

Diversification and Bank Lending Behaviour in Kenya

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Abstract

Lending is the principal business for banks, as it contributes the largest proportion of income to them. However, commercial banks in Sub-Saharan Africa, particularly in East Africa, have been observed to exhibit poor lending behavior, with gross loans growing at a very slow rate in these countries. Diversification of bank portfolios has been suggested as a potential solution to improve lending practices. Therefore, this study aimed to determine the effect of diversification on banks' lending behavior in Kenya. The specific objectives were: To examine the effect of revenue diversification on banks' lending behavior in Kenya, to assess the effect of asset diversification on banks' lending behavior in Kenya, and to investigate the interaction effect of asset and revenue diversification on banks' lending behavior in Kenya. This study was based on modern portfolio theory and the Ansoff model. The study followed descriptive and correlational research designs. The target population for the study was 43 commercial banks in Kenya for the period ranging from 2010 to 2022. Bank-specific data were obtained from the Bank Focus database base while country-level and macroeconomic data were sourced from the World Bank World Development Indicators. The results of the study showed a significantly positive relationship between income diversification and banks' lending behaviour. In contrast, asset diversification had a negative and significant impact on bank lending behaviour. Lastly, the study found no significant relationship between the interaction effect of revenue and asset diversification on commercial bank lending behavior in Kenya. Based on these findings, the study recommends that banks should enhance their revenue diversification while avoiding asset diversification and the combined use of revenue and asset diversification. Policymakers should promote regulatory frameworks that support effective diversification strategies to strengthen banks' lending capacity. Additionally, regulators should ensure that banks are equipped to manage the risks associated with diversification, thereby fostering a stable and resilient financial sector.

Keywords: *Diversification, revenue diversification, asset diversification, lending behavior*

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1. Introduction

One important service that banks provide that significantly boosts their revenue creation is lending (Khangalah, 2016). Depending on the kind of need being met, the loans may be short-term, medium-term, or long-term. As a result, lending plays a significant role in supporting the economic activity of individuals, businesses, and governments, all of which have an impact on the expansion and advancement of any country's economy. By providing funding for investments, banks' lending activities have an impact on an economy's growth (McKinnon, 2005). Commercial banks are essential for allocating financial resources and mobilizing savings. Commercial banks ultimately play a significant role in defining a nation's economic development and progress (Paavo, 2018). According to Ma, Paligorova, and Peydro (2021), bank lending is also essential for recovering from significant negative economic shocks. As such, many economies, including Kenya, have liberalized their financial institutions.

The amount of money available in the financial sector has a significant impact on a nation's economic growth and development. In addition to raising money on the stock market, businesses can also borrow money from banks and other financial institutions. Funds made available through bank credit encourage growth and profitable investments in a variety of industries, including manufacturing, construction, real estate, retail, and others. The efficiency, profitability, and future growth of businesses are all positively impacted by banks' capacity to lend money to businesses (Isa et al., 2019).

By entering new markets and product lines, diversification can increase debt capacity, lower the risk of bankruptcy, and enhance asset deployment and profitability. Transferable skills from one company to another can boost capital and labor productivity (Oladimeji & Udosen, 2019). The benefits of diversification, despite their under-researched nature, are crucial due to banks' pivotal role in boosting economic activity, particularly in the aftermath of economic downturns (Gelman, Goldstein & MacKinlay, 2023).

Diversification advocates list a number of potential benefits that banks with functionally diverse activities may experience. According to Sakhartov (2023), economies of scope allow diversification to reduce operating expenses. In particular, significant cost reductions and other synergistic benefits arise from the sharing of inputs like labor, technology, and information across numerous business lines. For instance, additional financial goods like insurance and security underwriting can be effectively provided using the data collected from the loan industry. Additionally, loan origination and credit risk management can be enhanced with the use of the data acquired through investment banking. Functional diversity may also promote corporate governance through the takeover market (Goyal, Kakabadse, & Kakabadse, 2019). More precisely, a manager will be motivated to work effectively to prevent being acquired or merged by a high-performing unit if cross-activity mergers are permitted. According to AlKhouri and Arouri (2019), a functionally diversified bank's many business segments may have little correlation with one another, making diversification advantageous from a risk standpoint.

