IJCRSSSL International Journal of Current Researches in Sciences, Social Sciences and Languages

Volume: 04 | Issue: 04 | 2024 | Open Access | Impact Factor: 5.735

The Role of Interest Rate Volatility in Shaping Commercial Real Estate Financing Decisions: A Central Bank Perspective: a case study of Nigeria

Musa Mustapha Babayo[1], Sani Inusa Milala[2]

[1]National Information Technology Development Agency (NITDA), [2]Faculty of Technology Management and Business

Abstract: Capital formation (CF) and commercial real estate financing (CREF) are critical components of economic growth, especially in developing economies like Nigeria. Despite their significance, the influence of macroeconomic factors such as inflation, interest rates, exchange rates, and economic growth on these constructs remains inadequately explored, particularly in the context of Nigerian real estate. Understanding these relationships is vital for fostering economic development and attracting investments in the sector. This study aims to bridge the gap by analyzing how key macroeconomic variables affect CF and CREF in Nigeria. Such insights are necessary for policymakers to design effective strategies that stimulate real estate investment, thus driving economic growth and sustainability. The study investigates the effects of inflation, interest rates, exchange rates, and economic growth on capital formation and commercial real estate financing in Nigeria, with the goal of enhancing real estate investment decisions. A quantitative research approach was used, employing structural equation modeling (SEM) to examine the relationships between the macroeconomic factors and the two constructs capital formation and commercial real estate financing. Data were collected through surveys administered to real estate investors, financial institutions, and policymakers. A sample of 302 respondents was selected using stratified random sampling to ensure a representative cross-section of the Nigerian real estate sector. The data was analyzed using SEM to determine the strength and significance of the relationships. The questionnaire contained both closed and open-ended questions, addressing the perceived impact of macroeconomic factors on capital formation and commercial real estate financing. The study reveals that macroeconomic variables significantly influence capital formation and commercial real estate financing, with inflation and interest rates having the most substantial impact. The findings emphasize the need for targeted economic policies to foster investment in Nigeria's real estate sector.

Keywords: Capital formation, commercial real estate financing, macroeconomic factors, inflation, interest rates, exchange rates, economic growth, real estate investment.

INTRODUCTION

The commercial real estate sector plays a crucial role in economic development, particularly as it relates to investment, job creation, and infrastructure development. One of the key factors influencing the financing of commercial real estate projects is central bank policy, particularly its management of interest rates. Interest rates, as a monetary policy tool, directly affect the cost of borrowing for developers and investors in the real estate sector, influencing investment decisions and the overall stability of the property market. In countries like Nigeria, central bank interest rate fluctuations have profound implications for credit access, with lenders adjusting their terms in response to the broader macroeconomic environment (Samson & Olaolu, 2023; Otty et al., 2023).

The ability of commercial real estate developers to secure financing is influenced not only by the prevailing interest rates but also by the regulations set forth by the central bank. Interest rate volatility, a common feature of developing economies, often increases the uncertainty in the financing environment, making it harder for real estate developers to make long-term investment decisions (Akpan et al., 2023).

All rights are reserved by IJCRSSSL.

High interest rates can discourage investment, leading to reduced capital inflows into the real estate sector, which, in turn, affects the broader economy. On the other hand, lower interest rates may encourage investment but also pose risks related to over-leveraging and market overheating (Nebolisa & Udobi, 2024).

The Nigerian real estate market, for example, has seen varying responses to changes in central bank policies, with developers often adjusting their strategies based on the anticipated movement of interest rates and credit access (Guobadia et al., 2024). While some research has highlighted the macroeconomic factors influencing investment decisions, such as inflation and exchange rates (Osuka et al., 2024), the direct impact of interest rate changes on commercial real estate financing remains underexplored. This gap presents an opportunity to investigate the specific ways in which central bank policies, particularly interest rate decisions, affect the commercial real estate financing landscape.

In examining the dynamics of central bank policy and its effects on real estate financing, it is critical to understand the intricate relationship between interest rate fluctuations and credit accessibility for developers. Research shows that central bank policies often operate in tandem with banking sector regulations, influencing the level of liquidity available for investment in the real estate sector (Luyali, 2024; Dlamini & Mashau, 2023). Furthermore, the way banks interpret and respond to central bank directives—whether in terms of loan approvals, interest rate setting, or risk assessments—also determines the real estate sector's ability to attract capital.

Given the complexity of these interactions, this research seeks to explore how central bank interest rate policies shape commercial real estate financing, focusing on the role of credit access, investment risks, and long-term market stability. By analyzing the Nigerian context, alongside international case studies, this study aims to offer valuable insights for policymakers and industry stakeholders on how to balance interest rate management with sustainable investment in commercial real estate.

The impact of central bank policies, particularly interest rate fluctuations, on commercial real estate financing remains a crucial area of investigation, especially in developing economies like Nigeria. Interest rates, as one of the most powerful tools in monetary policy, influence lending conditions, investment decisions, and the overall economic climate. However, despite the wealth of research on the relationship between macroeconomic variables and real estate development, a clear understanding of how central bank interest rate decisions specifically affect credit access for commercial real estate development has yet to be fully explored. Existing studies have primarily focused on broader economic variables such as inflation, money supply, and exchange rates, leaving a significant gap in understanding the direct effects of interest rate movements on the real estate financing sector (Samson & Olaolu, 2023; Osuka et al., 2024).

Previous studies have shed light on how macroeconomic factors like inflation and exchange rates affect investment decisions in real estate, but there has been limited focus on interest rates as a direct influencer of real estate financing. For instance, Samson and Olaolu (2023) analyze the role of macroeconomic variables in property development in Kwara State, Nigeria, but do not delve deeply into how interest rate fluctuations specifically affect real estate financing and investment decisions. Similarly, Otty et al. (2023) explore factors driving real estate investment decisions in South-East Nigeria, yet they do not isolate interest rates as a primary determinant in the financing of commercial real estate projects. These studies, while valuable, fail to address the complex interaction between central bank interest rate policies and the accessibility of credit for commercial real estate investors, particularly in the context of a volatile economic environment.

