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INVESTIGATING THE EFFECT OF COVID-19 DRIVEN INFLATION ON COMMERCIAL PROPERTY HEDGING CAPACITY IN LAGOS, NIGERIA

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The study investigated the current effect of covid-19 driven inflation on commercial property investment in Lagos with a view to establishing the hedging capacities of the commercial property market. The study thereby focused on examining complete, partial, perverse and zero hedging characteristics of inflation driven by covid-19 in the market. The study used monthly data (March, 2020 and March 2021) on covid-19 rates, inflation rates (actual, expected and unexpected) and returns on commercial properties. The study therefore investigated the co-movement between covid-19 rates and inflation rates in order to establish the causal linkage between covid-19 rates and inflation rates using pair-wise correlation, and it was discovered that covid-19 rate caused changes in general price level. The study further established the inflationary characteristics of covid-19 on commercial properties returns. The study therefore utilized Ordinary Least Squares, Augmented Dicker Fuller (ADF), Engle Granger cointegration and cointegrating regression analysis. The result of FMOLS revealed that commercial properties in Lagos are completely hedged against actual and expected inflation rates while other were perversely and partially hedged against covid-19 driven inflation. The study therefore found that effect of disruption caused by covid-19 pandemic in the economy has not fully manifested in the real estate market, but there is possible future far-reaching effect if measures are not put in place. Property market is thereby susceptible to loss of value by continue locking down the economy over a long period.

Keywords: commercial properties, hedging capacity, inflation, rental price

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INTRODUCTION

The World Health Organization (WHO) in March 11, 2020 had therefore characterized COVID-19 as a pandemic, pointing to over 3 million cases and 207,973 deaths in 213 countries and territories. The infection has not only become a public health crisis but has also affected the global economy. Significant economic impact has already occurred across the globe due to reduced productivity, loss of life, business closures and trade disruption (Pak et al, 2020). Commercial properties as investment good and critical assets to real estate investors, apart from been an income generating assets, it is regarded as wealth generating asset of a nation (Belo & Agbatekwe, 2002). Apart from been a critical asset nation's development, commercial properties have been viewed as an integral part of national economy that provide alternative investment options in growing economy, and due it significant contribution to economic nation's development, it has become influential asset to national income through the real estate sector (Fraser 1993; Belo & Agbatekwe, 2002). Also, over the years, commercial properties have been professed to have power to protect investment's fund over eroding power of inflation therefore investors want to be sure that investing in commercial investment would cover a range of risks associated with real estate investment (Amidu & Aluko, 2006), every rational investors would prefer more returns on their real invement over and above systematic and unsystematics risks associated real estate market (Olaleye, 2008). Government at every level has recognized economic importance of investing in commercial properties as major source revenue to local government through rating (Aluko, 2005)

However, real estate has been seen as an hedge against dearth of inflation but fears have recently been expressed about the development in the economic due global pandemic (covid-19) that whether the effect of this economic disruption would have a far reaching effect on real estate investment. During the lockdown phase, the covid-19 pandemic and related lockdown measures affect the supply and demand of certain products through their prices. the supply of consumer product was therefore disrupted which triggered the general increase in price level or inflation rate (Pak et al, 2020). Ehsan, et al., (2020) noted that potential drivers of inflation amid covid-19 pandemic during the lockdown and reopening phases are characterized by restrictions in mobility and disruptions in potential supply. Ehsan et al., (2020) further proved that there was no evidence of upward movement in actual inflation but there existed a rise in variance of expected inflation thereby indicating uncertainity and potential risk of unexpected inflation. According to Alagidede and Panagiotides (2007) observed that 1% rise in price of good in Nigeria causes 0.12% rise in general stock returns thereby providing partial hedge against inflation. Currently in Nigeria, inflation has been trending on double digit rate and bank lending rate has also be trending on double digit (CBN, 2019), therefore real property investors need to ascertain the level of security of the investment. Most of the real property investors in Nigeria are risk-averse, in other word, would like to have more returns on the investment at less risk (Olaleye, 2008), this is therefore attributed to the fact that Nigeria real property market is characterized as immature market because of naïve decision-making by property stakeholders.

