Does Volatility Risk Affect Nigerian Real Estate Stock Pricing Dynamics?

Lead Authors:

Tosin B.Fateye
&
Cyril A.Ajayi

Affiliation:

Department of Estate Management Redeemer's University, Ede, Osun State, Nigeria

Abstract

Volatility index (VIX) is one of the critical systematic risks that investors take caution and are conscious of when taking investment decision in capital market. With the peculiarities of the Nigerian real estate stock dynamics, the study addressed a question on whether the Nigerian real stock pricing is characterised by volatility risk and its significance on the stock trading in the capital market. Daily price of four (4) operating Nigerian real estate investment trust (REIT) namely Skye Shelter, Union Homes, United Africa Company of Nigeria (UACN) and UACN Property Development Company (PUDC) were extracted from the Nigeria Exchange Group (NGX) Database and published statistical bulletin of Nigerian real estate stock companies from 2010-2019. The study deployed trend analysis, conducted a unit root test using ADF and residual diagnostic test comprising autocorrelation, ARCH effect and normality tests, and generalised autoregressive conditional heteroskedasticity (GARCH) model to analyse volatility risk in the real estate stock over the year under reviewed. The result showed that the real estate stock pricing experienced downward trend over the reviewed period meaning a continuous fall in the stock price. Also the dynamic in the stock prices is auto-correlated with a statistical significant relationship between information on price history and today's price reaction but in non-linear reaction (random walk). The dynamic in real estate stock

pricing is characterised with little fluctuations over the study period, indicating that the stock is non-volatile. The study concluded that the exposure of the real estate stock pricing to broad capital market is less affected by volatility risk.

Keywords: Volatility, Risk, Real Estate, Stock, Pricing.

Introduction

During stock price arbitrage, investor is willing to buy at best price taking into consideration the risk element and future return. The dynamic pricing system is influence by unstable market condition. The unpredictable market events are linked to volatility risk, which disrupt the efficient market condition and create anomalies in the stock market (Alam et al. 2023; Mamtha and Srinivasan, 2016). Volatility in stock occurs when the stock prices experienced sequence/pattern of prolong fluctuations (low/high) over a period of time. On the one hand, a high volatile stock, meaningthat the exposure of the stock to external market forces leads to high rate of fluctuations in the stock trading prices over a prolong period of time. On the other hand, stock prices characterised with low volatility witnesses a low ups-and-downs movements over prolong period. The unstable market indices is characterised with emerging capital market such as the Nigerian capital market. Apart from the economy and financial woe, food, health and security challenges on a global scale, the Nigerian economy has been battling with inflation, interest and exchange rates crises in recent time,and the unfavourable economy outlook contributes to volatility risk in stock price(World Bank, 2022; NBS, 2022). Other external forces that heightened volatility risk in the stock market are systematic bias news, investors' herding behaviour and investor sentiment (Haritha and Rishad, 2020; Zhou, 2018; Awour, 2017)

The increasing research interest on stock volatility is a pointer to its economic significance and implication on investment goal. While studies have agreed on the fact that volatility in stock could create anomalies trading conditions, there has been no consensus on pattern (high/low) and causes of volatility in stock. This is because, apart from the peculiarities of the capital market which vary from one country to another, individual stock is unique, and the differences attributed to industry, company and stock-pacific characteristics contribute to their response to volatility risk. Nigerian real estate stock has been launched for more than two decades, with her first publicly traded real estate stock (REIT) floated in 2007. This made the Nigerian real estate stock one of the oldest in Africa and biggest property stock market after South Africa. Surprisingly, while useful information on stock

volatility is crucial to optimal decision making, little is known about the volatility risk in Nigerian real estate stock. Authors that have worked on Nigerian real estate stock (Dabara, 2021; Olanrele, *et al*., 2021; Fateye*et al.*, 2019; Olanrele, *et al.*2019;Fateye, 2018) have not address the volatility risk in property stock. Thus, this study provides empirical evidence on volatility pattern of the Nigerian real estate stock in the capital market.

The findings of the study will provide useful information to investors, investment analysts, fund managers and regulatory body in several ways. First, it exposes the resilience of real estate stock to volatility risk driven by unstable economic condition in the capital market. Second, it provides empirical evidence on the potential of real estate stock for portfolio optimisation and diversification benefits amidst market anomalies. Also it will provide an informed guidance for the individual and institutional investors as well as investment analysts and fund managers in taking optimal decision making when thinking of investing in real estate stock in the capital market.

Current Discourse

Amidst the global discussion on the significance of volatility risk to stock pricing and investment decision in the capital market, studies have demonstrated the reaction of property stock to volatility riskin the stock market across glob.A study by Alam*et al.* (2023) report that volatility spillover has less significant effect on real estate property stock. The study discovered that real estate stock has the potential to hedge against volatility risk and optimise portfolio diversification. The findings align with the Razak (2023)study. The author attempts to know the dynamic role of real estate stock in mixed-assets portfolio. The study result shows that diversification benefits characterised by mixed-asset portfolio with property stock outweigh portfolio made of stocks and bonds. The author's findings also revealed that volatility in property stock is relatively low but the magnitude of volatility patterns vary across property sector in Japanese stock market.

