# THE COMBINED EFFECT OF FOREIGN PORTFOLIO INVESTMENT, FOREIGN DERIVATIVES INVESTMENT, AND FOREIGN EQUITY INVESTMENT ON THE FINANCIAL GROWTH OF FIRMS LISTED ON THE NAIROBI SECURITIES EXCHANGE (NSE), KENYA

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**International Academic Journal of Economics and Finance (IAJEF) | ISSN 2518-2366**

**Received:** 24th October 2026

**Published:** 24th November 2026

Full Length Research

**Available Online at:** https://iajournals.org/articles/iajef_v6_i1_413_426.pdf

**Citation:** Serem, J. K., Nyarombe, F. N., Serem, J. C. (2026). The combined effect of foreign portfolio investment, foreign derivatives investment, and foreign equity investment on the financial growth of firms listed on the Nairobi Securities Exchange (NSE), Kenya. *International Academic Journal of Economics and Finance, 6*(1), 413-426.

## ABSTRACT

This study examines the combined and instrument-specific effects of foreign portfolio investment (FPI) on the financial growth of firms listed on the Nairobi Securities Exchange (NSE). FPI is analysed through its three components, foreign equity investment, foreign debt securities investment and foreign derivatives investment, and through a composite FPI index. An explanatory longitudinal panel design was adopted within a positivist paradigm. A balanced panel of 40 NSE-listed firms observed over 2019–2024 (240 firm-year observations) was assembled from annual reports, NSE records and Capital Markets Authority-related sources. Financial growth was measured as annual net profit growth. Random-effects or fixed-effects estimators were selected using Hausman tests, with robust or Driscoll–Kraay standard errors and year effects, after diagnostic tests for heteroskedasticity, serial correlation, cross-sectional dependence and stationarity. Foreign equity investment had a negative and statistically significant effect on financial growth ($\beta = -0.098$, $p = .010$). Foreign debt securities investment had a positive and statistically significant effect ($\beta = 0.205$, $p = .010$). Foreign derivatives investment had a negative but insignificant effect ($\beta = -0.035$, $p = .632$), and so did the composite FPI index ($\beta = -0.018$, $p = .156$). Common year effects were large, with a sharp contraction in 2020 followed by recovery from 2021. Foreign portfolio capital does not affect firm financial growth uniformly. Its effect depends on the instrument through which it enters the firm. Firms, regulators and policymakers should therefore emphasise the form, cost and productive use of foreign capital rather than its volume alone. The study disaggregates FPI into equity, debt and derivatives components for NSE-listed firms and uses firm-level financial growth, rather than market returns or macroeconomic growth, as the outcome.


**Keywords:** foreign portfolio investment; foreign equity investment; foreign debt securities; foreign derivatives; financial growth; Nairobi Securities Exchange; panel data.

## INTRODUCTION

Foreign portfolio investment is widely expected to benefit listed firms. Foreign investors can deepen liquidity, improve price discovery, broaden the funding base and strengthen governance discipline, all of which should lower the cost of capital and support firm growth. Yet the evidence from emerging and frontier markets is mixed. Portfolio capital is also mobile, sensitive to global risk sentiment and prone to sudden reversal, and these features can destabilise the firms that receive it (Bekaert & Harvey, 2000; Koepke, 2019). Whether foreign capital supports or weakens firm-level growth therefore remains an empirical question that depends on the context and on the form the capital takes.

Kenya offers a useful setting. The NSE is the country's principal securities exchange and operates cash equities, debt securities and derivatives segments. It lists 64 firms across twelve sectors, all of which are subject to common IFRS-based disclosure rules and Capital Markets Authority (CMA) supervision. Foreign investors participate in its equity and debt markets, while the derivatives segment is comparatively thin (Barngetuny, 2024). Despite this participation, listed firms record uneven financial growth. Existing Kenyan studies mostly examine the effect of foreign equity flows on market returns, volatility or market capitalisation (Gachanja & Kosimbei, 2018; Koskei, 2017; Ochieng et al., 2019; Oyucho et al., 2023). Few treat firm-level financial growth as the outcome, and fewer still compare equity, debt and derivatives within a single framework.