It is really against the background of economic disruption caused by covid-19, volatility and recession that has recently characterized the economy that left the investors in a state of fear about the security of the real estate investment. Therefore the extent of disruption in commercial property market is therefore required a careful investigation. Over the years, commercial properties investment has been characterized as a hedge the dearth of inflation by providing a protective device for investors 'capital against eroding power exhibited by general increase in consumer price index (CPI) (Amidu & Aluko, 2006). Recently, the phobia of many investors has been construed that whether real property is actually a hedge against the recent economic instability, recession and the presence of covid-19 pandemic that characterized the economy. The dynamic effect of covid-19 is more felt in emerging economy of Nigeria where supply disruption combined with weak currency therefore triggered the general increase in price level (inflation) during and after containment period. It is against this background that this study seeks to answer this question 'to what extent has the impact of covid-19 driven inflation arising from an increase in consumer price index been hedged from eroding the value of commercial properties in Lagos? 'with a with a view to restoring the confidence of investors in real estate investment.

LITERATURE REVIEW

Covid-19 and inflation in the economy

Ehsan et al., (2020) examined the dynamic effect of inflation during the COVID-19 pandemic between phases (lockdown and reopening phases) in advanced and developing economy in Europe and America. The study found that early evidence of increase in actual inflation from advanced and emerging market economies but was not in broader perspective, thereby the measure of inflation showed no evidence of increase in actual inflation but there was rise in variance of unexpected inflation indicating significant of uncertainty. Brunnermeier, Merkel, Payne and Sannikov (2020) studied inflationary and deflationary pressure amid covid-19. The study found that initially deflationary forces played significant role due idiosyncratic risk and recovery brought through government lending and other measures lead to excessive inflation.

The lockdown phase entails the combination of substantial shocks in both demand and supply, and the pandemic therefore leads to deflation, disinflation, or higher inflation. As falling in aggregate demand to heightened uncertainty and reductions in incomes and liquid wealth in advanced and emerging economies has lead to deflationary pressures (Pak et al., 2020). Conversely, inflationary pressures may arise from increases in production costs, due to interrupted supply chains and to the impact of social distancing restrictions on labour supply especially in emerging economy. By shutting down sectors of the economy, the Great Lockdown has led to changing patterns of demand that translate into shifts in the degree of market power firms exercise, which will affect equilibrium inflation. These pressures in inflation are differed across sectors and nations. Sectoral inflation heterogeneity in turn is likely to feed through to heterogeneous inflation experiences across households. Conclusively, The dynamics could, however, be quite different in emerging markets (EMs). Supply disruptions combined with currency depreciations might lead to an increase in inflation even during the containment period.

Inflation and real estate investment: the empirical studies

Several studies have linked inflationary pressure to real estate market both in Nigeria and abroad, such studies together with their findings are summarized as follows:

In the study carried out by Voigtlander and Demary (2009) while analysing the real estate hedging capacities across selected states in Europe and America, it was discovered that real estate's equities failed to provide a protective power against inflation. Xiarong and Sherwood (2010) examined inflation hedging in real estate market in china between 2000 and 2008 using autoregressive technique. It was found that long run equilibrium between changes in real estate prices and inflation showed no evidence of relationship and concluded Chinese real estate market had no good protective power against inflation. In a similar study conducted by Leung (2010) on commercial (office and shop) and industrial properties hedging abilities in Australia between 1984 and 2008, it was discovered that property assets (commercial and industrial) provided a complete hedge against inflation. Hartzell and Webb (2010) while anaysing the relationship between commercial real estate and inflation during the period of low and high occupancy in United States, it was therefore found that real estate maintained a balanced hedge against expected inflation and partially relationship with unexpected inflation. Odu (2011) while studying commercial real estate hedging capacity in Lagos using Ordinary Least Square (OLS), it was discovered that commercial real estate returns was perversely hedged actual inflation in some selected areas and completely hedged against actual inflation in some selected areas. In the same vain, Anyakora, et al., (2012) also carried out a similar study in Lagos Metropolis (Ikoyi, Victoria Island, Lagos Island, Apapa and Surulere), it was found that inflationary hedging capacities of commercial real estate varied across geographical neighborhoods. . Osagie, et al., (2012) studies the evidence of commercial properties as a good hedge against inflation in Lagos and discovered that while office properties provided a good hedge, shop properties failed to provide a good hedge.

