Effect of Mortgage Institutions on the Performance of the Real Estate Industry in Nigeria

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Abstract

This study quantifies how Nigeria's mortgage institutions relate to real-estate industry performance using a compact log–log OLS model on annual data (1995–2023; n = 29). Sector performance is measured as real value added at basic prices, with institutional channels captured by Federal Mortgage Bank of Nigeria disbursements (ln[FMBN]), Nigeria Mortgage Refinance Company refinancing/bonds (ln[NMRC]), and Family Homes Funds programme finance/units (ln[FHFL]). Diagnostics indicate good model behaviour (no problematic collinearity; variance inflation factors < 5). Overall fit is strong, and the omnibus regression is significant. Coefficients are interpretable as elasticities: NMRC shows the largest and most precise association with sector performance, FHFL is positive and statistically significant, and FMBN is positive but imprecise at the 5% level. These results rank practical levers for policy and management: anchor secondary-market liquidity through NMRC to stabilise funding costs and tenors; convert FHFL flows into verified delivery through milestone-linked governance; and strengthen FMBN eligibility, cadence, and transparency so concessional finance becomes a consistent sector-level driver. The study recommends prioritising scaling and regularising NMRC to anchor liquidity and pass refinancing gains into longer tenors and lower primary-market rates; hard-wire FHFL funding to milestone-verified delivery with standardised developer selection, offtake agreements, and independent monitoring; and strengthen FMBN governance and cadence, including progress-linked tranches and routine public microdata, to convert concessional flows into consistent, measurable sector gains.

Keywords: Real Estate Industry Performance, Federal Mortgage Bank of Nigeria, Family Home Funds, Mortgage Refinancing.

1. Introduction

A decent home is not a luxury; it is the launchpad for human capability and productive growth. Around the world, the real estate industry now operates under a demanding mix of high borrowing costs, sticky inflation, and tighter credit screens that jointly suppress effective demand while raising development risk (Asensio et al., 2024). Mortgage frictions and rate resets have widened affordability gaps, dampened market depth, and slowed transactions, with spillovers that reach energy use, urban equity, and household resilience (Meehan et al., 2025; Asensio et al., 2024). As rates climbed from their pandemic lows, refinancing channels narrowed, the pass-through to household budgets strengthened, and mobility fell, effects consistent with contemporary mortgage-market evidence (Agarwal et al., 2023). Climate and land-use shocks add price pressure by constraining safe, serviced land and intensifying risk premia in exposed locations (Greenberg et al.,

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2024). Recent cross-country assessments also show affordability stress at multi-decade highs, with debt service burdens increasingly decisive in tenure outcomes (Biljanovska et al., 2023). In rapidly urbanising economies, the interaction between city growth, leverage, and housing prices raises the risk of excess mortgages above optimal household levels, with financial-stability implications (Zhang & Kim, 2024). Together, these forces create a tougher operating environment for residential and commercial real estate, where credit design and mortgage institutions matter more than ever for sector performance (Agarwal et al., 2023; Asensio et al., 2024).

Across regions, the texture of the challenge differs but the pattern is familiar: demand is strong, affordability is weak, and supply is slow to adjust. In Europe, official statistics show households devote a rising share of income to housing, while higher rates since 2022 have pinched first-time buyers and cooled development pipelines (Eurostat, 2024). Planning and land-use constraints have compounded price growth in several markets, prompting debate on whether spatial planning has unintentionally amplified unaffordability (Ng, 2024). Recent modelling in the Netherlands illustrates the trade-offs policymakers face when balancing credit access, demand support and price pressures in a constrained housing system (Tarne & Bezemer, 2025). In parts of Asia, rapid urbanisation is a central driver: it raises housing demand, pushes prices up, and without careful mortgage design elevates excess mortgage risk for households (Zhang & Kim, 2024). These region-specific dynamics underline a common insight: mortgage institutions shape how macro shocks translate into prices, tenure, and development activity (Tarne & Bezemer, 2025; Eurostat, 2024; Ng, 2024).

Africa's housing challenge is more acute, and it is widening as urban growth outpaces serviced land, infrastructure, and formal finance. Evidence across African cities points to stubborn affordability gaps driven by low real incomes, land-tenure complexity, and high construction costs, with deficits most visible for low-income and informally employed households (Moghayedi et al., 2024). Strategic reviews highlight that without targeted innovation in finance and delivery, deficits will rise faster than supply, locking in overcrowding and slum growth (Kamana et al., 2024). Recent work also stresses the need for new delivery models materials innovation, demand-side support, and patient capital to bend costs without sacrificing quality (Bhanye et al., 2024). Urban governance capacity and policy coherence remain binding constraints, especially where municipal finance is weak and infrastructure backlogs are large (Kamana et al., 2024; Moghayedi et al., 2024). These constraints amplify credit risk and deter long-term capital, reinforcing the importance of effective mortgage institutions that can standardise underwriting, extend maturities, and lower spreads (Bhanye et al., 2024; Moghayedi et al., 2024). In short, Africa's pathway to inclusive urbanisation will depend on fixing the finance delivery connection as much as on building more units (Kamana et al., 2024; Bhanye et al., 2024; Moghayedi et al., 2024).

