Inflation Hedging Capacity of Commercial Property Investment

(Case Study of Kogi State Property Market)

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***Abstract***

*This study examines whether Kogi commercial real estate market can hedge against inflation during the 1998-2008 period. Sixty (60) commercial properties were selected for rental growth study from the study area using random sampling technique. Average annual growth rates were calculated for these commercial properties in the study area for 10 years (1998-2008). Time series graph was use as a description statistical tool for pictorial representation. Finally, least square method of regression analysis was used to forecast future rate and inflation growth profile for the next eight (8) years. The major empirical finding was that commercial real estate investment in Kogi State grows year by year at rate higher than inflation during the period. The paper concludes that commercial real estate investment in Lokoja offer significant inflation hedging opportunity. The paper recommended that: both international and local institutional and serious private investors should earnest this market*

***Key word:*** *inflation, hedging, capacity, commercial, investment*

1. **INTRODUCTION**

Inflation is among the worst nightmares depriving investors of peaceful sleep. Inflation erodes the value of corporate earnings and roils stock investors; inflation favors borrowers as debt repayments are made in lower value, and inflation pummels consumers especially those on fixed incomes by depressing the purchasing power of their incomes.

Real estate industry forms a major factor in the development of nations through investment and employment generation. In this empirical study, the term real estate and properties refers to land and landed properties and are used interchangeably in this report. Real estate industry is recognized in various literatures as consisting of various classifications based on property use types. Sirota (2004) identifies numerous and diverse investment opportunities in real estate to include land, residential developments, office buildings, shopping malls, industrial project and mobile home parks.

Karley (2009) also identify main areas of pure investment in real estate as consisting of shops, offices, industrial properties and ware houses, all of which are commercial real estate. Investment in commercial real estate represents a high portion of total real estate investment stock in most economies. Downs (2009) asserted that a major traditional reason for investing in commercial real estate was hedging against inflation.

In a stable economic condition (i.e. non inflationary), commercial properties are known to combine security attributes with increase in value power. This paper is therefore; focus on assessing inflation hedging capacity of commercial real estate investment in Lokoja over a period of ten (10) years (1998 - 2008). Inflation hedging is the ability of an asset to protect against the erosion of an increase in value. In other to maintain good focus and achieve reasonable depth in the area of this study as proposed in the title, it is not intended to give detailed coverage to the behavior of other forms of investments such as equity stock, bonds, treasury bills etc. however, reference has been made of some of them under relevant tangential discus as was necessary to aid understanding of the dynamics of commercial real estate investment.

**1.1 BACKGROUND OF THE STUDY**

Investment is the act of laying out of money now in return of a future financial reward or as Greer and Farrell (1984) put it, “the sacrifice of something now for the prospect of later benefits”. The reward maybe received in the form an income flow or by the receipt of a single capital sum or a combination of both.

The aim of rational investors is not only to maximize returns but also to reduce investment risks. Among the risks investors face, inflation has become one of the predominant concerns because it erodes the real return on their investment. The fear of losing purchasing power urges investors to invest in assets that protect against the adverse effects of inflation. These assets are called inflation hedges. Particularly when the erosion of purchasing power by inflation is partially or fully offset by the increase in the investment asset’s return, this asset is said to hedge against inflation. In his theory of interest rate, Fisher posits that expected nominal interest rates should move on a one-for-one basis with expected inflation. This so-called Fisher hypothesis, generalized to other investment assets, implies that the expected nominal return on any investment asset should be equal to the expected inflation rate plus its expected real return, which is assumed to be independent from inflation.

Inflation-hedging assets are more attractive than others. Among alternative investment assets, real estate has historically been viewed as a good investment asset and a powerful inflation hedge. Investing in direct real estate serves both the need for housing and the wish to protect wealth against inflation. Real estate is ranked second, following Treasury Inflation Protected Securities (TIPS), among the best inflation hedges. For long-term investors such as pension funds, insurance companies, which are confronted with liabilities that are positively related to inflation, real estate has always been a preferred investment asset. Similarly, real estate is also a desirable choice for young investors seeking secured retirement. However, in practice, whether or not real estate can provide a hedge against inflation is still a controversial issue.

**1.2 AIM OF THE STUDY**

The aim of this paper is to determine whether investment in commercial property in Kogi is a hedge against inflation.