Moreover, Akpan et al. (2023) explore the relationship between interest rate volatility and investment returns in commercial real estate in Uyo, Akwa Ibom State, Nigeria, but the focus is largely on the returns rather than the underlying financing mechanisms. This leaves a gap in understanding how commercial banks respond to interest rate changes and how this impacts the flow of credit to the real estate sector. The effect of monetary policy tools on the banking sector's willingness to lend to real estate developers remains under-explored, particularly regarding the implications for long-term project financing

All rights are reserved by IJCRSSSL.

(Guobadia et al., 2024). In addition, while some studies, such as those by Luyali (2024) and Dlamini & Mashau (2023), examine the broader impact of macroeconomic factors on mortgage growth and banking sector performance, they do not directly link these factors to commercial real estate investment and financing. This gap is particularly significant in emerging markets where the real estate sector is highly sensitive to changes in interest rates and credit availability. Thus, there is a clear need for a focused study that examines the specific effects of central bank interest rate policies on commercial real estate financing. This study will address the existing research gap by exploring how central bank rate decisions influence credit access, borrowing costs, and investment decisions in the commercial real estate sector, with a particular focus on the Nigerian market. By bridging this gap, the research will contribute valuable insights into the nexus between monetary policy and real estate financing, providing recommendations for both policymakers and investors in navigating the challenges posed by interest rate volatility.

OBJECTIVES OF THE STUDY

The objectives of this study are as follows:

- To analyze the impact of central bank interest rate fluctuations on commercial real estate financing.
- To assess the relationship between interest rate movements and investment decisions in the commercial real estate sector.
- To evaluate the response of commercial banks to interest rate changes in their lending policies for real estate development.
- To assess the mediating effect of capital formation in the relationship between macroeconomic factors (interest rates, inflation, economic growth, and exchange rates) and commercial real estate financing in Nigeria.

LITERATURE REVIEW

INTEREST RATES AND COMMERCIAL REAL ESTATE FINANCING

Interest rates are one of the most influential macroeconomic factors affecting commercial real estate financing. Akpan, Aniedi, and Raphael (2023) investigate the relationship between interest rate volatility and the rate of return on commercial real estate investments in Uyo, Akwa Ibom State, Nigeria. Their study highlights that fluctuations in interest rates have a significant impact on investment returns in commercial real estate, as they influence the cost of financing and overall property value. Similarly, Otty, Egolum, and Oladejo (2023) analyze the factors driving investment decisions in South-East Nigeria, noting that interest rates directly affect the financial viability of real estate investments, particularly for private investors. While these studies provide valuable insights into the effects of interest rates on investment returns, they do not explore how these rate fluctuations influence the financing decisions made by commercial banks or other financial institutions. Samson and Olaolu (2023) extend this understanding by focusing on the role of macroeconomic variables, including interest rates, in property development in Kwara State, Nigeria. Their findings suggest that interest rates play a key role in shaping investment decisions, as higher interest rates lead to increased costs of financing, thereby reducing the attractiveness of real estate development. However, like the previous studies, their focus is on the broader investment environment, without specific emphasis on the financing mechanisms in the commercial real estate sector.

MONETARY POLICY AND REAL ESTATE FINANCING

Monetary policy, particularly central bank interest rate decisions, plays a crucial role in determining the financing environment for commercial real estate. Dlamini and Mashau (2023) explore the effects of monetary policy instruments, such as central bank lending rates, on economies, with a particular focus on the Kingdom of Eswatini. While their study offers useful insights into the broader implications of

All rights are reserved by IJCRSSSL.

monetary policy, it does not address the direct impact on commercial real estate financing. Guobadia, Etim, and Mfon (2024) discuss the impact of monetary policy instruments on Nigeria's construction sector, focusing on money supply, inflation rate, exchange rate, and interest rates. Although their work provides valuable insights into the effects of monetary policy on construction, it does not specifically address the financing mechanisms used by commercial real estate developers or how these instruments directly affect the cost of capital in the real estate sector. Luyali (2024) offers a more focused examination of how macroeconomic factors, including interest rates, influence mortgage growth financing by commercial banks in Kenya. Luyali's study suggests that changes in central bank interest rates affect the affordability and accessibility of mortgages, thereby influencing real estate financing. However, the study predominantly looks at residential markets, leaving a gap in understanding how similar mechanisms might work in commercial real estate.

ECONOMIC GROWTH AND REAL ESTATE FINANCING

Economic growth and the availability of financing are closely linked. Studies such as Mutuku (2023) on real estate development and human capital in Kenya highlight the role of economic growth in boosting real estate investments. Economic growth typically leads to increased demand for commercial properties, which can influence both property prices and the availability of financing. However, the relationship between economic growth and commercial real estate financing is complex and depends on various macroeconomic factors, including interest rates and inflation. Nebolisa and Udobi (2024) discuss the challenges of international investment in real property portfolios, focusing on metropolitan cities in Nigeria. They suggest that economic volatility, driven in part by macroeconomic factors such as interest rates, presents a significant challenge to real estate investment, as it creates uncertainty around the cost of financing. Their research underscores the importance of stable economic conditions for attracting both domestic and foreign real estate investment. Similarly, Rebecah (2023) investigates how economic factors, including interest rates, influence housing price volatility in Nakuru and Kiambu counties in Kenya. Although the study focuses on residential properties, it highlights the broader economic context in which interest rates affect property values, which in turn impacts the financing decisions made by investors and developers. This is relevant to understanding how economic factors influence real estate financing in commercial markets as well.

INTEREST RATES AND CAPITAL FORMATION

Interest rates are also closely linked to capital formation, a key component of real estate development financing. Osuka, Otiwu, and Elizabeth (2024) examine the relationship between interest rates and capital formation in Nigeria, providing insights into how changes in interest rates affect the availability of capital for investment. Their findings suggest that high interest rates can lead to reduced investment in capital-intensive sectors, including real estate development, by increasing the cost of borrowing. This has direct implications for the financing of commercial real estate projects, as developers may find it more difficult to secure affordable capital during periods of high interest rates. This is supported by Zhang, Liang, and Lee (2023), who explore how central bank transparency affects systemic risk and, by extension, capital markets. Their study suggests that central banks' actions, including interest rate decisions, have a profound impact on the stability of capital markets and the availability of financing for real estate development. Understanding this dynamic is crucial for assessing the impact of central bank policies on commercial real estate financing.