According to studies, bank revenue diversification lowers both overall and idiosyncratic risk, which makes it potentially beneficial. By offering stronger financial foundations to satisfy lending organizations' investment fund needs, bank income diversification can boost profitability, increase liquidity, decrease volatility, and improve efficiency (Hou et al., 2018). According to Yang, Liu, and Chou (2020), diversification can enhance a bank's resilience to

shocks, which is beneficial at the individual bank level. However, if all banks pursue similar diversification strategies, their portfolios may become increasingly alike. As a result, a significant economic shock could affect all banks simultaneously, leading to widespread distress or failure. Thus, while diversification strengthens individual banks, it may unintentionally increase systemic risk across the banking sector.

The detrimental effects of diversification on banks have been noted in a number of studies. For example, Adem (2023) discovered that stability is adversely affected by broad diversification across an ideal range. Shahriar, Mehzabin, and Azad (2023) and Adem (2022) also demonstrated that revenue and asset diversification may be detrimental to bank stability. Moudud-UI-Huq et al. (2021) study revealed that asset and revenue diversification significantly and negatively impact bank efficiency. Non-interest diversification has a negative relationship with performance because of diseconomies of scope that arise from lower-quality loans and diminished monitoring incentives when a risky bank enters new markets and industries. Additionally, bank diversification can often disperse management resources and operational stability, which hinders bank performance and makes it more difficult to satisfy the financial needs of bank borrowers. A study conducted by Moudud-UI-Huq et al. (2021) shows that bank diversification significantly reduces efficiency. Overall, studies suggest that bank diversification can substantially influence the financing constraints of borrowing enterprises, with outcomes varying depending on the nature and context of the diversification strategy employed (Lin, Huang, & You, 2022).

1.1 Problem Statement

Lending is the core activity of commercial banks. As designated monitors of borrowers and acquirers of private information, banks play a critical role in promoting both financial sustainability and sustainable economic growth (Xie et al., 2022). By functioning as financial intermediaries, commercial banks significantly influence the overall performance of an economy. Bhattarai (2019) notes that productive investments in key sectors such as industry, agriculture, real estate, trade, tourism, and fishing often rely heavily on bank financing. In the absence of accessible bank credit, these sectors would be forced to maintain larger working capital reserves to meet fluctuating funding needs, which is inefficient and potentially inadequate during seasonal business peaks. Lending also constitutes the primary source of income for commercial banks. However, poor lending practices can result in substantial financial losses and may ultimately threaten the survival of banking institutions (Khangalah, 2016). This underscores the critical importance of effective and sustainable lending strategies for both the stability of banks and the broader economy.

Commercial banks in Sub-Saharan Africa, particularly Kenya, have been observed to have poor lending behaviour, with the growth of gross loans remaining sluggish over time (Nikolaidou & Vogiazas, 2017). A key factor contributing to this trend is the reluctance of banks to extend credit to small enterprises, despite these businesses forming a significant part of the region's economic backbone. In many of these countries, small enterprises contribute over 30% to GDP, yet they remain underserved by formal financial institutions, which tend to prioritize lending to larger, more established firms. This imbalance not only limits inclusive economic growth but also restricts access to capital for a substantial segment of the economy. Theoretical perspectives suggest that greater diversification in lending allows banks to expand their credit portfolios without significantly increasing risk exposure (Gelman, Goldstein, & MacKinlay,

2023), indicating that improved diversification strategies could enhance bank performance and financial inclusion.