**1.3 OBJECTIVES**

To achieve the above aim, the below objectives are pursued

1. To determine the rental growth rate in Kogi property market,
2. To compare rental growth with corresponding inflation rate during the period covered in this study and
3. To attain a trend forecast for both indices for the next five years

**1.4 RELEVANCE OF THIS STUDY**

The importance of this study is that it provides data which will:

* Enable commercial real estate investors in Nigeria to have a good knowledge of the future growth rate of their investment return relative inflationary growth.
* Aid real estate investors transacting in Lokoja property market to take the right investment decision focused on obtaining investment returns at a rate greater than inflate growth.

Annual return on investment expressed in percentage (%) annual rental growth is the basis of data from this study. The task is to answer the question: Does commercial real estate investment have the ability to serve as hedge against inflation? Empirical data supported answer to the above question is the prior expectation of this study.

**1.5 JUSTIFICATION OF THE STUDY**

The rationale for this study is to examine ascertain if commercial properties in Kogi State hedges inflation or not. The choice of Kogi is because several works has been conducted on related issue but the focus has always be in Lagos being the commercial nerve of the country; Rivers because it’s the home of Nigeria’s industries and others on Abuja being the administrative headquarter of the nation. Little or no work at all has been conducted on Kogi State despite it locational advantage. Kogi lies in Nigeria middle belt now North Central geo political zone. It’s has a close proximity to all regions of the country (North, East, south and West) it is more of a nodal state therefore all transportation routes passes through there as such facilitates greater investment opportunities.

**1.6 LITERATURE REVIEW**

Several research works on the relationship between real estate and inflation have been conducted by several scholar using Ordinary Least Squares (OLS) to investigate the expected and unexpected inflation hedge of corporate bonds, government bonds, treasury bills, real estate returns, common stock returns and wages with results indicate that only residential real estate can provide a perfect hedge against both expected and unexpected inflation..

Studies on the inflation-hedging capability of other types of real estate in different countries provide, however, mixed results For example, Rubens, et al., (1989) investigate the inflation hedging-ability of three types of U.S. real estate, i.e. residential, commercial and farmland. They find that only residential real estate can provide a perfect hedge against inflation. While commercial real estate can hedge against expected inflation, it cannot hedge against unexpected inflation. In contrast, farmland provides a hedge for unexpected inflation, but not for expected inflation. Zooming in on more specific property types such as apartments, office, retail, and warehouse property, Huang and Hudson-Wilson, (2007) find that offices are the best hedge against both expected and unexpected inflation. The next best hedges are apartments followed by warehouses. In contrast, retail does not provide a hedge against inflation. These empirical findings indicate that various property types may show a different sensitivity to the inflation due to differences in the renting contracts used. Retail leases e.g. may contain rent provisions specifying the rent as a percentage of gross sales, thus letting their revenue vary directly with the consumer price level. In addition, also other lease characteristics (typical term of lease, renewal options, etc.) may influence the relationship between inflation and real estate returns. For instance, the terms of lease may impact the operating expenses that in turn influence rental income. If a lease allows for a pass-through of operating expenses to the tenant such as for office and retail leases, the rental incomes are unaffected by an increase in inflation. In other words, real estate value may reflect increases in the general level price, and hence may provide an inflation hedge. Conversely, if it is a fixed-rent, long-term lease such as customarily in Hong Kong, an increase in inflation may negatively influence rental income. In such a case, real estate is not a good hedge against inflation.

Real estate’s inflation-hedging capacity may not only vary across property types, but may also be a function of the prevailing economic conditions. Li (2001) finds that the significant relationship between Canadian real estate and inflation found in a high inflation period (1974-1982) disappears in a low inflation period (1983-1994). Le Moigne and La ,(2008) attribute this to the Bank of Canada following a strict inflation targeting framework in which inflation rates are always kept at low levels. Yet, these results contradict those of (Önder, 2000) . He finds that real estate in Turkey does not provide an inflation hedge in a highly inflationary environment.

**1.6.1 OVERVIEW OF INVESTMENT**

The term investment has different meanings in economics and finance. While the economists on the one hand see investment as consisting of capital expenditure made in tangible goods which can be land, buildings, plant and machineries, etc. with a view to earning future streams of incomes. Financial economists refer to the financial assets such as bank savings, equity shares, bond and treasury bills etc as investment tool. Strong (1998) submitted that all forms of investment are assets. An asset is a thing owned by someone. Comparatively, financial asset for shorter holding periods than real estate assets. Financial asset may increase or decrease in value over a short period of time, given the investor capital gains or losses. Whereas, the value of real estate investments are relatively more stable, often increases in value both in rental income it generates and capital gains over time. The extent to which an investment in commercial real estate in Lokoja, Kogi State shows increase in rental values overtime was mentioned analyzed and compared with growth in inflation over the same period.

