

Effect of Fee-Based Investment Strategy on the Financial Performance of Commercial Banks in Kenya

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Abstract

This study examined the effect of fee-based investment strategy on the financial performance of commercial banks in Kenya. The persistence of interest-rate volatility, the 2016–2019 statutory interest rate cap and the accelerated digitisation of financial services have progressively weakened the reliability of interest income, yet the empirical evidence on whether fee-based income translates into superior shareholder returns remains fragmented and inconclusive. Anchored in the Resource-Based View, Portfolio Theory and Agency Theory, the study adopted an explanatory longitudinal research design implemented through a panel data methodology. The target population comprised all 43 commercial banks licensed by the Central Bank of Kenya over the period 2015 to 2024. Applying inclusion and exclusion criteria relating to continuity of licensed operations, completeness of audited disclosures and availability of board composition data yielded 38 qualifying banks and an unbalanced panel of 368 bank-year observations. Secondary data were extracted through a structured data collection checklist from audited annual financial statements, Central Bank of Kenya Bank Supervision Annual Reports and Nairobi Securities Exchange investor disclosures. Fee-based investment strategy was operationalised as income from fees and commissions expressed as a proportion of total operating income, while financial performance was proxied by Return on Equity. Employee Share Ownership Plan, officer directors, non-officer directors and affiliated directors were incorporated as governance control variables. Data were analysed using descriptive statistics, pairwise correlation and hierarchical panel regression in Stata. Diagnostic testing confirmed normality of residuals ($\chi^2(2) = 4.60$, $p = .125$; Jarque-Bera = 4.213, $p = .121$), absence of first-order serial correlation (Wooldridge $F(1, 38) = 1.535$, $p = .203$) and absence of multicollinearity (all VIF < 3). The Breusch-Pagan test detected heteroscedasticity, which was remedied through bank-clustered robust standard errors, and the Fisher-type Phillips-Perron test confirmed stationarity of all series at level. The Hausman test supported the fixed-effects specification, which explained 51.18 per cent of the within-bank variation in Return on Equity ($F(4, 326) = 85.45$, $p < .001$). Fee-based investment strategy was positively and significantly correlated

with Return on Equity at the bivariate level ($r = .394$), but the association did not survive multivariate estimation: the coefficient was positive yet insignificant in the hierarchical specification ($\beta = 0.590$, $p = .117$) and negative and insignificant in the full specification ($\beta = -0.087$, $p = .447$), so H_1 was not supported. The governance variables, by contrast, exerted strong and significant effects non-officer directors ($\beta = .546$, $p < .001$), officer directors ($\beta = .247$, $p < .001$) and Employee Share Ownership Plan ($\beta = .233$, $p < .001$) while affiliated directors were insignificant ($\beta = -0.058$, $p = .404$). The study concludes that the apparent profitability of fee-based strategies in Kenyan banking is attributable principally to the institutional capabilities and governance structures of the banks that pursue them rather than to fee income as such, and that board independence is the more consequential determinant of shareholder returns. It recommends that banks treat investment in scalable service-delivery capability, rather than the expansion of charges in itself, as the operative lever; that they strengthen non-executive board representation; and that regulators weigh consumer-protection oversight of bank charges against the sector's need for sustainable non-interest revenue.

Keywords: Fee-based investment strategy, financial performance, commercial banks, fee-based income, Return on Equity, panel data, Kenya

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Introduction

Financial performance serves as a foundational benchmark for assessing the operational health, strategic agility, and long-term viability of commercial banks. In the Kenyan banking sector characterized by regulatory flux, technological disruption, and intensifying competition financial performance is not merely a retrospective measure of profitability but a forward-looking indicator of institutional resilience and market relevance. It informs strategic

decisions on capital allocation, risk management, service innovation, and stakeholder engagement. Key performance metrics such as Return on Assets (ROA) and Return on Equity (ROE) offer insights into how efficiently a bank utilizes its assets and equity base to generate earnings. ROA reflects the bank's capacity to convert its asset base into net income, while ROE gauges the return generated on shareholders' equity, serving as a proxy for investor value creation.

Net interest margin, another critical metric, captures the spread between interest income and interest expenses, thereby revealing the bank's core profitability from lending and deposit-taking activities. However, in an era of interest rate volatility and regulatory constraints such as Kenya's historical interest rate caps reliance on interest income alone has proven increasingly precarious. Consequently, non-interest income ratios have gained prominence as indicators of strategic diversification and service-based revenue generation. These ratios encompass earnings from fees, commissions, trading activities, and advisory services, reflecting a bank's ability to monetize financial intermediation beyond traditional lending.

In Kenya, where digital banking, mobile money platforms, and fintech collaborations are reshaping customer expectations, non-interest income has emerged as a vital lever for sustaining profitability and enhancing customer-centric value propositions. Collectively, these financial metrics provide a multidimensional view of a bank's performance, capturing both operational efficiency and strategic adaptability. They enable stakeholders including regulators, investors, and institutional partners to evaluate how well a bank navigates market uncertainties, leverages innovation, and aligns its financial architecture with broader developmental goals. In this context, understanding the drivers and outcomes of financial performance is essential for crafting responsive and resilient banking strategies, particularly as fee-based investment models gain traction across Kenya's financial ecosystem.

Recent empirical studies on the relationship between fee-based investment strategies and financial performance in Kenyan commercial banks

have yielded mixed and inconclusive findings. Kiptum, Koske and Limo (2021) reported that income diversification improves bank profitability through the growth of non-interest income, and recommended that managers pursue non-traditional activities in order to compensate for deteriorating interest margins. Waweru, Sang and Kinyanjui (2025) likewise found a positive and statistically significant relationship between non-interest income diversification and return on assets ($\beta = 0.609, p < .001$), although their aggregate measure did not isolate fee-based income as a distinct variable from other non-interest revenue streams. Sarabhai (2019), in a broader empirical study of fee-based services, emphasised the growing relevance of non-interest income while cautioning against overgeneralisation given contextual differences in regulatory environments and customer behaviour. Against these findings stands a more sceptical international literature. Stiroh (2004) concluded that diversification into non-interest income raises gross revenue without reliably improving risk-adjusted profitability, and DeYoung and Rice (2004) found that marginal increases in non-interest income at commercial banks were associated with a poorer risk-return trade-off.

These divergent findings underscore a critical gap in the literature: the absence of a focused, contextually grounded analysis of how fee-based investment strategies specifically influence financial performance within Kenya's commercial banking sector. Most existing studies either aggregate fee-based income with other non-interest streams or fail to account for institutional heterogeneity, strategic intent, and market segmentation. Moreover, the rapid evolution of digital financial services and fintech partnerships in Kenya

introduces new dimensions to fee-based revenue generation that remain underexplored in empirical models. This study is therefore both timely and necessary. It contributes to the literature by offering a disaggregated, empirically robust examination of fee-based investment strategies and their effect on key financial performance indicators. By leveraging recent financial data and incorporating institutional characteristics, the research provides nuanced insights into the strategic efficacy of fee-based models. It also informs managerial decision-making by identifying which fee-based activities yield the most significant performance gains, and under what operational conditions. From a policy perspective, the study supports regulatory bodies and financial sector stakeholders in evaluating the sustainability of non-interest income streams and their alignment with broader financial inclusion and stability goals. Ultimately, this research advances scholarly understanding of strategic banking innovation in emerging markets and offers actionable recommendations for optimizing revenue architecture in Kenya's commercial banking ecosystem.

Literature Review

Theoretical Foundation

The relationship between fee-based investment strategies and financial performance in commercial banks is underpinned by several interrelated theoretical frameworks. Chief among these is the Resource-Based View (RBV), which posits that firms achieve superior performance by leveraging unique, inimitable resources and capabilities. In the context of commercial banking, fee-based services such as advisory, asset management, and transaction facilitation represent strategic resources that can differentiate banks in competitive

markets. These services, when effectively deployed, enhance customer retention, diversify income streams, and reduce vulnerability to interest rate shocks. Complementing RBV is the Portfolio Theory, which emphasizes diversification as a means of optimizing returns while minimizing risk.

Applied to banking, this theory supports the strategic shift from interest-dependent income to fee-based revenue, suggesting that a well-balanced portfolio of income sources can stabilize earnings and improve risk-adjusted performance. This is particularly relevant in Kenya's volatile financial environment, where regulatory interventions (e.g., interest rate caps) have historically constrained traditional lending profitability. Additionally, Agency Theory provides insight into how fee-based strategies may align managerial incentives with shareholder interests. By expanding service offerings and generating non-interest income, managers can demonstrate strategic responsiveness and value creation, thereby reducing agency costs and enhancing institutional accountability. Together, these theories offer a multidimensional lens for analyzing how fee-based investment strategies influence financial performance, accounting for resource deployment, income diversification, and governance dynamics.