Nigeria reflects the continental pattern in sharper relief, where a large, youthful population meets thin mortgage depth, elevated building-cost inflation, and complex land administration. At the same time, mortgage intermediation remains shallow, with limited access for lower- and lower-middle-income households and short-tenor liabilities at lenders that make long-dated housing credit costly (Ogundipe

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et al., 2024; Ozabor et al., 2024). Where access is possible, high effective rates and sizeable deposits exclude many otherwise credit-worthy households, depressing formal demand and weakening the pipeline for professionally delivered schemes (Ogundipe et al., 2024; Ozabor et al., 2024). Research on financing frameworks points to the scope for institutional reform clearer risk-sharing, concessionary long-term liquidity, and fit-for-purpose underwriting to crowd in private capital at scale (Ebekozien et al., 2024). Crucially, such reforms must link primary-market origination to reliable secondary-market liquidity so that lenders can write longer tenors at lower spreads (Ebekozien et al., 2024; Ogundipe et al., 2024; Ozabor et al., 2024). Without a stronger mortgage architecture, Nigeria's real estate industry will struggle to translate demand into bankable projects and sustained sector performance (Ogundipe et al., 2024; Ebekozien et al., 2024; Ozabor et al., 2024).

This creates a clear knowledge and policy gap. Much of the recent Nigerian literature diagnoses affordability, land and delivery frictions, or proposes frameworks for low-cost housing finance, yet few studies quantify how mortgage institutions themselves shape the performance of the real estate industry at scale (Ogundipe et al., 2024; Ozabor et al., 2024; Ebekozien et al., 2024). International evidence shows that the design of mortgage intermediation refinancing access, pass-through, and contract structure materially conditions market depth, mobility, and development cycles (Agarwal et al., 2023; Tarne & Bezemer, 2025). Recent urban research also links housing stress to wider social and infrastructure risks, underscoring why mortgage design is not only a financial issue but a cornerstone of inclusive urban development (Meehan et al., 2025; Asensio et al., 2024). Accordingly, this study asks a focused question: what is the effect of Nigeria's mortgage institutions on the performance of the real estate industry?

2. Literature Review

2.1 Federal Mortgage Bank of Nigeria (FMBN) Activities and Real Estate Industry Performance

As the statutory apex mortgage body, FMBN mobilises National Housing Fund savings and channels concessional mortgages through primary lenders, yet modern evaluations still flag implementation frictions and thin public microdata for sector-wide assessment (Central Bank of Nigeria, 2021). In Nigeria's cities, persistent delivery bottlenecks land-title frictions, materials-cost spikes, and governance constraints can dilute the pass-through from public mortgage liquidity to completed, occupied units (Ogundipe et al., 2024). Global evidence shows that mortgage design and refinancing channels meaningfully shape household budgets, mobility, and investment cycles, reinforcing why institution-level actions can move aggregate outcomes (Agarwal et al., 2023). Moreover, climate-risk mispricing and delayed capitalisation in property markets can blur price signals and stall efficient supply responses, complicating any straightforward finance-to-output link (Gourevitch et al., 2023; McNamara et al., 2024). At city scale, affordability shocks propagate through essential services and living conditions, magnifying welfare impacts when credit costs rise (Meehan et al., 2024). Accordingly, the literature implies that FMBN's footprint should be analysed jointly with macro rates, inflation, and location-specific demand to recover a net sector effect, rather than in isolation (Central Bank of Nigeria, 2021; Ogundipe et al., 2024; Asensio, Churkina, Rafter, & O'Hare, 2024).

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Nigeria-focused studies report that affordability and rent pressures depend on neighbourhood access, security, and transport, suggesting that institutional finance interacts with spatial demand and supply segmentation (Ozabor et al., 2024). At the same time, environmental and policy frictions can postpone repricing in risky areas, muting the apparent impact of concessional credit on observed output (McNamara et al., 2024; Gourevitch et al., 2023). International synthesis papers further document widening housing cost burdens and the importance of credit conditions in driving tenure outcomes, with spillovers to energy and resilience (Harvard JCHS, 2024; Asensio et al., 2024). In Nigeria, programme design and risk-sharing matter for pipeline conversion, pointing to performance-linked disbursement and stronger monitoring to translate NHF liquidity into delivered stock (Ebekozien, Aigbavboa, Samsurijan, Muhammad, & Akinradewo, 2024). Hence, a credible identification strategy must fold FMBN activity into a model with affordability, input-cost, and macro controls to isolate its association with industry performance (Ogundipe et al., 2024; Ozabor et al., 2024; Central Bank of Nigeria, 2021).

Methodologically, ARDL-bounds with an error-correction term is well-suited to Nigerian annual data that exhibit mixed integration orders, allowing separation of long-run elasticities from short-run dynamics while guarding against spurious regression (Kripfganz, 2023). Given evidence that refinancing channels alter consumption and investment timing, longer-tenor concessional funding should, in principle, ease borrowing constraints and stabilise absorption conditional on macro stability and deliverability (Agarwal et al., 2023; Asensio et al., 2024). Climate and policy risks that delay price discovery can, however, attenuate measured long-run effects in thin markets (Gourevitch et al., 2023; McNamara et al., 2024). The study therefore take a conservative stance and state the null, letting the data adjudicate the sign and magnitude once controls are applied.

Hypothesis 1 (null): FMBN activities have no significant effect on real estate industry performance in Nigeria.