**1.6.2** **PROPERTY AS AN INVESTMENT.**

The property market must be seen as part of the overall investment market and at the same time, a distinct segment having its unique attributes and peculiarities.

A reasonable assumption is that any prospective investor would have identified all the investments possibilities before a decision as to where to commit funds. Most investors wish both to maximize annual returns and to protect the purchasing power of the capital invested. The decision to invest in property rather than government stock or other fixed interest investments is a major step requiring skills of financial and physical management as well as access to substantial funds.

It is significant to note that most investments are traded in an atmosphere of uncertainty and investors will attempt to reduce this uncertainty to the barest minimum through market research. Two vital are necessary in the process, namely, the price of the investment and the current income produced by the investment. For bank deposits, the current is the current interest rate; for fixed interest gilts, the coupon; for ordinary shares, the last dividend payment and for property, the current rental income. These two certain information, price and income are used to provide a common market measure by which investments are compared. This common market measure is known as the **initial yield** and it is given as

Net current income X 100.

Price

The level of the initial yield will be determined by several factors which determine the quality of an investment. A low initial yield is indicative of high quality of investment as the market would bid a high price in relation to the level of current income. To some extent, the yield reflects the investor’s views about future risk attached to the investment. The higher the yield, the higher the risks and problems attached to the investment and vice versa.

The nature of property market is so different from every other form of markets in which investments are traded that no real understanding property investment is possible without an appreciation of its characteristics.

Economist often refer to the concept of the perfect market which is defined as one in which there are many buyers and sellers, with an homogenous product, perfect knowledge of transactions in the market and the inability of one supplier to influence prices. Although no market place fulfils all these conditions, the property market is in its level of imperfection. Amongst the factors that have contributed to this imperfection are the following:

1. There is no central market place and no quoted current price. Transactions can take place through a series of submarkets according to type, location, and purpose whether for owner occupation, investment or development. Because there are no quoted prices, the valuer has to work on analogue of recent similar deals in the market adjusting to make up for features present or absent between the two comparables.
2. Lack of knowledge of transactions which derives from the lack of market place. A good deal of secrecy surrounds most deals. Even where prices are published, so information may not reveal the condition of the property and other factors surrounding the transaction.
3. The supply of land in the short term is fixed as such can result in monopoly power among vendors and leasors
4. Transactions in the property market can be complex often arising from complex finance and legal arrangements. Thus, the time taken to complete a deal can be lengthy and costly. This also means the market is less volatile than stock market where transactions are relatively quicker, less expensive and easier to effect.

**1.6.3 INFLATION AND STOCKS**

Several studies documented a negative relationship between stock prices and inflation. (Linter, 1975; Nelson, 1976; Fama and Schwert, 1977; Jaffe and Mandelker, 1979); Fama (1981 and 1982), Geske and Roll, (1983) Wahlroos and Berglund, (1986), was reported in Shannon and Waltchack,(2008), concluded in their respective studies that expected and unexpected inflation have adverse effect on stock returns in the United States. In a local study here in Nigeria Bello, (2004) reported that residential property investment does not hedge against actual inflation but against expected inflation. However, economist claimed that a measure of inflation is necessary to drive growth in an economy. This implies the need for both investors and investment portfolio managers to constantly evaluate asset performance, and to restructure asset classes and types within their portfolio holding for greater efficiency.

**1.6.4 INFLATION AND REAL ESTATE INVESTMENTS**

Some of the queries often asked by real estate investors are:

* What effects will a higher than normal inflation has on real estate investment?
* How does real estate investment react to such high inflation?
* Does direct real estate investment offer inflation hedging advantage to investor?

Researchers such as Shannon and Waltchack observed and inferred in 2008 on the first question saying inflation has both positive and negative effects on both existing and proposed or yet to be completed buildings. They observed that one who already has a building is at an advantage over someone who is just proposing to build one because of the escalating effect of inflation on general prices. Prices of construction material and labor cast are high too. Scholarly works on building projects in Kogi State on building abandonment proof affirmative their claims. They also suppose their negative opinion on inflation being have negative effect on real estate by saying that investors with existing properties will experience a dwindle or fall in the return on their investment both in real and money term.