Hypothesis Development

Empirical literature presents varied findings on the impact of fee-based investment strategies on bank performance. While some studies suggest a positive correlation between non-interest income and profitability, others highlight potential trade-offs, such as increased operational complexity or diminished focus on core banking functions. Many academic articles have theoretically analyzed the optimality of a

performance-based fee structure, with those of Grinblatt and Titman (1989), Golec (1992), Roll (1992), Das and Sundaram (1998a, 1998b, 2002), Palomino and Prat (2003), and recently Li and Tiwari (2009) being some of the most significant. The prevailing conclusion is that performance-based fees are more appropriate. Thus, Das and Sundaram (1998b) conclude that if risk aversion is assumed in the preferences of investors and managers, the optimal contract must be linear, and include a base fee for the amount of assets under management and an additional remuneration depending on returns above those of a benchmark portfolio. In Kenya, the rapid adoption of digital platforms and fintech partnerships has accelerated the growth of fee-based services, yet the strategic outcomes remain uneven across institutions. Building on the theoretical foundations and contextual dynamics, this study formulates the following hypothesis:

H₁: Fee-based investment strategies have a statistically significant positive effect on the financial performance of commercial banks in Kenya.

Research Methodology

Research Design, Population and Sample

Research Philosophy and Design

The study is situated within the positivist research paradigm, which holds that social and economic phenomena can be observed objectively, measured quantitatively and explained through law-like generalisations derived from empirical testing (Saunders, Lewis, & Thornhill, 2019). Positivism is appropriate here because the constructs of interest fee-based income intensity, board composition and shareholder returns are reported in standardised, audited financial statements and are therefore independent of the researcher's

interpretation. Consistent with this paradigm, the study adopts a deductive approach in which a hypothesis grounded in the Resource-Based View, Portfolio Theory and Agency Theory is formulated a priori and then subjected to statistical falsification.

An explanatory longitudinal research design was employed. The explanatory dimension is warranted because the study does not merely seek to describe the incidence of fee-based income in the Kenyan banking sector, but to determine the direction, magnitude and statistical significance of its effect on financial performance while holding internal governance characteristics constant. The longitudinal dimension is warranted because the strategic reorientation from interest to fee income is a process that unfolds over successive financial periods; a cross-sectional snapshot would confound genuine strategic effects with transitory annual shocks and would offer no purchase on the lagged and cumulative nature of strategic returns. Observing each bank repeatedly over a ten-year window permits the study to trace how changes in the composition of a bank's revenue architecture map onto changes in its returns to equity.

The design is operationalised through a panel data methodology, in which cross-sectional units (banks) are observed across multiple time periods (financial years). Panel estimation is preferred to pooled cross-sectional or pure time-series estimation for three reasons. First, it controls for unobserved, time-invariant bank-specific heterogeneity brand equity, corporate culture, risk appetite, managerial philosophy and legacy market position which cannot be measured directly but which materially influences profitability and, if omitted, biases the estimated coefficients (Wooldridge, 2010). Second,

it substantially increases the number of degrees of freedom and the efficiency of the estimates relative to a single cross-section of 38 banks, thereby improving the power of the hypothesis test. Third, the combination of within-bank and between-bank variation raises the power of stationarity testing and mitigates the multicollinearity that frequently afflicts purely time-series financial data (Baltagi, 2008; Gujarati & Porter, 2009).

Target Population and Study Period

The target population comprised all commercial banks licensed and regulated by the Central Bank of Kenya (CBK) during the period 2015 to 2024. As at the close of the study window, 43 commercial banks were operational in Kenya, encompassing locally-owned, foreign-owned and state-linked institutions across CBK's tier-one, tier-two and tier-three classifications (CBK, 2015–2024). This population therefore represents the full spectrum of commercial banking activity in the country and captures the institutional heterogeneity in scale, digital capability, ownership and market segment that theory predicts will condition the returns to a fee-based strategy.

Because the population is small and the requisite data are publicly available for virtually all of its members, the study adopted a census rather than a probabilistic sampling technique. A census eliminates sampling error, removes the risk of selection bias toward larger or listed institutions, and permits inference about the sector as a whole rather than about a subset of it (Kothari, 2004; Saunders et al., 2019). The ten-year window 2015 to 2024 was selected deliberately rather than arbitrarily. It brackets three structural events whose interaction is central to the research problem: the imposition of the statutory interest rate cap under the Banking

(Amendment) Act, 2016 and its repeal in 2019, which compressed interest margins and created a direct incentive to substitute fee income for interest income; the rapid scaling of mobile, agency and digital banking channels, which lowered the marginal cost of fee generation; and the COVID-19 shock of 2020–2021, which simultaneously depressed lending volumes and accelerated the migration of customers to fee-bearing digital channels. A shorter window would fail to span these regime changes, while an earlier window would predate the disclosure practices on which the measurement of fee income depends.

Inclusion and Exclusion Criteria

Because the study relies on secondary data drawn from published financial statements and regulatory filings, explicit inclusion and exclusion criteria were applied to safeguard data quality, comparability and consistency across the panel. A bank was included in the analytical sample only where it satisfied five conditions simultaneously. It had to hold a valid commercial banking licence issued by the Central Bank of Kenya for the whole or a substantial part of the period 2015 to 2024, and to have published complete and independently audited annual financial statements for at least seven of the ten years within the study window. Its statements had to disaggregate non-interest income sufficiently to permit fees and commissions to be isolated from other non-interest revenue streams such as foreign exchange trading gains, bancassurance commissions and income from debt securities. It had to report verifiable measures of financial performance, specifically net income and total shareholders' equity, from which Return on Equity could be computed. Finally, it had to disclose board composition in sufficient detail to permit

directors to be classified as officer, non-officer or affiliated, and to identify any employee shareholding arrangements.

A bank was excluded from the analytical sample where any of four conditions applied. The first was inadequate, inconsistent or unaudited financial reporting during the study period, or the institution having been under statutory management, receivership or liquidation for a material portion of it. The second was involvement in a merger, acquisition or licence conversion without sufficient pre-event and post-event data to permit continuous longitudinal tracking of the same reporting entity. The third was entry to the market after 2015, leaving an observation history too short to contribute meaningfully to the within-bank variation on which fixed-effects estimation relies. The fourth was operation as a representative office, a mortgage finance institution or a foreign branch with minimal Kenyan operations and limited local disclosure, and therefore falling outside the scope of full commercial banking as defined by the Central Bank of Kenya.

Sample Size and Panel Structure

The application of these criteria to the population of 43 licensed banks produced an analytical sample of 38 commercial banks. Five institutions were excluded, principally on grounds of discontinued or interrupted licensed operations and incomplete disclosure of the board-composition and fee-income detail required by the model. Observing 38 banks over ten years yields a theoretical maximum of 380 bank-year observations; after the removal of observations with missing values on any model variable, 368 usable bank-year observations were retained, representing 96.8 per cent of the theoretical maximum and an average of 9.7 annual observations

per bank, with a minimum of one and a maximum of ten.

The resulting panel is therefore unbalanced. This is a deliberate methodological choice rather than a limitation of convenience. Restricting the analysis to a strictly balanced panel would have required the deletion of every bank with even one missing year, which would have systematically removed smaller and more recently licensed institutions and biased the sample toward large, listed, well-resourced banks precisely the institutions most likely to exhibit a favourable fee-income–performance relationship. Because the fixed-effects within estimator is consistent under an unbalanced structure provided that the pattern of missingness is unrelated to the idiosyncratic error, retaining the unbalanced panel preserves the representativeness of the census while sacrificing no estimator property of consequence (Wooldridge, 2010; Baltagi, 2008). The dominance of banks with nine or ten observations confirms that attrition is confined to a small minority of the sample.

Data Sources, Collection Instrument and Data Quality

The study used exclusively secondary, quantitative data extracted from credible and publicly accessible documents. Bank-level financial data net income, total shareholders' equity, total operating income and the disaggregated components of non-interest income were obtained from audited annual financial statements and the accompanying notes. Sector-level and cross-validating data were obtained from the CBK Bank Supervision Annual Reports for 2015 to 2024. Ownership and board-composition data were obtained from the directors' reports and corporate governance statements contained in annual reports, supplemented for listed institutions by

Nairobi Securities Exchange investor disclosures and, where necessary, by CBK ownership filings and investor-relations portals.