According to a World Bank report, commercial banks in Kenya exhibit a relatively high reliance on non-interest income, which accounted for 24.9% of total income, while liquid assets represented 26.7% of total assets (Beck et al., 2023). Despite these indicators, few studies have examined the effect of diversification on bank lending behavior. Most works have focused on the relationship between diversification and bank stability. For instance, investigated the impact of diversification on bank stability in emerging and developing economies. Similarly, Ochenge (2022), in a study conducted during the COVID-19 pandemic, found that revenue diversification enhances bank profitability and financial stability. Harimaya and Ozaki (2021) explored the effects of diversification on Japanese banks' efficiency, revealing that high concentrations in loan and income portfolios contribute to inefficiency. In Nigeria, Obaro et al. (2022) demonstrated that asset diversification significantly influences bank performance.

Given the critical role of banks in Kenya's economy and the theoretical relevance of diversification, it is essential to evaluate how diversification influences bank lending behavior in the Kenyan context. This study, therefore, seeks to address this gap, as there remains limited empirical evidence on the effect of diversification on banks' lending behavior in Kenya.

1.2 Research Objectives

1. To examine the effect of revenue diversification on banks' lending behavior in Kenya.
2. To assess the effect of asset diversification on banks' lending behavior in Kenya.
3. To investigate the interaction effect between asset and revenue diversification on banks' lending behavior in Kenya.

1.3 Research Hypotheses

H01: Revenue diversification does not have a positive and significant effect on the lending behavior of banks in Kenya

H02: Asset diversification does not have a significant effect on the lending behavior of banks in Kenya.

H03 There is no significant relationship between the interaction effect of revenue and asset diversification and banks' lending behaviour in Kenya.

2. Literature Review

2.1 Theoretical Review

This study was based on modern portfolio theory and the Ansoff model.

2.1.1 Modern Portfolio Theory of Diversification

Markowitz (1952) initially proposed the Modern Portfolio Theory (MPT) in an effort to highlight the necessity for contemporary firms to devise novel approaches and methods in order to boost their earnings. The MPT theory has drawn a lot of interest from all over the world since it was suggested because of its thorough emphasis on diversification and innovation. Trade-offs are a part of economic decisions since resources are scarce. Markowitz classified the challenges facing investors as risks against returns. The main goal of the MPT is to either build a portfolio of different financial assets with the highest expected return at a specific level

of portfolio risk or, on the other hand, choose a portfolio with the lowest risk at a specific level of predicted return.

Rasiah (2012) discusses the main tenets of contemporary portfolio theory. One of the presumptions is that contemporary businesses are risk-averse, meaning they will either accept lower expected returns for less risky investments or take on riskier investments in exchange for greater expected returns. Biswas (2015) finds that the majority of commercial banks exhibit a preference for less hazardous investments that also carry an expected return. This explains why banks diversify into other sectors of the economy, such as insurance, which are less risky (Hyde, 2010).

2.1.2 Ansoff Model

Ansoff's (1988) study serves as a suitable introduction to management ideas pertaining to diversification. He introduced the Ansoff, a strategic planning tool that outlines four potential growth strategies based on whether a firm markets existing or new products in existing or new markets. The matrix includes market penetration, market development, product development, and diversification. Market penetration encompasses the strategies employed to enhance the market share of a specific product or service. This strategy focuses on enhancing sales through tactics such as improved marketing, pricing strategies, or increasing usage among existing customers. Market development refers to selling existing products in new markets, which may involve geographic expansion or targeting new customer segments.

Product development is adopted when current offerings do not meet customer expectations. It involves creating new or improved products to serve existing markets. This strategy requires understanding customer needs and filling gaps in the current product or service portfolio, although it often involves significant investment in research, development, and marketing. The final strategic choice is diversification, which entails introducing new products into new markets. This is the riskiest but potentially rewarding strategy in the matrix. It illustrates how functional diversity can contribute to business growth (Koks & Kilika, 2016). Banks may adopt a diversification strategy by expanding beyond traditional lending and deposit services to offer insurance products, investment advisory services, or digital banking solutions—targeting entirely new customer segments or market areas (Neenada, 2023).

