MACROECONOMIC FACTORS AND PERFORMANCE OF REAL ESTATE DEVELOPERS IN NAIROBI COUNTY, KENYA

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ABSTRACT

The government of Kenya has not been able to provide adequate housing to its citizenry and this has led to the mushrooming of many informal settlements in the urban areas. Most of the available housing units are occupied by the middle-income earners on rental basis while the high-income earners can afford to own houses. The general objective of this study is to establish the impact of macroeconomic factors on performance of real estate developers in Nairobi County, Kenya. Specifically, the study sought to examine the impact of Gross Domestic Product (GDP) on performance of real estate developers in Nairobi County, Kenya and to examine the impact of diaspora Remittances (Remittances from abroad) on performance of real estate developers in Nairobi County, Kenya. The study applied cross-sectional research design. . The study population comprised of all the registered Real Estate Developers operating in Kenya for the period 2015-2019. Accessible population was 78 real estate members of Kenya Property Developers Association. The study obtained all the secondary data on macroeconomic variables proposed for the study from the Kenya National Bureau of statistics (KNBS), Central Bank of Kenya (CBK) and the Hass Consult Property Index. The questionnaire responses were grouped into various categories for analysis using descriptive statistics. SPSS version 25 was used to analyze the structured questions while the use of descriptive statistics determined frequencies and percentages. The results were presented in prose, tabular and graphical form. The study concludes gross domestic product has a positive and significant effect on the performance of real estate developers in Nairobi County, Kenya. The study also concludes that diaspora remittance has a positive and significant effect on the performance of real estate developers in Nairobi County, Kenya. Based on the findings, this study recommends that the government and central bank should implement measures to stabilize or reduce interest rates to support the performance of real estate developers in Nairobi County. Specifically, policies that promote access to affordable financing for developers, such as offering low-interest loans or creating mortgage-backed securities, would help mitigate the negative impact of high interest rates on real estate development

Key Words: Gross Domestic Product, Diaspora Remittances, Macroeconomic Factors

Background to the study

According to Brueggeman and Fisher (2019), real estate refers to things that are not movable such as land and improvements permanently attached to land such as residential property, and non-residential property which includes but not limited to agricultural land, industrial land, office buildings and retail centres. Real estate investing involves the purchase, ownership, management, rental and/or sale of real estate for profit.

For purposes of this study and reference thereafter, real estate refers to the housing that entails residential units, commercial units, hospitality units, industrial units and land. Additionally, performance of the real estate will refer to the financial returns gained from trading in real estate properties. Wambuu, (2015) opines that the main measures of real estate performance in the real estate sector are: sales revenue and profitability.

Kenya is characterized by housing deficit estimated at 2,000,000 units, high urbanization rate that is 2.4% above the global average and high annual population growth rate of 2.6% compared to global average of 1.1%%. Therefore, the market status creates high demand for real estate products, thus, creating a unique opportunity for investments in the sector. Other than the high returns observed, real estate provides additional benefits to investors such as, diversification, tangible asset, high demand and hedge against inflation.

Kenya has an annual housing demand of 250,000 units with an estimated supply of 50,000 units, culminating in a housing deficit of 2 million units, or 80% deficit. Housing affordability is a key challenge in Kenya with many people unable to afford to buy or build their own home. Only 2% of the formally constructed houses target lower-income families. About 6.4 million people, or of Kenya's urban population live in informal settlements[1].

According to Cytonn Investments (2019), housing demand in the country has been growing at a rate of 200,000 units per annum. Statistics at the National Housing Corporation indicates that the country can only supply 50,000 units per annum. The Ministry of Housing of Kenya indicates that 83 per cent of the existing housing supply targets the high-income brackets earners and upper middle-income segments. This leaves millions of home seekers in the lower middle-class segment scrambling for the 15 per cent while the low-income earners fight for a paltry two percent.