A structured data collection checklist served as the primary data collection instrument. The checklist specified, for each variable, the precise financial statement line item or disclosure note from which the figure was to be drawn, the unit of measurement, the reporting period and the source document, and it was completed for each bank-year cell of the panel. Standardising extraction in this way reduces the risk of subjective judgement, transcription error and inadvertent omission, and it renders the extraction process transparent and replicable (Sekaran & Bougie, 2016).

Two features of the data underwrite the validity and reliability of the measurement. First, the source documents are statutorily mandated and independently audited under International Financial Reporting Standards, which imposes a common definitional and recognition framework across banks and across years and thereby secures construct comparability. Second, each extracted figure was verified against at least one independent source typically the CBK Bank Supervision Annual Report or the corresponding prior-year comparative in the following year's statements with discrepancies resolved in favour of the audited financial statements and documented in the extraction log. Reliability in this context is a property of the source documents and of the consistency of the extraction protocol rather than of internal-consistency coefficients, which are not applicable to secondary financial data.

Measurement of Variables

The study comprises one dependent variable (financial performance), one independent variable

(fee-based investment strategy) and four governance control variables (Employee Share Ownership Plan, officer directors, non-officer directors and affiliated directors). All constructs were measured quantitatively on annual panel data for the period 2015 to 2024. Because the constructs are expressed in different natural units percentages of income, percentages of equity and proportions of board seats each variable was standardized to a z-score with a mean of zero and unit standard deviation prior to estimation. Standardisation renders the estimated coefficients directly comparable in terms of effect size, since each reports the change in standard deviations of Return on Equity associated with a one standard deviation change in the predictor, and it mitigates the scale-induced multicollinearity that arises when ratio variables of markedly different variances enter the same specification (Hair, Black, Babin, & Anderson, 2019). The operationalisation of each variable is summarised in Table 1 and elaborated in the sub-sections that follow.

Dependent Variable

Financial performance is the dependent variable and is proxied by Return on Equity (ROE), computed as net income after tax divided by total shareholders' equity and expressed as a percentage. ROE measures the efficiency with which a bank converts the capital entrusted to it by its owners into earnings, and it is the performance metric most directly aligned with the theoretical framework of this study. Under the Resource-Based View, the test of a strategic resource is whether it generates rents that accrue to the residual claimant; under Agency Theory, ROE is the metric against which shareholders and blockholders evaluate managerial stewardship and against which executive incentives are most commonly calibrated.

ROE is also the metric on which the diversification literature has most frequently reported, which facilitates comparison of the present findings with prior evidence (Berger & Bouwman, 2013; Ongore & Kusa, 2013).

The choice of ROE in preference to Return on Assets (ROA) and Net Interest Margin (NIM) is also methodologically motivated. NIM is, by construction, a measure of interest intermediation and is therefore an inappropriate dependent variable for a study of non-interest revenue, since fee income enters its denominator only indirectly and its numerator not at all. ROA, while a valid measure of asset productivity, is less sensitive to the leverage and capital-structure decisions

through which Kenyan banks have financed their digital and fee-generating infrastructure. Furthermore, the Hausman specification test reported in Section 3.4 rejected the random-effects restriction for ROE, confirming that unobserved bank-specific effects are correlated with the regressors and that the within estimator is the consistent choice for this dependent variable. ROA and NIM are nonetheless retained as alternative dependent variables in the robustness checks, and a standardised composite performance index constructed as the mean of the z-scores of ROA, ROE and NIM is estimated as a further sensitivity test (Flamini, McDonald, & Schumacher, 2009).

Table 1: *Operationalisation and Measurement of Study Variables*

Variable	Type	Operational definition	Measurement	Source
Return on Equity (ROE)	Dependent	Profit accruing to providers of equity capital	Net income ÷ total shareholders' equity, standardised	Audited financial statements; CBK reports
Fee-based investment strategy (FBIS)	Independent	Intensity of reliance on fee- and commission-generating services	Fees and commissions income ÷ total operating income, standardised	Notes to the financial statements
Employee Share Ownership Plan (ESOP)	Control	Alignment of employee and shareholder interests	Shares held by employees under an ESOP ÷ total issued shares, standardised	Directors' report; governance statement
Officer directors (OD)	Control	Executive presence on the board	Executive directors ÷ total board members, standardised	Governance statement; annual report
Non-officer directors (NOD)	Control	Board independence and oversight capacity	Independent non-executive directors ÷ total board members, standardised	Governance statement; annual report
Affiliated directors (AD)	Control	Board ties creating potential conflicts of interest	Directors with business, familial or political ties ÷ total board members, standardised	Governance statement; NSE disclosures

Independent Variable

Fee-based investment strategy (FBIS) is the independent variable. It is operationalised as the proportion of a bank's total operating income that is derived from fees and commissions on non-lending services, computed as fees and commissions income divided by total operating income and expressed as a percentage. A ratio rather than an absolute measure is used because the study's interest lies in strategic orientation, not scale: an absolute shilling figure would simply rank banks by size and would confound the strategic choice to pursue fee income with the balance-sheet capacity to generate any income at all. Scaling by total operating income renders the measure dimensionless and therefore comparable across tier-one, tier-two and tier-three institutions and across years of differing macroeconomic conditions, and it is the convention adopted in the established diversification literature (DeYoung & Rice, 2004; Stiroh, 2004).

The numerator comprises income from services for which the customer is charged a fee or commission rather than interest. In the Kenyan reporting context these include ledger and account maintenance fees, transaction and funds transfer charges, cheque and clearing commissions, automated teller machine and card issuance and interchange fees, commissions on mobile and agency banking transactions, trade finance commissions on letters of credit and guarantees, custodial and trustee fees, and advisory, arrangement and asset-management fees.

Three categories of revenue were deliberately excluded from the numerator in order to isolate the construct. Income from bancassurance and insurance-linked products was excluded because it constitutes a distinct diversification strategy with its own risk profile and regulatory architecture. Income from

government and corporate debt securities was excluded on the same grounds. Foreign exchange trading gains and other fair-value gains were excluded because they are market-driven and volatile rather than the product of a deliberate, customer-facing service strategy. This disaggregation responds directly to the principal limitation of the prior literature, in which fee-based income has frequently been subsumed within an undifferentiated 'non-interest income' aggregate, leaving the specific contribution of fee-generating services indeterminate. Where the notes to a bank's financial statements did not permit this separation, the bank-year observation was treated as missing rather than approximated.

The hypothesis under test, H_1 , predicts that the coefficient on FBIS is positive and statistically significant, consistent with the Resource-Based View prediction that fee-generating capabilities constitute a value-creating strategic resource and with the Portfolio Theory prediction that revenue diversification stabilises and enhances risk-adjusted returns.

Control Variables

Four internal governance variables were incorporated as controls. Their inclusion is theoretically rather than mechanically motivated: Agency Theory holds that the returns to any strategic initiative depend on the monitoring and incentive structures through which managerial discretion is disciplined, so a specification that regressed performance on fee income alone would attribute to strategy what may in fact be the effect of governance quality. Omitting these variables would therefore induce omitted variable bias in the coefficient of interest (Jensen & Meckling, 1976; Shleifer & Vishny, 1997).

Employee share ownership is measured as the percentage of total issued shares held by employees through a formal Employee Share Ownership Plan. Employee equity participation aligns staff incentives with shareholder value and is particularly consequential for fee-based strategies, whose success depends on front-line service quality and cross-selling effort (Adams & Mehran, 2012). Officer directors is measured as the proportion of board seats occupied by members of the executive team; executive directors bring operational knowledge to strategic deliberation but also concentrate managerial influence over the board's agenda and monitoring function. Non-officer directors is measured as the proportion of board seats occupied by independent non-executive directors, the conventional proxy for board independence and oversight effectiveness, which is expected to strengthen the performance returns to strategic initiatives by constraining value-destroying discretion (Ongore & K'Obonyo, 2011; Okoye, Olokoyo, Okoh, & Ezeji, 2020). Affiliated directors is measured as the proportion of board seats held by directors with current or prior business, familial or political ties to the institution; such directors may facilitate access to resources and relationships, or may compromise the independence of oversight, so the direction of the effect is an empirical question.

All four variables were compiled annually from the directors' reports and corporate governance statements in bank annual reports and from regulatory filings, and were standardised together with the other model variables. Blockholder ownership, which functions as a moderating variable in the wider research programme from which this article is drawn, is not modelled here; the present article is confined to the direct effect of

fee-based investment strategy, and the fixed-effects specification absorbs the largely time-invariant component of ownership concentration into the bank-specific intercept.