2.2 Empirical Review

Harimaya and Ozaki (2021) researched how diversification affects bank efficiency in Japan. Regardless of the concentration measurements used, the study discovered that concentrations in loan and income portfolios lead to increased inefficiencies. Liang et al. (2020) examined corporate governance, performance, and bank diversity in China. The study discovered that while income diversification hurts operating efficiency and market valuation, it has a positive impact on profitability. Additionally, the study found that the previously positive relationship between profitability and diversification observed before the 2008 financial crisis shifted to a negative relationship in the post-2008 period. This indicates that the so-called diversification discount—where diversified banks underperform compared to more focused institutions—intensified after the crisis. However, the study also revealed that strong governance mechanisms play a crucial role in mitigating this effect. Effective governance was found to reduce the diversification discount and reinforce the positive association between profitability and diversification, highlighting the importance of institutional oversight and strategic management in realizing the benefits of diversification.

Obaro et al. (2022) investigated the relationship between diversification and the performance of listed banks in Nigeria. The study found that asset diversification had a significant positive effect on bank performance, whereas deposit diversification negatively impacted performance. Similarly, Ammar and Boughrara (2019) explored the effect of revenue diversification on bank profitability in the Middle East and North Africa (MENA) region, employing a causal research design and the GMM estimation technique. Their findings indicated that diversification generally enhances profitability, with trading-related business lines contributing most significantly to both profitability and financial stability. However, the study also noted that non-interest income activities may worsen the benefit-cost trade-off of diversification by increasing bankruptcy risk.

In Ghana, Amoah, Ibrahim, and Madugu (2019) investigated the link between income diversification and bank profitability using secondary data and a causal research design. Their results showed that non-interest income had a limited but positive impact on profitability. Furthermore, the study found no evidence of a diversification threshold, suggesting a monotonic relationship between income diversification and profitability. Notably, non-performing loans were found to strengthen the positive relationship between non-interest income and profitability in the Kenyan context. Ochenge (2022) assessed the impact of revenue diversification on bank profitability and stability during the COVID-19 pandemic. Using annual data from 2010 to 2020 and employing dynamic panel regressions, the study revealed that banks with more diversified revenue streams experienced higher profitability and greater financial stability. Importantly, non-interest income was identified as a key shock absorber, especially during times of economic distress and declining profitability, such as the COVID-19 crisis. Similarly, Baraka and Mrindoko (2023) evaluated the effect of asset diversification on the profitability of Tanzanian commercial banks. Using secondary data from bank annual reports, newspaper financial publications, and the Bank of Tanzania, the study found that client loans, investments in government securities, and bancassurance activities were significant predictors of profitability. The study concluded that asset diversification is strongly associated with improved performance in the Tanzanian banking sector.

Kamau and Simo-Kengne (2024) explored the relationship between bank lending behavior, revenue diversification, and legal origin, using a panel dataset of 2,590 commercial banks across 139 developing countries from 2004 to 2022. The study employed various panel estimation techniques and multiple indicators of bank lending behavior. Their findings revealed that banks operating in common law countries exhibited slower loan growth compared to their counterparts in civil law jurisdictions. Importantly, the study found that revenue diversification mitigates the adverse effects on loan growth among banks in common law systems, suggesting that diversification plays a stabilizing role in such legal environments.

Ansari (2018) investigated the link between product diversification and risk-taking behaviour among Indian banks between 2001 and 2014. The study found that the impact of product diversification on risk-taking varies significantly depending on bank size and ownership structure. For small-sized banks, greater product diversity was associated with a reduction in risk-taking, while for larger banks, the relationship was less evident. The study also highlighted that ownership matters, with public sector banks earning significantly less from fee-based services compared to private domestic banks, but benefiting more from off-balance sheet activities. The findings suggest that diversification may benefit public sector banks from a

regulatory perspective, while excessive deregulation could potentially undermine the stability of the banking system if larger banks dominate riskier segments.

