



ACTUAL INFLATION AND RETURNS OF RESIDENTIAL PROPERTY INVESTMENT IN ABUJA, NIGERIA.

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ABSTRACT

The aim of this research was to investigate the returns characteristics and the inflation hedging potentials of residential property investment in Abuja between 2012 and 2022. In order to achieve the stated aim, the objectives included: to investigate the average rental and average capital values as well as returns of residential property in the study area from 2012 to 2021; to

Introduction

In any residential real estate investment, wise investors like to carry out investments in assets which brings about high returns, low risk as well as guarding against the purchasing power of the investors' fund resources. Inflation is seen to be one of the factors affecting investments in a negative way. It is very pertinent therefore, for investors to evaluate the hedging potential of an asset class and the risk-return characteristics of an investment before embarking on such investment (Ekpo and Jeremiah, 2022). The impact of inflation has been experienced in recent times due to the economic atmosphere trying to recover from the effects of COVID-19 outbreak. It has not only led to the widespread increases in the prices of many goods but residential properties have not been immuned from its effects.

The term inflation is often not used in a precised manner. Any increase in price is treated as an



ascertain the trend of actual inflation in the study area from 2012 to 2021 and to analyse the inflation-hedging potentials of the investment in the study area. This research work adopted the cross-sectional survey type of design. Primary data used for this study was obtained through questionnaire survey. The data collected was used to calculate the returns. Descriptive statistics was used to analyse the data while the Holding Period Returns formula was employed to determine the returns of the properties. The study revealed that there was a consistent increase in the rate of returns of residential properties in the study area from year to year except a sudden decline in 2019 and 2020. The study also found out that throughout the study period, the actual inflation had been in the double-digit range with the exception of 2013, 2014 and 2015. The study also found out that the returns in the study area indicated a perverse hedge against inflation. This implies that the returns from residential property investment in Phase 2 of the Federal Capital Territory, Abuja, does not have the ability to hedge against inflation. Based on the research findings, it was recommended and concluded that further research be carried out to ascertain the relationship between returns and other components of inflation. The investment information provided in this study has significant implications for both local and foreign investors desiring to invest in the Nigerian property market, with particular reference to residential property market in Abuja.

Keywords: Returns, Inflation, Investment, Residential property, Abuja.

effect of inflation. Thus, in property, as rent increase, they are said to rise with inflation. Some researchers argue that if inflation is measured as the increase in the retail price index, then the growth in rent of many types of property is sometimes in excess of inflation and sometimes behind it. Mughees (2010) observed that inflation has a great impact on the risk-return profile of an investment asset class. Payton (2011) posited that inflation erodes the value of corporate earnings as well as devaluing the purchasing power of investors' funds, all over the world. It is therefore very vital for would-be investors to be equipped with reliable and current



pieces of information regarding inflation as it relates to investment. This would guide them in taking informed investment decisions. It is against this backdrop that the researchers are examining the capacity of residential real estate to offer inflation-hedge.

Inflation-hedging potentials of different asset classes have been the focus of many studies in both developed and developing countries (Fama and Schwert 1977; Bello, 2005; Dabara, 2013; Park and Bang 2012; Oluwasegun and Dabara 2013). Researchers have examined the inflation-hedging performance of: indirect and direct investments in real estate, investment in equities, stock, bonds among other. The outcomes of these studies have shown a varying pattern, indicating that there is no consensus on the hedging ability of various asset class for instance, Oluwasegun and Dabara 2013; Ogunba *et al* 2013; Dabara *et al* 2014 and Dabara 2013 observed that the inflation-hedging performance of real estate was particularly noted to bring about different opinions across different inflation components (expected, actual and unexpected). The differences were also noted in real estate types, even in the same geographical location. Odu 2011 asserted that this differences in the findings of the researchers may be attributed to the differences in microeconomic and macroeconomic indicators as well as varying time frames and erratic economic conditions.

Furthermore, irrespective of the fact that the result and opinion of the researchers on real estate performance as a hedge against inflation vary, there are still very strong reasons to carry out investments in real estate. The risk -return attributes of real estate especially the residential real estate, provides a “buffer through annuitized cash flow”, according to Dabara (2013), which equips wise and well-informed investors in the real estate circle to be able to deliver attractive returns from such investments by choosing the best risk-return strategy to be adopted for a particular portfolio at a given time.