Property development in Nairobi County, the capital city of Kenya is lagging behind, construction of new houses is growing at 7.5 percent of government targets with only 15,000 new units in 2013 against a target of 200,000 housing builds a year in the city. This growth rate is not enough housing in future as the city's population is set to increase and the city is heading for extreme shortages in urban middle class housing and failed development goals, based on current trends. The housing shortage in Nairobi is acute, and deteriorating (KPDA and Hass Consult Limited, 2013). The government, through its ambitious Big Four Agenda, has singled out affordable housing as one of its key pillars to drive the economy to double digit growth. The government seeks to deliver 500,000 units by 2022 which will see cost KSh600,000 and KSh3 million respectively. The move by the government is aimed at providing about 75 percent of Kenyans earning below Sh50,000 per month with affordable units. (KIPPRA, 2018).

Workers of many companies setting based in Kenya and at the counties are expected to create a high demand for housing according to Architectural Association of Kenya (AAK, 2011). The Kenyan market has been awfully lucrative especially for foreign investors because of the high profit margin of 20 to 30% which is impossible even in the US or European industry (Lueby, 2010). The industry in Kenya has been a boom that has begun somewhere in the mid to late 2000 because the property market is responding to increased demand (Knight Frank, 2012).

According to Nyugen (2013), the real estate boom survived the 2008 post-election violence and global economic down turn that crippled other sectors such as tourism and Agriculture, but danger is looming. Last year's weakening of the shilling against major currencies double digit inflation and interest rates hike to a historical 30% up from 14% taking its toll on one of Kenyans most resilient sectors. This is due to interest rate which is a macroeconomic variable. Wisniewski (2011) indicates that the processes occurring in real estate are subject to different impulses, and these impulses are different depending on the financial and economic situation of a given country.

Lynn (2007) states that since macro-economic factors often influence one another and at times very correlated, when one factor changes, ripple effect occurs and the economy is affected much more. To this end, measuring the effect of macroeconomic variables is usually a difficult endeavor. In the past decade, multilateral financial institutions, such as the International Monetary Fund, have to focus on factors affecting financial stability across countries. While foreign currency, equity and money market indicators have long been used to gauge financial stability the significance of real estate market and interplay with the business cycle has recently attracted greater attention in the literatim (Ucal & Gokkent, 2007).

Nairobi was founded in 1899 by the colonial authorities in British East Africa, as a rail depot on the Uganda Railway. The town quickly grew to replace Mombasa as the capital of Kenya in 1907. After independence in 1963, Nairobi became the capital of the Republic of Kenya. Home to thousands of Kenyan businesses and over 100 major international companies and organizations, including the United Nations Environment Program (UN Environment) and the United Nations Office at Nairobi (UNON), Nairobi is an established hub for business and culture[2].

In 30-40 years, Nairobi has experienced tremendous population growth at an average of 4.8per cent per annum. This population growth is quite high compared to Kenya's average national growth rate of 3.4 per cent per annum (NQTMCPD, 2013). Nairobi's population increased from about 0.8 million in 1989 to 2.1 million in 1999, and for 2011 are 3.36milion. The city proper had a population of 4,397,073 in the 2019 census, while the metropolitan area has a population of 9,354,580. [3]

The increasing in population against the background of 250,000 units annual demand of houses and the combined capacity of both the government and the private sector to provide around 30,000 units annually provides a fertile market for realtors in Nairobi County and the Nairobi Metropolis. [4].

According to a study carried out by Hass consult website (2014), house price increases were less robust by end June 2014 following a decline in asking prices for top of the market detached houses. Detached house prices fell by 0.3% in 2014 and 2.1% on a year earlier, in a price correction from more than 10% post-election surge in detached house prices. Strongest price rally remained for semidetached houses, rising 3.3% in 2014 and 6.7% on the earlier year. Rents rose during the year 2010, but house prices rose faster, seeing some further marginal falls in yields, however, overall rental yields held above a 6 percent return, remaining far ahead of treasury bill yield of between 2.0 and 2.25 per cent. The best rental yield continued to be on town and mansionette, where rents remained equivalent to 7.6 per cent of house purchase price. The yield for apartments held at 7.0 per cent and for top- end houses at 6.3 per cent.

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[2] https://en.wikipedia.org/wiki/Nairobi

[3] Ibid

[4] Ibid

Real estate has been one of Kenya's fasted growing sectors over the last decade followed by burgeoning middle class with higher disposable incomes. Returns on investments in the sector has easily outpaced those of equities and government securities (Mbula, 2013). According to Omare, (2009), the growth of real estate industry is important for the overall development of a country.