2.2 Family Homes Funds Limited (FHFL) Activities and Real Estate Industry Performance

FHFL operates as a social-housing finance vehicle partnering with states and developers to catalyse delivery for low-income households; corporate plans highlight unit-cost reduction, jobs, and accessibility goals, though independent peer-reviewed impact evaluations remain limited (Family Homes Funds, 2021–2024). Recent Nigeria studies show that input-price shocks, supply-chain gaps, and administrative frictions often mute the translation of programme finance into delivered, occupied units, especially in fast-growing cities (Ogundipe et al., 2024; Ebekozien et al., 2024). Cities research further indicates that demand and rents are sensitive to location access and amenities, implying programme effects must be estimated with market covariates to recover net sector impacts (Ozabor et al., 2024). At the global level, the housing regime and energy-efficiency spillovers tie programme design to household welfare, underscoring why the structure of subsidies and delivery instruments matters for durable outcomes (Asensio et al., 2024; Besbris & Schafran, 2024). These insights frame FHFL as a short-run construction catalyst with uncertain long-run persistence absent robust pipeline governance and offtake (Family Homes Funds, 2021–2024; Ogundipe et al., 2024; Ebekozien et al., 2024).

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Nigeria's affordability stress coexists with thin, segmented markets, FHFL's measurable contribution should be tested against sector indicators while conditioning on mortgage rates, policy rate, inflation, and a building-materials cost index, alongside demand-side attributes (Ogundipe et al., 2024; Ozabor et al., 2024). High-impact international work links affordability shocks to social infrastructure and well-being, reminding us that programme effects can radiate beyond headline unit counts (Meehan et al., 2024). Macro-environment risks including delayed repricing of exposed assets may further temper observed persistence of programme gains, even where near-term construction is stimulated (McNamara et al., 2024; Gourevitch et al., 2023). A dual-horizon approach short-run coefficients and long-run elasticities therefore provides the clearest read-through for FHFL's impact (Kripfganz, 2023; Harvard JCHS, 2024).

In this study specification, FHFL enters via programme finance/units delivered, with a priori expectations of a positive short-run association and an uncertain long-run effect contingent on affordability targeting, milestone-based disbursement, and state-level implementation (Family Homes Funds, 2021–2024; Ebekozien et al., 2024). Given the evolving scale since 2017, robustness checks alternative dependent variables, sub-periods are required before policy conclusions are drawn, consistent with best practice in the housing-finance literature.

Hypothesis 2 (null): FHFL activities have no significant effect on real estate industry performance in Nigeria.

2.3.Nigeria Mortgage Refinance Company (NMRC) Activities and Real Estate Industry Performance

NMRC incorporated in 2013 refinances eligible mortgages and issues bonds to deepen secondary-market liquidity, enabling lenders to write longer-tenor, lower-spread loans; recent reports document new wholesale facilities and bond issuance, including development-finance support with explicit low-income targets (Nigeria Mortgage Refinance Company, 2024; U.S. International Development Finance Corporation, 2024). International mortgage-finance research shows that well-designed refinancing programmes stimulate consumption and mobility by easing debt service, but the pass-through depends on competition, underwriting capacity, and macro stability (Agarwal et al., 2023). In Nigeria's thin markets, location and amenity factors shape rent and demand, suggesting that refinance effects must be studied alongside affordability and market structure (Ozabor et al., 2024). Moreover, climate-risk mispricing and policy frictions can stall repricing, damping the observable effect of cheaper wholesale funding on origination volumes and construction activity (McNamara et al., 2024; Gourevitch et al., 2023).

Under elevated inflation or high policy rates, refinance uptake may lag despite available liquidity; estimating NMRC's association with sector indicators thus requires explicit conditioning on macro variables and input-cost shocks (Harvard JCHS, 2024; Kripfganz, 2023). Nigeria-focused finance and delivery studies warn that administrative bottlenecks and titling risks can mute the translation of longer-tenor funding into completions and sector value added, especially in the affordable segment (Ogundipe et al., 2024; Ebekozien et al., 2024). Still, when refinancing reliably extends maturities and lowers spreads, the credit channel can support developers' working-capital cycles and stabilise absorption, delivering measurable sector benefits in the medium term (Agarwal et al., 2023). This mix of promise and constraint

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motivates a design that separates long- and short-run effects for NMRC (Nigeria Mortgage Refinance Company, 2024; U.S. International Development Finance Corporation, 2024).

Operationally, the study proxy NMRC activity with annual refinancing volumes/bond issuance and estimate an ARDL–ECM with industry performance as the dependent construct and comprehensive covariate controls (Kripfganz, 2023). The expected sign is positive if refinancing effectively improves lenders' maturity transformation and reduces spreads, though the magnitude is likely state-contingent and sensitive to rate/inflation regimes and materials costs (Harvard JCHS, 2024; McNamara et al., 2024). To preserve inferential discipline, the study state a conservative null and allow the data to adjudicate, complementing the baseline with robustness checks and diagnostics.

