performance, with some studies finding a non-linear relationship with value (Feng *et al.,* 2021) or effects dependent on home country context (Yildirim & Efthyvoulou, 2018). This is compounded in Kenya, where the Central Bank reports that financial stability of commercial banks has not been entirely robust (CBK, 2022).

These discrepant findings reveal a literature marked by contrasting inferences, leaving the net effect of location diversification on bank financial stability open for empirical investigation. Furthermore, a bank's financial performance is a potential mediating variable in this relationship, given its established positive link with financial stability (Barra & Zotti, 2019; Antwi & Kwakye, 2022) and its connection to diversification efforts. While previous Kenyan studies have focused on diversification's direct effect on financial performance (Ndungu & Muturi, 2019; Allen *et al.,* 2021) or competitiveness (Owino *et al.,* 2021), the mediating pathway remains unexamined. This study, therefore, sought to determine the mediating role of financial performance on the relationship between location diversification and financial stability of commercial banks in Kenya. It tested the null hypothesis that financial performance has no significant mediating effect on the relationship between location diversification and financial stability of commercial banks in Kenya.

Research Methodology

This study employed an ex post facto correlational design, utilizing a census of all 38 commercial banks licensed in Kenya between 2014 and 2023, thereby eliminating the need for sampling (Rivaldo & Nabella, 2023). Secondary data was collected from the Central Bank of Kenya (CBK), and the variables were measured on a ratio scale. Location diversification the independent variable was measured using the natural logarithm of the numerical count of the bank branches (Nguyen, 2022; Owino *et al.,* 2021). Financial stability, the dependent variable was measured by a bank's distance to default using the Z-score, which combines accounting measures of profitability, leverage and volatility to indicate the distance from insolvency (Karim *et al.,* 2019). It computes a bank's financial soundness (Moreno *et al.,* 2022) due to the fact that it is related to the probability of a bank's insolvency. The z-score was measured as:

$Z = \frac{ROA+\frac{E}{A}}{\sigma ROA}$, where:

ROA - return on assets of the bank.

$\frac{E}{A}$ - ratio of equity to assets.

σROA - standard deviation of the rate of return on assets.

The mediating variable, financial performance was measured by ROA, which is used to determine a bank's ability to generate profits (Derbali, 2021) and

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profit earned on average by each unit of assets (Petersen & Schoeman, 2008) given as:

$ROA = \frac{EBIT}{Total\ assets}$, where:

$EBIT$ - Earnings before interest and tax.

A simple regression model was used to analyze the relationship between location diversification and financial stability of commercial banks. The mediation effect of financial performance was tested using Baron & Kenny's (1986) four-step model. The following sequence of regression analyses was performed to establish the conditions for mediation:

Step 1: Regressing the dependent variable, financial stability, on the independent variable, location diversification, to establish a significant total effect.

Step 2: Regressing the mediating variable, financial performance, on the independent variable, location diversification.

Step 3: Regressing the dependent variable, financial stability, on the mediating variable, financial performance.

Step 4: Regressing the dependent variable, financial stability, on both the independent variable, location diversification, and the mediating variable, financial performance.

This is given below:

This is given as:

$Y_{i,t} = f(X_{i,t,}\beta_{i,t,}) + \varepsilon_{i,t}$ ..... (1.1) general form of the multivariate regression model

$STAB_{i,t} = \beta o + \alpha_{i,t} + \beta_1 div_{loc\ i,t} + \varepsilon_{i,t}$ ..... (1.2).....Step 1

$FP_{i,t} = \beta o + \beta_2 div_{loc\ i,t} + \varepsilon_{i,t}$.....(1.3).....Step 2

$STAB_{i,t} = \beta_O + \beta_3 FP_{i,t} + \varepsilon_{i,t}$ ..... (1.4) .....Step 3

$STAB_{i,t} = \beta_O + \beta_4 div_{loc\ i,t} + \beta_5 FP_{i,t} + \varepsilon_{i,t}$....(1.5) .....Step 4

Where:

f - General functional relationship

$Y_{i,t}$ - A matrix with a series of multivariate observations, which is a set of measurements of the dependent variable for bank i at time t