Model Specification

The relationship under investigation is expressed in general functional form as financial performance being a function of fee-based investment strategy conditional on internal governance structure:

$$ROE_{it} = f(FBIS_{it}, ESOP_{it}, OD_{it}, NOD_{it}, AD_{it})$$

The study estimates this relationship through a hierarchical (nested) panel regression procedure in which variable blocks are entered sequentially. This approach is preferred to the estimation of a single full model because it isolates the incremental explanatory contribution of the strategic variable over and above the governance architecture, and because the resulting change in the coefficient of determination constitutes a direct and interpretable test of the study's hypothesis.

Model 1 establishes the baseline by regressing financial performance on the governance control variables alone:

$$\text{Model 1: } ROE_{it} = \beta_0 + \beta_1 ESOP_{it} + \beta_2 OD_{it} + \beta_3 NOD_{it} + \beta_4 AD_{it} + \alpha_i + \varepsilon_{it}$$

Model 2 introduces the independent variable, fee-based investment strategy, to the baseline specification:

$$\text{Model 2: } ROE_{it} = \beta_0 + \beta_1 ESOP_{it} + \beta_2 OD_{it} + \beta_3 NOD_{it} + \beta_4 AD_{it} + \beta_5 FBIS_{it} + \alpha_i + \varepsilon_{it}$$

In these expressions ROE_{it} denotes the standardised Return on Equity of bank i in year t , which is the dependent variable, and $FBIS_{it}$ the standardised fee-based investment strategy of the same bank in the same year, which is the independent variable. The four control variables are $ESOP_{it}$, the standardised employee share ownership of bank i in year t ; OD_{it} , the standardised proportion of officer directors; NOD_{it} , the standardised

proportion of non-officer directors; and AD_{it} , the standardised proportion of affiliated directors. The term β_0 is the constant and β_1 through β_5 are the parameters to be estimated, while α_i represents the time-invariant, bank-specific unobserved effect and ε_{it} the idiosyncratic error term, which is assumed to have zero mean. The panel is indexed over $i = 1, 2, \dots, 38$ banks and $t = 2015, 2016, \dots, 2024$.

The presence of the bank-specific term α_i distinguishes the panel specification from pooled ordinary least squares. Under the fixed-effects (within) estimator, which the Hausman test reported in Section 3.4.3 identifies as the appropriate specification, each variable is expressed as a deviation from its bank-specific mean, so that Model 2 is estimated in the transformed form:

$$(ROE_{it} - RO\bar{E}_i) = \beta_1(ESOP_{it} - ESOP\bar{P}_i) + \dots + \beta_5(FBIS_{it} - FBIS\bar{S}_i) + (\varepsilon_{it} - \bar{\varepsilon}_i)$$

This transformation sweeps out α_i entirely, thereby eliminating bias arising from any time-invariant unobserved bank characteristic, whether or not it is measurable. The estimated coefficients are consequently identified from within-bank variation over time: β_5 reports the change in a bank's own standardised Return on Equity associated with a one standard deviation increase in its own fee-income intensity, rather than a comparison between high-fee and low-fee banks. This is precisely the causal quantity the research question demands, and it is the principal methodological advance of the present study over the cross-sectional designs that dominate the existing Kenyan literature.

The hypothesis H_1 is tested on the coefficient β_5 in Model 2. The hypothesis is supported where β_5 is positive and its associated p-value is less than .05; it is not supported where β_5 is statistically indistinguishable from zero or is negative. The test is corroborated by the

incremental F-test on the change in the coefficient of determination between Model 1 and Model 2, which establishes whether the addition of fee-based investment strategy significantly improves the explanatory power of the specification over the governance baseline.

Data Analysis

Data were organised in panel (long) format in Microsoft Excel, indexed by bank identifier and financial year, and imported into Stata for estimation. The analytical sequence proceeded from data preparation, through descriptive and correlation analysis, to diagnostic validation, model estimation and robustness assessment.

Data Preparation and Standardisation

The extracted dataset was cleaned to identify and correct transcription inconsistencies, reconcile restated comparatives, and flag missing values. Bank-year observations with missing values on any model variable were excluded rather than imputed, on the grounds that imputation of audited financial quantities would introduce measurement error of unknown direction; this procedure reduced the panel from a theoretical 380 to 368 usable observations. Extreme values were examined individually against the source statements and retained where they reflected genuine economic events, such as the loss years associated with the COVID-19 credit cycle, rather than reporting error. Each variable was then converted to a z-score by subtracting its sample mean and dividing by its sample standard deviation, which explains the near-unit standard deviations reported in the descriptive statistics that follow.

Descriptive and Correlation Analysis

Descriptive statistics comprising the number of observations, mean, standard deviation, minimum and maximum were computed for every variable in order to characterise the central tendency, dispersion and range of each series and to detect anomalies prior to estimation. Pairwise correlation analysis was then conducted to establish the strength and direction of the bivariate associations among the study variables and to provide a preliminary indication of multicollinearity among the predictors.

Diagnostic Tests

Because the validity of panel regression inference rests on a set of testable assumptions, six diagnostic procedures were conducted before the substantive results were interpreted, and remedial measures were applied wherever an assumption was violated.

Normality of residuals was assessed using the joint skewness-kurtosis test and the Jarque-Bera test, supplemented by histograms and normal quantile-quantile plots. The joint adjusted chi-square statistic ($\chi^2(2) = 4.60, p = .1253$) and the Jarque-Bera statistic ($JB = 4.213, p = .1214$) both failed to reject the null hypothesis of normality at conventional levels, confirming that the distributional assumption underpinning the parametric significance tests is satisfied.

Multicollinearity among the predictors was assessed using the Variance Inflation Factor. All VIF values were below 3, comfortably beneath the conventional threshold of 10 and beneath the more conservative threshold of 5, indicating that the estimated coefficients are not inflated by linear dependence among the regressors and that the individual contributions of fee-based strategy and the governance variables can be separately identified (Hair et al., 2019). Homoscedasticity was assessed using the Breusch-Pagan/Cook-Weisberg test. The

test returned a significant result ($p < .05$), rejecting the null hypothesis of constant error variance. This outcome is expected in a sample spanning institutions of widely differing scale, since larger and more diversified banks exhibit greater variability in returns than smaller ones. Because heteroscedasticity leaves the coefficient estimates unbiased but renders the conventional standard errors inefficient, the violation was remedied by estimating all models with heteroscedasticity-robust standard errors clustered at the bank level, which additionally guards against any residual within-bank dependence.

Serial correlation was assessed using the Wooldridge test for autocorrelation in panel data, which is appropriate for the short, wide panel structure employed here. The test failed to reject the null hypothesis of no first-order autocorrelation ($F(1, 38) = 1.535, p = .2031$), indicating that shocks to bank performance do not persist systematically across adjacent years and that the error structure requires no further correction through feasible generalised least squares or panel-corrected standard errors.

Stationarity was assessed using the Fisher-type panel unit root test based on Phillips-Perron statistics, which accommodates unbalanced panels and aggregates individual test outcomes through the inverse chi-squared, inverse normal, inverse logit and modified inverse chi-squared statistics. The null hypothesis of a unit root was rejected for all series at level ($p < .05$ across all four aggregating statistics), establishing that the variables are stationary and that the estimated relationships are genuine rather than spurious. No differencing or transformation was therefore required (Baltagi, 2008).

Finally, the choice between the fixed-effects and random-effects estimators was determined by the

Hausman specification test. The test rejected the null hypothesis that the bank-specific effects are uncorrelated with the regressors ($p < .05$) for Return on Equity, establishing that the random-effects estimator would be inconsistent and that the fixed-effects within estimator is the appropriate specification. All substantive results reported are accordingly obtained from fixed-effects estimation with bank-clustered robust standard errors.

Estimation Procedure and Decision Rule

The hierarchical models specified in Section 3.3 were estimated in sequence. For each model the study reports the estimated coefficients, robust standard errors, t-statistics, p-values and 95 per cent confidence intervals, together with the within, between and overall coefficients of determination, the model F-statistic and its associated probability, and the Akaike and Bayesian information criteria as comparative measures of model parsimony. Statistical significance is evaluated at the conventional thresholds of 1, 5 and 10 per cent, with .05 adopted as the decision threshold for the hypothesis test. The null hypothesis is rejected, and H_1 supported, where the coefficient on fee-based investment strategy is positive with $p < .05$.

Robustness Checks

Four sensitivity analyses were conducted to establish that the findings are not artefacts of particular measurement or specification choices. First, the models were re-estimated with Return on Assets and Net Interest Margin, and with the standardised composite performance index, substituted for Return on Equity. Second, fee-based investment strategy was entered with a one-year lag, in order to address the possibility of reverse causality whereby profitable banks invest more heavily in fee-

generating infrastructure rather than fee income driving profitability. Third, the sample was partitioned into the interest-rate-cap period (2016–2019) and the surrounding years, and separately re-estimated with the pandemic years 2020 and 2021 excluded, to establish whether the relationship is contingent on these regimes. Fourth, banks contributing fewer than five annual observations were dropped in order to confirm that the results are not driven by the sparsely observed units of the unbalanced panel.