Aim of the Study

The aim of this paper is to ascertain the relationship between residential real estate investment returns and inflation with a view to establishing



its inflation hedging performance in Phase 2, Abuja. In order to achieve the stated aim, the following objectives were set

Objectives of the Study

- i. To analyse the trends of capital values, rental values and returns in the study area.
- ii. To evaluate the patterns of actual inflation in the study area.
- iii. To establish the inflation-hedging performance of residential real estate in the study area.

Review of Related Literature

Dabara (2013) asserted that the earliest study on the relationship between returns and inflation was undertaken by Fama and Schwert (1977) in the United States of America. The authors employed the conventional ordinary least square regression model to examine the extent to which various assets were hedged against the expected and unexpected component of inflation rates between 1953 and 1971. Findings from the study revealed that residential properties were a complete against inflation. The study, however, had not carried out a test for the stationarity properties of the data sets employed. On this note, Dabara (2015) observed that the analysis of such data could be open to spurious regression results.

Sing and Low (2000) examined the inflation-hedging characteristics of non-property and property assets. The return was taken from all-property index of the Urban Redevelopment Authority. The authors also employed the Consumer Price Index and Treasury bills rates as proxies for the actual inflation and expected inflation respectively. Pearson Ranked Correlation Coefficient was used to examine the relationship between returns and inflation rates. Findings from the study showed that real property provides better hedge against inflation than non-property assets.

In Nigeria, Odu (2000) examined the relative hedging capacities of prime commercial properties (office spaces) in Lagos between 1999 and 2010. The research was aimed at empirically establishing the inflation hedging potential of commercial properties in prime locations of Lagos. To



achieve this, the Ordinary Least Square model as proposed by Fama & Schwert (1977) was used to regress real estate rates of returns against actual inflation rates. Data on the rental and capital values of the sampled commercial properties were obtained from selected practicing Estate Surveyors and Valuers in Lagos. The data on actual inflation was obtained from the Nigerian Consumer Price Index. The author computed both the expected and unexpected components of inflation using the 90-day Treasury bill rates within the study period (1999 to 2010) and the difference between the actual and expected inflation rates respectively. Results from the study showed that for prime locations around Victoria Island and Ikoyi, commercial properties (office spaces) provided a perverse hedge against actual inflation, whereas, commercial properties (office spaces) within Ikeja and environs presented a complete hedge against actual inflation. However, the study did not cover shop properties and the study was restricted to Lagos.

Meiling (2003) employed both regression model and Johansen's co integration models to test the hedging capability of hotel investments in Hong Kong between 1980 and 2000. The results from this study concluded that investments in hotel properties provided hedge against only the expected component of inflation.

In research undertaken by Bello (2005) to analyse comparatively the inflation-hedging capacities of direct real estate investments in Nigeria. The findings from the study showed that ordinary shares performed better than Naira denominated time deposits within the study period. The study considered investments in ordinary shares and Naira denominated deposits in the study area between 1996 and 2002. The Nigerian consumer price index was used as a proxy for actual inflation. Regression model was employed in the analysis of data for the study. However, it was suggested by the authors that real estate investment does not hedge against actual inflation.

Dabara (2015) examined in the northern part of Nigeria, the relationship between returns of residential property and inflation in Gombe metropolis. The study also adopted the consumer price index as a proxy for actual inflation, while using the 90-day treasury bill rates as proxy for expected inflation and the difference between the two components was



computed to derive the unexpected inflation rates. The study determined the stationarity status of the data sets used. In line with earlier studies, the study also adopted the ordinary least square regression model in the analysis. The study found out that returns from the study area provided a partial hedge, a complete hedge and a perfect hedge against actual inflation, expected inflation and unexpected inflation respectively.