Also, Kownatzki*et al.* (2023) demonstrate the potential of implied volatility index of property stock sector for forecasting measure. The authors argued that the reliance on broader market indicators to develop volatility index to forecast for property stock is insufficient. The study therefore used option trading price of US real estate stock to develop implied volatility index for property stock sector. The study discovered that real estate stock implied volatility index perform better than other volatility index for forecasting measure. Similarly, Salisu*et al*. (2023) analyse the improvement in the forecastability of volatility index in US and emerging property stock markets and reveals that an improvement in forecasting of daily return volatility. In relation

to volatilities in other real estate sectors, Alam (2022) used a factor-based housing volatility risk index to predict return on equity property stock in United States. The study reported that volatilities in housing sector have economical and consistence prediction ability of real estate stock future returns.

From a broader perspective, a study by Li and Zhu (2022) attempted to know whether stock market underlying indicators contribute to dynamic volatility characterised by property stock in the US stock market. To achieve this, the study investigated the dynamic nature of volatility in property stock and reported that asides the systematic risk and the underlying index of a property stock that influence its volatility, property stock characterised by information asymmetry and financial limitation are more prone to market volatility risk. Similarly, Odusamin(2020) added that variation in the magnitude of volatilities in property stock are explained by financial and macroeconomic variables such as spread, equity market return, exchange rates among others. Mian and Sankaraguruswamy (2012), and Baker and Wurgler (2006) explained that in some cases, some stock may exhibit low/non-volatile. The authors categorised those stock as small, young, unprofitable, non-dividend-paying and distressed stocks especially in the emerging capital market. Other studies that have worked on volatilities especially in developed property stock market include Salami *eta.l* (2022), Li and Zhu (2022) Zhu and Lizieri (2022) and Hardin et al (2020), Demirer*et al.* (2020). However, the increasing research interest in volatility pattern of real estate stock in recent time is a pointer to the relevance volatility risk to optimal decision making on property stock investment. Trivedi*t al.*(2021) explained that volatility risk helps investor to predict investment loss and benefits characterised by unpredictable market condition.

Surprisingly, despite the importance of volatility risk to optimal investment decision in real estate stock, little is known on the pattern and magnitude of volatility in the emerging market such as Nigeria. Majority of previous studies on the Nigerian real estate stock such as Dabara (2021), Olanrele *et al*. (2021), Fateye*et al*. (2019), Olanrele, *et al*. (2019) and Fateye (2018) focus on property stock risk-return characteristics, performance evaluation and factor influencing it. For instance Olanrele, *et al*. (2021) and Fateye (2018) analyse the influence of macroeconomic outlook on property stock performance. Fateye *et al*. (2019) investigate how real estate stock price response to inflation, interest and exchange rates shock, Dabara (2021) traced the evolution of Nigerian real stock while Olanrele *et al* (2014)examine the external influencing factors affecting Nigerian real estate stock performance. This implies issues concerning volatility risk in the Nigerian property stock is yet to be addressed, thus constitute a knowledge-gap in literature and informed this study. This study address a research

question on whether the exposure of real estate stock to broader market shock contribute to the stock's volatility risk.

Random Walk Theory (RTM)

Random walk theory (RWT) is a blended approach to accommodate differences in history, economic, market and behavioural finance ideology and provide a practicable and actionable guide for investment in the stock market. The theory was developed by a French broker Jules Regnault in 1863, and theory posited that stocks take a random and unpredictable path that makes all methods of predicting stock prices futile in the long run. The theory argues that stock prices follow a random walk pattern rather than a deterministic trend as stated by *charis theory* (i.e. history repeats itself). The position of the theory is similar to efficient market hypothesis (Fama, 1988). While EMH stressed stock prices fully reflect the new information entering the market, RWT claims that the information is independent of one another which could be irrelevant/non-fundamental information in some cases and present randomness in the trend of stock prices. In financial literature, Jovanovic and Gall (2001) posited that the hypothesis postulated by Jules laid the foundation of a modern approach to modeling price behaviour in the capital market. Brown (2020) submitted that, since the introduction of RWT in the stock market, its effect on price behaviour and market dynamics is still being felt today.