Results

Descriptive Statistics

Descriptive statistics were computed for the dependent variable, the independent variable and the four governance control variables in order to establish the central tendency, dispersion and range of each series across the 368 bank-year observations and to identify any anomalies prior to estimation. The results are presented in Table 2.

Table 2 reports the variables in their natural units, which is the form in which they are economically interpretable; the standardised series used in estimation are simple linear rescalings of these and carry, by construction, a mean of zero and a standard deviation of approximately one. Reporting the descriptives in raw units allows the standardised coefficients to be translated back into percentage points, which is done at the relevant points below.

Fee-based investment strategy averages 21.37 per cent of total operating income across the panel, with a standard deviation of 15.08 percentage points and a range running from 2.87 per cent to 47.97 per cent. Three features of this distribution matter for the analysis. First, fee income is already a material component of Kenyan bank revenue

rather than a marginal supplement: the average bank draws better than one shilling in five of its operating income from fees and commissions. Second, the dispersion is wide in both absolute and relative terms, the standard deviation amounting to some seventy per cent of the mean, which confirms that the sector has not converged on a common revenue architecture. Third, no bank in the

estimation sample operates without meaningful fee income, and none derives a majority of its income from that source, so the variable measures gradations of strategic emphasis rather than the presence or absence of a strategy. The spread is economically meaningful and supplies the within-bank and between-bank variation on which the fixed-effects estimator depends.

Table 2: Descriptive Statistics of Study Variables (N = 368)

Variable	Obs	Mean	Std. Dev.	Min	Max
ROE	368	0.0750	0.1916	-0.3670	0.4203
ESOP	368	0.0087	0.0282	0.0000	0.1001
OFFICER	368	0.2200	0.0712	0.0000	0.3635
NON-OFFICER	368	0.5800	0.0950	0.3022	0.8700
AFFILIATED	368	0.2000	0.0608	0.0000	0.2779
FBIS	368	0.2137	0.1508	0.0287	0.4797

Return on Equity averages 7.50 per cent with a standard deviation of 19.16 percentage points, ranging from -36.70 per cent to 42.03 per cent. The standard deviation is more than two and a half times the mean, and the lower bound lies substantially further from the centre of the distribution than the upper bound, reflecting the loss-making and margin-compressed bank-years recorded during the interest rate cap period and the COVID-19 credit cycle. The panel therefore captures genuine performance heterogeneity rather than a narrow band of comparable outcomes, which is a precondition for detecting any relationship with revenue strategy.

The governance variables display the profile expected of Kenyan bank boards. Executive or officer directors occupy on average 22.00 per cent of board seats (SD = 7.12 percentage points), independent non-executive or non-officer directors 58.00 per cent (SD = 9.50 percentage points), and affiliated directors 20.00 per cent (SD = 6.08 percentage points), the three categories being exhaustive and summing to unity.

The predominance of non-executive representation reflects the board-composition requirements of the Central Bank of Kenya's prudential guidelines, while the persistence of a substantial affiliated contingent reflects the concentrated and often family-linked or state-linked ownership structures characteristic of the sector. Employee share ownership is the most asymmetrically distributed series in the table, averaging only 0.87 per cent of issued shares (SD = 2.82 percentage points) against a maximum of 10.01 per cent, confirming that formal ESOP arrangements remain concentrated in a small minority of institutions rather than being a sector-wide practice.

Summary of Descriptive Findings

Taken together, the descriptive statistics establish three points that condition the analysis which follows. First, the panel exhibits wide variation in both the dependent and the independent variable, which is a necessary condition for detecting any relationship between them. Second, the variation in fee

intensity is continuous rather than categorical: banks differ in how far they have gone toward fee income, not in whether they have gone at all, so the estimated coefficient should be read as the return to intensifying an existing strategy rather than to adopting a new one. Third, the asymmetry of the Return on Equity distribution, with its long lower tail, confirms the presence of the outlying loss years that motivated the diagnostic

testing and the decision to estimate with robust standard errors.

Correlation Analysis

Pairwise correlation analysis was conducted to establish the strength and direction of the bivariate associations among the study variables and to provide a preliminary indication of the degree of linear dependence among the predictors prior to regression. The results are presented in Table 3.

Table 3: Correlation Matrix of Study Variables

Variables	(1)	(2)	(3)	(4)	(5)	(6)
(1) ROE	1.000					
(2) esop	0.274*	1.000				
(3) officer	0.444*	0.416*	1.000			
(4) nonofficer	0.440*	-		1.000		
		0.142*				
(5) affiliated	0.629*	0.212*	0.467*	0.560*	1.000	
(6) fbisn	0.394*	0.331*		0.262*	0.398*	1.000

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

Fee-based investment strategy is positively and significantly correlated with Return on Equity ($r = .394$). The association is moderate in magnitude and unambiguous in direction, providing preliminary support for the relationship predicted by H_1 : banks deriving a larger share of operating income from fees and commissions tend to record higher returns to shareholders. The magnitude is instructive in its own right. A correlation of this order implies that fee intensity accounts for approximately 16 per cent of the observed variation in Return on Equity at the bivariate level, which is substantial for a single strategic variable yet far from deterministic. This is consistent with the position advanced in the literature review that the returns to a fee-based strategy are contingent on the institutional capacity to deliver those services efficiently rather than automatic upon their adoption (Stiroh, 2004; DeYoung & Rice, 2004).

The governance variables are each positively correlated with Return on Equity. Affiliated directors records the strongest bivariate association ($r = .629$), followed by officer directors ($r = .444$), non-officer directors ($r = .440$) and employee share ownership ($r = .274$). Fee-based investment strategy is itself positively correlated with employee share ownership ($r = .331$), affiliated directors ($r = .398$) and non-officer directors ($r = .262$), indicating that the banks which have moved furthest toward fee income are also those with broader board representation and stronger employee equity participation. This pattern is theoretically coherent the Resource-Based View predicts that the capabilities required to monetise non-lending services are institutionally bundled with governance maturity but it also establishes that the bivariate correlation between fee intensity and performance cannot be read as a causal estimate, since

the governance variables are plausible common causes of both.

Diagnostic Tests

Prior to estimation, the six diagnostic procedures were conducted to

establish that the assumptions underpinning panel regression inference are satisfied and to identify any remedial measures required. The results are summarised in Table 4.

Table 4: Summary of Diagnostic Test Results

Assumption tested	Test applied	Statistic	Decision
Normality of residuals	Joint skewness–kurtosis	$\chi^2(2) = 4.60$, $p = .1253$	Null retained; residuals normally distributed
Normality of residuals	Jarque–Bera	$JB = 4.213$, $p = .1214$	Null retained; normality confirmed
Multicollinearity	Variance Inflation Factor	All VIF < 3	No multicollinearity; no remedy required
Homoscedasticity	Breusch–Pagan/Cook–Weisberg	$p < .05$	Null rejected; robust standard errors clustered by bank applied
Serial correlation	Wooldridge test for panel data	$F(1, 38) = 1.535$, $p = .2031$	Null retained; no first-order autocorrelation
Stationarity	Fisher-type (Phillips–Perron)	$p < .05$ on all four statistics	Null of unit root rejected; all series stationary at level
Model specification	Hausman test	$p < .05$	Null rejected; fixed-effects estimator preferred

Five of the six assumptions were satisfied without adjustment. The joint skewness-kurtosis and Jarque-Bera tests both failed to reject the null hypothesis of normally distributed residuals at conventional levels, confirming the validity of the parametric significance tests reported below. All variance inflation factors fell below 3, well beneath the conventional threshold of 10 and beneath the more conservative threshold of 5, corroborating the correlation evidence that the predictors are sufficiently independent for their separate effects to be identified. The Wooldridge test failed to reject the null of no first-order serial correlation, indicating that shocks to bank performance do not persist systematically into adjacent years and that no feasible generalised least squares or panel-corrected correction is required. The Fisher-type Phillips-Perron test rejected the null of a unit root for every series at

level, establishing that the estimated relationships are genuine rather than spurious and that no differencing is necessary.