Studies by Hammers and Chen, (2005) measure real estate performance by analyzing return on asset. Similarly, Fisher, (2005), using the internal rate of return (IRR) to stimulated portfolios comprised of commercial properties, U.S stocks and U.S. bonds. Ooi and Liow, (2004) using systematic risk incorporated in the traditional Capital Asset Pricing Model (CAPM) to explain real estate returns.

Statement of the problem

Ng *et al*. (2017) noted that real estate or property investment has become a popular investment opportunity all over the world because of its peculiar or unique characteristics; it is believed that returns on real estate investments appreciate in real terms, even in adverse economic situations. Agava *et al* (2021) conducted a review of studies on real estate investment performance in Nigeria. The review revealed that nominal rate of returns, Sharpe index and coefficient of variation were the common performance measurement indices often adopted by majority of the previous authors. A study by Nworah *et al* (2023) aimed to examine the impact of inflation on key variables of real estate investment performance and investment decisions. Otegbulu (2022) observed that the impact of inflation on real estate investment decisions cannot be over-emphasized. Real estate investment decisions face various challenges worsened by the unpredictable nature of the economy as a result of the impact of inflation especially in developing countries' economies.

Kenya Real Estate Retail Sector Report (2023) revealed that real estate performance was expected to be driven by increased investor appetite for the property market, positive demographics driving demand for properties, and, rapid infrastructure developments. Access to adequate credit has remained a challenge, given the increasing loan default rates in the property sector as financial institutions such as commercial banks continue to tighten their lending terms. According to the Central Bank of Kenya (2022), the gross Non-Performing Loans (NPLs) in the Real Estate sector increased by 12.2%. The Report added that despite government's efforts to conclude various infrastructure projects in the country, there exists some areas with inadequate infrastructure services such as water, sewer, and, road networks thus hindering the optimum retail investments in the areas.

A number of studies have been undertaken in Kenya on the subject. A study by Omare (2015) showed that that the performance of real estate industry in Kenya is affected by fundamental macroeconomic factors such as GDP, inflation, exchange rate, interest lending rates and Diaspora remittances. Musyoki (2016) studied influence of economic growth on the performance of real estate investment industry in Machakos, Kenya. Hassan (2023) studied risk management practices and performance of real estate construction projects in Nakuru County, Kenya. On her part, Njambi (2020) looked at effect of selected macro-economic determinants on performance of real estate. Onyango (2022) focused on effect of macroeconomic variables on financial performance of real estate sector in Kenya. Karoki (2019) concluded that there exists remarkable relationships between residential real estate prices and interest rates, GDP, and level of money supply; Muli (2012) found out that GDP was positively related to real estate investment whereas interest rates and inflation rates were negatively related to the growth in real estate; Kangogo (2012) concluded that there was no explicit correlation between the property price and the inflation rate.

Many studies undertaken on the real estate sector in Kenya have focused on the pricing of the real estate products. This is attributable to the high property prices during the booms and the lower property prices during the bubble bursts. Majority of the researchers have sought to find out the factors that informs prices for different properties in the real estate in Kenya; this has

left a gap that many prospecting realtors, financing bodies, government agencies and prospecting home owners would look unto to understand the performance of the real estate sector in Kenya. Appraising the performance of the real estate sector in Kenya has been the prerogative/ responsibility of the various realtors and it is feared by many prospecting stakeholders in the industry that the performance report (s) given by the existing realtors might not reflect the true position of the performance on the sector because the respective realtors would not disclose data or information that would disadvantage them in the real estate market. It is against this background that this study sought examine the influence of macroeconomic factors on performance of real estate developers in Nairobi County, Kenya.

General objective

The general objective of this study was to establish the impact of macroeconomic factors on performance of real estate developers in Nairobi County, Kenya

Specific Objectives

i.   To examine the impact of Gross Domestic Product (GDP) on performance of real estate developers in Nairobi County, Kenya
ii.   To examine the impact of diaspora Remittances (Remittances from abroad) on performance of real estate developers in Nairobi County, Kenya.