Umeh and Oluwasore (2012) ascertained uncertain inflation hedging capacities of residential investment returns between 2002 and 2014. Ordinary least squares indicated that hedging capacities vary across the geographical sub-markets, such that residential investment returns failed to hedge actual inflation across the geographical areas; other geographical sub-market provided a complete and partial hedges against inflation. Amonhaemanon, et al., (2013) examined inflation hedging capacity in commercial real estate in thailand between 1987 and 2011. It was found that commercial real estate returns had positive relationship with unexpected inflation over the period. The structural changes in the economy as control measure showed that the relationship between inflation and commercial real estate returns change under certain economic environment. Ogunba et al., (2013) analysed the characteristics of inflationary hedging of commercial real estate in Ibadan. Using consumer price index and 91-day Treasury bill as a proxy for actual inflation and expected inflation respectively, it was discovered through ordinary least squares that commercial real estate had poor hedge against actual inflation, partially hedged against unexpected and completely hedged against expected.

Amonhaemanon et al., (2014) examined ex post and ex ante inflationary hedging abilities of real estate in Thailand, the further discovered that real estate returns had positive relationship with ex post and unexpected inflation and real estate provided a super hedge against inflation. It was therefore concluded that relationship between real estate and inflation depends on the state of economy especially in the period of financial crisis. This finding updated the finding of Amonhaemanon et al., (2013). Dabara (2014) while investigating the inflation-hedging characteristics in Gombe residential market of Nigeria between 2003 and 2012. It was found that residential investment market in Gombe was completely hedged expected inflation, partially hedged against actual inflation while perversely hedged against unexpected inflation. Umeh and Oluwasore (2015) in another similar study of hedging capacity of residential market in Ibadan using OLS, the result found that residential market failed to provide a complete hedge against actual inflation while providing complete hedge against expected inflation and partially hedge against unexpected inflation. Wahab et al., (2018) conducted full study of residential hedging capacities in Abuja residential market by examining both short and long runs inflationary characteristics. It was discovered that the use of OLS could not explicitly provide a complete the hedge across the markets, and further analysis long run hedging capacities provided a complete hedge across all the markets.

Conclusively, the variance in results of the above studies suggests the need to constantly investigate the inflation hedging capacities of real estate investments from time to time and across different regions or areas, and recent disruptions in supply combined with currency depreciations associated with covid-19 pandemic might lead to an increase in inflation even during the containment period which required careful investigation. In an emerging economy like Nigeria where market equilibrium is difficult to attain, the advent of covid-19 had posed a threat to wealth asset (commercial property) of the Nation as the condition of financial market in is worsened by weak currency and covid-19 driven inflation which resulted in loss value of assets. This has therefore posed threat to real estate market. Finally, since the effect of covid-19 pandemic has a link to inflation in the economy in many studies (Ehsan et al., 2020; Pak, et al., 2020; Brunnermeier, et al., 2020. Therefore, the need to investigate the extent of hedging capacity of commercial property investment against covid-19 driven inflation during lockdown and reopening phases has become sacrosanct to real estate investors.

METHODOLOGY

The primary data adopted for this study comprised of computed monthly returns on office commercial office properties in Lagos (March 2020 to March 2021) from registered estate firms. Secondary data comprised of monthly consumer price index which is used as a proxy for actual inflation and 90-day Treasury bill which is also used as a proxy for expected inflation rate according to Ogunba et al., (2013), there information were sourced from National Bureau of Statistics (NBS), while unexpected inflation is the different between actual inflation and expected inflation. Secondary data on the rate of monthly covid-19 infections in Lagos was used for the study. The study adopted correlation to test the strength of relationship between the rate of monthly covid-19 infections and inflation rates, conintegrating regression using Fully Modified Least Squares (FMOLS) to establish