The single violation concerns homoscedasticity. The Breusch-Pagan/Cook-Weisberg test rejected the null of constant error variance, the expected outcome in a sample spanning institutions of widely differing scale, since larger and more diversified banks exhibit greater variability in returns than smaller ones. Because heteroscedasticity leaves the coefficient estimates unbiased but renders the conventional standard errors inefficient and the associated significance tests unreliable, all models were estimated with heteroscedasticity-robust standard errors clustered at the bank level. This correction additionally guards against any residual within-bank dependence not detected by the Wooldridge test.

Model Selection: Fixed versus Random Effects

The choice between the fixed-effects and random-effects estimators was determined by the Hausman specification test. The random-effects estimator is the more efficient of the two, but it is consistent only if the unobserved bank-specific effects are uncorrelated with the regressors; where that assumption fails its estimates are biased and the fixed-effects within estimator is the consistent alternative.

For Return on Equity the Hausman test rejected the null hypothesis of no systematic difference between the two sets of coefficients ($p < .05$), establishing that time-invariant bank characteristics brand equity, risk appetite, legacy market position, corporate culture and the largely stable component of ownership structure are correlated with the observed predictors. The random-effects estimator would therefore be inconsistent, and all results reported below are obtained from fixed-effects estimation. The value of $\text{corr}(u_i, Xb) = -0.0293$ reported in Table 5 quantifies this correlation as small in magnitude, but the test confirms that it is not negligible in its consequences for consistency.

This specification choice carries an important interpretive implication. Under the within estimator the coefficients are identified exclusively from variation occurring within each bank over the ten-year window. The estimated effect of fee-based investment strategy therefore answers the question of what happens to a given bank's own return on equity when that bank shifts its own revenue composition toward fee income, rather than the weaker question of

whether high-fee banks are more profitable than low-fee banks. This is the causal quantity the research question demands and constitutes the principal analytical advance of the present study over the cross-sectional designs that dominate the existing Kenyan literature.

Panel Regression Results

The study's hypothesis was tested through the hierarchical procedure. Model 1 establishes a governance baseline by regressing Return on Equity on the four control variables alone. Model 2 introduces fee-based investment strategy, so that the incremental change in explanatory power and the significance of the coefficient on that variable together constitute the test of H_1 . Both models were estimated by fixed effects with standard errors clustered at the bank level.

Model 1: Governance Baseline

Model 1 regresses Return on Equity on employee share ownership, officer directors, non-officer directors and affiliated directors. The output is reported in Table 5.

Model 1 is statistically significant overall ($F(4, 326) = 85.45, p < .001$) and accounts for 51.18 per cent of the within-bank variation in Return on Equity, with a between-bank R-squared of 0.3243 and an overall R-squared of 0.3641. The substantially higher within than between statistic confirms that the governance variables explain changes in a given bank's performance over time more successfully than they explain differences in level between banks, which is precisely the behaviour expected of a correctly specified within estimator.

Table 5: Model 1 Fixed-Effects Estimates of the Governance Determinants of Return on Equity

Fixed-effects (within) regression	Number of obs	=	368
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Group variable: firm_id

Number of groups = 38

R-squared:

Obs per group:

Within = 0.5118

min = 1

Between = 0.3243

avg = 9.7

Overall = 0.3641

max = 10

F(4, 326) = 85.45

corr(u_i, Xb) = -0.0293

Prob > F = 0.0000

ROE	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]
esop	.233	.051	4.60	0.000	.133	.332
officer	.247	.052	4.78	0.000	.146	.349
nonofficer	.546	.069	7.94	0.000	.41	.681
affiliated	-.058	.069	-0.83	0.404	-.194	.078
Constant	-0.000	.018	-0.00	1.000	-.036	.036
Mean dependent var	-0.000	SD dependent var				1.001
R-squared	0.512	Number of obs				368
F-test	85.453	Prob > F				0.000
Akaike crit. (AIC)	234.162	Bayesian crit. (BIC)				253.703

*** $p < .01$, ** $p < .05$, * $p < .1$

Note. Dependent variable: standardised Return on Equity. Estimated by fixed effects with standard errors clustered at the bank level. N = 368 bank-year observations across 38 banks.

*** $p < .01$, ** $p < .05$, * $p < .1$.

Three of the four governance variables are significant at the 1 per cent level. Non-officer directors exerts the strongest effect ($\beta = 0.546$, $SE = 0.069$, $t = 7.94$, $p < .001$, 95% CI [0.410, 0.681]): a one standard deviation increase in the proportion of independent non-executive directors is associated with a 0.546 standard deviation increase in Return on Equity. This is the single largest effect in the model and indicates that board independence is the most consequential governance determinant of shareholder returns in the Kenyan banking sector, consistent with the Agency Theory proposition that effective monitoring constrains value-destroying managerial discretion and with the Kenyan and Nigerian evidence reported by Ongore and K'Obonyo (2011) and Okoye et al. (2020).

Officer directors is also positive and significant ($\beta = 0.247$, $SE = 0.052$, $t = 4.78$, $p < .001$, 95% CI [0.146, 0.349]). The positive sign merits comment, since

Agency Theory might be read as predicting that executive presence on the board weakens oversight. The result is better interpreted through the Resource-Based View: executive directors carry operational knowledge of the bank's service platforms and customer base into strategic deliberation, and in a sector undergoing rapid technological reconfiguration that informational advantage appears to outweigh the monitoring cost. Employee share ownership is likewise positive and significant ($\beta = 0.233$, $SE = 0.051$, $t = 4.60$, $p < .001$, 95% CI [0.133, 0.332]), supporting the proposition that aligning employee incentives with shareholder interests improves performance, a mechanism of particular relevance to service-intensive revenue models that depend on front-line execution.

Affiliated directors is the only governance variable that fails to attain significance ($\beta = -0.058$, $SE = 0.069$, $t = -0.83$, $p = .404$, 95% CI [-0.194, 0.078]).

The confidence interval spans zero comfortably, and the point estimate is an order of magnitude smaller than that of non-officer directors. The implication is that directors with business, familial or political ties to the institution neither add measurable value through the resources and relationships they broker nor detract measurably from performance through compromised independence; the two countervailing mechanisms appear to offset one another within this sample. Notably, this is the variable with the strongest bivariate correlation with Return on Equity in Table 3 ($r = .629$), and its collapse to insignificance once bank-specific effects are absorbed is a direct demonstration of the confounding that the fixed-effects specification was adopted to eliminate.

The intercept is estimated at approximately zero (-0.000 , $SE = 0.018$, p

$= 1.000$, 95% CI $[-0.036, 0.036]$). This is the expected outcome when standardised variables are estimated by fixed effects: the within transformation removes each bank's own mean and standardisation centres every series on zero, so the constant absorbs no residual level and carries no substantive interpretation in this specification.

The Effect of Fee-Based Investment Strategy

The evidence bearing on the effect of fee-based investment strategy is assembled in Table 6. It combines the bivariate association with the multivariate estimates obtained when fee-based investment strategy is entered alongside the governance controls in the hierarchical specification.

Table 6: Evidence on the Effect of Fee-Based Investment Strategy on Financial Performance

Specification	Performance measure	β / r	p-value	Inference
Bivariate correlation (Table 3)	Return on Equity, standardised	$r = .394$	$< .10$	Positive and significant association
Bivariate correlation, parent study	Return on Equity, unstandardised	$r = .157$	$< .05$	Direction and significance confirmed
Hierarchical model, diversification variables with governance controls	Financial performance	$\beta = 0.590$	.117	Positive but not significant at conventional levels
Full specification, all predictors with governance controls	Financial performance	$\beta = -0.087$	.447	Not significant; sign reverses

The pattern across the four rows of Table 6 is consistent, and it constitutes the central empirical finding of this study. At the bivariate level the association between fee-based investment strategy and financial performance is positive and statistically significant, and that result is replicated in the parent study on

unstandardised data. Once estimation moves to a multivariate specification that controls for governance structure and absorbs bank-specific heterogeneity, however, the association ceases to be statistically distinguishable from zero. In the hierarchical model the coefficient remains positive but falls short of

conventional significance ($\beta = 0.590$, $p = .117$), and in the full specification it is small, negative and clearly insignificant ($\beta = -0.087$, $p = .447$). The confidence that may be placed in a positive fee-based effect therefore declines monotonically as the specification becomes more demanding.

This is not a null result in the uninformative sense. It locates the source of the bivariate association rather than merely failing to find one. The banks that generate the most fee income are, on the evidence of Table 3, also those with stronger employee share ownership ($r = .331$), broader affiliated board representation ($r = .398$) and greater board independence ($r = .262$), and by implication those with the digital infrastructure, branch and agency reach, and customer base that make non-lending services viable at scale. Once those institutional endowments are held constant, the incremental contribution of fee income itself is modest and imprecisely estimated. The Resource-Based View accommodates this reading directly. Fee-generating services are not in themselves valuable, rare and inimitable resources, since any licensed bank may levy transaction and service charges and competitors may replicate a fee schedule within a single pricing cycle. What is rare and difficult to imitate is the capability bundle that allows those services to be delivered reliably and at low marginal cost, and it is that bundle, not the fee income it produces, which the data identify as the operative source of advantage.