THE ROLE OF CENTRAL BANK REGULATIONS

Central bank regulations, particularly in the context of monetary policy, significantly influence the financial sustainability of the real estate sector. Aliyu et al. (2023) focus on the regulatory framework governing microfinance banks in Nigeria, offering insights into how central bank regulations affect the broader financial system. While their research is not specific to commercial real estate financing, it

All rights are reserved by IJCRSSSL.

provides an understanding of how central bank policies shape the financial landscape, which ultimately affects the availability of financing for all sectors, including real estate. Furthermore, Ifurueze (2022) examines the impact of monetary policy instruments on the performance of the financial sector in Nigeria. The study underscores the importance of central bank actions, including interest rate changes, in shaping the overall financial environment, which in turn affects the availability of financing for commercial real estate projects. Central bank regulations thus play a vital role in determining how financing is structured and accessed within the real estate sector.

CONCEPTUAL FRAMEWORK

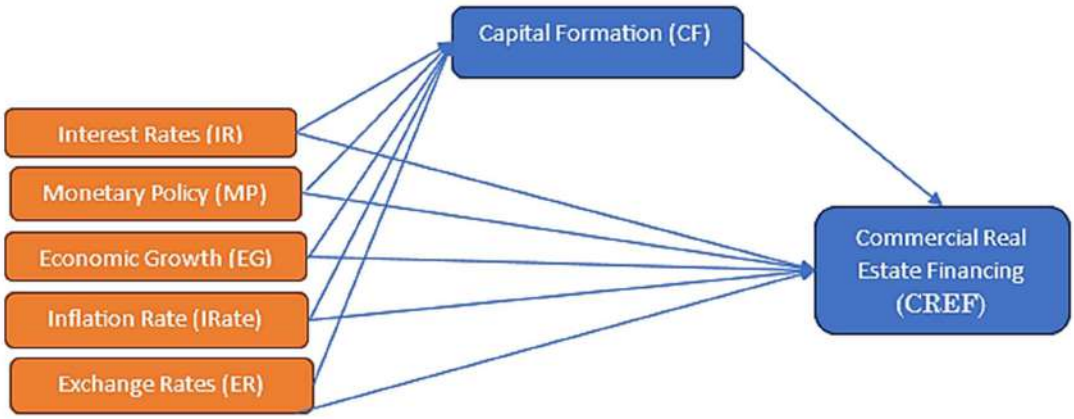

Figure 1: Conceptual Framework

METHODOLOGY

This study adopts a quantitative research methodology to investigate the relationship between interest rates, macroeconomic factors, and commercial real estate financing in Nigeria, with a focus on the mediating effect of capital formation. The following outlines the approach taken in this study.

The research design employed in this study is descriptive and causal-comparative, as it aims to explore the relationship between independent variables (interest rates, monetary policy, economic growth, inflation rate, and exchange rates) and the dependent variable (commercial real estate financing), while also examining the mediating role of capital formation. This design allows for the quantification of the relationships and the exploration of causal links using statistical techniques.

The target population for this study consists of real estate developers and financial experts from banks across three major cities in Nigeria Abuja, Lagos, and Port Harcourt. These cities were selected due to their prominence in the real estate and financial sectors in Nigeria. The total population of real estate developers and financial experts in these cities is approximately 1,400. The study uses a sample size of 302 respondents. This sample size was determined using Yamane's (1967) formula for sample size calculation, which ensures a statistically significant representation of the population. The sample consists of individuals directly involved in real estate development and financing, including developers, project managers, and financial experts from commercial banks.

To select the sample, simple random sampling was employed. This technique ensures that each member of the population has an equal chance of being selected, which helps to minimize selection bias and enhances the representativeness of the sample. Respondents were randomly selected from lists of real estate developers and financial experts in the three cities. Data was collected through structured questionnaires designed to capture relevant information regarding the perceptions and experiences of real estate developers and financial experts concerning macroeconomic factors and their impact on

All rights are reserved by IJCRSSSL.

commercial real estate financing. The questionnaire includes both closed-ended and Likert scale questions to gather quantitative data on the following: Interest rates and their perceived impact on financing decisions, Monetary policy and its effects on real estate development, Economic growth and its relationship with real estate financing, Inflation rate and its influence on real estate investment, Exchange rate and its effect on foreign investment in real estate, Capital formation as a mediating factor .The survey instrument was pre-tested with a small group of respondents to ensure its reliability and validity before the main survey was conducted.

The data collected was analyzed using Smart PLS (Partial Least Squares Structural Equation Modeling), which is suitable for analyzing complex relationships and testing mediation effects. Smart PLS was chosen because it allows for the estimation of multiple relationships simultaneously, making it ideal for testing the hypothesized paths between independent variables, mediating variables, and the dependent variable.

Descriptive Statistics: Used to summarize the demographic characteristics of the sample and the general trends in the data. Structural Equation Modeling (SEM): Used to test the structural relationships between the macroeconomic factors, capital formation, and commercial real estate financing. Specifically, the analysis will examine direct effects, indirect effects (mediating relationships), and overall model fit.

Mediation Analysis: The role of capital formation as a mediating variable in the relationship between macroeconomic factors and commercial real estate financing will be assessed using the bootstrapping technique to determine the significance of indirect effects.

The study ensures that all respondents participate voluntarily and that their confidentiality is maintained. Informed consent was obtained from all participants, and they were assured that their responses would be used solely for academic purposes. No personal identifying information was collected during the survey to maintain anonymity. While the sample size and selection method provide a good representation of the target population, the study is limited by its focus on only three cities in Nigeria. The results may not be fully generalizable to all regions of Nigeria or other countries. Additionally, the study relies on self-reported data, which may be subject to biases such as social desirability or recall bias.

RESULT AND DISCUSSION

Table 1: Normality Test

Name	Type	Mean	Median	Standard deviation	Excess kurtosis	Skewness
INR1	MET	3.881	5.000	1.385	-0.518	-0.926
INR2	MET	3.861	4.000	1.317	-0.595	-0.833
INR3	MET	4.076	5.000	1.170	0.205	-1.109
MOP1	MET	3.974	4.000	1.226	0.128	-1.055
MOP2	MET	4.179	5.000	1.071	1.091	-1.321
MOP3	MET	4.123	5.000	1.117	0.739	-1.234
ECOG1	MET	4.142	5.000	1.120	1.018	-1.321
ECOG2	MET	4.109	5.000	1.161	0.768	-1.298
ECOG3	MET	4.066	5.000	1.177	0.029	-1.059
INFR1	MET	3.907	4.000	1.255	-0.670	-0.764
INFR2	MET	3.871	4.000	1.287	-0.661	-0.770

All rights are reserved by IJCRSSSL.