Maigua (2017) studied the influence of non-performing assets (NPAs) and income diversification on interest rate spreads in Kenya, using quarterly data from 2004 to 2014 that included bank-specific, industry-specific, and macroeconomic variables. Employing the interest spread decomposition model and random effects regression, the study found that for every 1% increase in non-interest income as a share of total revenue, the interest spread declined by 0.11%, indicating that revenue diversification helps narrow the spread. While the correlation between interest spread and NPAs was positive but weak, market concentration and operating expenses were also found to be positively associated with wider spreads.

Githaiga (2022) explored whether the relationship between bank risk-taking and income diversification is moderated by intellectual capital (IC) among East African banks. The study utilized quantitative data from 50 banks across the region, covering the period 2010 to 2021, resulting in 600 bank-year observations. Non-performing loans (NPLs) and Z-SCORE were used to measure risk-taking. The findings revealed that banks with a higher share of non-interest income tend to engage in greater risk-taking. Additionally, intellectual capital components—Value-Added Intellectual Coefficient (VAIC), Human Capital Efficiency (HCE), and Capital Employed Efficiency (CEE)—were found to have a positive and statistically significant relationship with risk-taking. Conversely, Structural Capital Efficiency (SCE) was shown to significantly reduce bank risk-taking, highlighting the nuanced role of different components of intellectual capital in moderating risk behavior.

3. Methodology

The study adopted descriptive and correlational research designs. Descriptive research design is used to systematically describe the characteristics of a population or phenomenon without assessing causal relationships. The correlational approach was especially appropriate as the researcher aimed to examine the relationship between diversification and banks' lending behaviour. The target population for the study was 43 commercial banks in Kenya for the period ranging from 2010 to 2022. Bank-specific data were obtained from the Bank Focus database base while country-level and macroeconomic data were sourced from the World Bank World Development Indicators. The analysis involved both descriptive and inferential techniques. Descriptive statistics, including the minimum, maximum, mean, and standard deviation, were used to summarize the characteristics of the variables. For inferential analysis, correlation, and linear regression techniques.

4. Results and Discussion

4.1 Descriptive Analysis

This section presents the descriptive statistics for the study variables, providing insights into their means and standard deviations. The results are summarized and illustrated in Table 1.

Table 1: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Bank lending behaviour	308	-.024	.22	-2.475	.857
Revenue diversification	301	.431	.151	.014	.939
Asset diversification	297	.604	.134	.336	.935
Deposit growth	308	-6.082	5.268	-12.323	.991
Bank size	301	13.273	1.407	10.434	16.125
Bank capital strength	308	0.30	0.39	0.1	0.193
Reserve requirements	227	.087	.03	.015	.184
Gdp growth	301	.045	.019	-.003	.081
Inflation	301	.065	.018	.04	.14

According to Table 1, the mean value of bank loan growth for all the sampled banks was -0.24, with a standard deviation of 0.22. The loan growth ranged from -2.475 to 0.857. These values suggest moderate variability and a general trend of low or negative lending performance across the sampled banks. Furthermore, the average mean for revenue diversification was 0.431 with a standard deviation of 0.151 and a range between 0.014 and 0.939. Asset diversification had a higher average of 0.604, a standard deviation of 0.134, and ranged from 0.336 to 0.935. This indicates that, on average, banks exhibited greater asset diversification compared to revenue diversification, suggesting a stronger institutional preference for asset-based strategies.

In terms of other bank-specific variables, deposit growth had a mean of -6.082, indicating a declining trend in deposits during the period. Bank size averaged 13.273, suggesting a relatively large asset base, while bank capital strength was low, with a mean of 0.000030. Regarding macroeconomic indicators, showed that reserve requirements averaged 0.087 with values ranging from 0.015 to 0.184. GDP growth averaged 0.045 and ranged from -0.003 to 0.081, while inflation averaged 0.065, ranging between 0.04 and 0.14. These results imply that reserve requirements were relatively high compared to GDP growth, and inflation levels were considerably high during the study period.

4.2 Correlation Analysis

Table 2 provides the correlation analysis results on the association between diversification and banks' lending behavior.