both short and long run inflationary characteristics of house prices respectively. FMOLS used to estimates relationships in cointegration analysis by modifying ordinary least squares (OLS) to account for both serial correlation and endogeneity in the regressors. It is therefore asymptotically related to methods like Johansen (1988). FMOLS identifies long-term relationship just like Johansen method and used to test for cointegration by examining stationarity test through Augmented Dicker Fuller (ADF). The study applied Augmented Dicker Fuller (ADF) unit root test to determine the extent of stationarity of the data. The test of stationarity of the series was carried out for the study in order to detect the presence of unit root (non-stationary) or not, and to determining the order of integration of the variables in the model presented in equation 1.

$$\Delta Y_t = \beta_0 + \beta_1 Y_{t-1} + \sum_{i=1}^{k} \pi_i \Delta Y_{t-1} + U_t \, \text{eq1.}$$

Where Yt represents vector of time series, t represent ti++me, Ut represents the error terms and π represents the coefficient matrix of the variables, Δ represents differences in variables.

The study adopted a sampled size model developed by Frankfort-Nachmias (1996) to determine appropriate sample size from large number of commercial office properties across the selected areas and this model is purposely adopted when the population is large. This model is therefore presented and described in equation 2.

$$n = \frac{z^2 pqN}{e^2(N-1) + Z^2 pq} \, eq.2$$

Where N is population size, n is sample size, p at 95% confidence level of the target population

q = 1-p, e = Acceptable error Z = 1.96

The model for commercial real estate returns (R) is described as in the equation 3.

$$R = \frac{p_t - p_{t-1}}{p_{t-1}} \, eq.3$$

R is commercial office returns indices, Pt is commercial office returns at end of period t, Pt-1 is the commercial office returns beginning of period t. The decision rule for hedging capacities of real estate is described in table 1.

Table 1 Decision rule

Hedges in Real Estate	Decision rule
A complete hedge against inflation	If β is not significantly less than 1 (i.e. between 1 and 0.5)
A partial hedge against inflation	If β is significantly less than 1 (i.e. between 0.4 and 0.1)
Zero hedge against inflation	If β is not significantly different from zero. 0.001-0.000
A perverse hedge against inflation	If β is negative

PRESENTATION OF RESULTS

Figure 3.1 shows the rising cases of COVID-19 pandemic in the study area. the trend revealed that from February 28th 2020 to April 28th 2020, there was slow raising cases covid-19, and after April 28th, there was high rising in number of cases recorded . This was attributed to poor response of government to the pandemic; in term of safety guide and measures against the spread. The sharp raising recorded after April 28th was associated to the fact that the lack preparedness in the case of pandemic. The rising continues till September 19th 2020 and after which there was slow rising in number of cases. This is therefore attributed high of compliance to lock down measures. The gradual reopening from lockdown had suddenly led to sharp rising in number of cases from November 30th till date. The implication is that the global and local economy and financial markets have been severely affected due to the significant reductions in income, a rise in unemployment, and disruptions in the transportation, service, and manufacturing industries caused by the covid-19 pandemic. Consequently, the correction of the damage in the economy required a slow adjustment over a period.

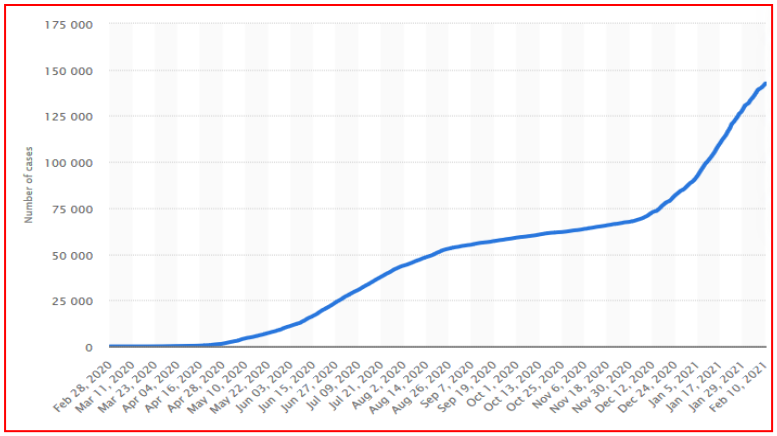


Figure 1: Cumulative Number of Confirmed Coronavirus Cases (COVID-19) in Nigeria from February 28, 2020 to February 10, 2021
Source: Computed From NCDC Monthly Report