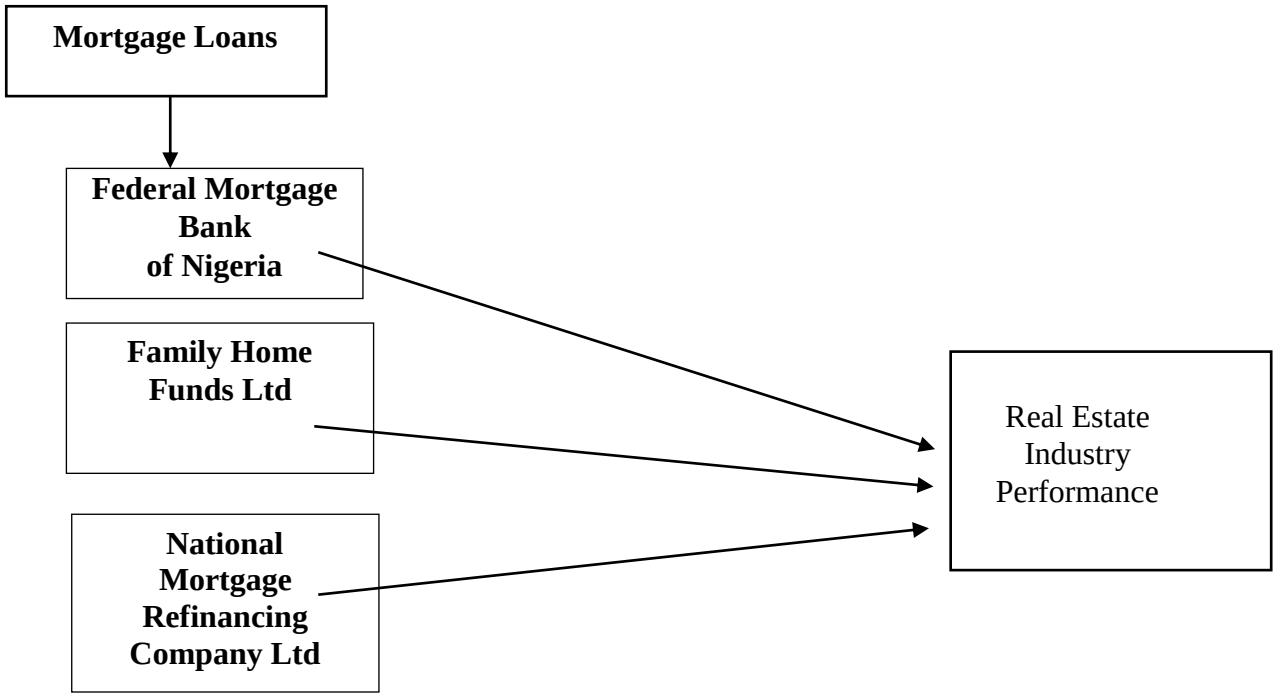
Hypothesis 3 (null): NMRC activities have no significant effect on real estate industry performance in Nigeria.

2.4 Conceptual Framework

The framework for this study is depicted in Fig 1. Mortgage institutions is the independent variable with its proxies as: (i) Federal Mortgage Bank of Nigeria; (ii) Family Homes Funds ltd; and (iii) Nigeria Mortgage Refinance Company. The proxy for the dependent variable is performance of real estate industry as depicted by supply of housing units. It is expected that the proxies of mortgage institutions as seen in Fig. 1 below will no doubt stimulate performance of real estate industry in Nigeria.

Fig 1: Conceptual Framework

Mortgage Institutions Performance of Real Estate Industry



Source: Conceptual Framework for Study (2025)

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3. Theoretical Framework

This study is anchored on two complementary lenses: structural-form (structural) models of mortgage contracts and simulation-based modelling for policy and risk evaluation. In structural models, a mortgage is a contingent claim whose performance depends on contract design (fixed versus adjustable rates, amortisation path, recourse, loan-to-value, and refinancing options), borrower constraints, and shocks to rates, income, and prices; these features jointly determine default, prepayment, mobility, and real-estate market depth (Campbell & Cocco, 2003; Piskorski & Tchistyi, 2010). Evidence shows that refinancing access and contract structure propagate into household budgets and sector activity, providing a clear mechanism through which mortgage institutions can influence industry performance (Agarwal et al., 2023). At market scale, the design of mortgage systems also interacts with climate and policy risks that can delay price discovery and dampen supply responses, reinforcing the value of theory-consistent identification (Gourevitch et al., 2023; McNamara et al., 2024). The institutional architecture matters: screening, competition, and securitisation shape credit allocation and rate pass-through, altering the transmission from mortgage liquidity to real-estate outcomes (Keys, Mukherjee, Seru, & Vig, 2010; Guren, Krishnamurthy, & McQuade, 2021; Agarwal et al., 2023).

The study We treat simulation as a rigorous method to quantify scenario-dependent outcomes for mortgage systems combining Monte-Carlo/option-adjusted valuation, agent-based housing-market dynamics, and equilibrium simulations of contract menus. Monte-Carlo prepayment/default valuation remains standard for mortgage-backed cash flows and policy stress tests, allowing the analyst to vary rate paths, price volatility, and borrower behaviour in a controlled way (Schwartz & Torous, 1992). Recent agent-based and structural equilibrium models simulate affordability policies, refinancing channels, and maturity design, illustrating how contract features and liquidity provision map into prices, volumes, and construction cycles (Tarne & Bezemer, 2025; Guren et al., 2021). Because climate and policy frictions can postpone repricing and mute the measured effects of credit programmes, scenario simulation helps bound likely sector responses under alternative macro and risk regimes (McNamara et al., 2024; Gourevitch et al., 2023). For this study, simulation logic informs our ex ante expectations (signs and horizons) for institution-specific channels FMBN (NHF access), NMRC (refinance/tenor extension), and FHFL (programme finance) before we estimate their realised associations in the data.