The negative opinion of these bookworms however is a complete aberration in Kogi property market. Obtainable field data pointed to the fact that almost all medium and long term leases have adequate rent review provision. For the other two questions above, works of other scholars like those of Fama and Schwert (1997), suggested that residential real estate offers outstanding hedge against both expected and unexpected inflations. Hartzell, Heckman, Ruben and Bond, Miles and Mahoney (1997), Webb (1989) and others concluded that non securitized (direct) real estate investment possesses low capacity to hedge against inflation. It is this backdrop that accentuates the need for local study on a dominant property in a vibrant Nigerian property market. Both parameters are amply satisfied in a study of Commercial Real Estate Market in Kogi State.

**1.6.5 COMMERCIAL REAL ESTATE INVESTMENT’S MARKET CHARACTERISTIC**

Demand for commercial real estate properties is essentially a derived demand. Fraser (1995) argued that commercial property occupation demand is a derived demand in that demand for a type of property is ultimately determined by the level of demand for goods or services typical to that property type. Profitability of tenant business essentially depends on the income from the sales of products which is influenced by the price elasticity of demand for the tenant’s product. Variables that influence consumer purchasing power and business costs influenced the level of accommodation demands. These variables are macro-economic variable such as: the gross domestic product (GDP) indices, real wages, interest rate, government economic policy etc. major economic policies in the areas of citing of Dangote Cement Factory in Obajana, work in Ajaokuta Steel mill, tertiary education institutions in Idah, Ayingba and Felele created significant commercial activities which have raised demand level for commercial real estate in Kogi State.

Commercial real estate supply in Kogi consists of stocks or existing buildings and new supplies delivered by construction works. Commercial accommodation may become available in existing buildings in many ways. It can come from a tenant’s decision to downsize, expand, and restructure business or by conversion from one form of use to another. It can also occur from alteration or extension works. Whichever way, it simply adds to property supply in the market.

The bulk of commercial property supply in Kogi State comes from newly completed building projects. This is in line with the features of developing real estate market. In advanced economics with matured property market, new property flows into the market is usually insignificant compared to supply from existing buildings. This supply feature of commercial property in Kogi is responsible for occasional acute shortage of certain commercial accommodation in the market. Accommodation supply from new properties is inelastic in the short run, thus, its influence on price level is insignificant.

**Table 1: Mode of space vacancy**

|  |  |  |  |
| --- | --- | --- | --- |
| Location | Conversion/alteration % | New buildings % | Total % |
| Lokoja,  Ajaokuta,  Ganaja,  Ayingba.  Idah,  Okene, | 42  30  35  15  12  35 | 58  70  65  85  88  65 | 100  100  100  100  100  100 |

**Field survey data (2015)**

Table 1 above shows that the bulk of accommodation available in the market comes from new buildings. In Okene and Ganaja 70 and 65 percent respectively which is a high proportion of the total supply of commercial accommodation comes from newly completed buildings. This can be explained by the fact many existing low rise buildings are been re developed into high rise with bigger space and better facilities. The balance of 30 and 35 percent respectively of the accommodation supplied by existing properties is encouraging. Suggest that Okene and Ajaokuta sub property market are maturing. The study revealed that movement from smaller accommodation to better larger ones in new building is the major factor that released vacant spaces in existing buildings. Another significant factor is the issue of business entities, which for various reasons, no longer want to occupy prime location. Movement of such entities to a secondary location delivers the vacant accommodation to the market. Conversion, extension and alteration work were seen in all segments of Kogi commercial real estate market as indicated in the table 1 above.

**1.6.7 MAJOR MICROECONOMIC DRIVERS OF COMMERCIAL PROPERTY VALUE HIGH END PROPERTY MARKET**

The type of use been converted from, and the reason for such conversion, alteration and extension works varies from one market segment to another. In this study, the high end commercial markets are considered to include: Lokoja, Okene and Ajaokuta. Ongoing changes in the physical characteristics of the built environment are relatively similar in Lokoja, Okene and Ajaokuta property market segments. In these locations, low rise residential buildings are giving way, either to high rise commercial buildings or mixed used building finished in world class standards. The large plot size available in Ajaokuta market is the major attraction to real estate investment in view of the recently allowable higher building density in the neighborhood.