Theoretical framework

Behavioral Finance Theory

This theory entails the study of the application of psychology on the behaviour of various practitioners in finance and the subsequent effect on the overall market's performance. It seeks to explain and reduce knowledge gap on the reasoning patterns of investors, the emotional processes involved as well as the level to which they shape the decision-making process. Behavioural finance seeks to explain the dynamics of finance and investing, from human perspective (Wambuu, 2016).

The traditional theories of finance had the overarching belief that portfolio allocation is based on risk-return trade-off; models such as the CAPM and other relevant frameworks (Fama and Fischer, 1993). Hong and Stein (1997) present evidence that can be interpreted in respect of an epidemic model in which investors pass information about stocks to one another verbally consequently ignoring principles of portfolio theory. The prediction of this theory is that the changes in macroeconomic factors will influence the behaviour of an investor, thereby affecting the financial performance of an entity, industry, and economy.

Conceptual Framework

A conceptual framework refers to the relationship between contextual variables in the study and shows the relationship graphically or diagrammatically (Mugenda & Mugenda, 2019). The relationship describes the association between the independent variables and the dependent variables as shown in figure 2.1.
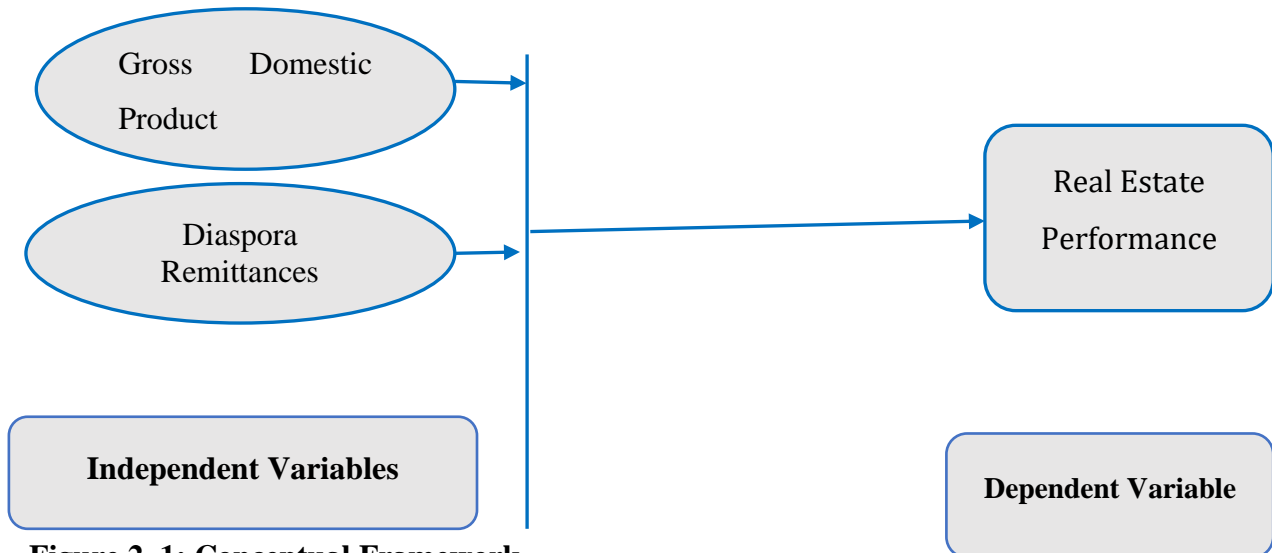
Figure 2. 1: Conceptual Framework

Gross Domestic Product (GDP)

For residential real estate, the basic logic behind the co-integration of GDP growth and real estate capital returns arises from the fact that income has to be accumulated to buy a home. Income, in turn, can be directly derived from GDP with only a few adjustments. Studies in Asia, Europe, and the US reveal that median home prices correlate by as much as 60% to 95% with GDP per capita. In the long run the growth trends of both cycles typically correspond to each other.[5]

For commercial real estate, the logic is similar, but investors of commercial buildings unlike homebuyers typically evaluate investment properties with respect to their expected income and, therefore, commercial property prices experience a different cyclicality. In sum, GDP can act as reasonable estimator for the progression of residential and commercial real estate markets.[6]

According to Birz and Lott (2011), news about real GDP does influence stock markets. For real estate markets, there is not necessarily a strong relationship (Bouchouicha and Ftiti, 2012). Unanticipated changes actually also do affect the securitized real estate market. Increased real output should result in higher innovation pace and industrial production (Ewing and Payne 2003). Companies can take advantage of a growing economy and increase revenues without considerably affecting the internal competition balance of the business sector (see Koller et al, 2010; and Porter, 1980).