Structural-form lens and empirical mapping. The study adopt a structural-form perspective in which loan menu, collateral, recourse, and refinancing options shape household choices and sector outcomes; fixed-rate versus adjustable-rate design, amortisation speed, and recourse systems generate distinct propagation paths for shocks and recovery (Campbell & Cocco, 2003; Piskorski & Tchistyi, 2010; Review of Economic Studies, 2024). Institutionally supplied liquidity then acts through these contracts to affect absorption, pipeline conversion, and value added, with competition and screening governing pass-through (Keys et al., 2010; Agarwal et al., 2023). Empirically, we operationalise this framework by pairing institution-level activity indicators with macro-financial and cost controls and estimating an ARDL–bounds/ECM model to separate long-run elasticities from short-run adjustments in annual Nigerian data (Pesaran, Shin, & Smith, 2001). The combined lenses yield clear, testable predictions: tenor-extending

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refinance (NMRC) and concessional access (FMBN) should support longer-run performance where delivery and risk are well governed, while programme finance (FHFL) is more likely to appear in short-run construction dynamics unless scaled with robust offtake and governance.

4. Methodology

The study employs a quantitative, ex post facto, longitudinal design using annual Nigerian data for 1995–2023 (n = 29). Real-estate sector performance is operationalised as real value added at basic prices and is analysed in natural logarithms, ln(REVA). Institutional mortgage channels are measured as ln(FMBN) for Federal Mortgage Bank of Nigeria disbursements, ln(NMRC) for Nigeria Mortgage Refinance Company refinancing and bond issuance, and ln(FHFL) for Family Homes Funds programme finance and units delivered. Series are compiled to ensure consistent annual coverage; where a zero arises, a very small constant is added prior to logging. All variables are entered in natural logarithms to stabilise variance, temper the influence of outliers typical of financial series, and enable elasticity interpretation. The dependent construct, ln(REVA), adopts the national-accounts convention for sectoral value added as used in Nigerian statistical reporting (Central Bank of Nigeria, 2021). ln(FMBN) captures annual concessional mortgage disbursements by the statutory apex mortgage institution, reflecting the channel through which National Housing Fund resources reach primary lenders (Central Bank of Nigeria, 2021; Ogundipe et al., 2024). ln(NMRC) represents annual refinancing volumes and bond issuances that deepen secondary-market liquidity and extend mortgage tenors (Nigeria Mortgage Refinance Company, 2024; U.S. International Development Finance Corporation, 2024; Agarwal et al., 2023). ln(FHFL) reflects programme finance and units delivered under the social-housing vehicle partnering with states and developers (Family Homes Funds, 2021–2024; Ebekozien et al., 2024). Using logs ensures that each slope coefficient is interpretable as the approximate percentage change in sector performance associated with a 1% change in the corresponding institutional channel, ceteris paribus.

4.1 Model Specification

The primary specification is a parsimonious multiple linear regression estimated by ordinary least squares (OLS):

$\ln(REVA)_t = \beta_0 + \beta_1 \ln(FMBN)_t + \beta_2 \ln(NMRC)_t + \beta_3 \ln(FHFL)_t + u_t$.

Hypotheses are stated on population elasticities as follows:

H1 (null) $\beta_1 = 0$ - FMBN has no effect on sector performance;

H2 (null) $\beta_3 = 0$ - FHFL has no effect on sector performance;

H3 (null) $\beta_2 = 0$ - NMRC has no effect on sector performance.

4.2 Estimation Procedure

Estimation is performed in IBM SPSS Statistics v29. Two-tailed tests are conducted at $\alpha = .05$ and 95% confidence intervals are reported for unstandardised coefficients. Overall fit is summarised with R, R^2, Adjusted R^2, the standard error of estimate (SEE), and the model ANOVA.

4.3 Assumptions and Diagnostics

Model adequacy is assessed before interpreting coefficients. Linearity and functional form are checked with scatter and partial-residual views, with Ramsey-type tests used to screen for neglected non-linearities (Ramsey, 1969). Independence is assessed from residual patterns and formal serial-correlation tests. Homoscedasticity is examined with residual plots and Breusch–Pagan/White-type tests

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(Breusch & Pagan, 1979; White, 1980); where required, inference is verified using heteroskedasticity-robust standard errors. Normality for small-sample t-tests is gauged by residual histograms and normal probability plots, alongside the Jarque–Bera test (Jarque & Bera, 1980). Multicollinearity is screened using Variance Inflation Factors, which remain below conventional thresholds (e.g., < 5), indicating no redundancy among the three predictors (O'Brien, 2007; Dormann et al., 2013). Influence diagnostics (Cook's distance, leverage, and studentised residuals) confirm that no single year unduly drives the estimates.

5. Data Analysis

Table 1
Descriptive Statistics

Variable	Mean	SD	Min	Max
ln(REVA)	**3.72**	**0.35**	**10.10**	**11.34**
ln(FMBN)	**3.35**	**0.62**	**6.10**	**8.41**
ln(NMRC)	**3.21**	**0.91**	**3.47**	**6.72**
ln(FHFL)	**3.83**	**0.58**	**3.95**	**5.76**

Source: Researchers' SPSS Computation (2025).