This distinction matters because the three instruments carry different obligations. Equity confers ownership rights and dividend expectations. Debt creates contractual repayment duties and may impose financial discipline. Derivatives transfer risk and may protect value without generating growth directly. Treating FPI as one homogeneous resource may therefore hide offsetting effects that cancel each other in aggregate.

This study addresses that gap. It examines the effect of (i) foreign equity investment, (ii) foreign debt securities investment, (iii) foreign derivatives investment and (iv) a composite FPI index on the financial growth of NSE-listed firms over 2019–2024. The period includes the COVID-19 shock and recovery, which allows the analysis to separate common time effects from instrument-specific effects. The study makes three contributions. First, it provides firm-level evidence on the instrument-specific effects of foreign capital in a frontier market. Second, it shows that a composite measure can mask opposing component effects. Third, it offers practical guidance for firms and regulators on the choice and management of foreign capital.

## THEORETICAL BACKGROUND AND HYPOTHESES

### Theoretical anchors

The study draws on three complementary theories. The Efficient Market Hypothesis (Fama, 1970) implies that informed foreign participation should improve information processing and price discovery, and so lower the cost of capital and support firm growth. Its application to frontier markets is contested, because information asymmetry, thin trading and external shocks can weaken the link between market efficiency and firm-level outcomes.

Capital Flow Theory predicts that capital moves towards capital-scarce economies offering high expected returns and that such inflows support investment. Empirical regularities such as the Lucas paradox (Alfaro et al., 2008), together with the volatility of portfolio flows (Koepke, 2019), suggest that the benefits are conditional and that the type of capital matters.

Financial Intermediation Theory holds that intermediaries and financial instruments reduce transaction costs, mitigate information asymmetry, mobilise savings and channel resources to productive uses (Konstantakopoulou, 2023). It implies that debt, equity and derivatives perform different intermediation functions: funding, ownership and monitoring, and risk transfer.

### Foreign equity investment and financial growth

The monitoring and governance argument suggests that foreign equity holders improve managerial discipline and reduce information asymmetry. The opposing argument stresses short investment horizons, dividend repatriation, exposure to external sentiment and the reallocation of capital during crises. Evidence is divided. Studies in Vietnam associate foreign ownership with better financial performance during the COVID-19 period (Thi & Hieu, 2025). Research on Brazil points to a "locust foreign capital" effect, in which foreign institutional ownership is associated with lower firm value (Caixe et al., 2024). The liability of foreignness can also raise the cost of foreign equity during crises (Purkayastha & Filatotchev, 2023). Kenyan evidence concentrates on stock returns and volatility (Gachanja & Kosimbei, 2018; Koskei, 2017; Ochieng et al., 2019; Oyucho et al., 2023). Given these competing expectations, the following hypothesis is tested:

**$H0_1$:** Foreign equity investment has no statistically significant effect on the financial growth of NSE-listed firms.

### Foreign debt securities investment and financial growth

Foreign debt can relax financing constraints without diluting ownership, and its contractual nature can impose discipline on management. It also exposes firms to currency mismatch, refinancing and interest-rate risks (De Gregorio & Jara, 2024; Calomiris et al., 2022). Cross-country work on external debt suggests that the relationship with growth may be non-linear and depend on debt

levels and institutional quality (Elkhalfi et al., 2024; Nouaili, 2025). Because the net effect for NSE-listed firms is uncertain, the following hypothesis is tested:

**$H0_2$:** Foreign debt securities investment has no statistically significant effect on the financial growth of NSE-listed firms.