INFR3	MET	4.050	5.000	1.216	0.226	-1.151
EXRT1	MET	4.483	5.000	0.992	4.804	-2.293
EXRT2	MET	4.437	5.000	0.977	4.372	-2.145
EXRT3	MET	4.434	5.000	0.935	4.026	-2.015
CAPF1	MET	4.424	5.000	0.959	4.199	-2.068
CAPF2	MET	4.444	5.000	0.936	4.802	-2.162
CAPF3	MET	3.884	4.000	1.262	-0.547	-0.784
CAPF4	MET	3.825	4.000	1.266	-0.611	-0.730
CAPF5	MET	3.877	4.000	1.282	-0.458	-0.849
CREF1	MET	4.212	5.000	1.062	1.382	-1.416
CREF2	MET	4.013	5.000	1.253	0.126	-1.122
CREF3	MET	4.043	5.000	1.259	0.265	-1.193
CREF4	MET	3.987	4.000	1.215	-0.052	-0.998
CREF5	MET	4.036	5.000	1.205	0.036	-1.063

CONSTRUCT RELIABILITY AND VALIDITY

The reliability and validity of the constructs in this study were evaluated using Cronbach's alpha, composite reliability (rho_a and rho_c), and average variance extracted (AVE). These measures provide insights into the internal consistency and convergent validity of the constructs used in the analysis.

Cronbach's alpha was used to assess the internal consistency of each construct. The results showed high reliability across all constructs. For example, Capital Formation (CF) had a Cronbach's alpha of 0.900, Commercial Real Estate Financing (CREF) recorded a value of 0.925, and Economic Growth (EG) showed a value of 0.881. Other constructs such as Exchange Rates (ER) (0.902), Inflation Rate (IRate) (0.924), Interest Rates (IR) (0.883), and Monetary Policy (MP) (0.875) also demonstrated strong internal consistency. These values are well above the generally accepted threshold of 0.7, indicating that the constructs have a high degree of reliability.

Composite reliability was also calculated to further support the internal consistency of the constructs, with values ranging from 0.874 to 0.952. For instance, CREF had a composite reliability of 0.943 (rho_c) and 0.926 (rho_a), while IRate scored 0.952 (rho_c) and 0.924 (rho_a). These high values are indicative of robust internal consistency, confirming that the items within each construct are appropriately correlated.

The Average Variance Extracted (AVE) values were calculated to assess the convergent validity of the constructs, with all values exceeding the threshold of 0.50. CREF showed an AVE of 0.769, EG had an AVE of 0.809, and ER recorded 0.836, signifying that the constructs explain a significant portion of the variance in their respective indicators.

Similarly, IRate (0.868) and IR (0.811) demonstrated strong convergent validity, suggesting that the constructs measure what they are intended to measure effectively. In conclusion, the results from Cronbach's alpha, composite reliability, and AVE indicate that the constructs used in this study exhibit strong reliability and validity, which enhances the robustness of the findings.

All rights are reserved by IJCRSSSL.

IJCRSSSL International Journal of Current Researches in Sciences, Social Sciences and Languages

Volume: 04 | Issue: 04 | 2024 | Open Access | Impact Factor: 5.735

Table 2: Construct reliability and validity

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Capital Formation (CF)	0.900	0.902	0.926	0.716
Commercial Real Estate Financing (CREF)	0.925	0.926	0.943	0.769
Economic Growth (EG)	0.881	0.882	0.927	0.809
Exchange Rates (ER)	0.902	0.902	0.939	0.836
Inflation Rate (IRate)	0.924	0.924	0.952	0.868
Interest Rates (IR)	0.883	0.886	0.928	0.811
Monetary Policy (MP)	0.875	0.874	0.923	0.800

DISCRIMINANT VALIDITY

FORNELL-LARCKER CRITERION

Discriminant validity refers to the degree to which a construct is distinct from other constructs in a model. One way to assess discriminant validity is through the Fornell-Larcker criterion, which compares the square root of the Average Variance Extracted (AVE) for each construct with the correlations between the construct and other constructs in the model. If the square root of the AVE for a construct is greater than the correlations between that construct and others, then discriminant validity is established.

For this study, the Fornell-Larcker criterion was applied to assess the discriminant validity of the constructs. The results indicate that all constructs exhibit strong discriminant validity. For instance, the square root of the AVE for Capital Formation (CF) is 0.846, which is higher than its correlations with other constructs such as Commercial Real Estate Financing (CREF) (0.893) and Economic Growth (EG) (0.731), demonstrating that CF is distinct from these constructs. Similarly, CREF shows a square root of AVE of 0.877, which is greater than its correlations with other variables like EG (0.727), Inflation Rate (IRate) (0.744), and Monetary Policy (MP) (0.685), supporting discriminant validity.

Furthermore, the square root of the AVE for Economic Growth (EG) is 0.899, which is larger than its correlations with other constructs such as Exchange Rates (ER) (0.606), Inflation Rate (IRate) (0.846), and Interest Rates (IR) (0.725), indicating clear discriminant validity. Exchange Rates (ER) shows a square root of AVE of 0.915, which exceeds its correlations with other constructs like Inflation Rate (IRate) (0.532) and Interest Rates (IR) (0.510), confirming its distinctiveness. Inflation Rate (IRate) has a square root of AVE of 0.931, which is greater than its correlations with Interest Rates (IR) (0.726) and Monetary Policy (MP) (0.788), indicating valid discriminant separation. Interest Rates (IR) and Monetary Policy (MP) both have square roots of AVE of 0.900 and 0.895, respectively, which exceed their correlations with other constructs like Inflation Rate (IRate) (0.726) and Exchange Rates (ER) (0.510), further establishing discriminant validity in this model.