Figure 2 revealed the monthly trend in inflation rates between February 2020 and February 2021. The figure presented the high trend in inflation during lockdown phase (February 2020 to October, 2020) where the general price level experienced downward trend due to various lockdown measures made by the government, while the period reopening (November, 2020 to February, 2021) suddenly experienced rise due to government removal of various measures of palliative made during the lockdown. The study utilized consumer price index as a proxy for actual inflation, 90-day Treasury bill as a proxy for expected inflation. The difference between expected and unexpected inflation is unexpected inflation rate. At the beginning of the lockdown, there was sharp rise in actual and unexpected inflation rates from February, 2020 to April, 2020 due to lockdown. But the partial reopening from May, 2020 to October 2020 made the prices to come down due to increase in production of good and partial movement, but sudden rise in number of recorded covid-19 cases in November 2020 and December 2020 restricted the production goods and give rise to general increase in both expected inflation and after which actual inflation followed suit. Actual and expected inflation rates have started rising since December 2020 up till February 2021. The implication is that

there is instability in the prices due to covid-19 and which has caused disruption in the market.

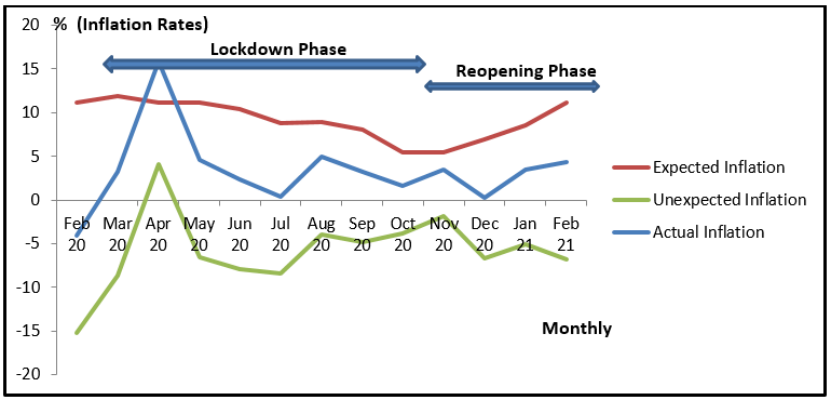


Figure 2: Monthly expected, unexpected and actual inflation rates amid Covid-19 (From Feb; 2020 to Feb; 2021)
Source: Field survey, 2021.

The result in Table 2 showed the correlation between inflation rates and covid-19 rate of infections. The result revealed that there is positive insignificant correlation between actual inflation and covid-19 rates at 0.204 which indicates direct relationship. Expected and unexpected inflation rates maintained positive significant correlation with covid-19 rates at 0.557 and 0.590 respectively. This thereby suggests a direct relationship with covid-19 rate. By implication, covid-19 rate is related to general inflation rate in the economy, as a result, linking covid-19 to property market through inflation with real estate market become the premise of this study.

Table 2: Pairwise matrix correlation between inflation rates and Covid-19 rate

		Actual Inflation	Expected Inflation	Unexpected Inflation	Covid-19 rate
Actual Inflation	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	13			
Expected Inflation	Pearson Correlation	.220	1		
	Sig. (2-tailed)	.469			
	N	13	13		
Unexpected Inflation	Pearson Correlation	.870**	-.288	1	
	Sig. (2-tailed)	.000	.340		
	N	13	13	13	
Covid-19 rate	Pearson Correlation	.204	.557*	.590*	1
	Sig. (2-tailed)	.504	.048	.039	
	N	13	13	13	13