The result also parallels, and is corroborated by, the behaviour of affiliated directors documented. That variable records the strongest bivariate correlation with Return on Equity in the entire matrix ($r = .629$) yet collapses to insignificance once bank fixed effects are absorbed. Two of the study's variables

thus exhibit the same signature: a strong raw association that does not survive the removal of time-invariant institutional differences. This consistency is itself evidence that the fixed-effects specification is doing the work it was adopted to do, and it constitutes a direct methodological caution against the cross-sectional designs that dominate the existing Kenyan literature on income diversification, which would have reported a substantial and significant fee-based effect on this same data.

Two considerations qualify the finding. First, the multivariate estimates reported in rows 3 and 4 of Table 6 were obtained in the parent study with financial performance measured principally by return on assets, whereas the bivariate association reported in this article is computed on return on equity. Because fee income accrues to equity holders without a corresponding expansion of the asset base, a specification using return on equity as the dependent variable may yield a stronger estimate, and establishing this is the most immediate extension of the present analysis. Second, the aggregate measure of fee intensity adopted here does not distinguish between scalable, digitally delivered fee streams such as mobile and agency banking commissions and those that depend on physical infrastructure and manual processing, such as ledger fees and counter transactions. If the former enhance profitability while the latter consume the margin they generate, a composite measure would mask offsetting effects and return precisely the attenuated coefficient observed here. Disaggregation of the fee-income construct is accordingly the most promising direction for subsequent work.

Test of Hypothesis

The study advanced a single hypothesis, that fee-based investment

strategies have a statistically significant positive effect on the financial performance of commercial banks in Kenya. Applying the decision rule, the hypothesis is supported only where the

coefficient on fee-based investment strategy is positive with an associated p-value below .05. The outcome is summarised in Table 7.

Table 7: Summary of Hypothesis Test

Hypothesis	Coefficient (β)	p-value	Decision
H ₁ : Fee-based investment strategy has a statistically significant positive effect on the financial performance of commercial banks in Kenya	$\beta = -0.087$ (full specification); $\beta = 0.590$ (hierarchical)	.447; .117	Not supported

H₁ is not supported. The coefficient on fee-based investment strategy fails to attain significance at the .05 level in either multivariate specification, and in the full specification its sign is negative. The study therefore fails to reject the null hypothesis that fee-based investment strategy has no statistically significant effect on the financial performance of commercial banks in Kenya once internal governance structure and unobserved bank-specific heterogeneity are controlled. This outcome stands in deliberate contrast to the positive and significant bivariate association, and the divergence between the two is the substantive contribution of the analysis rather than an inconsistency within it.

Discussion of Findings

Fee-Based Investment Strategy and Financial Performance

The central finding of this study is that fee-based investment strategy exerts no statistically significant effect on the financial performance of Kenyan commercial banks once internal governance structure and unobserved bank-specific heterogeneity are controlled. The coefficient is positive but insignificant in the hierarchical specification ($\beta = 0.590$, $p = .117$) and

negative and insignificant in the full specification ($\beta = -0.087$, $p = .447$). H₁ is therefore not supported.

This result must be read against the strong positive bivariate association ($r = .394$), which is itself replicated on unstandardised data in the parent study ($r = .157$, $p < .05$). The banks that earn the most fee income are unambiguously the more profitable banks. What the multivariate analysis establishes is that they are not more profitable because of the fee income. The association is attributable instead to the institutional characteristics that make substantial fee generation possible in the first place: scale, digital and agency infrastructure, customer reach, brand standing and the governance maturity with which those assets are managed. When the within estimator removes every time-invariant difference of this kind, what remains of the fee effect is small and imprecisely estimated.

Three mechanisms plausibly account for this. The first is competitive erosion. Fee-based services in Kenya are technologically standardised and contractually simple, and a fee schedule can be matched by a competitor within a single pricing cycle. Where entry is easy and differentiation is limited, the rents from a service migrate to customers rather than accruing to providers, and

gross fee revenue rises without net profitability following. The second is cost absorption. Fee income is not costless income: it requires agent networks, transaction processing capacity, dispute resolution, fraud control and the compliance apparatus that accompanies high-volume retail activity. Where the marginal cost of servicing fee-generating relationships approaches the marginal revenue they produce, the effect on the bottom line is neutral by construction. The third is the limited diversification content of the measure itself. Much Kenyan fee income is generated on the same customer relationships that produce interest income, so an increase in fee intensity frequently reflects deeper monetisation of an existing book rather than genuine exposure to an uncorrelated revenue source. On this reading the Portfolio Theory rationale for diversification, which requires imperfectly correlated income streams, is only weakly satisfied in practice.

Evidence from the parent study lends direct support to the cost-absorption account and materially sharpens the interpretation. When financial performance is measured by net interest margin rather than by returns to assets or equity, fee-based income carries a large, positive and statistically significant coefficient ($\beta = 4.57$, $p = .024$). Fee-generating activity therefore does strengthen the core intermediation margin, which is consistent with cross-selling synergies in which transaction and arrangement fees complement lending to the same customers. That the same activity leaves overall profitability unchanged implies that the additional margin is consumed further down the income statement, in the operating and compliance costs of delivering the services that generate it. The strategic problem for Kenyan banks is accordingly

not one of revenue generation but of cost-to-serve.

The finding aligns this study with the more cautious strand of the international literature and against the more optimistic domestic one. Stiroh (2004) concluded that diversification into non-interest income raises gross revenue without reliably improving risk-adjusted profitability, and DeYoung and Rice (2004) found that marginal increases in non-interest income at United States banks were associated with a poorer risk-return trade-off. The present result extends that caution to an emerging-market setting in which fee income has been widely promoted as the natural institutional response to compressed lending margins following the interest rate cap. It simultaneously qualifies the positive Kenyan findings of Mwangi (2019) and Gitau and Muriu (2020). Those studies report associations of the kind reproduced in Table 3 of this article, but their cross-sectional designs cannot separate the contribution of fee income from the characteristics of the banks that generate it. The divergence between the bivariate and the within-bank estimates reported here suggests that the discrepancy in the literature is substantially methodological in origin.

Governance Structure and Financial Performance

The governance variables, entered as controls, emerged as the stronger determinants of shareholder returns and constitute a substantive finding in their own right. Board independence exerts the largest effect in the model: a one standard deviation increase in the proportion of non-officer directors is associated with a 0.546 standard deviation increase in Return on Equity ($p < .001$), which at the sample dispersion reported in Table 2 corresponds to approximately 9.5

percentage points of additional independent representation yielding some 10.5 percentage points of Return on Equity. This is a direct vindication of the Agency Theory proposition that monitoring capacity constrains value-destroying managerial discretion, and it is consistent with the Kenyan evidence of Ongore and K'Obonyo (2011) and the Nigerian evidence of Okoye et al. (2020).

The positive coefficient on officer directors ($\beta = 0.247$, $p < .001$) is at first sight less comfortable for Agency Theory, which would ordinarily treat executive presence on the board as a dilution of oversight. It is better read through the Resource-Based View. Executive directors carry operational knowledge of service platforms, pricing and customer behaviour into strategic deliberation, and in a sector undergoing rapid technological reconfiguration that informational advantage appears to outweigh the monitoring cost it imposes. The parent study reports the same variable as the strongest positive determinant of net interest margin ($\beta = 2.34$, $p < .001$), which reinforces the interpretation that insider expertise is most valuable precisely where technical pricing judgement is required. Employee share ownership is likewise positive and significant ($\beta = 0.233$, $p < .001$), supporting the proposition that aligning staff incentives with shareholder interests improves outcomes, a mechanism of particular relevance to service-intensive revenue models whose success depends on front-line execution.

A notable contrast emerges between performance measures. Non-officer directors, strongly positive for Return on Equity in this study, carry a negative coefficient for net interest margin in the parent study ($\beta = -0.40$, $p = .023$). The two results are complementary rather than contradictory. Independent directors appear to restrain the pursuit of high-yield, high-risk lending, which

compresses the intermediation margin while improving the returns that ultimately accrue to shareholders once credit losses are absorbed. Prudence is costly at the margin and profitable at the bottom line. Affiliated directors, by contrast, exert no measurable effect ($\beta = -0.058$, $p = .404$), indicating that the resource-brokerage benefits and the independence costs associated with connected board members offset one another within this sample.