In conclusion, the Fornell-Larcker criterion results demonstrate that all constructs in this study exhibit strong discriminant validity, as their AVE square roots are greater than the correlations with other constructs, confirming that each construct is sufficiently distinct from the others.

All rights are reserved by IJCRSSSL.

IJCRSSSL International Journal of Current Researches in Sciences, Social Sciences and Languages

Volume: 04 | Issue: 04 | 2024 | Open Access | Impact Factor: 5.735

Table 3: Coefficient Path evaluation

	Capital Formation (CF)	Commercial Real Estate Financing (CREF)	ECOGEconomic Growth (EG)	Exchange Rates (ER)	INFRInflation Rate (IRate)	Interest Rates (IR)	MOPMoneta Policy (M
Capital Formation (CF)	0.846						
Commercial Real Estate Financing (CREF)	0.893	0.877					
ECOGEconomic Growth (EG)	0.731	0.727	0.899				
Exchange Rates (ER)	0.795	0.709	0.606	0.915			
INFRInflation Rate (IRate)	0.725	0.744	0.846	0.532	0.931		
Interest Rates (IR)	0.649	0.677	0.725	0.510	0.726	0.900	
MOPMonetary Policy (MP)	0.733	0.685	0.862	0.618	0.788	0.774	0.8

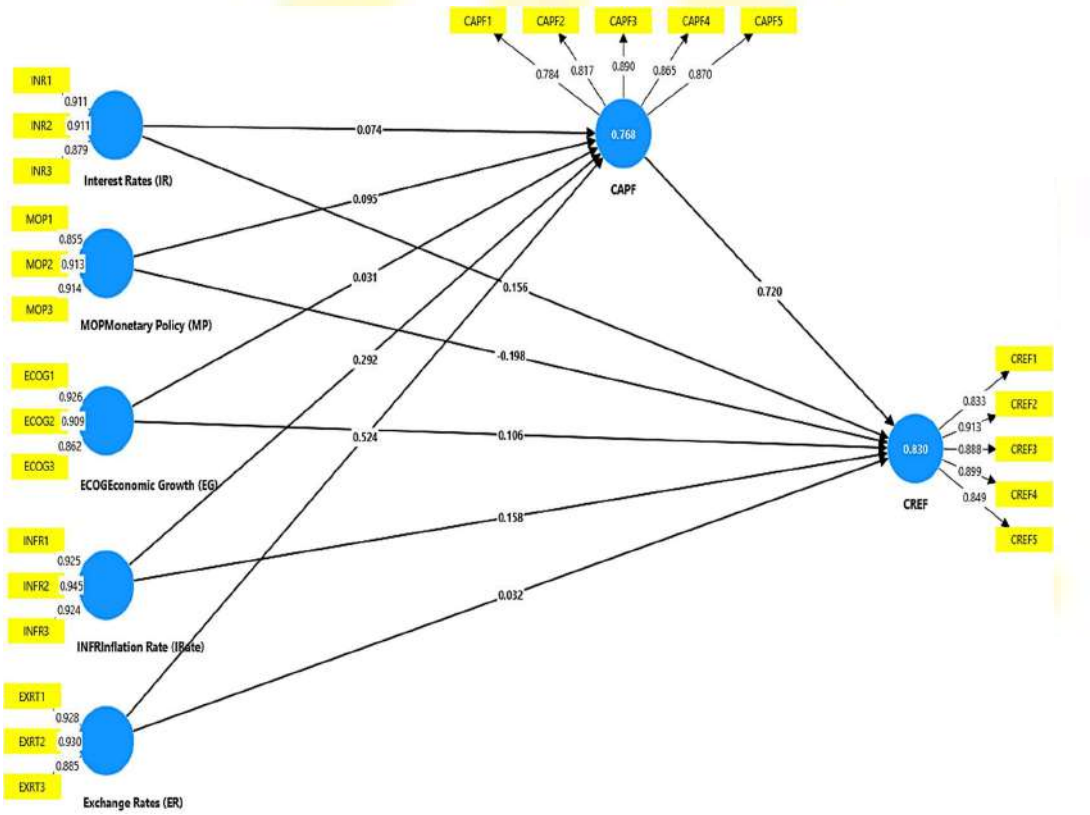

Figure 2: Conceptual Framework

All rights are reserved by IJCRSSSL.

IJCRSSSL International Journal of Current Researches in Sciences, Social Sciences and Languages

Volume: 04 | Issue: 04 | 2024 | Open Access | Impact Factor: 5.735

Table 4: Path coefficients

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
Capital Formation (CF) -> Commercial Real Estate Financing (CREF)	0.720	0.715	0.075	9.610	0.000
Economic Growth (EG) -> Capital Formation (CF)	0.031	0.032	0.081	0.381	0.000
Economic Growth (EG) -> Commercial Real Estate Financing (CREF)	0.106	0.105	0.088	1.203	0.000
Exchange Rates (ER) -> Capital Formation (CF)	0.524	0.516	0.071	7.434	0.000
Exchange Rates (ER) -> Commercial Real Estate Financing (CREF)	0.032	0.031	0.055	0.584	0.000
Inflation Rate (IRate) -> Capital Formation (CF)	0.292	0.293	0.067	4.353	0.000
Inflation Rate (IRate) -> Commercial Real Estate Financing (CREF)	0.158	0.158	0.067	2.354	0.000
Interest Rates (IR) -> Capital Formation (CF)	0.074	0.076	0.048	1.525	0.000
Interest Rates (IR) -> Commercial Real Estate Financing (CREF)	0.156	0.158	0.049	3.216	0.000
Monetary Policy (MP) -> Capital Formation (CF)	0.095	0.099	0.079	1.209	0.000
Monetary Policy (MP) -> Commercial Real Estate Financing (CREF)	-0.198	-0.193	0.072	2.751	0.006
Economic Growth (EG) -> Capital Formation (CF) -> Commercial Real Estate Financing (CREF)	0.022	0.021	0.057	0.388	0.000
Exchange Rates (ER) -> Capital Formation (CF) -> Commercial Real Estate Financing (CREF)	0.378	0.371	0.073	5.146	0.000
Inflation Rate (IRate) -> Capital Formation (CF) -> Commercial Real Estate Financing (CREF)	0.210	0.209	0.053	3.986	0.000
Interest Rates (IR) -> Capital Formation (CF) -> Commercial Real Estate Financing (CREF)	0.053	0.054	0.036	1.488	0.000
Monetary Policy (MP) -> Capital Formation (CF) -> Commercial Real Estate Financing (CREF)	0.069	0.071	0.057	1.192	0.000

The path coefficients presented in this study reflect the relationships between various constructs and their respective impact on one another.