Figure 3 showed the movement in commercial property returns between February 2020 and February 2021. There was upward and fluctuated movement in returns during the lockdown phase (February, 2020 to October, 2020). The period of

reopening (November, 2020 to February, 2021) showed downward movement in returns. The study suggested that there was distortion in the market that gives rise to volatility in the trend in returns on commercial real estate. From February 2020 to May 2020 there was sharp fall in returns due to general lockdown in the country. A partial reopening phase from May 2020 leads to sharp rise in returns from May 2020. After which there was fluctuated decrease in returns up till December when there deep fall in returns across the markets and after there was sharp rise in returns from January 2021 to February 2021. This instability in returns is attributed to disruption caused by covid-19 pandemic in economy.

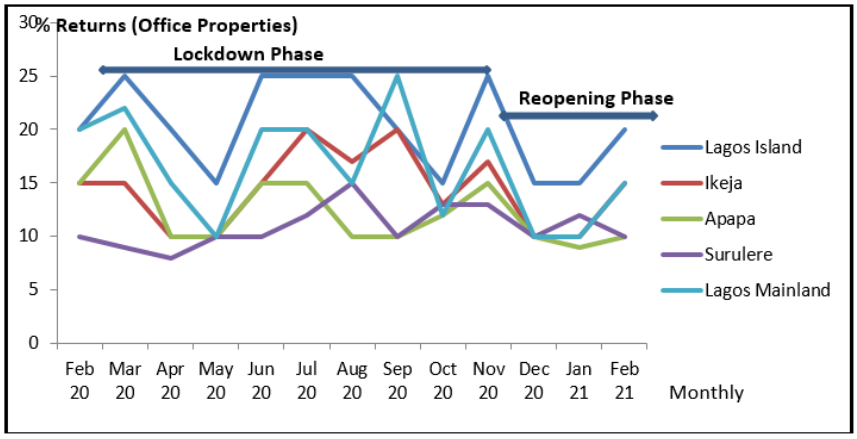


Figure 3: Monthly returns on commercialized office properties in Lagos amid Covid-19 (From Feb; 2020 to Feb; 2021)

Table 3 reveals the result of stationerity test (unit root test) conducted through Augmented Dicker Fuller (ADF) for all the variables employed for the study. One of the properties of time series data is that it must stationary over a period, in other word; it must have no unit root before it can be used or considered suitable in any econometric analysis. Therefore, the result of ADF unit root test revealed that actual, expected and unexpected inflation were stationary at first-order difference, only return indices commercial office properties across the markets were stationery at level. The implication of this test is that the time series data employed for this study is suitable and appropriate for further analysis. Technically, it implies that the time series variables free from unit root.

Table 3: Stationarity or unit root test

Variables	Critical ADF @0.05	Computed ADF t-Statistics	Prob.*	Order of Integration
Δ Actual inflation	-3.042012	-4.301672	0.0131	I(1)
Δ Expected Inflation	-3.023441	-4.488337	0.0038	I(1)
Δ Unexpect inflation	-3.014522	-3.510113	0.0156	I(1)
Lagos Mainland(R)	-3.031345	-4.889604	0.0014	I(0)
Lagos Island (R)	-3.030221	-4.179963	0.0082	I(0)
Ikeja (R)	-3.042901	-3.987214	0.0215	I(0)
Apapa (R)	-3.030271	-4.779778	0.0029	I(0)
Surulere (R)	-3.030271	-3.158997	0.0389	I(0)

Table 4 reveals the outcome of Engle granger cointegration test used to determine the long run relationship between commercial office returns and inflationary characteristics of covid-19. The result in Table 3 shows tau- statistic and z-statistics as well as respective p-values. The result of the statistics shows the evidence of two or more cointegrating equations at 0.05(5%) level of significance therefore the study rejects null hypothesis of no cointegration among the variables at 5% through z-statistics across the selected markets in Lagos. In other word, with a given sample size probabilities and critical values, therefore there is a long run convergence among the variables across the market locations. In other word, there is long run relationship between commercial office property returns and inflationary characteristics of covid-19 pandemic. This finding is consistent with that Wahab et al., (2018) It can therefore be said that inflationary characterized by covid-19 pandemic has long run relationship with commercial office property market in selected commercial office centers (Lagos mainland, Lagos Island, Ikeja, Apapa and Surulere) in Lagos.