Methodology

The research method adopted was the cross-sectional survey design. First, primary data on the average rental and capital values of residential properties (per square meter) in prime commercial areas of Phase 2 of Abuja (Jabi area, Apo-Dutse axis, Jahi axis, Kukwaba and Utako District) were obtained through questionnaire survey administered on the eighteen (18) Estate Surveying and Valuation Firms in Abuja Phase 2, through a total enumeration survey (this is because the Estate Surveyors and Valuers are the only professionals in Nigeria that are empowered by Decree No 24 of 1975, to determine the value of properties and their interest). Each of the firms have an average of 86 residential properties in their management portfolios making an average total of 1,548 residential properties in the management portfolios of all the estate surveying firms in study area. However, only 14 questionnaires were correctly filled by the respective partners/branch managers of the firms and returned for analysis covering an average of 1,204 residential properties (representing 77.78% response rate). The response rate was considered adequate by the researcher since it's the aggregate averages of the respondents' responses that will be used for the study.

Second, the valuation-based indices of the average rental and capital values for the 1,204 residential properties per square meter obtained from the estate surveying and valuation firms were used to calculate the total returns from investments in residential properties in the selected commercial areas of Abuja Phase 2 (Jabi area, Apo-Dutse axis, Jahi axis, Kukwaba and Utako District). The analysis was based on only the actual inflation rates as well as capital and rental values obtained between 2012 and 2022. The rental and capital values of investment in commercial



properties were all accordingly calculated to obtain their respective holding period returns using Equation 1.

The Holding Period Return is expressed as

$$r = \frac{Z_1 - Z_0 + a_1}{Z_0} \dots$$

Equation 1

Where:

r = Holding Period Return

Z₀ = Capital value of commercial property at the beginning

Z₁ = Capital value of commercial property at the end

a₁ = Net Income of direct property received during the holding period

From the foregoing, the holding period returns of the residential property investment were obtained.

Third, the secondary data on inflation required for the study was obtained from the records of Nigerian National Bureau of Statistics (NBS). In line with previous studies such as Bello (2005) and Ogunba *et al* (2013), the actual inflation rates were derived from the Nigerian Consumer Price Index (CPI) which was computed by the NBS. Furthermore, trend lines were used to graphically display trends in the inflation and returns data series used for this study to help analyze problem of future predictions. The R² value was used to determine the reliability of the trend and the accuracy of the forecast or predictions made. A trend line is said to be most accurate when its R-Squared value is at or near 1. Similarly, least square linear regression equations were generated for prediction of future rental, capital and total returns as well as inflation rates. These are the equations of a straight line that best fits the points on the chart. The method used to determine these equations involves finding the line that produces the least value for the sum of the squares of the vertical differences between data points and the line. The equation is in the form:

$$y = mx + b$$

... Equation 2

where: y is the dependent variable (rental, capital or returns values as the case may be) m is the slope of the line, which equals the change in



the y value divided by the change in the x value; x is the dependent variable (year in this case); and b is the y-axis intercept of the line.

Decision Rule: An asset is considered a complete hedge against inflation if the value of β (beta) is not significantly less than 1 (i.e., between 1 and 0.5). An asset is a partial hedge against inflation if the value of β is significantly less than 1 (i.e., between 0.4 and 0.1). An asset has zero hedge against inflation if the value of β is not significantly different from zero. An asset has a perverse hedge against inflation if the value of β is negative.

Data Presentation and Analysis

This section presented the results from analysis of data collected for the study and goes on to discuss the results accordingly. First, the profile of the respondents was analyzed; second, the average rental/capital values of the residential property investments were presented and used to calculate the total returns obtained from the study area between 2012 and 2022. Third, the inflation trend in the study area within the study period was presented and analyzed accordingly. Finally, regression results which revealed the inflation-hedging characteristics of the selected residential property were accordingly presented and discussed in order to achieve the main objectives of this research work.

Analysis of the profile of respondents

In this section, an attempt was made to analyse the profile of the respondents in order to ascertain the reliability of the data obtained.