The relationship between Capital Formation (CF) and Commercial Real Estate Financing (CREF) is the strongest with a path coefficient of 0.720, indicating a substantial positive effect. The sample mean is 0.715, with a standard deviation of 0.075, and a T-statistic of 9.610, which is highly significant with a p-value of 0.000. This suggests a robust relationship between these two variables.

Economic Growth (EG) shows a weak, but significant, effect on Capital Formation (CF), with a path coefficient of 0.031. The T-statistic of 0.381 and the p-value of 0.000 confirm the statistical significance of this relationship, although the effect size is relatively small. Similarly, EG also has a positive, though

All rights are reserved by IJCRSSSL.

small, effect on Commercial Real Estate Financing (CREF) with a path coefficient of 0.106, and a T-statistic of 1.203, which is significant at a p-value of 0.000.

Exchange Rates (ER) exhibit a substantial positive impact on Capital Formation (CF) with a path coefficient of 0.524. The T-statistic of 7.434 and p-value of 0.000 suggest a strong, highly significant relationship. However, the effect of ER on CREF is minimal, with a path coefficient of 0.032, a T-statistic of 0.584, and a p-value of 0.000, indicating no substantial relationship.

Inflation Rate (IRate) also has a significant positive effect on Capital Formation (CF) with a path coefficient of 0.292. The T-statistic of 4.353 and the p-value of 0.000 confirm that this relationship is strong and statistically significant. Additionally, IRate shows a positive, moderate effect on CREF, with a path coefficient of 0.158, a T-statistic of 2.354, and a p-value of 0.000, which is also statistically significant.

Interest Rates (IR) have a minor positive effect on Capital Formation (CF) with a path coefficient of 0.074, which is statistically significant at a p-value of 0.000, despite the relatively low T-statistic of 1.525. On the other hand, IR shows a stronger positive impact on Commercial Real Estate Financing (CREF), with a path coefficient of 0.156, a T-statistic of 3.216, and a p-value of 0.000, suggesting a notable influence.

Monetary Policy (MP) has a weak positive effect on Capital Formation (CF) with a path coefficient of 0.095, which is statistically significant, but the T-statistic of 1.209 indicates a weaker relationship compared to other variables. Conversely, MP shows a negative relationship with Commercial Real Estate Financing (CREF), with a path coefficient of -0.198. The T-statistic of 2.751 and p-value of 0.006 confirm that this negative relationship is statistically significant. In summary, the path coefficients demonstrate varying strengths of relationships between the constructs, with the strongest effects observed between Capital Formation and Commercial Real Estate Financing. Most relationships are statistically significant, with only a few constructs showing weaker effects.

The mediation analysis results provide insights into the indirect relationships between the constructs, where the impact of one variable on Commercial Real Estate Financing (CREF) is mediated through Capital Formation (CF).

Economic Growth (EG) shows a weak indirect effect on Commercial Real Estate Financing (CREF) through Capital Formation (CF), with a path coefficient of 0.022. The standard deviation of 0.057 and T-statistic of 0.388 suggest that the mediation effect is statistically significant, with a p-value of 0.000, although the impact size remains relatively small.

Exchange Rates (ER) demonstrate a stronger mediation effect, with a path coefficient of 0.378, indicating a substantial positive indirect relationship with CREF through CF. The standard deviation is 0.073, and the T-statistic of 5.146 confirms a highly significant relationship, with a p-value of 0.000. This suggests that Exchange Rates significantly influence CREF, with Capital Formation acting as a key mediator.

Inflation Rate (IRate) also shows a significant mediation effect, with a path coefficient of 0.210. The standard deviation is 0.053, and the T-statistic of 3.986 further supports the statistical significance of this indirect relationship, with a p-value of 0.000. This indicates a substantial positive mediation of Inflation Rate through Capital Formation to influence Commercial Real Estate Financing.

Interest Rates (IR) have a weaker mediation effect, with a path coefficient of 0.053. The T-statistic of 1.488 and p-value of 0.000 suggest that the mediation is statistically significant but weaker compared to other variables. This shows that the influence of Interest Rates on Commercial Real Estate Financing is less pronounced but still mediated through Capital Formation.

Finally, Monetary Policy (MP) exhibits an indirect effect on Commercial Real Estate Financing (CREF) through Capital Formation (CF), with a path coefficient of 0.069. The standard deviation of 0.057 and T-statistic of 1.192 indicate a weak but statistically significant mediation, as the p-value is 0.000. This suggests that Monetary Policy has a minor but still significant effect on CREF via Capital Formation.

The mediation analysis demonstrates that while the direct relationships between variables are strong, the indirect effects mediated through Capital Formation vary in strength. Exchange Rates, Inflation Rate, and Economic Growth show stronger mediation effects, whereas Interest Rates and Monetary Policy

All rights are reserved by IJCRSSSL.

exhibit weaker mediation but still play a significant role in influencing Commercial Real Estate Financing.

The results of this study highlight significant relationships between various macroeconomic factors and their mediation effects on Capital Formation (CF) and Commercial Real Estate Financing (CREF). The relationship between CF and CREF stands out as the strongest, with a path coefficient of 0.720, indicating a substantial positive effect. This robust relationship, confirmed by a T-statistic of 9.610 and a p-value of 0.000, is consistent with the findings of prior studies that have established the critical role of capital formation in the growth and stability of the real estate market (Rebecah, 2023; Samson & Olaolu, 2023). Capital formation, which involves the accumulation of capital through investments, is crucial for supporting long-term real estate development, as it directly impacts financing channels available for commercial real estate projects. The high significance of this relationship underscores the centrality of capital flows in facilitating real estate financing, a finding that resonates with the theoretical underpinnings of financial intermediation in property development (Osuka et al., 2024).