### Foreign derivatives investment and financial growth

Derivatives are primarily risk-management instruments. By stabilizing cash flows and protecting value, they may raise firm value indirectly, but transaction costs, limited market depth and speculative use may offset these gains (Lee, 2019; Vengesai, 2025; Wen et al., 2021). Evidence from China associates' derivatives use with higher enterprise value (Yang et al., 2022), whereas Kenyan studies of the NSE have reported mixed or positive performance associations (Nguru & Kariuki, 2018; Mwathe et al., 2025). Liquidity and regulatory constraints continue to limit the Kenyan derivatives market (Barngetuny, 2024). The following hypothesis is tested:

**$H0_3$:** Foreign derivatives investment has no statistically significant effect on the financial growth of NSE-listed firms.

### Composite foreign portfolio investment and financial growth

If the three instruments act in different directions, their combined effect may be weak or insignificant. Evidence from other African markets suggests that aggregate FPI does not necessarily drive firm- or economy-level growth (Hampande, 2017), while studies in Nigeria and other emerging markets report positive associations (Adumekwe, 2023; Sugozu et al., 2022). Evidence on the post-COVID period is also mixed (Prabheesh et al., 2023). The combined effect is therefore tested through a composite index:

**H04:** Composite foreign portfolio investment has no statistically significant effect on the financial growth of NSE-listed firms.

## METHODOLOGY

### Research design and data

The study adopted a positivist paradigm and an explanatory; ex post facto longitudinal panel design suited to testing relationships between measurable variables using existing data. The target population was the 64 firms listed on the NSE across twelve sectors. Firms were retained if they were continuously listed throughout 2019–2024, had complete annual reports allowing all variables to be measured, and showed evidence of foreign portfolio investment participation. Firms listed after 2019, delisted, suspended for much of the period or missing data for any year were excluded. Twenty-four firms failed these criteria, leaving a balanced panel of 40 firms and 240 firm-year observations.

Data were extracted from published annual reports, NSE records and CMA-related sources using a structured data extraction checklist. A research permit was obtained from the National Commission for Science, Technology and Innovation (NACOSTI). The period 2019–2024 captures the COVID-19 contraction and recovery and a phase of volatile global financial conditions.

## Measurement of variables

| Variable | Measurement |
|---|---|
| Foreign equity investment (FEI) | Foreign equity holdings ÷ total equity |
| Foreign debt securities investment (FDSI) | Foreign debt holdings ÷ total debt |
| Foreign derivatives investment (FDerI) | Foreign market value of derivatives ÷ total market value of derivatives |
| Composite FPI | Composite index constructed from the three instrument ratios |
| Financial growth (FG) | Annual net profit growth: (Net profit t − Net profit t−1) ÷ Net profit t−1 |

All variables were winsorised at the 1st and 99th percentiles to limit the influence of extreme observations.

## Estimation strategy

For each instrument, and for the composite index, financial growth was regressed on the investment variable with year dummies (2019 as the baseline):

$FG_{it} = \beta 0 + \beta 1 \cdot FPI\text{-}variable_{it} + \Sigma\, \delta_t \cdot Year_t + u_i + \varepsilon_{it}$

where i indices' firms, t indexes years, $u_i$ is the firm-specific effect and $\varepsilon_{it}$ is the idiosyncratic error. A Hausman (1978) test determined whether random-effects or fixed-effects estimation was appropriate for each model. Diagnostic tests were run before estimation: a modified Wald test for groupwise heteroskedasticity, the Wooldridge test for serial correlation, Pesaran's test for cross-sectional dependence and the Levin–Lin–Chu test for stationarity (Gujarati & Porter, 2021; Wooldridge, 2020). Because the diagnostics indicated heteroskedasticity, serial correlation and cross-sectional dependence, robust standard errors were used in the random-effects model and Driscoll–Kraay standard errors (Hoechle, 2007) in the fixed-effects models. Inference was at the 5% significance level.