Table 1: Respondents' profile

| Profile | Item | Frequency | Percentage |
|---------------------------|----------------------------|-----------|------------|
| Educational Qualification | Doctor of Philosophy (PhD) | 3 | 21.43 |
| | Master of Science (MSc) | 3 | 21.43 |
| | Bachelor of Science (BSc) | 6 | 42.85 |



| | | | |
|---|-------------------------------|-----------|------------|
| | Higher National Diploma (HND) | 2 | 14.29 |
| | Total | 14 | 100 |
| Professional Qualification | FNIVS | 2 | 14.29 |
| | ANIVS/RSV | 11 | 78.57 |
| | ANIVS | 1 | 7.14 |
| | Total | 14 | 100 |
| Years of Professional Experience | Above 20 years | 1 | 7.14 |
| | 15 – 19 years | 1 | 7.14 |
| | 10 – 14 years | 5 | 35.71 |
| | 5 – 9 years | 3 | 21.43 |
| | 1 – 4 years | 4 | 28.57 |
| | Total | 14 | 100 |

Source: Researchers' field survey, 2022.

Table 1 presents the profile of respondents who supplied primary data on rental and capital values in terms of their educational qualifications, professional qualifications and years of professional practice as Estate Surveyors and Valuers. This was done in order to ascertain the validity and reliability of the data collected for the study. All the respondents were either polytechnic or university graduates with different categories of degree. The PhD holders, HND (Higher National Diploma) holders and MSc holders constituted 21.43%, 14.29% and 2.43% respectively while the BSc holders constituted 42.85%, which formed the highest rate. This shows that all the respondents had good academic qualifications in the respective firms, which give more credence to the reliability of the data provided. In the same vein, all the respondents are in different membership cadre of the Nigerian Institution of Estate Surveyors and Valuers (NIESV), and most of them have professional experience of above 10 years. This showed that all the respondents are academically and professionally qualified to supply reliable data for this study.

Analysis of the average rental, capital and total returns of residential property investment in Abuja

In this section, an attempt was made to analyse the average rental and average capital values of residential properties in the study area from 2012 to 2021 as shown in Table 2.



Table 2: Average capital value, average rental value and returns in the study area

| Year | Capital Value (₦) | Rental Value (₦) | Rate of Returns |
|------|-------------------|------------------|-----------------|
| 2012 | 25,867,216 | 485,000 | 12.58 |
| 2013 | 29,206,431 | 515,000 | 14.90 |
| 2014 | 43,163,428 | 570,000 | 15.50 |
| 2015 | 49,514,322 | 620,000 | 16.15 |
| 2016 | 56,494,091 | 690,000 | 15.49 |
| 2017 | 65,051,720 | 730,000 | 16.44 |
| 2018 | 75,206,430 | 800,000 | 16.84 |
| 2019 | 83,736,531 | 865,000 | 12.49 |
| 2020 | 88,011,360 | 900,000 | 6.18 |
| 2021 | 93,642,062 | 992,000 | 7.53 |

Source: Researchers' field survey, 2022.

As shown in Table 2, apart from a continuous increase in both the capital and rental values of the property from year to year, there is also a consistent increase in returns from year to year, except a decline which occurred in 2019 and 2020. The highest return, which is 16.84% from the residential properties was obtained in 2017; while the lowest return (6.18%) was obtained in the year 2020. This may not be unconnected with the recent economic atmosphere currently prevailing in the world as a result of the COVID-19 pandemic.

Similarly, the inflation rate was obtained from the records of the National Bureau of Statistics and presented as shown in Table 3

Table 3: Inflation rates in Nigeria

| Year | Inflation Rates |
|------|-----------------|
| 2012 | 12.22 |
| 2013 | 8.48 |
| 2014 | 8.06 |
| 2015 | 9.01 |
| 2016 | 15.68 |
| 2017 | 16.52 |



| | |
|------|-------|
| 2018 | 12.09 |
| 2019 | 11.40 |
| 2020 | 13.25 |
| 2021 | 16.91 |

Source: National Bureau of Statistics, 2022

Table 3 showed that throughout the study period, the actual inflation had been in the double-digit range with the exception of 2013, 2014 and 2015. The inflation rates were observed to have kept fluctuating indicating some inflation volatility.

The trend analysis of the average capital and rental values as well as the inflation rates are presented in Figure 1, Figure 2 and Figure 3 respectively.