Research methods

The study used four (4) operating Nigeria real estate stock companies namely Skye Shelter Fund Limited, Union Homes, United African Company of Nigeria (UACN) and UACN Property Development Company (UPDC). The historic daily prices of the property stock for 10 years period (2010-2019) were extracted from published statistical bulletin of the Nigeria Exchange Group (NGX) database and the Nigerian real estate stock companies. The study employed risk-return analysis such as holding period return (HPR), unit root tests, residual diagnostic tests and generalised autoregressive conditional heteroskedasticity (GARCH) to analyse the data. The appropriateness of the use of GARCH model to measure the pattern, magnitude and the implication of volatility index in the capital market have been reported real estate investment and finance literature (Alam, 2022, Ghufran et al. 2016). GARCH model is attributable to the ability of the model to provide solution to the problem of finding cluster volatility in financial market, thicker tail stock price distribution pattern and aid the prediction of volatility using past information of the stock price. Ghufran, et al., (2016) concluded that GARCH model is characterised with good predictability power and gives a significant results. The

mathematical functions and operationalized input variables of the statistical methods used were explicitly expressed as thus:

a) Trend Analysis

The trend analysis is use to identify the pattern and direction (upward, downward or flat) in the historic prices of the real estate stock over the study period (2010-2019). Its comprises the trend line graph and the trend equation. The trend analysis function is given in $Eqn\ 1$ as thus

$$Change\ in\ RES\ (\gamma)$$
$$= mX + b - - - -$$
$$- Eqn\ 1$$

Where y is the changes in the real estate stock, X is the period under review (2019-2019), *m* is the slope of the trend line which measures the pattern and direction (±) of changes in the variables over the study period while b represents the intercept (b= Y - mX) of the trend.

b) Generalised Autoregressive Conditional Heteroskedasticity (GARCH)

GARCH model provides two results namely the conditional mean equation and conditional variance (volatility) equation in a VAR environment. The conventional GACH model equations are illustrated in $Eqn\ 2\ and\ Eqn\ 3$

Condition Mean Equation

Condition Variance Equa

$$- - - - - - Eqn\ 2$$

$$_1 + \beta\sigma_{t-1}^2 - - - - - - Eqn\ 3$$

For the conditional variance that measures the volatility of RES, the σ_t^2 is current day/today's volatility of real estate stock, ω is the constant term, $\alpha\epsilon_{t-1}^2$ is the ARCH term connoting the previous day's information about real estate stock volatility with coefficient α while $\beta\sigma_{t-1}^2$ represent GACH term which denotes previous day's real estate stock residual volatility or forecast variance with coefficient β in the model. The study used the daily price of real estate stock companies from 2010 to 2019 having a total of 2,386 observations to analyse the volatility characterised by the real estate stock over the study period.

c) Unit Root Test

The study conducted two unit root test namely Augmented Dickey-Fuller test statistic (ADF) and Kwiatkowski-Phillips-Schmidt-Shin (KPSS). The ADF $(Eqn\ 4)$ and KPSS $(Eqn\ 5)$ statistics are expressed as thus:

Augmented   Dickey-Fuller   test   statistic   (ADF)   =

$$\propto y_{t-1} + x_t\delta + \epsilon_t --- Eqn\ 4$$

Kwiatkowski-Phillips-Schmidt-Shin(KPSS)

$$x_t = r_t + \beta t + \varepsilon_t ----Eqn\ 5$$

Where r_t is a random walk, βt is the deterministic trend and ε_t is a stationary error. The null hypothesis (H_0) states 'series has a unit root (non-stationary) while the alternative hypothesis (H_1) denotes 'series dose not has a unit root (stationary)

d) Residual Diagnostic Test for Volatility Model

Another critical pre-conditional tests for time series data to determine the fitness of the data for volatility model are the autocorrelation, ARCH effect and normality tests. However, the study deployed Breusch-Godfrey LM Test and the Heteroskedasticity test for autocorrelation and ARCH effect respectively while Jarque-Bera estimation was used to conduct normality test. Thus, the formulae are expressed in $Eqn\ 6, Eqn\ 7\ and\ Eqn\ 8$

Breusch-Godfrey LM Test

$$u_t = \gamma_1 + \gamma_2 X_t + \gamma_3 u_{t-1} + \gamma_4 u_{t-2} + \varepsilon_t$$
$$----- Eqn\ 3.6$$

Jarque-Bera Normality Test

$$=$$
$$T[SK^2/6 + (KUR - 3)^2/24] ----- ---- Eqn\ 3.7$$

ARCH effect for Heteroskedasticity test

$$\varepsilon_t^2 = a_0 + a_1\varepsilon_{t-1}^2 + a_2\varepsilon_{t-2}^2 + \cdots - - - - - - - - -$$
$$Eqn\ 3.8$$

1. Main discussion

The pricing of real estate stock over the year under review (2010 - 2019) were examined and the time series data were presented in Table 1. The monthly prices of the real estate stocks namely SKYE REIT, UHome REIT, UPDC REIT and UACN property, show variation in the stock pricing but with relatively more frequent stock pricing noticed in UPDC REIT and UACN property stocks. For instance, the real estate stock price of SKYE REIT exhibited very gentle fluctuations, the stock price range from #95.00 to #100.00 over the study period. Similar experience were observed in the pricing of UHomes REIT as the stock price remain flat over many years with a little cases of fluctuations ranging from #45.22 to #52.50.