Table 4: Engle Granger Cointegration Test

Market	Dependent	tau-statistic	Prob.*	z-statistic	Prob.*
Lagos mainland	Lagos mainland log	-3.879911	0.1469	-29.78126	0.0048
	Actual_Inflation_Index	-2.666152	0.1377	-23.85091	0.0122
	Expected_Inflation_Index	-3.567676	0.1451	-25.02675	0.0105
	Unexpected_Inflation_Index	-3.755981	0.1470	-23.11275	0.0129
Lagos Island	Lagos Island log	-5.021218	0.0338	-21.67113	0.0255
	Actual_Inflation_Index	-2.977603	0.3907	-24.72358	0.0000
	Expected_Inflation_Index	-2.331006	0.5612	-11.77025	0.6118
	Unexpected_Inflation_Ind	-3.415022	0.3226	-13.13251	0.3448
Ikeja	Ikeja log	-2.088602	0.4550	-11.82028	0.4415
	Actual_Inflation_Index	-3.880022	0.2131	-22.84788	0.0224
	Expected_Inflation_Index	-3.799555	0.1194	-21.85511	0.0141
	Unexpected_Inflation_Ind	-3.719802	0.2291	-21.88861	0.0139
Apapa	Apapa log	-2.114722	0.8610	-6.558291	0.8174
	Actual_Inflation_Index	-3.330511	0.4155	-21.99843	0.0261
	Expected_Inflation_Index	-3.221022	0.4242	-20.81727	0.0252
	Unexpected_Inflation_Ind	-3.154555	0.4338	-20.98133	0.0258
Surulere	Surulere log	-7.335491	0.0053	-24.44900	0.0035
	Actual_Inflation_Index	-3.664162	0.3501	128.5624	1.0000
	Expected_Inflation_Index	-2.385208	0.6695	-7.393662	0.7702
	Unexpected_Inflation_Ind	-3.885625	0.2977	-90.76532	0.0000

Table 5 shows the outcome of analysis of cointegrating regression carried out. The result of cointegrating regression showed the hedging capacity of commercial office property amid covid-19 in Lagos. It has been proved that the use of ordinary least square could not reveal the long run hedging capacity of commercial real estate (Wahab et al, 2018). Therefore the use of fully Modified Ordinary Least Square (FMOLS) revealed the true characteristics of long run hedging capacity of commercial office properties. In all the selected markets, commercial official returns is completely hedged against actual and expected inflation, this finding is consistent with Ogunba et al., (2013) and Wahab et al., (2018). This finding further indicates that the market independent of negative effect of inflation caused by covid-19 disruptions in the economy, and therefore the real estate investor's returns is thereby secured from eroding. Commercial office properties in Lagos

Mainland and Lagos Island are partially hedged against unexpected inflation arose amid covid-19 pandemic, this finding is found consistent with Hartzell and Webb (2010).

Table 5: Cointegrating Regression Analysis (FMOLS Estimates)