$X_{i,t,}$ - A matrix of observations on independent variables each column for bank i at time t, being a set of one of the independent variables

β_0 - Constant

$\alpha_{i,t}$ - The other variables that affect commercial bank's i financial stability but have been held constant at time t

$STAB_{i,t}$ - Financial stability for bank i at time t

$FP_{i,t}$ - Financial performance for bank i at time t

$\beta_{1-5\ loc\ i,t}$ - Regression coefficients of location diversification and financial performance for bank i at time t

$\varepsilon_{i,t}$ - The error term for bank i at time t

Evidence of full mediation would be present if the effect of location diversification (β_4) became insignificant in this step, while the mediator's effect (β_5) remained significant, indicating that financial performance fully explains the relationship. Partial mediation would be confirmed if β_4 was significantly reduced in magnitude compared to β_1 from Equation 1.2, but still significant, suggesting financial performance accounts for only part of the relationship.

Data analysis was conducted using E-Views statistical software. The study hypotheses were examined through F-tests and t-tests within the multiple linear regression framework. Prior to estimating the regression models, diagnostic tests

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were conducted to ensure compliance with the classical linear regression assumptions. The Jarque-Bera test confirmed the normality of residuals across all models ($p > 0.05$; Korkmaz & Demir, 2023). The Durbin-Watson statistic indicated independent errors in the mediation models, and any mild autocorrelation in the direct effects model was corrected by incorporating a lagged dependent variable (Keele & Kelly, 2006). The variance inflation factor (VIF) scores were below the threshold of 5, confirming the absence of multicollinearity. Furthermore, the stationarity of the variables was validated using the Levin, Lin, and Chu unit root test ($p < 0.05$), affirming the suitability of the panel data for regression analysis.

Results and Discussion

The descriptive statistics for the key variables are presented in Table 1. The results show that commercial banks in Kenya have undertaken location diversification, as evidenced by a mean value of 2.97 for the variable, measured as the natural logarithm of the number of branches.

Table 1

Descriptive statistics on location diversification, financial performance and financial stability

Variable	Min.	Max.	Mean	Std. Dev.
Location Diversification	.6931	5.3327	2.9661	1.1736
Financial Performance	-30.2464	9.3047	1.2516	4.3664
Financial Stability	-5.5488	76.5616	19.2923	15.9379
Valid N (listwise) =350				

This study employed a panel data analysis of 350 observations to examine the relationship between location diversification, financial performance, and financial stability. Location diversification was measured by the number of physical branches across different geographical areas. Financial performance was proxied by Return on Assets (ROA), which reflects how efficiently a bank uses its assets to generate profits. Financial stability was measured using the distance to default (Z-Score), an indicator of a bank's solvency risk. Descriptive statistics were used to summarize the central tendencies and variability of these variables. The data shows variation in the outcomes of this strategy. The high standard deviation (15.94) and negative minimum value (-5.55) for financial stability (Z-Score) indicate that not all banks achieved robust stability. Similarly, financial performance (ROA) shows considerable dispersion with a low mean (1.25) and a negative minimum value (-30.25). This variability suggests that while some banks may have benefited from location diversification, others did not, leading to an overall average effect that does not tell the whole story.

This study tested the hypothesis that financial performance is not a significant mediator between location diversification and financial stability. The longitudinal nature of the data made Baron and Kenny's approach more suitable than cross-sectional methods like bootstrapping or PROCESS Macro (Dastgeer & Rehman, 2020). The results for each step of the Baron & Kenny (1986) four-step procedure are detailed below.

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Table 2

Model 1: Regression Model Coefficients for location diversification and financial stability

Method: Panel Least Squares
Sample (adjusted): 2015 2023; Periods included: 9
Cross-sections included: 35; Total panel (balanced) observations: 315

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	2.2389	0.2744	8.1584	0.0000
Location Diversification (HHI_{loc})	-0.0501	0.0721	-0.6942	0.4881
Financial Stability (-1)	0.3070	0.5974	5.1387	0.0000

Effects Specification: Cross-section fixed (dummy variables)