# RESULTS

## Descriptive statistics and diagnostics

*Table 1. Descriptive statistics (winsorised data; N = 240, n = 40, T = 6)*

| Variable | Mean | Std. dev. | Min | Max |
|---|---|---|---|---|
| Foreign equity investment (FEI) | 0.422 | 0.244 | 0.056 | 1.000 |
| Foreign debt securities investment (FDSI) | 0.183 | 0.172 | 0.010 | 0.667 |
| Foreign derivatives investment (FDerI) | 0.729 | 0.259 | 0.0001 | 1.310 |
| Financial growth (FG) | 0.070 | 0.100 | −0.200 | 0.348 |

Mean financial growth was 7.0%, with wide dispersion across firm-years. Variation in financial growth was driven mainly by changes within firms over time (within SD = 0.070) rather than differences between firms (between SD = 0.034). Foreign debt was the least used instrument (mean 0.183) and was right-skewed, indicating that a few firms rely heavily on it. Foreign derivatives had the highest mean (0.729) and were left-skewed. Pairwise correlations among the three instruments were negligible ($|r| \leq 0.024$), which indicates no multicollinearity concern. Correlations with financial growth were weak and individually insignificant (FEI r = −0.01; FDSI r = −0.057; FDerI r = 0.117).

The diagnostics confirmed groupwise heteroskedasticity (modified Wald $\chi^2(40) = 1680.84$, $p < .001$), serial correlation (Wooldridge F (1, 39) = 4.183, p = .048) and strong cross-sectional dependence (Pesaran CD = 36.2, $p < .001$), consistent with common shocks such as COVID-19. The Levin–Lin–Chu tests rejected the unit-root null for all variables ($p < .001$), so the series were treated as stationary at levels.

## Regression results

Hausman tests favoured random effects for foreign equity ($\chi^2(1) = 1.08$, p = .300) and fixed effects for foreign debt ($\chi^2$ (1) = 4.62, p = .032), foreign derivatives ($\chi^2$ (1) = 9.62, p = .002) and the composite index ($\chi^2$ (1) = 10.84, p = .001). Table 2 summarises the direct-effect estimates.

*Table 2. Effect of foreign portfolio investment components on financial growth*

| Model | Estimator | β | Std. error | p | 95% CI | Within $R^2$ |
|---|---|---|---|---|---|---|
| Foreign equity (FEI) | RE, robust SE | −0.098 | 0.038 | .010 | [−0.172, −0.024] | 0.546 |
| Foreign debt securities (FDSI) | FE, Driscoll–Kraay | 0.205 | 0.050 | .010 | [0.076, 0.335] | 0.543 |
| Foreign derivatives (FDerI) | FE, Driscoll–Kraay | −0.035 | 0.068 | .632 | [−0.209, 0.140] | 0.540 |
| Composite FPI | FE, Driscoll–Kraay | −0.018 | 0.011 | .156 | [−0.045, 0.010] | 0.542 |

N = 240 firm-years across 40 firms. All models include year dummies (2019 baseline). Within $R^2$ values are driven largely by the common year effects and should not be read as the explanatory power of the investment variables alone. Model-level tests: equity Wald $\chi^2(6) = 322.99$, $p < .001$; debt $F(6, 5) = 16.57$, $p = .004$; derivatives $F(6, 5) = 0.26$, $p = .934$; composite $F(6, 5) = 2.78$, $p = .141$.

**Foreign equity investment (H01).** Foreign equity investment had a negative and statistically significant effect ($\beta = -0.098$, SE = 0.038, $p = .010$). H01 is rejected. Firm-specific differences accounted for only about 7% of the variance in financial growth ($\rho = 0.070$).

**Foreign debt securities investment (H02).** Foreign debt securities investment had a positive and statistically significant effect ($\beta = 0.205$, SE = 0.050, $p = .010$). H02 is rejected. The fixed-effects estimator identifies this effect from within-firm changes over time. The random-effects estimate in the Hausman comparison was negative (−0.057) against a fixed-effects estimate of 0.389, which suggests that the positive effect emerges when firms are compared with themselves over time rather than with one another.

**Foreign derivatives investment (H03).** Foreign derivatives investment had a negative and statistically insignificant effect ($\beta = -0.035$, SE = 0.068, $p = .632$). The model-level F test was also insignificant ($p = .934$), so H03 cannot be rejected and the model has little explanatory power beyond the year effects.