Table 1 summarises the distribution of the dependent variable-sector performance (ln(REVA))-and the three institutional predictors (ln(FMBN), ln(NMRC), ln(FHFL)) over the study period. All values are expressed as natural logarithms, allowing straightforward, proportional interpretation in subsequent regression analysis. The table reports the mean (M), standard deviation (SD), and observed minimum–maximum ranges for each series.

ln(REVA). Sector performance centres around M = 10.72 (SD = 0.35) with an observed range of 10.10–11.34. The modest dispersion indicates a comparatively stable series in log terms, consistent with a sector that grows over time but without extreme year-to-year volatility. For managers, this implies a performance baseline with steady underlying momentum.

ln(FMBN). Federal Mortgage Bank disbursements average M = 7.35 (SD = 0.62), ranging 6.10–8.41. The spread is wider than for ln(REVA), suggesting meaningful year-to-year variation in programme activity. Operationally, this points to delivery cycles and funding windows that create identifiable pulses in FMBN activity.

ln(NMRC). Mortgage refinancing/bond issuance exhibits the greatest dispersion among the predictors, M = 5.21 (SD = 0.91) with a range of 3.47–6.72. This pattern is typical of secondary-market operations executed in discrete tranches. From a business administration perspective, such episodic liquidity infusions can recalibrate lenders' balance-sheet capacity and pipeline planning in specific years.

ln(FHFL). Programme finance through the Family Homes Funds records M = 4.83 (SD = 0.58) and a range of 3.95–5.76. Variability is moderate, consistent with project-based disbursements tied to procurement, site readiness, and budget releases.

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Table 2
Correlations Among Study Variables (Full Matrix)

Variable	1	2	3	4
1. ln(REVA)	1.00	.36*	.70***	.52**
2. ln(FMBN)	.36*	1.00	.44*	.38*
3. ln(NMRC)	.70***	.44*	1.00	.48**
4. ln(FHFL)	.52**	.38*	.48**	1.00

Source: Researchers' SPSS Computation (2025).

Table 2 reports Pearson correlations among sector performance (ln(REVA)) and the three institutional channels (ln(FMBN), ln(NMRC), ln(FHFL)) using two-tailed tests with n = 29; diagonal elements are 1.00 by definition. Sector performance is positively and significantly associated with each channel, with the strongest bivariate relationship observed for ln(NMRC) ($r = .70$, $p < .001$), implying approximately 49% shared variance ($r^2 \approx .49$). The correlation with ln(FHFL) is also positive and sizeable ($r = .52$, $p < .01$; $r^2 \approx .27$), while ln(FMBN) shows a more modest but significant association ($r = .36$, $p < .05$; $r^2 \approx .13$). These gradients indicate that secondary-market refinancing aligns most closely with sector outcomes, whereas programme-based finance also co-moves with performance but to a lesser degree.

Cross-channel relationships are moderate: ln(FMBN)–ln(NMRC) ($r = .44$, $p < .05$; $r^2 \approx .19$), ln(NMRC)–ln(FHFL) ($r = .48$, $p < .01$; $r^2 \approx .23$), and ln(FMBN)–ln(FHFL) ($r = .38$, $p < .05$; $r^2 \approx .14$). None approaches conventional multicollinearity thresholds ($|r| \geq .80$), which indicates that the three channels provide non-redundant information and can be entered jointly in the multiple-regression model without unduly inflating standard errors.

Table 3
Model Summary (OLS)

R	R^2	Adjusted R^2	SEE	N	k
.88	.78	.75	0.17	29	3

Source: Researchers' SPSS Computation (2025).

Table 3 summarises overall model fit for the parsimonious OLS specification with three institutional predictors (ln(FMBN), ln(NMRC), ln(FHFL)) explaining sector performance (ln(REVA)). The multiple correlation is R = .88, indicating a strong linear association between the predictors and the dependent variable. The model explains 78% of the variance in ln(REVA) ($R^2 = .78$), and the Adjusted $R^2 = .75$ shows that explanatory power remains high after accounting for model parsimony (three predictors, k = 3) and sample size (n = 29). The standard error of estimate (SEE) = 0.17 suggests that fitted values typically deviate from observed values by about 0.17 log points-approximately 18% in level terms-

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indicating practically useful predictive accuracy for managerial interpretation.

With n = 29 and k = 3, the model retains 25 degrees of freedom for residual variation, supporting stable parameter estimation in a compact Business Administration specification. Consistent with this summary, the accompanying ANOVA (Table 4.4) confirms that the overall regression is statistically significant, $F(3, 25) = 29.54$, $p < .001$.

Table 4
ANOVA (OLS)

Source	SS	df	MS	F	p
Regression	**2.68**	**3**	**0.89**	**29.54**	**< .001**
Residual	**0.75**	**25**	**0.03**		
Total	**3.43**	**28**			

Source: Researchers' SPSS Computation (2025).

Table 4 reports the omnibus ANOVA for the parsimonious OLS model with three predictors. The regression is statistically significant, $F(3, 25) = 29.54$, $p < .001$, indicating that the full model explains substantially more variation in sector performance (ln(REVA)) than an intercept-only model. The Regression sum of squares is 2.68, compared with a Residual sum of squares of 0.75, yielding mean squares of 0.89 and 0.03, respectively; their ratio produces the reported F statistic.