Table 1: Summary Statistics of Real Estate Stock Pricing from 2010 to 2019

Real Estate Stock	Mean	Std.	Skew	Min.	Max.
SKYE REIT	99.29	1.66	-2.44	90.25	100.0
UHome REIT	47.41	2.34	0.22	45.20	52.50
UACN REIT	33.69	16.34	0.47	9.00	71.20
UAC Property	10.39	6.85	0.22	1.44	28.82
Average	*47.695*	*6.7975*	*-0.3825*	*36.472*	*63.13*

Note: Standard Deviation (Std.), Skewness (Skew), Minimum (Min.), Maximum (Max.)
Sources: *Nigeria Exchange Group (NGX) Database*

Meanwhile the pricing of UPDC REIT and UACN property showed a different pattern as more fluctuations were recorded over the year under review. The prices of UPDC REIT experienced turbulence over a long period, the price of the real estate stock varies from #9.534 in December 2019 to #68.98 in January, 2014. While relatively higher price above #60.00 of UPDC REIT were recorded from October, 2013 to March 2014, the least recorded prices occurred in the first quarter of 2017 up to December 2019, with the real estate stock price recorded in the month of November and December, 2019, with both price of #9.728 and #9.534 respectively. For UACN property, the stock price experience variations over the study period but the price of the stock was relatively lower compare with the UPDC REIT. The highest

traded stock price is #25.03 recorded in April 2014 and the lowest prices occurred in #1.334 in the month of December, 2019.

The majority of the months experienced declining prices with a long trend observed in the 2nd quarter of year 2017, late 2018 and the whole 2019 with the price ranges between #1.00 to #3.00. In addition, the graphical illustrations in Fig. 1 to Fig. 2 show the trend in real estate stock over the study period. The trend values (x) for all the real estate stock values as thus: SKYE REIT (-.0005), UHomes REIT (-.0022), UPDC REIT (-.0106) and UACN Property (-.0058) implies that the price of the real estate stock experience a decline trend, with a relatively more lower prices recorded over the study period.

The summary mean statistics of the real estate stock price (in Table 4.6), the study discovered that, for the reviewed period, the average price of UACN property, UPDC REIT, UHomes REIT and SKYE REIT were ₦10.39, ₦33.69, ₦47.41 and ₦99.29 respectively. SKYE REIT has a low risk of 1.66, skewed negatively (-2.44) and the prices range between ₦90.25 to ₦100.00. UHomes price has a risk of 2.34, recorded a min. and max. price of ₦45.20 to ₦52.5 and skewed positively (0.22). Similarly, UPDC REIT and UACN Property have a respective positive skew value of 0.47 and 0.22, while the prices of UPDC REIT range from ₦9.00 to ₦71.20 with a risk of 16.34, UACN Property is characterised with a risk of ₦6.85 and the prices range from ₦1.44 to ₦28.82. However, the average price, when combined the RES, showed a positive price (47.695), which range between 36.47 and 63.13; skewed negatively (-0.3825) and characterised with a risk value of 6.7975.