**1.6.8 LOW END PROPERTY MARKET**

In the low end market, most of the opportunities for conversion of use occur in the nature of change of use often from residential to commercial use in transiting zones. Commercial property supply of this nature was largely noticed in Idah and Ayingba where commercial uses have significantly usurped many residential properties. Major drivers of demand in this segments include: Banks branch offices, micro finance institution, automobile sale companies, shopping malls, hotels and clubs, inter-state termini, private corporate offices, petrol filling stations etc all these amongst other like uses are the core micro economic activities that drives commercial activities in this segment. In Idah area of Kogi, a combination of banking, ware housing facility, school (higher institution of learning) etc where the bulk economic forces driving demand for commercial properties in the sub property market

**2.0 CONCEPTUAL FRAMEWORK**

Increasing need for high and secured returns and capital growth is driven by rising global competition through open market. Investors aim at protecting their asset against inflation triggered depreciation of return and capital gains. This attribute is present in an asset if the asset’s nominal returns have a positive relative with inflation. It is against the background of establishing and measuring this relationship that this study set out to exam the inflation hedging capacity of commercial real estate by:

1. Measuring rental growth rate in commercial properties
2. Calculating a composite average growth rate for all types of commercial accommodation in properties
3. Comparing the composite average growth rate with corresponding national inflationary rate figure

**3.0 ANALYSIS OF DATA COLLECTION METHOD**

Shops and offices uses are nominal to commercial property types in all 6 property market locations selected for this study. Each of the sub market was divided into four distinct stratas based on concentration of commercial activities. This was to ensure that all classes of commercial properties were represented in the sample. 20 buildings were then randomly selected from each submarket. On the whole, a sample frame of 120 building was drawn for study. Rental data on these buildings for the period under study were extracted from managing firms and occupying tenants. Data gathering instrument used were questionnaire and personal interviews. Discrepancy was noticed in rental data collected from three sources enumerated above. To sort out this anomaly, the various data were unified through data averaging process for each accommodation type in similar property class located within the same neighborhood. Harmonized annual rent amounts representing the market values for ten (10) years period (1998-2008) were then used for data analysis. Annual rental growth rate were calculated for each use for the period, using 1997 as the base year. Calculated rental growth rate for shops and offices were mixed together, averaged out and compared with annual national inflationary rate figure for the same period.

Time series graph was used to show the growth trend between commercial property rent and inflation over the period.

**4.0 FINDINGS AND DISCUSSION**

Below is a table showing how property market responds to major socio-economic and political changes in the economy. The growth rate of 1999-2003 (40.9% - 44.1% see totals in 7th and 11th columns in table 2A below left to right) coincided with the period when investor and politicians were positioning for democracy dividends. While significant decline in growth which occurred between 2004 and 2005 (32.8% - 33.7% see total in 5th and 6th columns in table 2A below left to right) also coincided with the period when banks under recapitalization mandate by the CBN were recalling funds which brought about temporary credit crunch in the financial year at that time. This in turn created a brief drop in high end property market dealings. Highest growth rate of 2006 occurred at a time when banks were scrambling for branch office spaces in vantage locations all over Ajaokuta, lokoja and Okene property markets. This may also be linked with surplus cash in circulation towards the end of the fourth democratic rule in Nigeria, because the last quarter of 2006 and the first quarter of 2007. At the period, most outgoing politicians sought to invest part of their wealth in real estate properties. The relative low growth rate recorded in 2007 and 2008 (35.2% - 35.3% see totals in the 2nd and 3rd columns in table 2A below Left to right) was somewhat as a result of lack of aggressive economic expansion policy of the then government, added to this is the then Niger Delta crisis which disrupts oil production activities in the country and the effect of global financial crisis. All these have reduced transactions in high end property market.

**4.0 ANALYSIS OF DATA PRESENTATION**

Annual growth rates for different commercial uses in various property market segments: Lokoja, Okene, Ajaokuta, Ganaja, Idah, and Ayingba.

**TABLE 2A: AJAOKUTA**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Year | 2008 | 2007 | 2006 | 2005 | 2004 | 2003 | 2002 | 2001 | 2000 | 1999 | 1998 |
| Office  Shop | 12.4  17.1 | 12.7  18.5 | 10.9  35.0 | 09.7  20.0 | 09.2  19.6 | 13.2  26.9 | 09.8  24.8 | 18.2  23.3 | 19.0  19.4 | 22.2  14.7 | 18.3  13.4 |
| **Total** | **29.5** | **31.2** | **45.9** | **29.7** | **28.8** | **40.1** | **34.6** | **41.5** | **38.4** | **36.9** | **31.7** |

**Source: field survey (2015)**

Average office rental growth per annum in Ajaokuta is **∑ Rental from 1998-2008**