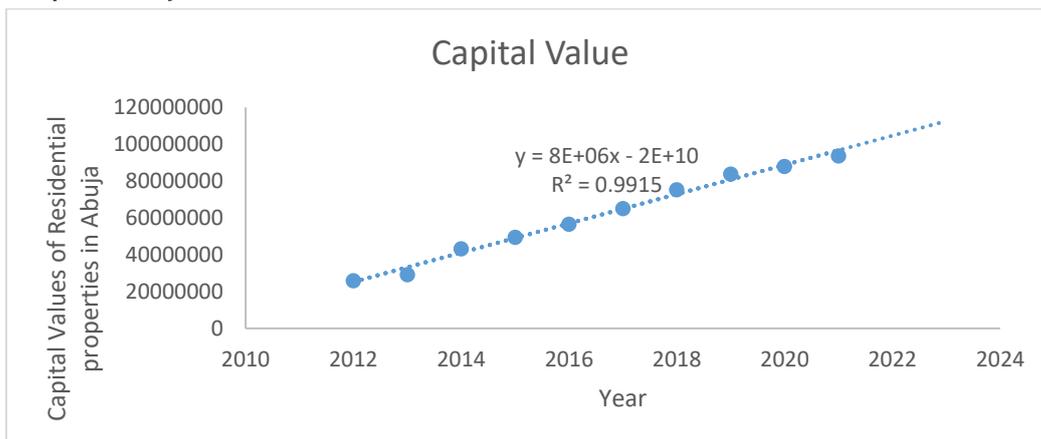


Figure 1: Trend line Analysis of Capital Values of Residential Properties in Abuja

From Figure 1, the trend lines show continuous rise in residential real estate investment in the study area from year to year. This is an indication that there will be increases in the capital values of residential properties and that the increases will continue into the future. The model is fitted for predicting future capital values of residential values in Phase 2 area of Abuja with coefficient of determination equals 0.9915, implying that *ceteris paribus*, there is high probability that the forecast will be realized. Figure 2 is the graphical illustration of the rental values of residential values in the Phase 2 section of the Federal Capital Territory, Abuja.

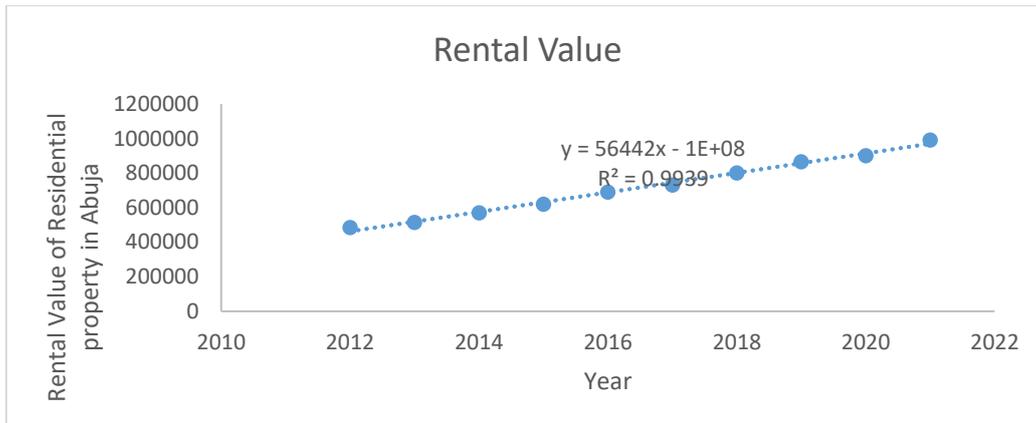


Figure 2: Trend line Analysis of Rental Values of Residential Properties in Abuja

From Figure 2, the trend lines also show continuous rise in residential real estate investment in the study area from year to year. This is an indication that there will be increases in the rental values of residential properties and that the increases will continue into the future. The model is fitted for predicting future capital values of residential values in Phase 2 area of Abuja with coefficient of determination equals 0.9939, implying that *ceteris paribus*, there is high probability that the forecast will be realized. An attempt was also made to diagrammatically present the rate of inflation as shown in Figure 3