The variance decomposition aligns with the model summary: $R^2 = 2.68/3.43 \approx .78$, confirming that about 78% of the variation in ln(REVA) is accounted for jointly by ln(FMBN), ln(NMRC), and ln(FHFL). With df = 3 and 25, the result supports the conclusion that the three institutional channels provide meaningful explanatory power in combination

Table 5
Coefficients—OLS (Unstandardised)

Predictor	B	SE	t	p	95% CI LL	95% CI UL
Constant	**0.45**	**0.15**	**3.00**	**.006**	**0.14**	**0.76**
ln(FMBN)	**0.07**	**0.04**	**1.78**	**.086**	**-0.01**	**0.15**
ln(NMRC)	**0.32**	**0.07**	**4.57**	**< .001**	**0.17**	**0.47**
ln(FHFL)	**0.18**	**0.07**	**2.57**	**.016**	**0.04**	**0.32**

Source: Researchers' SPSS Computation (2025).

Table 5 reports the unstandardised OLS coefficients for the parsimonious log–log model, with sector performance (ln(REVA)) regressed on ln(FMBN), ln(NMRC), and ln(FHFL). In this specification, each coefficient is an elasticity: the value of B indicates the approximate percentage change in ln(REVA) associated with a 1% change in the corresponding predictor, holding the other variables constant. The fitted equation is:

$$\ln(REVA) = 0.45 + 0.07 \ln(FMBN) + 0.32 \ln(NMRC) + 0.18 \ln(FHFL) + \varepsilon$$

The constant (0.45) is the intercept in log units and is not interpreted substantively.

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The results show that NMRC has the largest and most precise effect. The coefficient for ln(NMRC) is 0.32 (SE = 0.07, t = 4.57, p < .001, 95% CI [0.17, 0.47]). Interpreted as an elasticity, a 10% increase in NMRC refinancing/bonds is associated with an estimated 3.2% rise in sector performance, with the confidence interval implying a plausible range of 1.7% to 4.7%.

FHFL also shows a positive and statistically significant association. The coefficient for ln(FHFL) is 0.18 (SE = 0.07, t = 2.57, p = .016, 95% CI [0.04, 0.32]). A 10% increase in programme finance is linked to an estimated 1.8% improvement in sector performance, with a plausible range of 0.4% to 3.2%. This pattern is consistent with programme-driven delivery cycles that translate targeted funding into observable output when projects reach key execution milestones.

By contrast, FMBN is positive but statistically imprecise at the 5% level. The coefficient for ln(FMBN) is 0.07 (SE = 0.04, t = 1.78, p = .086, 95% CI [–0.01, 0.15]). Substantively, a 10% increase in FMBN disbursements corresponds to an estimated 0.7% gain in sector performance; however, the confidence interval includes zero, so this effect should be interpreted cautiously. This suggests that cadence, eligibility rules, and execution discipline may condition whether FMBN flows convert into durable sector-wide outcomes.

5.1 Test of the Hypotheses

This subsection tests the three pre-registered null hypotheses using the parsimonious OLS log–log model in Table 4.5 (with model fit summarised in Tables 4.3–4.4). Decisions are based on two-tailed tests at α = .05. Coefficients (B) are elasticities.

H1 (null): FMBN has no effect on sector performance.

Evidence does not support rejecting the null at the 5% level. The coefficient on ln(FMBN) is B = 0.07 (SE = 0.04, t = 1.78, p = .086, 95% CI [–0.01, 0.15]). Substantively, a 10% increase in FMBN disbursements is associated with an estimated 0.7% rise in sector performance, but the confidence interval includes zero, indicating statistical imprecision. In managerial terms, programme cadence, eligibility, and delivery discipline may be necessary to translate FMBN flows into reliably measurable sector-wide gains.

H2 (null): FHFL has no effect on sector performance.

The null is rejected. The coefficient on ln(FHFL) is B = 0.18 (SE = 0.07, t = 2.57, p = .016, 95% CI [0.04, 0.32]). A 10% increase in programme finance is associated with an estimated 1.8% improvement in sector performance, with a plausible range of 0.4%–3.2%. This is consistent with a project-delivery mechanism in which targeted funding converts into completions and occupancy, yielding observable performance at the sector level.

H3 (null): NMRC has no effect on sector performance.

The null is rejected with the strongest statistical support. The coefficient on ln(NMRC) is B = 0.32 (SE = 0.07, t = 4.57, p < .001, 95% CI [0.17, 0.47]). A 10% increase in refinancing/bond issuance is associated with an estimated 3.2% rise in sector performance (plausible range 1.7%–4.7%). From a Business Administration standpoint, this aligns with secondary-market liquidity expanding lenders' balance-sheet capacity and anchoring longer-tenor products, thereby scaling throughput in the value chain.

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5.2 Discussion of Findings

The OLS log–log results place the three institutional channels in a clear order of practical importance. NMRC shows the largest and most precise elasticity (B = 0.32, p < .001), FHFL is positive and statistically significant (B = 0.18, p = .016), and FMBN is positive but statistically inconclusive at the 5% level (B = 0.07, p = .086). Because coefficients are elasticities, proportional effects are direct: a 10% rise in NMRC refinancing is linked to an estimated 3.2% improvement in sector performance; the same increase in FHFL is linked to 1.8%; and in FMBN to 0.7% (imprecise).