**Number of years**

Which implies **155.6 / 11 = 14.15%**

Average shop rental growth per annum in Ajaokuta is **∑ Rental from 1998-2008**

**Number of years**

Which implies **232.7 / 11 = 21.15%**

**TABLE 2B: OKENE**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Year | 2008 | 2007 | 2006 | 2005 | 2004 | 2003 | 2002 | 2001 | 2000 | 1999 | 1998 |
| Office  Shop | 10.5  16.6 | 24.3  18.7 | 16.5  13.1 | 15.8  30.6 | 19.7  13.2 | 31.3  31.1 | 18.0  32.8 | 19.0  14.0 | 10.7  14.6 | 12.6  23.2 | 35.0  27.8 |
| **Total** | **27.1** | **43.0** | **29.6** | **46.4** | **32.9** | **62.4** | **50.8** | **33.0** | **25.3** | **35.8** | **62.8** |

**Source: field survey (2015)**

Average office rental growth per annum in Okene is **∑ Rental from 1998-2008**

**Number of years**

Which implies **213.4 / 11 = 19.4%**

Average shop rental growth per annum in Okene is **∑ Rental from 1998-2008**

**Number of years**

Which implies **235.7 / 11 = 21.43%**

**TABLE 2C: LOKOJA**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Year | 2008 | 2007 | 2006 | 2005 | 2004 | 2003 | 2002 | 2001 | 2000 | 1999 | 1998 |
| Office  Shop | 08.0  20.0 | 12.3  16.6 | 05.0  21.0 | 11.3  22.0 | 53.0  45.4 | 29.0  25.0 | 15.0  21.0 | 11.0  20.0 | 26.0  27.4 | 14.0  25.3 | 17.4  26.3 |
| **Total** | **28.0** | **28.9** | **26.0** | **33.3** | **98.4** | **54.0** | **36.0** | **31.0** | **53.4** | **39.3** | **43.7** |

**Source: field survey (2015)**

Average office rental growth per annum in Lokoja is **∑ Rental from 1998-2008**

**Number of years**

Which implies **202.0 / 11 = 18.36%**

Average shop rental growth per annum in Lokoja is  **∑ Rental from 1998-2008**

**Number of years**

Which implies **270.0 / 11 = 24.6%**

**TABLE 2D: AYINGBA**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Year | 2008 | 2007 | 2006 | 2005 | 2004 | 2003 | 2002 | 2001 | 2000 | 1999 | 1998 |
| Office  Shop | 15.4  20.0 | 12.0  16.0 | 19.1  20.0 | 22.6  30.0 | 18.0  46.0 | 18.0  19.3 | 30.0  18.0 | 21.0  19.0 | 28.0  22.0 | 12.3  17.1 | 23.0  14.7 |
| **Total** | **35.4** | **28.0** | **39.1** | **52.6** | **64.0** | **37.3** | **48.0** | **40.0** | **50.0** | **29.4** | **47.7** |

**Source: field survey (2015)**

Average office rental growth per annum in Ayingba is **∑ Rental from 1998-2008**

**Number of years**

Which implies **219.4 / 11 = 19.95%**

**Average shop rental growth per annum in Ayingba is ∑ Rental from 1998-2008**

**Number of years**

Which implies **242.1 / 11 = 22.01%**

**TABLE 2E: IDAH**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Year | 2008 | 2007 | 2006 | 2005 | 2004 | 2003 | 2002 | 2001 | 2000 | 1999 | 1998 |
| Office  Shop | 17.1  16.0 | 19.0  18.0 | 18.0  23.0 | 19.0  16.5 | 20.0  18.0 | 22.1  22.0 | 20.3  23.0 | 19.4  21.4 | 18.0  20.0 | 16.6  18.9 | 15.4  17.0 |
| **Total** | **33.1** | **37.0** | **41.0** | **35.5** | **38.0** | **44.1** | **43.3** | **40.8** | **38.0** | **35.5** | **32.4** |

**Source: field survey (2015)**

Average office rental growth per annum in Idah is **∑ Rental from 1998-2008**

**Number of years**

Which implies **184.9 / 11 = 16.81%**

Average shop rental growth per annum in Idah is **∑ Rental from 1998-2008**

**Number of years**

Which implies **231.8 / 11 = 19.44%**

**TABLE 2F: GANAJA VILLAGE**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Year | 2008 | 2007 | 2006 | 2005 | 2004 | 2003 | 2002 | 2001 | 2000 | 1999 | 1998 |
| Office  Shop | 17.0  23.0 | 16.0  30.0 | 18.0  38.0 | 19.6  36.0 | 20.2  34.0 | 19.3  31.6 | 21.0  27.3 | 23.1  31.0 | 22.2  28.0 | 19.4  20.0 | 14.2  17.6 |
| **Total** | **40.0** | **46.0** | **56.0** | **55.6** | **54.2** | **50.9** | **48.3** | **54.1** | **50.2** | **39.4** | **31.8** |