Whereas, the findings of the study align with the previous works, especially the local literature. For instance, from the international perceptive, NARIET (2020) reported that Nigeria RES recorded a declining market capitalization and a relatively lower return on investment (ROI) of 7% compared with 15 and 9% of ROI reported for South Africa and Kenya respectively. Also, Olanrele et al. (2015) compared the dividend return of Nigerian RES (N-REIT) and the Malaysian REITs and reported underperformance of real estate stock dividend return. The authors posited that Nigerian RES recorded an average return of 2.47% which is lower than the Malaysian RES (7.5%) over a reviewed period of 2007-2014 (8 years). Other local studies that have documented the underperforming condition of the RES return include Fateye (2018), Olanrele, et al (2021) and Dabara (2021).
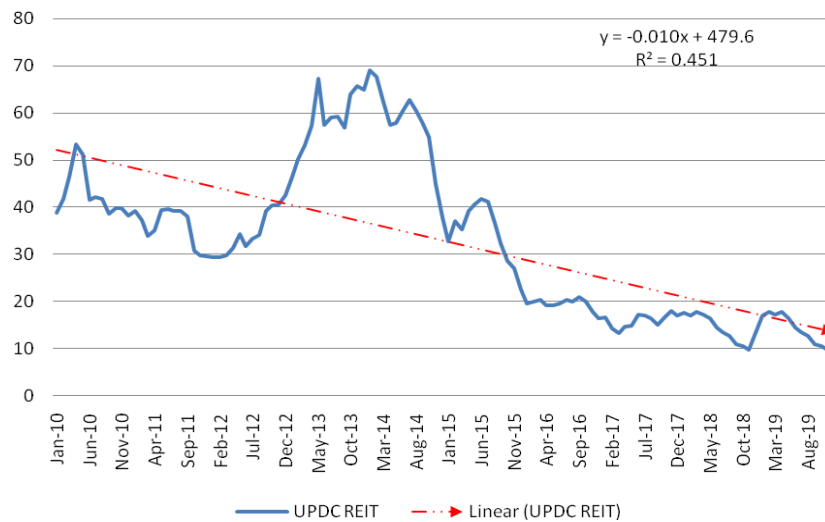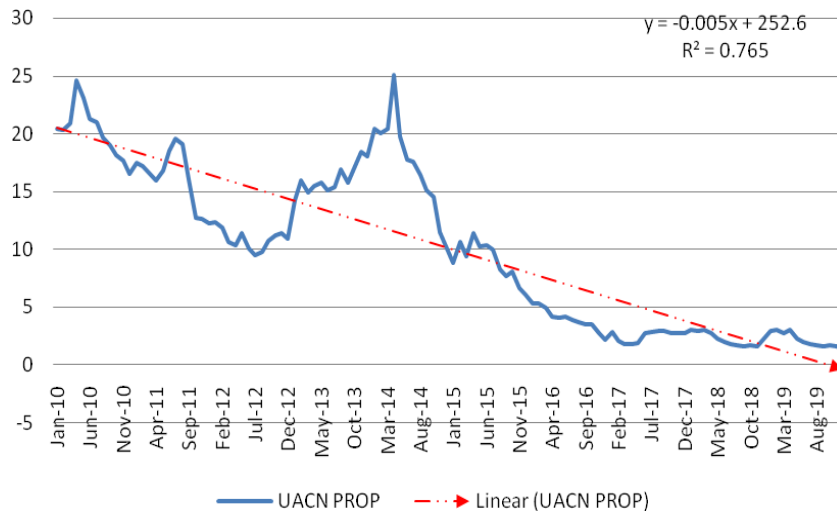
Figure 1: Trend in Share Price of SKYE REIT

$y = -0.000x + 118.5$
$R^2 = 0.079$

$y = -0.002x + 138.9$
$R^2 = 0.819$

UHOME REIT   Linear (UHOME REIT)
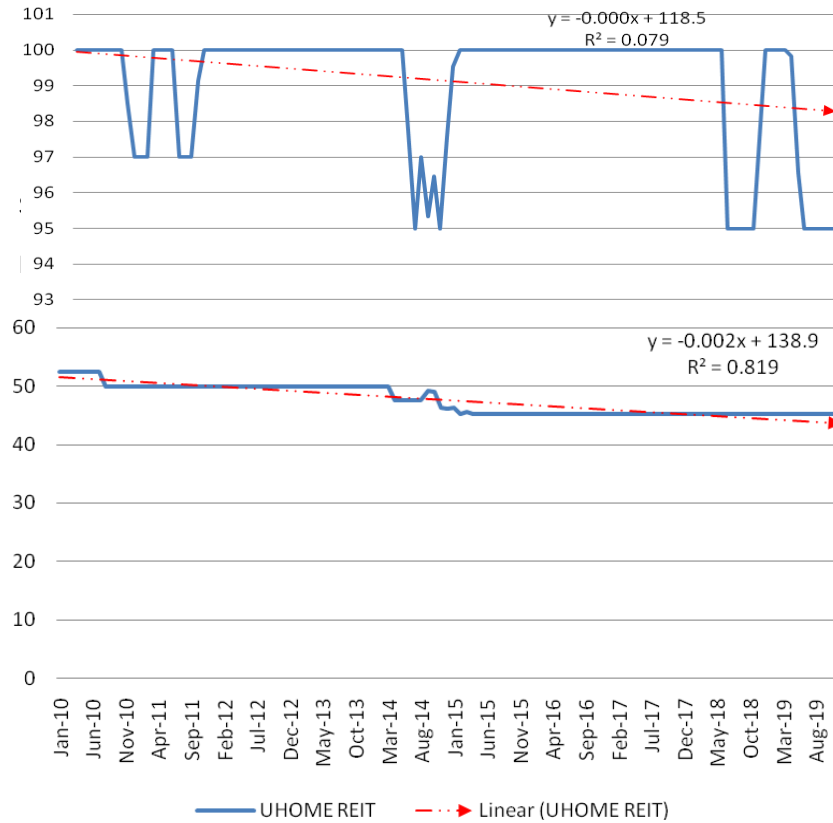
Source: Author's Computation from NGX Database, 2022

Figure 3: Trend in Share Price of UPDC REIT

$y = -0.010x + 479.6$
$R^2 = 0.451$

UPDC REIT   Linear (UPDC REIT)

Source: Author's Computation from NGX Database, 2022

Figure 4: Trend in Share Price of UACN Property

Source: Author's Computation from NGX Database, 2022

Volatility Risk in Real Estate Stock

Furthermore, the study analysed the volatility characterised by the RES in the capital market. To ascertain this, the study conducted pre-tests on the data series such as stationary and residual diagnostic tests to know the suitability of the dataset for the volatility analysis (GACH model). For the stationary test, the study deployed Augmented Dickey-Fuller (ADF) and Kwiatkowski-Phillips-Schmidt-Shin (KPSS) tests and the result is presented in Table 2.