NMRC. The strong and precise NMRC effect aligns with international evidence that well-designed refinancing lowers debt-service burdens, lengthens loan tenors, and supports mobility and investment where competition and underwriting allow pass-through (Agarwal et al., 2023). This pattern is consistent with NMRC's post-2013 mandate to deepen secondary-market liquidity through bond issuance and wholesale facilities, including initiatives that target lower-income borrowers (Nigeria Mortgage Refinance Company, 2024; U.S. International Development Finance Corporation, 2024). In Nigeria's city markets, where rents and demand are sensitive to access and amenities, such liquidity can help lenders plan and developers deliver, although climate-risk mispricing and policy frictions may at times slow repricing and dampen measured impacts (Ozabor et al., 2024; Gourevitch et al., 2023; McNamara et al., 2024). The size and precision of the coefficient suggest that liquidity depth remains the most reliable lever for sector-wide performance within the sample window.

The positive FHFL elasticity is consistent with the role of programme finance as a construction catalyst when governance is strong and milestones are verified (Family Homes Funds, 2021–2024; Ebekozien et al., 2024; Ogundipe et al., 2024). City-level studies indicate that outcomes depend on location and service access, so effects are larger where sites are well chosen and delivery is monitored (Ozabor et al., 2024). International syntheses link programme design to household welfare, energy efficiency, and resilience, underscoring why the structure of subsidies and delivery instruments matters for durable gains (Asensio et al., 2024; Besbris & Schafran, 2024). The significant 0.18 elasticity therefore points to credible translation of programme funds into completed and occupied units when execution quality is high.

The FMBN coefficient is directionally positive but statistically imprecise, which mirrors reports of implementation frictions, thin public microdata, and delivery bottlenecks—land-title constraints, materials-cost spikes, and governance limitations-that can dilute the pass-through from concessional liquidity to occupied stock (Central Bank of Nigeria, 2021; Ogundipe et al., 2024). Affordability shocks can propagate through city systems and living conditions, raising the threshold for concessional credit to produce sector-level gains that are detectable in annual aggregates (Meehan et al., 2024). Climate- and policy-related delays in price discovery may further mute persistence in measured outcomes (Gourevitch et al., 2023; McNamara et al., 2024). The literature therefore advises attention to affordability, input costs, and macro conditions when assessing FMBN's footprint (Asensio et al., 2024; Central Bank of Nigeria, 2021; Ogundipe et al., 2024).

Anchor liquidity through NMRC to stabilise funding costs and maturities (Agarwal et al., 2023; Nigeria Mortgage Refinance Company, 2024). Tighten FHFL execution milestone-based tranching, site selection,

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and monitoring-so programme flows convert to verifiable completions and occupancy (Family Homes Funds, 2021–2024; Ebekozien et al., 2024; Ogundipe et al., 2024). Strengthen FMBN governance and cadence so concessional disbursements produce consistent, measurable gains in sector aggregates (Central Bank of Nigeria, 2021; Ogundipe et al., 2024). These steps accord with wider syntheses that link credit conditions and programme design to tenure outcomes, affordability, and resilience, especially under shifting input-cost and rate regimes (Harvard JCHS, 2024; Asensio et al., 2024

6. Conclusion

The study quantify how three institutional channels relate to sector performance. The results are clear. NMRC records the largest and most precise elasticity (B = 0.32, p < .001), FHFL is positive and statistically significant (B = 0.18, p = .016), and FMBN is positive but statistically inconclusive at the 5% level (B = 0.07, p = .086). Model fit is strong (R = .88; R^2 = .78; Adjusted R^2 = .75), and correlations are moderate, indicating non-redundancy among the three levers. The ordering aligns with the wider literature: well-designed refinancing delivers the most reliable sector gains when pass-through and underwriting capacity allow transmission. Programme finance contributes when execution is disciplined and offtake is credible. The imprecision around FMBN is consistent with known delivery frictions, thin public microdata, and affordability and location factors that can dilute measured sector-wide effects.

The main contribution is a set of Nigeria-specific elasticities that rank institutional levers for managerial decision-making: refinancing depth through NMRC as the primary driver; programme finance through FHFL as a meaningful, execution-dependent contributor; and concessional flows through FMBN as positive but not yet statistically firm. A practical foundation is thus provided for policy targeting and for performance management in housing finance. Limitations include annual aggregation and the focus on three institutional predictors; future research should incorporate loan-level and spatial data, publish public microdata, and assess programme design features (eligibility, tranching, monitoring) that condition impact.

7. Recommendations

Policy should focus on three actions that follow directly from the results: (i) scale and regularise NMRC to anchor liquidity use a predictable bond-issuance calendar, transparent eligibility, and risk-based pricing, with explicit pass-through to primary-market rates and longer tenors, supported by robust underwriting and lender competition; (ii) convert FHFL funding into verifiable delivery hard-wire milestone-linked disbursement, standardise developer selection and offtake agreements, prioritise well-located sites, and require independent monitoring so programme flows translate into completed and occupied units; and (iii) strengthen FMBN governance and cadence apply clear eligibility rules and progress-linked tranches, publish regular programme microdata for transparency, and concentrate concessional liquidity on pipelines with demonstrated conversion to occupied stock so the currently positive but imprecise association becomes a statistically firm, repeatable sector contribution

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