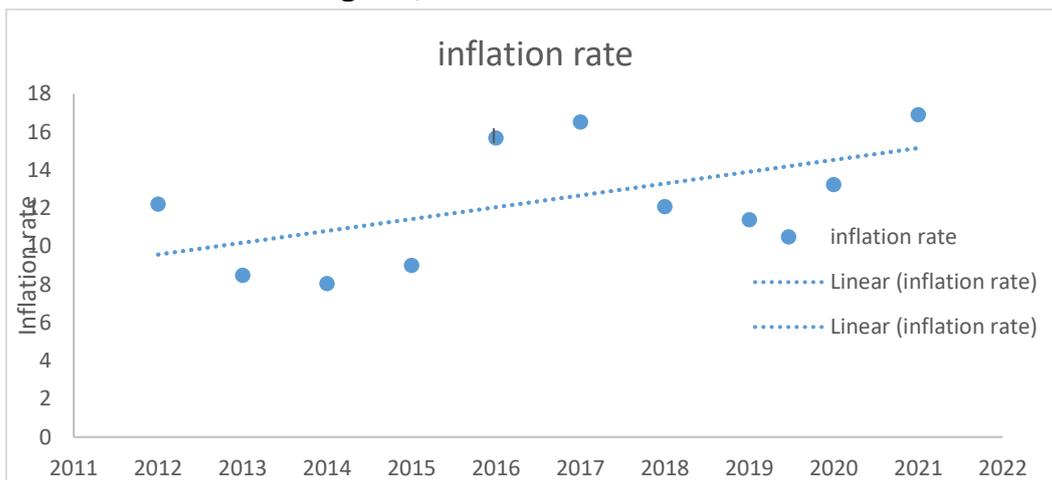


Figure 3: Trend line Analysis of Inflation rate in Nigeria

Figure 3 presents the inflationary trend in the study area from 2012 to 2022. Actual inflation was obtained by using the Nigerian Consumer Price



Index as a proxy; this was sourced from the records of the Nigerian National Bureau of Statistics. Figure 3 showed that throughout the study period, the actual inflation had been mostly in the double-digit range and the inflation rates were observed to have kept fluctuating indicating some inflation volatility.

Analysis of the inflation-hedging potential of residential properties in the study area

In this section, an attempt was made to employ Equation 2 which expressed the Ordinary Least Square Regression as proposed by Fama & Schwert (1977) in the determination of the hedging characteristics of residential property investments in the study area between 2012 and 2022. Table 4 presents the result of regressing the residential investment returns against inflation rates in the study area.

Table 4: Inflation-hedging characteristics of residential properties in Phase 2, Abuja.

| Coefficients ^a | | | | | | |
|---------------------------|------------|-----------------------------|------------|---------------------------|--------|------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | .163 | .040 | | 4.084 | .004 |
| | returns | -.294 | .288 | -0.340 | -1.022 | .337 |

a. Dependent Variable: Inflation rate

From Table 4, it can be deduced that returns in the study area indicated a perverse hedge against inflation due to the negative beta value of -0.34 when the regression analysis was done.

Discussion of Findings

The study found out that there was a continuous increase in both the capital and rental values from year to year. The study also found out that there was a consistent increase in the rate of returns of residential properties in the study area from year to year except a sudden decline in



2019 and 2020. This decline may not be unconnected with the recent economic condition brought about by the outbreak of COVID-19 disease. The study also found out that throughout the study period, the actual inflation had been in the double-digit range with the exception of 2013, 2014 and 2015. The study also found out that the returns in the study area indicated a perverse hedge against inflation. This implies that the returns from residential property investment in Phase 2 of the Federal Capital Territory, Abuja, does not have the ability to hedge against inflation.

Conclusion and Recommendation

As both Estate Surveyors and property investors get more involved in the management and investment in residential property portfolio respectively, they are increasingly confronted with the need to assess the inflation-hedging potentials of residential properties. The study examined the returns characteristics and the ability of residential properties in Phase 2, Abuja, to hedge against inflation in the present economic situation of Nigeria. It however, did not ascertain the risk involved in the investment of residential properties in the study area. It employed the Survey method to collect data for analysis. The study generally found out that there was a steady and continuous increase in the rental and capital values of the commercial properties under study, but the residential property investment did not have the capacity to hedge against inflation under the economic atmosphere between 2012 and 2022. However, the study recommends that further research be carried out to determine ability of residential properties in the study area to hedge against expected and unexpected inflation. The information provided in this study can provide a basis for investors to make informed decision with respect to residential real estate investments in emerging property markets in general and in Abuja in particular.

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