R-squared	0.9168	Mean dependent variable	3.0244
Adjusted R-squared	0.9060	S.D. dependent variable	0.6867
S.E. of regression	0.2105	Akaike info criterion	-0.1686
Sum squared residual	12.3191	Schwarz criterion	0.2722
Log Likelihood	63.5580	Hannan-Quinn criterion	0.0075
F-statistic	85.0928	Durbin-Watson statistic	2.3542
Prob.(F-statistic)	0.0000		

The first condition for mediation required that the independent variable, location diversification, significantly affects the dependent variable, financial stability. As shown in Table 2 (Model 1), the regression of financial stability on location diversification produced a non-significant coefficient (β = -0.0501, p-value = 0.4881). This means the primary condition for mediation was not met. However, proceeding with the remaining steps was still valuable for understanding the relationships between the variables

Table 3

Model 2: Regression Model Coefficients for location diversification and financial performance

Method: Panel Least Squares
Sample (adjusted): 2015 2023; Periods included: 9
Cross-sections included: 35; Total panel (balanced) observations: 315

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	3.1744	2.4734	1.2834	0.2004
Location Div (HHI_{loc})	-0.8868	0.8296	-1.0690	0.2860
Fin Performance {ROA(-1)}	0.4451	0.0533	8.3496	0.0000

Effects Specification: Cross-section fixed (dummy variables)

R-squared	0.7412	Mean dependent variable	1.1121
Adjusted R-squared	0.7077	S.D. dependent variable	4.4795
S.E. of regression	2.4217	Akaike info criterion	4.7168
Sum squared residual	1630.3830	Schwarz criterion	5.1576
Log Likelihood	-705.8953	Hannan-Quinn criterion	4.8929
F-statistic	22.1207	Durbin-Watson statistic	2.3025
Prob.(F-statistic)	0.0000		

The second condition required that the independent variable, location diversification significantly affects the proposed mediator, financial performance. The results in Table 3 (Model 2) show that the effect of location diversification on financial performance was also not statistically significant (β

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= -0.8868, p-value = 0.2860). This failed the second critical condition for mediation.

Table 4

Model 3: Regression Model Coefficients for financial performance and financial stability

Method: Panel Least Squares				
Sample (adjusted): 2014 2023; Periods included: 10				
Cross-sections included: 35; Total panel (balanced) observations: 350				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	2.9736	0.0105	282.9778	0.0000
Fin Performance {ROA(-1)}	0.0468	0.0037	12.7910	0.0000
Effects Specification: Cross-section fixed (dummy variables)				
R-squared	0.9377	Mean dependent variable		3.0322
Adjusted R-squared	0.9307	S.D. dependent variable		0.6723
S.E. of regression	0.1769	Akaike info criterion		-0.5289
Sum squared residual	9.8304	Schwarz criterion		-0.1320
Log Likelihood	128.5514	Hannan-Quinn criterion		-0.3709
F-statistic	134.9699	Durbin-Watson statistic		1.6351
Prob.(F-statistic)	0.0000			

The third condition for mediation required that the mediator, financial performance, significantly affects the dependent variable, financial stability. As indicated in Table 4 (Model 3), a strong, positive, and statistically significant relationship was found between these variables ($\beta = 0.0468$, p-value < 0.01). This confirms that financial performance has a significant direct effect on financial stability, thereby satisfying the third condition.

Table 5

Model 4: Regression Model Coefficients for Location diversification, financial performance and financial stability

Method: Panel Least Squares				
Sample (adjusted): 2015 2023; Periods included: 9				
Cross-sections included: 35; Total panel (balanced) observations: 315				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	2.5929	0.2367	10.953	0.0000
Location Div (HHI_{loc})	0.0126	0.0619	0.2038	0.8387
Fin Performance {ROA(-1)}	0.0434	0.0042	10.2337	0.0000
Fin Stability {DD(-1)}	0.1136	0.0544	2.0892	0.0376
Effects Specification: Cross-section fixed (dummy variables)				
R-squared	0.9396	Mean dependent variable		3.0244
Adjusted R-squared	0.9316	S.D. dependent variable		0.6867
S.E. of regression	0.1796	Akaike info criterion		-0.4830
Sum squared residual	8.9393	Schwarz criterion		-0.0303
Log Likelihood	114.0674	Hannan-Quinn criterion		-0.3021
F-statistic	116.5158	Durbin-Watson statistic		2.0459
Prob.(F-statistic)	0.0000			

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The final step involved regressing the dependent variable, financial stability, on both the independent variable, location diversification, and the mediator, financial performance, to determine if the mediator carries the influence of the independent variable to the dependent variable. The results in Table 5 (Model 4) show that financial performance remained a significant predictor of stability ($\beta = 0.0434$, $p < 0.01$), whereas location diversification remained non-significant ($\beta = 0.0126$, $p = 0.8387$). The effect of location diversification on financial stability was non-significant in Model 1 and remained so in Model 4. Furthermore, the condition for mediation in Model 2 was also not met.