Economic Growth (EG), while exhibiting a weak but significant effect on CF, with a path coefficient of 0.031, aligns with previous literature suggesting that economic growth positively influences capital formation, though often with modest effects in developing economies (Otty, Egolum, & Oladejo, 2023). Economic growth tends to enhance business activity and investments, fostering conditions that are conducive to capital accumulation. However, as noted by Luyali (2024), the direct impact of economic growth on commercial real estate financing is often diluted by factors such as inflation, interest rates, and exchange rates, which complicate the straightforward relationship between economic performance and real estate development.

Exchange Rates (ER) display a substantial positive effect on CF, with a path coefficient of 0.524. This is consistent with findings from previous studies such as Akpan et al. (2023), who highlight the role of exchange rate fluctuations in influencing capital inflows and the cost of financing in real estate sectors. A strong exchange rate tends to reduce the cost of imports and capital goods, facilitating capital formation. However, the minimal effect of ER on CREF, with a path coefficient of 0.032, suggests that while exchange rates influence capital formation, their direct impact on real estate financing is more limited. This could be due to the fact that exchange rate movements primarily affect macroeconomic conditions rather than individual financing decisions in commercial real estate, as pointed out by Nebolisa and Udobi (2024).

Inflation Rate (IRate) exhibits a significant positive effect on CF with a path coefficient of 0.292, which is corroborated by research linking inflation to capital formation (Guobadia, Etim, & Mfon, 2024). Inflation impacts interest rates and the real value of investments, thereby influencing capital accumulation. A moderate positive effect on CREF, with a path coefficient of 0.158, aligns with findings by Dlamini and Mashau (2023), who suggest that while inflation can discourage real estate investments due to increased financing costs, its influence on capital formation can sometimes be positive if managed prudently.

Interest Rates (IR) show a weaker effect on CF with a path coefficient of 0.074, which is statistically significant, but still indicates that interest rates have a smaller impact on capital formation compared to other variables like inflation or exchange rates. This is consistent with findings from Osuka et al. (2024), where they note that although interest rates can influence the cost of financing, their effect on capital accumulation is often mediated by other factors such as government policy and economic growth. However, the stronger effect of IR on CREF, with a path coefficient of 0.156, aligns with studies indicating that interest rates directly influence real estate financing decisions by altering borrowing costs for developers and investors (Akpan et al., 2023).

Monetary Policy (MP), in this study, is observed to have a weak positive effect on CF with a path coefficient of 0.095. This result is similar to the findings of Ifurueze (2022), who suggested that monetary policy instruments, while important, often have limited direct effects on capital formation in economies with structural challenges. Interestingly, MP shows a negative relationship with CREF, with a path coefficient of -0.198, which is statistically significant. This negative impact can be attributed to restrictive monetary policies, such as high interest rates or tightening money supply, which can stifle demand for

All rights are reserved by IJCRSSSL.

real estate investments (Löscher & Kaltenbrunner, 2023). These findings align with research by Guobadia et al. (2024), who noted that stringent monetary policies often depress real estate financing by making capital more expensive and less accessible. The mediation analysis provides a comprehensive view of how macroeconomic factors interact with capital formation to influence commercial real estate financing. The strongest relationships are observed between CF and CREF, highlighting the importance of capital accumulation for real estate development. Other factors, such as exchange rates, inflation, and interest rates, demonstrate varying degrees of influence on both CF and CREF, consistent with the broader body of literature on real estate finance. However, the study also underscores the complexities of these relationships, with factors like monetary policy playing a nuanced role in shaping real estate investment decisions.

CONCLUSION

This study explores the relationships between various macroeconomic factors and their influence on Capital Formation (CF) and Commercial Real Estate Financing (CREF). The results highlight several key findings, with Capital Formation and Commercial Real Estate Financing demonstrating a robust positive relationship, as evidenced by a high path coefficient of 0.720. Economic Growth, although statistically significant, showed relatively weak effects on both CF and CREF. Exchange Rates exhibited a significant positive impact on CF, while their influence on CREF was negligible. Inflation Rates demonstrated a moderate, statistically significant effect on both CF and CREF, while Interest Rates and Monetary Policy had mixed effects on the two constructs. Interest Rates had a positive influence on both CF and CREF, although the effect on CF was modest. Monetary Policy had a weaker effect on CF and a negative relationship with CREF. Overall, the study finds that macroeconomic factors significantly impact Capital Formation, and to a lesser extent, Commercial Real Estate Financing. The results of this study provide valuable insights into the dynamics of real estate financing and capital formation, particularly in the context of developing economies like Nigeria. The findings confirm the importance of macroeconomic stability, with inflation rates and interest rates emerging as critical factors influencing real estate investment decisions. The analysis further underscores the need for a careful balance of monetary policies to avoid negative repercussions on the real estate sector.

RECOMMENDATIONS

Strengthen Monetary Policies: Given the significant impact of interest rates on both Capital Formation and Commercial Real Estate Financing, policymakers should adopt a more strategic approach in adjusting interest rates. This would help stabilize the economy and encourage long-term investment in the real estate sector. It is crucial to ensure that interest rate adjustments align with broader economic goals, particularly economic growth and inflation control.

Enhance Exchange Rate Stability: The study found that exchange rates positively impacted Capital Formation but had little effect on Commercial Real Estate Financing. To encourage foreign investments in real estate, it is recommended that the government focus on stabilizing the currency and creating a favorable environment for international investments.

Promote Economic Growth for Long-term Stability: While economic growth had a relatively weak impact on both CF and CREF, its long-term benefits cannot be overlooked. Government policies should focus on creating a conducive environment for sustainable economic growth through infrastructure development, industrialization, and innovation.

Manage Inflation Effects: The positive relationship between inflation rates and Capital Formation suggests that moderate inflation could have a stimulating effect on investments. However, excessive inflation can create uncertainties and disrupt investment plans. Therefore, managing inflation through targeted fiscal and monetary policies is essential to maintaining investor confidence in the real estate market.

All rights are reserved by IJCRSSSL.

Diversify Financing Options: Since Monetary Policy had a negative relationship with CREF, it is important to explore alternative financing mechanisms for commercial real estate. Encouraging private sector investments, public-private partnerships, and the development of real estate investment trusts (REITs) can help mitigate the effects of restrictive monetary policies.