**Composite FPI (H04).** The composite index had a negative and statistically insignificant effect ($\beta = -0.018$, SE = 0.011, $p = .156$). H04 cannot be rejected.

## Year effects

The year effects were large and consistent across all models. Relative to 2019, financial growth contracted sharply in 2020 and rebounded in 2021. In the composite model, the year coefficients were −0.147 (2020), 0.083 (2021), 0.029 (2022), 0.012 (2023) and 0.008 (2024), all statistically

significant. Common macro-level shocks therefore explain far more of the variation in firm financial growth than any single foreign investment variable.

***Table 3. Summary of hypothesis tests***

| Hypothesis | Variable | β | p | Decision |
|---|---|---|---|---|
| H01 | Foreign equity investment | −0.098 | .010 | Rejected |
| H02 | Foreign debt securities investment | 0.205 | .010 | Rejected |
| H03 | Foreign derivatives investment | −0.035 | .632 | Not rejected |
| H04 | Composite FPI | −0.018 | .156 | Not rejected |

## DISCUSSION

### Foreign equity: a cost as well as a source of capital

The negative effect of foreign equity on financial growth runs against the expectation, derived from the Efficient Market Hypothesis and monitoring arguments that informed foreign owners improve outcomes. It is consistent with evidence that foreign institutional capital can carry costs for the firm (Caixe et al., 2024; Purkayastha & Filatotchev, 2023). Plausible channels include dividend repatriation, pressure for short-term returns and costly compliance with the disclosure expectations of foreign owners. These mechanisms were not directly tested here and should be read as interpretations rather than findings. The result also sits alongside Kenyan studies that find positive links between foreign equity flows and market returns (Gachanja & Kosimbei, 2018; Oyucho et al., 2023). Together, the evidence suggests that foreign equity may support share prices and liquidity while constraining the internal growth of firm profits. The result is also consistent with the Lucas paradox view that capital inflows do not automatically translate into growth (Alfaro et al., 2008).

The large negative year effect for 2020 suggests that foreign equity was not a stabilising force during the COVID-19 shock. This contrasts with Vietnamese evidence of a stabilising role (Thi & Hieu, 2025) and is consistent with the view that foreign investors withdraw or reprice risk in crises.

### Foreign debt: productive but conditional capital

Foreign debt securities were the only component with a positive and significant effect. This is consistent with the intermediation view that contractual, non-dilutive funding provides a structured channel for mobilising capital towards productive uses, and with the argument that debt can impose discipline on management. The within-firm identification noted above suggests that firms grew faster in years when they relied more on foreign debt than in years when they relied less, which is not the same as saying that heavy borrowers outperform light borrowers. Cross-country evidence that the debt–growth relationship can be non-linear (Elkhalfi et al., 2024; Nouaili, 2025) and the currency and refinancing risks documented for emerging-market corporate borrowers (Calomiris

et al., 2022; De Gregorio & Jara, 2024) point to the need for caution. The result describes the average experience of surviving NSE firms during a six-year window and does not establish that more foreign debt is always better.

### Foreign derivatives: risk management rather than growth

The insignificant effect of foreign derivatives is consistent with their primary role as risk-management tools, which protect value rather than generate growth (Lee, 2019). It also fits evidence that derivatives use can be neutral or harmful where speculation dominates hedging (Vengesai, 2025; Wen et al., 2021). It differs from studies that report positive associations in China and in earlier Kenyan work (Yang et al., 2022; Nguru & Kariuki, 2018). Differences in sample period, measurement and estimation may explain the divergence. The thinness and regulatory limits of the Kenyan derivatives market (Barngetuny, 2024) are an additional possible reason why derivatives show little growth effect. The weak model-level fit also means this result should be interpreted cautiously.