Table 2: Matrix of correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) Bank Lending behaviour	1.000								
(2) Revenue diversification	0.083 (0.150)	1.000							
(3) Asset diversification	- 0.309* (0.000)	- 0.147* (0.012)	1.000						
(4) Deposit growth	0.003 (0.956)	0.059 (0.306)	- (0.036)	1.000					
(5) Bank size	0.013 (0.821)	0.034 (0.553)	0.110 (0.062)	- (0.000)	1.000				
(6) Bank capital strength	-0.024 (0.676)	0.127* (0.028)	- (0.003)	0.254* (0.000)	- (0.000)	1.000			
(7) Reserve ratio	-0.041 (0.538)	0.190* (0.004)	-0.048 (0.471)	0.010 (0.877)	0.081 (0.225)	-0.055 (0.413)	1.000		
(8) GDP growth	0.135* (0.020)	0.013 (0.826)	0.000 (0.995)	-0.012 (0.836)	0.031 (0.594)	0.007 (0.905)	0.079 (0.233)	1.000	
(9) Inflation	0.099 (0.088)	0.104 (0.070)	-0.072 (0.220)	0.076 (0.188)	0.084 (0.147)	-0.104 (0.072)	0.036 (0.585)	0.050 (0.389)	1.000

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

According to the results in Table 2, revenue diversification and bank lending behaviour show a positive but insignificant correlation. This suggests that an increase in revenue diversification is associated with an increase in bank lending behaviour. On the other hand, asset diversification has a positive and significant correlation with bank lending behaviour. This indicates that as banks increase asset diversification, there is a corresponding and statistically significant rise in their lending activity. Deposit growth is also positively correlated with bank lending behaviour, but the relationship is statistically insignificant.

The result in Table 2 further shows a positive but weak correlation between bank size and bank lending behaviour. GDP displays a positive and statistically significant correlation with bank lending, implying that economic growth contributes to increased lending activity. In contrast, reserve requirements are negatively and significantly correlated with bank lending behaviour, suggesting that higher reserve requirements may constrain banks' ability to lend. Lastly, the correlation between inflation and bank lending behaviour is positive but insignificant.

4.3 Regression Analysis

This section presents the findings on the effect of diversification on banks' lending behavior in Kenya, based on the results from Ordinary Least Squares (OLS) regression and Fixed Effects (FE) regression models. These analyses were used to estimate the relationship between revenue and asset diversification and their impact on lending behavior, while controlling for relevant bank-specific and macroeconomic factors.

4.3.1 Revenue Diversification and Bank Lending Behaviour

Table 3 presents the regression analysis results for the first objective, which examines the effect of revenue diversification on bank lending behaviour using both OLS and fixed effects, following the results of the Hausman test.

Table 3: Regression Results for the Effect of Revenue Diversification on Bank Lending Behaviour

Variable	OLS	FE
Revenue diversification	0.255** (0.017)	0.59*** (0.000)
Deposit growth	-0.002 (0.519)	-0.002 (.663)
Bank size	0.013 (.456)	-0.129*** (.01)
Bank capital strength	9.867 (.156)	17.752* (0.071)
Reserve requirement	-0.648 (.222)	-2.158*** (.002)
GDP growth	1.275 (.105)	1.185 (.12)
Inflation	1.254 (.155)	-0.511 (.606)
Constant	-0.44* (.085)	1.577** (.03)
Observations	227	227
R squared	0.062	0.19

According to the results in Table 3, revenue diversification has a consistently positive and significant effect on bank lending behaviour across both models. This suggests that increased focus on non-interest income sources enhances banks' lending. One possible explanation is that revenue diversification provides a more stable and predictable income base, thereby reducing reliance on the more volatile interest income (Abedifar, Molyneux & Tarazi, 2018). Additionally, AlKhoury and Arouri (2019) observe that diversified income streams can help banks absorb financial shocks and improve risk management, enabling them to allocate more resources toward lending activities, thus strengthening their overall lending performance.