In line with contemporary methodological guidance, a significant total effect of the independent variable on the dependent variable is not a necessary condition for mediation analysis, as meaningful indirect effects can be present but masked by suppressor effects or Type II error. Consequently, all analytical steps were conducted to ensure a comprehensive assessment (Hayes, 2017). This thorough analysis ultimately revealed no significant mediation, as the path from location diversification to the proposed mediator, financial performance, was non-significant, even though the path from the mediator to the outcome was strong. Therefore, the analysis conclusively showed that financial performance does not mediate the relationship between location diversification and financial stability. Thus, the null hypothesis, which stated that financial performance has no significant mediating effect, was not rejected.

This study's core finding that location diversification exerts no statistically significant effect on the financial stability of commercial banks corroborates a growing body of international empirical work. This result aligns with the conclusions of Bonfim & Félix (2020), who identified a positive link between geographic dispersion and heightened structural complexity and risk, and Sharma & Anand (2020), who determined it offered no discernible benefit. This outcome also substantiates the agency theory perspective (Jensen & Meckling, 2019), positing that the costs of expansion, elevated monitoring, regulatory compliance, and infrastructure overhead, effectively negate potential gains and may reflect managerial self-interest over shareholder value. Conversely, these findings contradict research advocating for diversification's benefits, standing in contrast to studies by Doerr & Schaz (2021), who argued for a stabilizing effect via increased loan supply, and to findings associating it with improved returns and efficiency (Wang & Lee, 2023). The specific Kenyan context, characterized by a less-than-robust stability landscape (CBK, 2022), provides a plausible explanation for this divergence from positive outcomes observed in other environments. Furthermore, the study reveals a strong, direct relationship between financial performance and stability, supporting the established view that profitability is a fundamental driver of resilience (Barra & Zotti, 2019).

The contribution of this research lies in its explicit test of financial performance as a mediating variable, a pathway previously unexamined in the Kenyan context. The null mediating result indicates that the posited relationship between diversification and stability is not transmitted through profitability. This suggests that the structural complexities and agency costs of expansion (Zhang *et al*., 2021), such as reduced monitoring efficacy and operational risk, impair financial stability through direct mechanisms, thereby breaking the hypothesized mediating pathway. Consequently, in the Kenyan context, location diversification emerges as a strategy that does not reliably enhance financial performance and, by extension, fails to foster greater financial stability.

Conclusion and Recommendation

Based on the findings of this study, it was concluded that location diversification does not have a statistically significant effect on commercial banks' financial stability. In addition, financial performance does not have a mediating effect on the relationship between location diversification and financial

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stability. Therefore, it is recommended that commercial banks avoid diversifying into geographical areas that might not offer the advantages of increased financial stability. If location diversification is costly and complex in terms of infrastructure, regulatory compliance, and staffing and does not produce economies of scale, thereby compromising a bank's financial stability, they should consider other forms of diversification such as revenue and asset diversification. This might reduce vulnerability to shocks and enhance their financial performance, thereby making commercial banks more financially stable.

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ChatGPT was not used for writing this research, however for spell check and grammar refinement, the grammarly tool was used. Having carefully reviewed and edited this content, the authors assume full responsibility for this publication's content.

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CRediT authorship statement

Nyakeyo Lucy Okenyuri – Conceptualization, Writing, review and editing, Methodology, Data analysis **Mulwa Jonanthan Mwau** - Conceptualization, review and editing

Wagude Janet - Conceptualization, review and editing.

Declaration of conflict of interest

The authors hereby declare that that there are no competing personal nor financial interests that influenced this research.

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