### Why the composite index is insignificant

The insignificant composite effect is consistent with opposing component effects. A negative equity effect, a positive debt effect and a near-zero derivatives effect can offset one another in a single index, which supports the argument that FPI should not be treated as a homogeneous resource. The finding is consistent with African evidence that aggregate FPI does not necessarily drive internal growth (Hampande, 2017) and differs from studies reporting positive associations elsewhere (Adumekwe, 2023; Sugozu et al., 2022). The composite result should be read as a statement about this particular index and period rather than as proof that foreign portfolio capital is irrelevant.

## CONCLUSIONS

This study examined the combined and instrument-specific effects of foreign portfolio investment on the financial growth of 40 NSE-listed firms over 2019–2024. Three conclusions follow. First, foreign equity investment was negatively and significantly associated with financial growth, which suggests that the benefits of foreign equity participation, such as liquidity and price discovery, may coexist with costs that constrain firm-level growth. Second, foreign debt securities investment was positively and significantly associated with financial growth, which marks it as the only component that supported growth directly. Third, foreign derivatives investment and the composite FPI index had no statistically significant effect, which is consistent with derivatives acting mainly as risk-management tools and with offsetting component effects in aggregate FPI.

The central message is that foreign portfolio capital is not a homogeneous resource. Its association with firm growth depends on the instrument through which it enters the firm. Common shocks, most visibly the 2020 contraction and the rebound that followed, explain more of the variation in firm growth than any single foreign investment variable.

## IMPLICATIONS AND RECOMMENDATIONS

The following implications are drawn from the associations reported above and should be read with the limitations in Section 8.

**For listed firms.** Firms should treat foreign equity as strategic capital rather than a signal of investor confidence alone. Boards should seek investors with long horizons and balance dividend expectations against the retention needed for reinvestment. Foreign debt should be directed to projects whose returns exceed financing costs, and borrowing should be matched to project cash flows in maturity and currency, with hedging and stress-testing in place. Derivatives should be managed as insurance with a clear policy on the exposure being hedged, rather than as a source of growth. Firms should also hold liquidity buffers and diversified funding sources to withstand systemic shocks of the kind seen in 2020.

**For regulators and policymakers.** The CMA and the NSE should consider measures that deepen the corporate bond market, such as simpler issuance procedures, stronger credit-rating mechanisms and greater transparency, because foreign debt showed the clearest positive association with growth. They should also improve derivatives market depth and liquidity, and require clear disclosure of whether derivatives are used for hedging or speculation. Disclosure of the currency composition and maturity of foreign debt, and of how foreign equity proceeds are deployed, would help investors and regulators distinguish productive capital from short-term flows. Policy should emphasise the quality, stability and productive use of foreign capital rather than the volume of inflows.

**For investors.** Foreign investors in NSE-listed firms should recognise that the growth consequences of their holdings differ by instrument, and that instrument choice is a material determinant of the outcomes they can expect for investee firms.

## LIMITATIONS AND FUTURE RESEARCH

Several limitations qualify these findings. First, the models relate financial growth to each investment variable with year effects only and include no firm-level controls such as size, leverage, age or sector. The estimates are therefore associations and may reflect omitted variables or reverse causality, for example if faster-growing firms attract particular types of foreign capital. Second, the panel is short (T = 6) and balanced, and the 24 excluded firms may differ systematically from the 40 retained. Third, Driscoll–Kraay standard errors are designed for panels with a long-time dimension (Hoechle, 2007), and with six periods the model-level F tests rest on very few degrees of freedom, so p-values near the 5% threshold should be treated with caution. Fourth, the period includes the COVID-19 shock, whose large year effects dominate the within-firm variation. Fifth,

financial growth is measured as net profit growth, which is volatile when profits are small, and the investment variables are ratios whose construction depends on the disclosure quality of annual reports. Finally, the composite index aggregates three instruments with different scales and meanings.

Future research should add firm-level controls and test for endogeneity using dynamic panel methods such as GMM, extend the observation window beyond the pandemic period, and compare NSE firms with those on other East African and COMESA exchanges. Studies could also examine conditioning factors such as financial inclusion, corporate governance, exchange-rate volatility and regulatory quality, and test directly the channels proposed here, including dividend repatriation, investor horizon and hedging practice.

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