Deposit growth has a negative and insignificant effect on bank lending behavior in both the OLS and FE models. These findings align with Ochenge (2022), who argues that banks with diversified revenue streams tend to experience greater profitability and financial stability, enabling them to expand their lending activities. The results thus support Hypothesis 1, confirming that revenue diversification has a positive and significant effect on bank lending behavior.

Bank size has a positive but insignificant effect on bank lending behaviour in OLS, but is negative and significant in the FE model.

In both models, bank capital strength has a positive effect on bank lending behaviour, which is only significant in the FE model. On the contrary, reserve requirements hurt bank lending behavior, which is significant only in the FE model. GDP does not have a significant effect on bank lending behavior in any of the models, while inflation has a significant positive and negative effect on bank lending behavior in OLS and FE, respectively. The differences in findings in the different models show the effect of unobserved heterogeneity among the commercial banks.

4.3.2 Asset Diversification and Bank Lending Behaviour

Table 4 presents the regression results of examining the effect of asset diversification on bank lending behaviour.

Table 4: Effect of Asset Diversification on Bank Lending Behaviour

Variable	OLS.	FE
Asset diversification	-.489*** (0.000)	-.994*** (0.000)
Deposit growth	-.001 (0.873)	.004 (.786)
Bank size	.004 (0.826)	.017 (.409)
Bank capital strength	0.204 (0.774)	0.709.8 (.79)
Reserve requirement	-.411 (0.432)	.521* (.086)
Gdp growth	1.364* (0.076)	.765** (.045)
Inflation	.846 (0.331)	.869 (.736)
Constant	.134 (0.629)	.278* (0.09)
Observations	225	225
R Squared	0.1085	0.195

According to the results presented in Table 4, asset diversification has a significant and negative effect on bank lending behavior across both the OLS and Fixed Effects models. This finding suggests that as banks increase asset diversification, their lending activity tends to decline. These results contrast with the findings of Gelman, Goldstein, and MacKinlay (2023), who found that asset diversification stabilizes the bank's profit stream and lowers idiosyncratic risk. Similarly, Radojičić and Marinković (2023) found that higher asset diversification positively influences both the level and stability of banks' return on equity. In theory, higher profits should allow banks to reinvest earnings into additional lending. However, the current study's results imply that in the Kenyan context, increasing asset diversification may shift focus away from core lending functions, possibly due to increased risk exposure or inefficiencies in managing diverse asset portfolios.

In this model, capital strength, GDP, and inflation were found to have a positive and statistically significant relationship with bank lending behavior. This implied that an increase in capital strength, GDP, and inflation would increase bank lending behavior. However, deposit growth had a negative and significant effect under the OLS model but a positive and significant effect

under the fixed effects model, which indicates inconsistencies. Similarly, reserve requirements have a negative and significant effect under OLS but a positive and significant effect on lending behavior under fixed effects.

4.3.3 Revenue Diversification, Asset Diversification and Bank Lending Behaviour

Table 5 presents the regression results examining the interaction effect of revenue diversification and asset diversification on bank lending behavior, in line with the third objective and hypothesis of the study.

Table 5: Effect of the Interaction Effect of Asset and Revenue Diversification on Banks' Lending Behavior in Kenya

Variables	OLS	FE
Revenue diversification	.274 (0.596)	.345 (0.6)
Asset diversification	-.449 (0.158)	-1.016** (0.046)
Asset* revenue diversification	-.082 (0.910)	.288 (0.764)
Deposit growth	-.002 (0.598)	-.003 (.538)
Bank size	.001 (0.955)	-.034 (0.524)
Bank capital strength	0.871 (0.908)	4.891 (0.64)
Reserve requirement	-.664 (0.235)	-1.444** (0.33)
Gdp growth	1.358* (0.072)	1.355* (0.064)
Inflation	.687 (0.428)	-.385 (0.689)
Constant	.0718 (0.830)	.896 (0.214)
Observations	225	225
R Squared	0.122	0.241

According to the results presented in Table 5, revenue diversification has a positive but statistically insignificant effect on bank lending behavior in the OLS model. This is in contrast to the earlier individual regression results, where revenue diversification had a positive and significant influence on lending behavior, suggesting that its effectiveness may diminish when other strategies, such as asset diversification, are introduced. The finding contrasts with AlKhouri and Arouri's (2019) observation that diversified income streams can help banks absorb financial shocks and improve risk management, enabling them to allocate more resources toward lending activities, thus strengthening their overall lending performance. Similarly, the results are inconsistent with Abedifar, Molyneux and Tarazi's (2018) argument that revenue diversification provides a more stable and predictable income base, thereby reducing reliance on the more volatile interest income.