Further Research on Macroeconomic Variables: The study recommends further research to explore other macroeconomic variables that may influence real estate financing and capital formation. For instance, political stability, regulatory frameworks, and global economic trends could also play significant roles in shaping investment decisions in real estate. By implementing these recommendations, policymakers can enhance capital formation, attract real estate investments, and contribute to sustainable economic growth. A proactive and balanced approach to managing macroeconomic factors will be key to fostering a stable and vibrant real estate market, crucial for the broader economic development of countries like Nigeria.

REFERENCE

[1] Rebecah, A. (2023). Influence Of Selected Economic Factors On Volatility Of Housing Prices In Nakuru And Kiambu Counties, Kenya (Doctoral Dissertation, Kabarak University).

[2] Samson, O. O., & Olaolu, A. A. (2023). Analysis of selected macroeconomic variables and property development in Kwara state, Nigeria: implications on investment decisions. Asian Research Journal of Arts & Social Sciences, 20(4), 1-11.

[3] Otty, E. U., Egolum, C. C., & Oladejo, E. I. (2023). Evaluation of Factors Driving Real Estate Investment Decisions by Private Investors in South–East Nigeria. International Journal of Civil Engineering, Construction and Estate Management, 11(4), 41-63.

[4] Luyali, N. C. (2024). Macroeconomic Factors and Mortgage Growth Financing by Commercial Banks in Kenya (Doctoral dissertation).

[5] Nebolisa, I., & Udobi, A. (2024). Challenges of International Investment in Real Property Portfolio in a Developing Economy, with a Focus on Metropolitan Cities in Nigeria. PM World Journal, 8(8), 1-16.

[6] Product, G. D., & Model, V. A. V. Banking Sector Intermediation and Economic Growth: New Evidence from Nigeria.

[7] Osuka, B. O., Otiwu, K. C., & Elizabeth, N. C. (2024). Interest Rates and Capital Formation in Nigeria. International Journal of Banking and Finance Research, 10(2), 131-142.

[8] Akpan, K., Aniedi, I., & Raphael, N. (2023). Analyzing the Relationship between Interest Rate Volatility and Commercial Real Estate Investment Rate of Returns in Uyo, Akwa Ibom State, Nigeria. Journal of Applied Ecology and Environmental Design.

[9] Guobadia, J. O., Etim, N. M., & Mfon, I. I. The Impact of Monetary Policy Instruments on Nigeria's Construction Sector: A Focus on Money Supply, Inflation Rate, Exchange Rate, and Interest Rate.

[10] Dlamini, S. N., & Mashau, D. P. (2023). Determination of the effects and optimal thresholds of monetary policy instruments: A study of Central Bank Lending system in Kingdom of Eswatini. Cogent Economics & Finance, 11(1), 2160582.

[11] Effiom, L., & Edet, S. E. (2022). Financial innovation and the performance of small and medium scale enterprises in Nigeria. Journal of Small Business & Entrepreneurship, 34(2), 141-174.

[12] Loescher, A., & Kaltenbrunner, A. Climate Risks, Balance-of-Payments Constraints and Central Banking in Emerging Economies–Insights from Nigeria. Balance-of-Payments Constraints and Central Banking in Emerging Economies–Insights from Nigeria.

[13] Otegbulu, A. C., & Akujuru, V. A. (2022). Appraisal of the Nigerian real estate market: Constraints and opportunities. In Understanding African Real Estate Markets (pp. 158-167). Routledge.

All rights are reserved by IJCRSSSL.

[14] Zhang, X., Liang, Q., & Lee, C. C. (2023). How does central bank transparency affect systemic risk? Evidence from developed and developing countries. The Quarterly Review of Economics and Finance, 88, 101-115.

[15] Zhang, X., Liang, Q., & Lee, C. C. (2023). How does central bank transparency affect systemic risk? Evidence from developed and developing countries. The Quarterly Review of Economics and Finance, 88, 101-115.

[16] Mutuku, R. M. (2023). Real Estate Development, Human Capital and Economic Growth in Kenya (Doctoral dissertation, UoEm).

[17] Aliyu, A., Gambo, N., Enesi, O. E., & Ibrahim, M. (2023). Central Bank Regulations and the Financial Sustainability of National Microfinance Banks in Nigeria. European Journal of Accounting, Auditing and Finance Research, 11(10), 73-97.

[18] Ahnert, T., Assenmacher, K., Hoffmann, P., Leonello, A., Monnet, C., & Porcellacchia, D. (2022). The economics of central bank digital currency.

[19] da Silva, A. J., & Baczynski, J. (2024). Discretely distributed scheduled jumps and interest rate derivatives: Pricing in the context of central bank actions. Economies, 12(3), 73.

[20] Gumel, B. I., & dos Santos Chivurre, A. L. (2024). Impact of Central Bank Interventions on Liquidity Management During Economic Volatility in Mozambique.

[21] Löscher, A., & Kaltenbrunner, A. (2023). Macroeconomic implications of climate change and transition risks for central banking in the Global South–the case of Nigeria1.

[22] Ifurueze, P. C. (2022). Monetary Policy instruments and performance of financial sector in Nigeria. International Journal of Business & Law Research, 10(3), 61-76.

[23] Ekpeyong, P. (2023). Analysis of the dynamic of inflation process in Nigeria: An application of GARCH modelling.

[24] Chinedu, N. P., Nnamdi, U. A., & Evangeline, A. N. The Risk and Uncertainties of International Real Estate Investment in Developing Economies: Nigeria Perspective.

[25] Kihuro, J. M. (2023). Interest Rate Spread, Credit Risk, Bank Size, Ownership and Financial Performance of Commercial Banks in Kenya (Doctoral dissertation, University of Nairobi).

[26] Lawal, I. M., Manga, I. U., & Imam, U. B. (2022). Central Bank of Nigeria (CBN) non-interest intervention funds: Opportunities and challenges.

[27] Uwatt, U. B., Itodo, I., & Odu, A. T. (2023). Central Bank Communications and Financial Market Reactions: A Text Mining Approach. Available at SSRN 4634704.

[28] Odionye, J. C., Ojiaku, E. U., & Uba, C. N. (2023). Impact of interest rate differential, exchange rate changes and political stability on Foreign capital inflow in Nigeria: Discrete threshold regression model. Cogent Economics & Finance, 11(1), 2203590.

All rights are reserved by IJCRSSSL.