Table 2: Unit Root Tests

Real Estate Stock	Augmented Dickey-Fuller				Kwiatkowski-Phillips-Schmidt-Shin			
	I(0)		I(1)		I(1)			
	t-stat	Sig	t-stat	Sig	1%	5%	10%	LM-stat
SKYE REIT	-4.018	0.0013	-10.468	0.0000	0.7390	0.4630	0.3470	0.0492
UPDC REIT	-1.442	0.8483	-14.710	0.0000	0.7390	0.4630	0.3470	0.1602
UHomes REIT	-0.333	0.9175	-10.553	0.0000	0.7390	0.4630	0.3470	0.1758
UACN Prop.	-1.114	0.7123	-10.946	0.0000	0.7390	0.4630	0.3470	0.04669

Note: 5% Level of Significant
Sources: Nigeria Exchange Group (NGX) Database

At 5% confidence level, the ADF test shows that except SKYE REIT with statistical significant p-value (p<.05) and implies a stationary series, all other real estate stock such as UPDC REIT, UHome REIT and UACN property having insignificant p-value (p>.05) were non-stationary at Level [I(0)]. However, at first difference [I(1)], all the real estate stock were stationary as indicated by their respective statistical significant p-value (p<.05). In addition to the ADF test, the complementary KPSS test at first difference [I(1)] shows that the LM-stats of the real estate stock is lower than the critical value (at 5%) which implies the dataset are stationary. The stationary of real estate stock aligns with the literature that reported a stationary of economic data series at first difference [I(0)] (Huerta-Sanchez, *et al.* 2021; Saengchote and Charoenpanich, 2021)

Whereas, one of the critical conditions for using data series in econometric models is that the data set must be stationary meaning that absence of unit root. However, the real estate stock dataset is stationary, particularly at first difference [I(1)] is in tandem with the findings of the previous study (Huerta-Sanchez, *et al*. 2021) In addition to the stationary tests, the study also conducted the residual diagnostic tests, a specific pre-conditional test for the GARCH model. However, the residual diagnostic tests such as autocorrelation (Breusch-Godfrey LM test), ARCH effects (heteroskedasticity) and normality (Jarque-Bera) were conducted for the daily price of RES for

a reviewed period of 2010-2019 and the summary results are presented in Table 3.

Table 3: Residual Diagnostics Tests

Real Estate Stock	Breusch-Godfrey LM Test: Autocorrelation Test		Heteroskedasticity Test ARCH Effect		Jarque-Bera Normality Test	
	Obs*R-squared	Prob.	Obs*R-squared	Prob.	Coefficient	Prob.
SKYE REIT	1671.201	0.0000	699.7636	0.0000	6015.011	0.0000
UPDC REIT	2376.407	0.0000	2345.936	0.0000	160.5506	0.0000
UHomes REIT	2221.050	0.0000	2027.292	0.0000	318.9451	0.0000
UACN Property	2377.197	0.0000	2314.214	0.0000	181.5752	0.0000

Note: Probability (Prob.) significant @5% confidence level
Sources: Nigeria Exchange Group (NGX) Database

The result of the analysis shows that the prices of the real estate stock (SKYE REIT, UPDC REIT, UHomes REIT and UACN property) with statistical significant p-value (p<.05) are auto-correlated. The result means that the price of each real estate stock exhibits a high degree of similar behaviour in the time series and a lagged version of itself over successive time intervals. The similar behaviour of the real estate stock prices is the reflection of the flat or low trend observed in the trend analysis. For instance, SKYE REIT and UHomes REIT have a flat trend with some little fluctuations over the period under review (Fig. 1 and Fig. 2) while the prices of UPDC REIT and UACN property experienced a little turbulence but low price ups-and-down movement is non-frequent (Fig. 3 and Fig.4). Also, the study discovers that the prices of real estate stock having statistical significant p-value (p<.05) are characterised with ARCH effects but the distribution of the time series is non-normal (p<.05). The presence of the ARCH effect signal that the previous day's information on RES prices influenced today's shock in real estate stock price trading. For instance, yesterdays' news of UACN property prices possess a strong influence on today's pricing of the stock but the pattern of relationship is non-linear (random)

Meanwhile, from the analysis of residual presented in Fig. 5 to Fig. 6, the study discovers that, though the presence of auto-correlation and the ARCH effect has been ascertained in the time series dataset (price) of real estate stock, the degrees of fluctuations (volatility) of the residue are non-frequent (non-volatile). A stock that is characterised with volatility has cluster prices, exhibited fluctuations over prolong low fluctuations, followed by prolonged high turbulence

in price in a sequential pattern. This means that a long period of low/high fluctuations, followed by a long period of high/low fluctuations, and then with another long period of low/high fluctuations in that manner, but this is not the same case in the property stock price.