Asset diversification, on the other hand, shows a negative effect, which becomes statistically significant under the Fixed Effects model. This compares with earlier results where asset

diversification was found to be significant. However, the finding contrasts with the findings of Gelman, Goldstein, and MacKinlay (2023), who found that asset diversification stabilizes the bank's profit stream and lowers idiosyncratic risk. Additionally, Radojičić and Marinković (2023) found that higher asset diversification positively influences both the level and stability of banks' return on equity.

The interaction term between asset and revenue diversification is statistically insignificant in both models, suggesting that when both strategies are implemented simultaneously, the positive effect of revenue diversification may be weakened or offset by the negative influence of asset diversification. One possible explanation for these findings is that the financial or managerial resources gained through revenue diversification may be diverted toward managing a broader asset portfolio, limiting the funds or focus available for core lending activities. Additionally, diversification into riskier or less liquid assets may increase uncertainty or regulatory burdens, discouraging lending. The lack of a significant interaction effect further implies that revenue and asset diversification may not reinforce each other when poorly aligned, underscoring the need for banks to implement these strategies with clear objectives and coordination to avoid undermining lending performance.

5. Conclusion

Based on the study's findings, revenue diversification has a significant and positive effect on the lending practices of Kenyan banks. This implies that as banks increase their sources of revenue, their capacity and willingness to lend also rise. Therefore, implementing revenue diversification strategies enables banks to generate additional income, which in turn strengthens their ability to extend credit.

Conversely, the study found that asset diversification has a significant and negative impact on bank lending behavior. This suggests that higher levels of asset diversification may reduce the volume of loans issued by banks. The decline in lending could be attributed to increased risk and instability associated with managing more complex and diverse asset portfolios, as well as potential reductions in asset quality or value.

Lastly, the study found evidence that the interaction between revenue and asset diversification does not have a significant effect on bank lending behaviour in Kenya. This indicates that simultaneously applying both diversification strategies does not amplify or diminish the effects of either strategy on lending. The positive influence of revenue diversification may be offset by the negative consequences of asset diversification, resulting in an overall neutral effect.

6. Recommendations

The findings of the study carry important implications for policymakers, regulators, and bank managers. First, given the positive impact of revenue diversification on lending practices, policymakers should promote regulatory frameworks that encourage banks to diversify their income sources. Regulators should also provide guidance and support to ensure banks manage the associated risks effectively, thereby enhancing credit availability and financial stability. Bank managers should prioritize revenue diversification as a core strategy to increase lending capacity and support financial inclusion and economic growth.

Secondly, the study results showed evidence of a negative and significant relationship between asset diversification and bank lending behaviour. Accordingly, policymakers should carefully assess the trade-offs associated with promoting asset diversification in banks, as it may hinder

lending activities. Regulators should closely monitor the extent and composition of asset diversification to ensure it does not affect or compromise commercial banks' primary lending function. Bank managers should evaluate their asset allocation strategies carefully, balancing the potential benefits of diversification with its possible adverse effects on lending.

Lastly, the study found that the interaction between revenue diversification and asset diversification had an insignificant effect on bank lending behaviour. Therefore, policymakers and regulators should recognize that combining these two diversification strategies may not necessarily enhance or hinder lending. As a result, each diversification strategy should be assessed and optimized independently. At the same time, bank managers should implement a revenue and asset diversification strategy based on their individual merits, ensuring that neither approach undermines core lending activities.

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