The Methodological Contribution

Two of the study's variables exhibit an identical signature: a strong raw correlation with Return on Equity that does not survive the removal of time-invariant institutional differences. Affiliated directors records the highest bivariate coefficient in the entire matrix ($r = .629$) and yet is statistically indistinguishable from zero under fixed effects, and fee-based investment strategy behaves in the same way. This consistency is evidence that the estimator is performing the function for which it was selected, and it carries a methodological caution that extends beyond the present study. A cross-sectional analysis of this same data would have reported a substantial and significant fee-based effect, and would have been wrong. Given that cross-sectional and pooled designs predominate in the Kenyan literature on income diversification, the possibility that a portion of the reported positive evidence reflects unmodelled institutional heterogeneity rather than strategic effect deserves serious consideration.

Theoretical Implications

The findings refine rather than refute the theoretical framework advanced in this study. For the Resource-Based View, the result clarifies where the

boundary of a strategic resource lies. Fee-generating services do not satisfy the criteria of value, rarity, inimitability and non-substitutability in their own right: any licensed bank may levy transaction and service charges, and competitors may replicate a fee schedule almost immediately. What is rare and difficult to imitate is the accumulated capability bundle, comprising distribution reach, processing infrastructure, data and organisational routines, that permits those services to be delivered reliably at low marginal cost (Wernerfelt, 1984; Barney, 1991). The data locate the source of advantage in that bundle rather than in the revenue it produces, which is why the effect disappears when bank-specific endowments are held constant.

For Portfolio Theory, the result is a reminder that the diversification benefit is conditional rather than automatic. Markowitz (1952) establishes that combining income streams reduces variance only to the extent that those streams are imperfectly correlated. Where fee income is generated on the same customer relationships and is subject to the same macroeconomic and credit cycle as interest income, the correlation is high and the theoretical benefit correspondingly small. Diversification of revenue labels is not diversification of risk.

For Agency Theory, the evidence is strongly confirmatory and extends the framework in one respect. Board composition is shown to be a more powerful determinant of shareholder returns than the revenue strategy the board oversees, which suggests that governance structures operate not merely as a constraint on managerial opportunism but as a primary channel of value creation (Jensen & Meckling, 1976; Shleifer & Vishny, 1997). The divergent effects of independent directors on margin and on equity returns further

indicate that the value of monitoring is measure-dependent, and that studies relying on a single performance proxy risk mischaracterising the governance-performance relationship.

Conclusion

This study set out to determine whether fee-based investment strategy affects the financial performance of commercial banks in Kenya. Drawing on an unbalanced panel of 38 licensed commercial banks observed between 2015 and 2024, comprising 368 bank-year observations, and employing fixed-effects estimation with bank-clustered robust standard errors, it concludes that it does not, at least not directly and not within the horizon observed here.

Fee income is already a material component of Kenyan bank revenue, averaging 21.37 per cent of total operating income, and banks that generate more of it are demonstrably more profitable. But the profitability is attributable to the institutional capabilities that make fee generation possible rather than to the fee income itself, and the evidence that fee activity raises the intermediation margin while leaving overall returns unchanged locates the binding constraint in the cost of service delivery rather than in revenue capacity. The strategic implication is precise: expanding charges is not a route to profitability, whereas reducing the cost at which fee-bearing services are delivered may well be.

The study concludes further that internal governance structure, and board independence in particular, is a more consequential determinant of shareholder returns in Kenyan banking than the composition of the revenue base. This finding sits alongside the parent study's conclusion that traditional non-interest income streams are not yet major performance enhancers in the Kenyan

market, and it suggests that the sector's post-rate-cap reorientation toward fee income, while understandable as a response to compressed lending margins, has not yet delivered the performance dividend anticipated of it.

Recommendations

Managerial Recommendations

Four recommendations follow for bank management. The first and most important is to compete on cost-to-serve rather than on price. Because fee income strengthens the intermediation margin without improving overall profitability, the operative managerial lever is the cost of delivering fee-bearing services rather than the level of the charges themselves. Migration of transactions to digital and agency channels, straight-through processing and automated dispute resolution should accordingly be evaluated against their effect on cost-to-serve rather than on revenue alone. The second is to differentiate rather than replicate. Undifferentiated fee schedules are competed away within a pricing cycle, so banks should develop proprietary, higher-margin propositions in areas where capability barriers exist, such as trade finance structuring, custody, treasury advisory and cash-management services for corporate and institutional clients, rather than pursuing retail transaction charges as a generic diversification tactic.

The third recommendation is to measure fee lines on a fully loaded basis. The absence of a net profitability effect alongside a positive margin effect indicates that fee revenue is being reported without full attribution of its servicing, technology and compliance costs, and banks should adopt activity-based costing for fee product lines so that genuinely accretive services can be distinguished from those that merely

recycle cost into revenue. The fourth concerns governance. Board independence carries the largest estimated effect on shareholder returns in this study, so boards should protect and, where composition permits, expand independent non-executive representation, while retaining sufficient executive presence to preserve the operational expertise that the evidence also shows to be valuable. Related to this, the positive and significant employee share ownership coefficient, set against a sector mean of only 0.87 per cent of issued shares, identifies a governance instrument that is both effective and substantially underused in Kenyan banking.

Policy Recommendations

For regulators, the findings carry four implications. The first concerns the calibration of consumer-protection oversight. The Central Bank of Kenya's scrutiny of bank charges has proceeded on the implicit premise that fee income is a significant driver of bank profitability. The present evidence does not support that premise at the sector level, which suggests that transparency and disclosure requirements can be tightened without materially threatening bank earnings, and that the regulatory conversation is better directed at the fairness and clarity of charges than at their aggregate level. The second concerns board composition. Given the magnitude of the estimated independence effect, the board-composition provisions of the prudential guidelines are a more powerful instrument for sector performance and stability than is generally recognised, and merit both strengthening and closer supervisory monitoring.

The third implication concerns operating infrastructure. Because the constraint identified in this study is operational rather than commercial,

policy that reduces the unit cost of retail financial transactions, including shared payment infrastructure, interoperability between providers and proportionate compliance requirements for low-value transactions, would do more to render fee-based strategies profitable than measures aimed at revenue expansion. The fourth concerns disclosure. The disaggregation of non-interest income on which this study depends was available for only a subset of institutions, and standardised reporting of non-interest income components would materially improve both supervisory oversight and the quality of evidence available to inform sector policy.

Limitations of the Study

Four limitations qualify the findings. First, the multivariate estimates on which the hypothesis test rests were obtained in the parent study with financial performance measured principally by return on assets, whereas the bivariate evidence presented in this article is computed on return on equity. Because fee income accrues to equity holders without a corresponding expansion of the asset base, a specification employing return on equity as the dependent variable may yield a stronger estimate, and confirming this is the most immediate extension of the present analysis. Second, the fee-income construct is aggregate and does not distinguish scalable, digitally delivered streams from those dependent on physical infrastructure and manual processing; if these carry opposing effects, a composite measure would mask them and return precisely the attenuated coefficient observed.

Third, the fixed-effects estimator, while it eliminates bias from time-invariant heterogeneity, discards between-bank variation altogether and cannot identify the effect of

characteristics that are stable over the observation window, including most of the capability endowments that the discussion above identifies as decisive. Fourth, the study relies on secondary accounting data, which measure realised outcomes rather than strategic intent and are subject to the classification discretion permitted under the reporting standards.

Suggestions for Further Research

Five extensions of this work suggest themselves. The most promising is disaggregation of the fee-income construct: separating digitally delivered fee streams, such as mobile and agency banking commissions, from branch-dependent and manually processed fees would test the cost-to-serve explanation advanced here directly. Closely related is the explicit modelling of the cost side. Incorporating the cost-to-income ratio, or estimating a cost-efficiency frontier alongside the revenue specification, would establish whether fee income is genuinely neutral at the margin or profitable before costs and unprofitable after them.

A third direction is to test for threshold and non-linear effects. The returns to fee intensity may be conditional on scale, such that only banks above a minimum level of digital and distribution infrastructure realise a positive effect, and threshold regression or an interaction between fee intensity and bank size would test this proposition. A fourth is to address endogeneity more directly than the within estimator alone permits, through lagged specifications, dynamic panel estimation or instrumental-variable approaches exploiting exogenous variation such as the timing of the interest rate cap. A fifth is comparative extension: replication across East African Community banking sectors, which differ in digital penetration and regulatory regime, would

establish whether the null effect documented here is a Kenyan phenomenon or a more general feature of fee-based diversification in emerging markets.

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