Market	Variable	Unstandardized Coefficient	Std. Error	Beta	R-Square	Prob.	Hedging Status
Lagos mainland	(Constant)	38.05	9.549		.801	.000	
	Actual inflation $_{t-1}$	.520	.132	.889		.000	Complete Hedged
	Unexpected inflation$_{t-2}$	.310	.136	.225		.005	Partial hedged
	Expected inflation$_{t-1}$	.601	.122	.894		.000	Complete Hedged
Lagos Island	(Constant)	44.37	7.994		.874	.008	
	Actual inflation $_{t-1}$	.675	.140	.661		.000	Complete Hedged
	Unexpected inflation$_{t-2}$	.818	.345	.131		.006	Partial Hedged
	Expected inflation$_{t-1}$	.677	.022	.981		.000	Complete Hedged
Ikeja	(Constant)	-58.84	10.246			.025	
	Actual inflation $_{t-1}$	.482	.063	.977	.891	.000	Complete Hedged
	Unexpected inflation$_{t-2}$	.465	.103	.686		.003	Complete Hedge
	Expected inflation$_{t-1}$	.677	.083	.966		.000	Complete Hedged
Apapa	(Constant)	36.43	8.039		.799	.005	
	Actual inflation $_{t-1}$	.633	.072	.908		.000	Complete Hedged
	Unexpected inflation$_{t-2}$	-.473	.296	-.329		.027	Perverse hedged
	Expected inflation$_{t-1}$	.470	.063	.861		.000	Complete Hedged
Surulere	(Constant)	55.07	11.071		.750	.010	
	Actual inflation $_{t-1}$	.761	.040	.967		.000	Complete Hedged
	Unexpected inflation$_{t-2}$	-.076	.767	-.232		.161	Perverse hedged
	Expected inflation$_{t-1}$	.706	.048	.894		.000	Complete Hedged

Fully Modified Least Squares (FMOLS)

This further indicates that, the investors in Lagos Mainland and Lagos Island markets can break-even in advent of sudden rise in general price level caused by lockdown in the economy due to covid-19 pandemic, in other word, the value of investment cannot be eroded below the market value. Only commercial office market in Ikeja provided a complete hedge against unexpected inflation that arose amid covid-19 pandemic. Commercial office properties 'in Apapa and Surulere are perversely hedged against unexpected inflation that arose due to disruption in the economy caused by covid-19 pandemic. In other word, investors 'in these two

markets (Apapa and Surulere) have high possibility of losing their investment because in the case of sudden rise in inflation in the economy due to covid-19 pandemic would erode the value of investment, in that, the markets are not matured enough to provide an hedge. Finally, The overall influence of inflation rates in the economy caused by covid-19 pandemic on commercial office returns across the markets ranges between 89.1%-75.0%.

IMPLICATION OF FINDINGS

From the findings, the rate of covid-19 infection has positive relationship with inflation rates, in other word, over the period of study it can be deduced that covid-19 pandemic granger causes changes in inflation rates due to disruption in the economy. This is because, the study has demonstrated upward and downward movement in the rate of inflation caused by economic disruption associated with covid-19. By implication, all the stakeholders in the real estate sectors must be cautioned when investing into the market. The fact that real estate is hedged against inflation as it was construed theoretically still required empirical evidence because certain conditions could affect the efficacy of the theory such as general instability in the economy, economic recession and other unforeseen circumstances such as war and pandemic like covid-19. The result expressly showed the market maturity in term of its hedging characteristics in some the selected markets. Generally, all the selected markets provided a complete hedge against the eroding power of actual and expected inflation which by implication making the market to be independent of dearth of covid-19 driven inflation, in other word, the value of real estate investment market could not be eroded and investors is therefore protected against the loss of investment. Conversely, while some the selected market (Lagos Mainland and Lagos Island) were found to be partially hedged against unexpected inflation, other selected market (Apapa and Surulere) were perversely hedged against unexpected inflation. By implication, being partially hedged the market is still protected but to certain degree immunity. This therefore means that real estate market is still developing in term hedging characteristics, and in this market, investors must be economically guided. Also being perverse, the market value of real estate investment is threatened and there is possibility of unexpected inflation eroding the value of investment, and investors must carry out careful analysis of the investment. One the selected market (Ikeja) said to have provided a complete hedged against actual, expected and unexpected covid-19 driven inflation.

CONCLUSION

It is therefore construed from this study that disruption caused by covid-19 driven inflation has not fully affected the commercial property market, this is because while markets provided high degree of immunity against the eroding power of covid-19 driven inflation, some other market provided little and others are been threatened. Therefore, the effect is not far-reaching, but there is possible future far-reaching effect if palliative measures are not put in place to subvert the effect. the adjustment and re-structuring as well as various measures taken by the government to prevent adverse effect of covid-19 pandemic on the economy, there

is need to continuously investigates the market to unravel the situation and provide empirical guide to the real estate investors from time to time.

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