**Source: field survey (2015)**

Average office rental growth per annum in Ganaja is **∑ Rental from 1998-2008**

**Number of years**

Which implies **210.0 / 11 = 19.1%**

Average shop rental growth per annum in Ganajais **∑ Rental from 1998-2008**

**Number of years**

Which implies **316.0 / 11 = 28.70%**

**5.0 TABLE 3: COMPOSITE RENTAL GROWTH RATE FOR OFFICE AND SHOP USE IN EACH MARKET SEGMENT BETWEEN 1998 -2008 IN KOGI STATE.**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 2008 | 2007 | 2006 | 2005 | 2004 | 2003 | 2002 | 2001 | 2000 | 1999 | 1998 |
| **Ajaokuta** | 14.75 | 15.60 | 22.96 | 14.85 | 14.40 | 20.05 | 17.3 | 20.75 | 19.2 | 18.45 | 15.85 |
| **Okene** | 13.55 | 21.50 | 14.80 | 23.20 | 16.45 | 31.20 | 25.40 | 16.50 | 12.65 | 17.9 | 31.4 |
| **Lokoja** | 14.00 | 14.45 | 13.00 | 16.45 | 49.20 | 27.00 | 18.00 | 15.50 | 26.70 | 19.65 | 21.85 |
| **Ayingba** | 17.70 | 14.00 | 19.55 | 26.30 | 32.00 | 18.65 | 24.00 | 20.00 | 25.00 | 14.7 | 18.85 |
| **Idah** | 16.55 | 18.50 | 20.50 | 17.75 | 19.00 | 22.05 | 21.65 | 20.40 | 19.00 | 17.75 | 16.2 |
|  |  |  | | **Source: Field Survey (2015)** | | | | | | | |

From the above table, the following can be seen:

1. A negative figure of change signifying value meltdown was never a feature of commercial property in Kogi
2. Commercial property rental values in all segments increase continuously over a period
3. Changes in the market varies significantly from one market segment to another

The difference in relative rental growth highlighted above can further be investigated into another level of study in order to determine the relative hedging capacities of different types of commercial real estate investment in various locations of Kogi property market. Such study can develop optimal commercial real estate asset investment combination models which will maximize return for different categories of investors. Categorization of investors for the study will be a hypothetical capital group. The result will contribute to knowledge by giving investors an investment advisors necessary tool for taking diversification decision which will enable realization of predetermined returns from investment portfolios.

It was clearly observed in all market segments that yields in commercial property rental values are not uniformly spread. However, a basic fact common to all segments is that occupation demand level is influenced by general economic conditions as depicted by tables 2A-F above.

**6.0 TABLE 4: COMPARISON BETWEEN COMPOSITE AVERAGE ANNUAL RENTAL GROWTH RATE OF COMMERCIAL REAL ESTATE INVESTMENT IN KOGI AND NATIONAL INFLATIONARY RATE BETWEEN 1998 AND 2008**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Year** | **2008** | **2007** | **2006** | **2005** | **2004** | **2003** | **2002** | **2001** | **2000** | **1999** | **1998** |
| **Commercial property Rental Growth Rate** | 17.51 | 18.01 | 21.28 | 16.7 | 21.74 | 21.1 | 26.36 | 21.1 | 19.8 | 17.84 | 16.09 |
| **National Inflation Rate** | 10 | 6.6 | 6.9 | 18.9 | 12.9 | 14 | 15 | 15.3 | 12.8 | 5.6 | 8.5 |

**7.0 GRAPHICAL REPRESENTATION OF COMM. PROPERTY GROWTH RATE AND INFLATION RATE OVER TIME**

**8.0 TREND FORCAST FOR RENT AND INFLATION FOR THE NEXT 8 YEARS**

The growth profile for both rent and inflation for the next eight (8) years is the bone of contention here. This is to give investors a fore knowledge of what the nearest future holds for them in term of comparative advantages. To know whether it is commercial property or inflation that has a hedge over the other in the nearest eight years. This will enable the investors to know how long to hold his investment portfolio and to determine when to dispose off it.