For instance the SKYE REIT and UHomes REIT have a long period of a flat trend with a noticeable little but sharp turbulence in the price over the study period. The flat trend in SKYE REIT is recorded between 100-250 trading days, while similar observations were noticed in UHome REIT price for trading days period of 1000 to 1500 (seeFig. 5 and Fig. 6). However, the flat trend in the SKYE R and UHome REIT implies that both stocks are non-volatile. Similarly, gentle/low fluctuations were observed in the trend of UPDC REIT and UACN property prices, but the pattern of fluctuations do not exhibit clustering prices and do not follow a volatility pattern (see Fig.7 and Fig. 8). The result, therefore, implies that real estate stock is non-volatile though the information of previous days price auto-correlate (behave similarly) and influences (ARCH effect) today's stock price in a random manner.

In the real estate investment and finance literature, authors such as Baker and Wurgler (2006) and Mian and Sankaraguruswamy (2012) describe the category of stocks as small, young, unprofitable, non-dividend-paying and distressed stocks in the capital market. The authors probe the investor sentiment towards the category of stock and reported a strong interaction exist between investor sentiment and the categories of the stock types; They concluded that the price of the stock (small, young, unprofitable, non-dividend-paying and distressed stocks) react sharply to good news when the sentiment is high and slowly to bad news in a bearish market period (low sentiment)
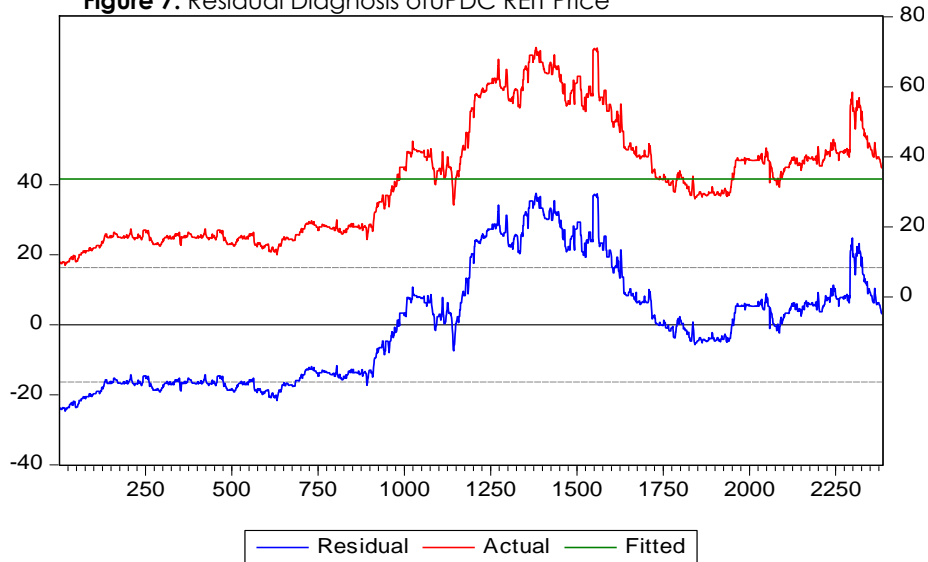
Figure 5: Residual Diagnosis ofSKYE REIT Price
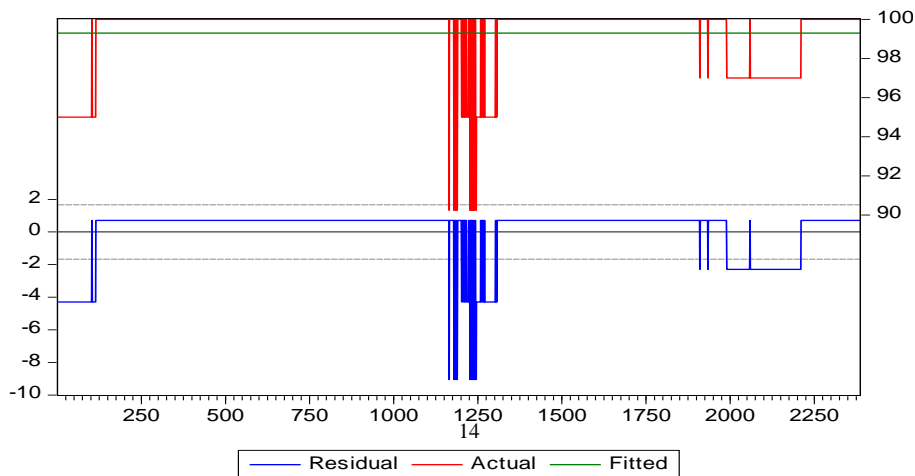
Figure 6: Residual Diagnosis of UHoes REIT Price
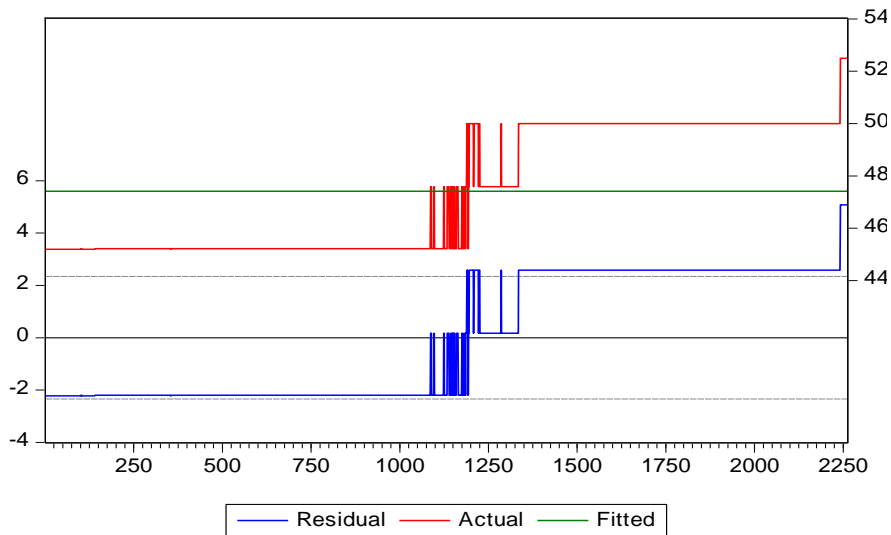
Figure 7: Residual Diagnosis ofUPDC REIT Price

Figure 8: Residual Diagnosis of UACN Property Price
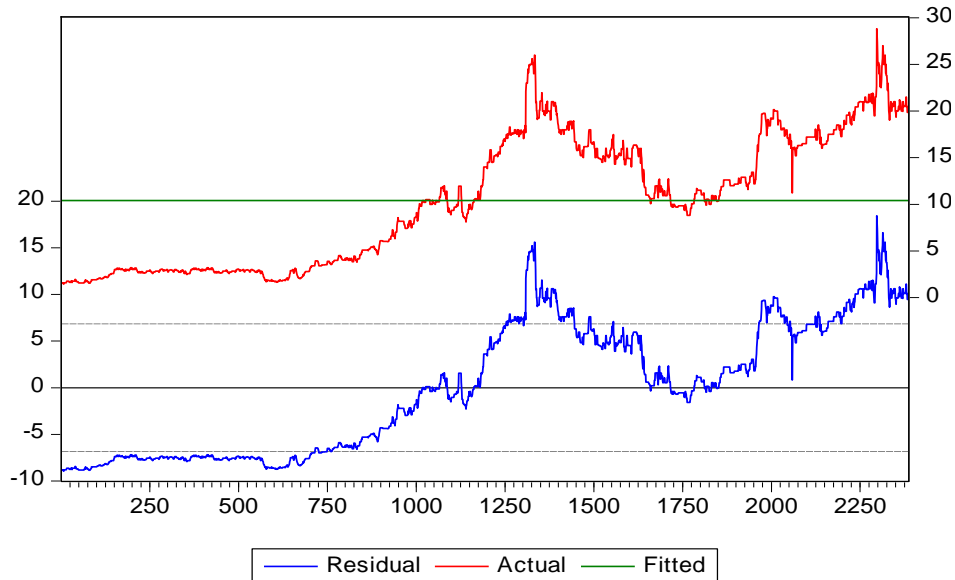
Source: Author's Computation from NGX Database, 2022

5. Conclusion

There is dearth academic research on the volatility risk characterised by Nigerian real estate stock as a result of their exposure to broader stock market. This study attempts to answer whether the real estate stock pricing dynamic is affected by volatility risk in the capital market. Using generalised autoregressive conditional heteroskedasticity (GARCH) model to analysis the volatility pattern of the property stocks, the study discovered that the information on the historical prices of the real estate stock is characterised by auto-correlation, ARCH effect but random walk (non-linear). The result indicate that previous day information on real estate stock pricing exhibit similar behaviour of today's price news and have statistically significant influence on today's stock pricing dynamics but the information is independent and random over the study period (2010-2019). Also, the flat with little fluctuations observed in the residual graph of the real estate stocks implies that the real estate stock is non-volatile. However, the evidence of decline in the price of real estate stock signals underperformance, and it remain a major concern to the potential investor. The flat or little changes in the price of the stock could be as result of low patronage, less volume traded, or less attractive stock due to low return. The unpalatable characteristics of the property

stock may discourage the potential investors, and could also mar the stability quality demonstrated by real estate stock amidst unstable economic condition in portfolio optimisation and diversification. Notwithstanding, the resilient ability of the real estate stock to volatility risk is an advantage to the stock quality, but there is need to improve of trading potential of the stock in the capital market to pull more investors and remain competitive trading stock in the capital market.

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