This is carried out using Ordinary Time Series analysis (OTS) equation which is given as

**Y = A + B (X)** where Y is the dependent variable

B is the slope line and

X is the independent variable.

**8.0.1 FORCAST TREND LINE EQUATION FOR RENT USING OLS METHOD**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Years | X | Rental Growth Y | XY | X2 |
| 1998  1999  2000  2001  2002  2003  2004  2005  2006  2007  2008 | 1  2  3  4  5  6  7  8  9  10  11 | 17.51  18.01  21.28  16.7  21.74  21.1  26.36  21.1  19.8  17.84  16.09 | 17.51  36.02  63.84  66.8  108.7  126.6  184.52  168.8  178.2  178.4  176.99 | 1  4  9  16  25  36  49  64  81  100  121 |
|  | **∑X = 66** | **∑Y = 217.53** | **∑XY = 1306.38** | **∑X2 = 506** |
| Back to the lease square equations **∑Y = AN + B∑X…………….. (1)**  **∑XY = A∑X + B∑X2…………. (2)**  Substituting ∑X = 66, ∑Y = 217.53, ∑XY = 1306.38, ∑X2 = 506 into the equation above  **217.53 = 11A + 66B………… (1)**  **1306.38 = 66A + 506B ………(2)**  Eliminating A using simultaneous equation, multiply equation 1 above by 6  **1305.18 = 66A + 396B ………(3)**  **1306.38 = 66A + 506B ………. (4)**  Menus equation (3) from (4) which is 1.2 = 110B and B is 1.2/110 = 0.0109  Putting 0.0109 in place of B in equation (1)  217.53 = 11A + 66(0.0109)  11A = 216.8106 and A equals 19.71  Therefore, rental trend from the initial equation Y= A + B(X)  Y rent = 19.71 + 0.0109X.  **8.0.2 FORCAST TREND LINE EQUATION FOR INFLATION USING OLS METHOD**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | Years | X | Inflation rate Z | ZX | X2 | | 1998  1999  2000  2001  2002  2003  2004  2005  2006  2007  2008 | 1  2  3  4  5  6  7  8  9  10  11 | 10  6.6  6.9  18.9  12.9  14  15  15.03  12.8  5.6  8.5 | 10  13.2  20.7  75.6  64.5  84  105  120.24  115.2  56  93.5 | 1  4  9  16  25  36  49  64  81  100  121 | |  | **∑X = 66** | **∑Z = 126.23** | **∑XZ = 757.94** | **∑X2 = 506** |   Z inflation = **∑Z = AN + B∑X…………….. (1)**  **∑ZX = A∑X + B∑X2…………. (2)**  Substituting ∑X = 66, ∑Z = 126.23, ∑XY = 757.94, ∑X2 = 506 into the equation above  **126.23 = 11A + 66B………… (1)**  **757.94 = 66A + 506B ……… (2)**  Eliminating A using simultaneous equation, multiply equation 1 above by 6  **757.38 = 66A + 396B ……… (3)**  **757.94 = 66A + 506B ……….. (4)**  Menus equation (3) from (4) which is 0.56 = 110B and B is 0.56/110 = 0.50909  Putting 0.50909 in place of B in equation (1)  A equals 8.42  Therefore, inflationary trend from the initial equation Z= A + B(X)  Z inflation = 8.42+ 0.50909 X.  **9.0 FORCASTING RENT AND INFLATION GROWTH AMOUNT**  **By 2016 that is in eight years time (2008 + 8years) the new rent growth profile will be for**  0.0109 (8) and Y rent = 19.71 + 0.0109 (8) = 19.7972 while  Z inflation = 8.42+ 0.50909 (8) = 12.49272  **10.0 FINDING CONCLUSION AND RECOMMENDATION**  From the above the difference in the two rates (rental growth rate and that of inflation) shows that commercial real estate in Kogi State has a real good hedge against inflation.  **10.1 CONCLUSION**  From the analysis, it is crystal clear that commercial real estate investments in Kogi State have comparative hedge over inflation except in hyper inflationary period where inflation rate hedges the rate of return on commercial property. Therefore it is lucid to say commercial real estate investment in Kogi has a hedge over inflation.  **10.2 RECOMMENDATION**  Kogi State is a centrally located state in north central geo political zone of Nigeria with a very young and constantly growing property market. It is against this backdrop that this research work recommends to local and international investors alike to seize this opportunity to take the market and make the most of the opportunities there in. | | | | |

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