Diaspora Remittances

Diaspora Remittances are the transfers of money, goods and diverse traits by migrants or migrant groups back to their countries of origin or citizenship (Oucho, 2008). According to the Central Bank of Kenya (2016), diaspora remittances are broad-based and entail norms, attitudes, of conduct as well as social capital that the diaspora reconcile

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[5] https://www.asiagreen.com/en/news-insights/the-link-between-gdp-growth-and-the-real-estate-market

[6] Ibid

and either deliberately or by default transfer to home communities from hosts. Such remittances are transfer of money by a foreign worker to his or her home country (Wambuu, 2016).

The Kenyan Diaspora remittance is steadily rising and in 2013 according to World Bank Reports, the figure was at USD 1,290.6 (About Kshs. 113 Billion accounting for 2.98% of GDP) but registered an 11% increase when it rose by USD 137 million in 2014 to read at USD 1,428.5 million. This figure accounts for about 3% of the country GDP, a figure that is higher than what the country earns from mining (1.08%) (Muriuki, 2015).

Diaspora remittances are experiencing growth and since it involves huge sums, it is currently considered significant contributor to the economic growth of the recipient country (CBK, 2013). It is believed that the bulk of the remittances are used to buy land, develop new houses or buy ready-built houses. The remittances have had a contribution to the rising prices of property in the country by raising demand, much to the detriment of low-income earners who can't afford house prices and high mortgage rates. A huge part of Diaspora remittances has been going into the Real Estate Sector (Omare, 2015). Remittances enable purchase of land, construction of new homes, capital for businesses, money for purchase of equipment and investment in agriculture (Oamugune, 2018).

Empirical Review

This section entails a review of empirical studies that have been undertaken by other researchers touching on the macroeconomic factors affecting the performance of the real estate sector globally and locally.

Real estate markets are generally considered to be cyclical in nature, it is plausible that the structure of market behaviour differs across boom and bust phases. In a downturn, property values may fall more sharply, and with less volatility, than they rise in an upturn. In equity markets, it is known that falling prices are more volatile than rising prices, the so-called leverage effect (Black, 1976). Globally regime switching models are used to capture these behavioural differences (Lizier et al., 1998).

Property market and macro economy are interlinked and intertwined. They are positively related to each other and they are interrelated in both short and long run as well as influence each other. Belo and Agbatekwe (2002) submitted that the quality and quantities of the country's housing stock is a measure of the country's economic growth and prosperity. Also, real estate sector has become a focal point of government fiscal and monetary policies and used as yardstick for realizing low level inflation, high level of employment, low level of unemployment and balanced economic growth (Apergi, 2003). Fraser (1993) has related property market as an integral part of nation's economy, therefore there is reverse implication on one another. This indicates there is a reverse linkage between property market and the macro economy, which implies that, whatever affects the property market also affect the economy, vise versa.

In the period of economy instability or macroeconomic: fluctuation, disequilibrium in the property market is as a result of exogenous factors originated from government structural and deregulations in the country's economy (Dehesh & Pugh,1998). Property market cycles are affected by shocks of macroeconomic factors and resulted into either tight or soft market, in that, in the period of economic stability and growth, the property market cycles are expected to exhibit excess supply, vise versa (Bom & Pyhrr, 1994).

Apergis (2019) objectively analysed the dynamic effect of macroeconomic on real estate pricing in Greece between 1981-1999 and adopting multiequation regression model. The result variance decomposition showed that mortgage rate has explanatory power and positive influence of employment and inflation rates increase property return.

Brooks and Tsolacos (2019) adopted multi-equation regression analysis in examining the impact of economic and financial factors on property return in U.K using quarterly data

between 1985 and 1998, the result showed that lagged effect of unexpected inflation on property return with a noticeable negative influence and negative shock of short term interest rates negatively impact on property return.

Eldelstine and Tsang (2022) studied the influence of macroeconomic factors on housing market in U.S using quarterly data between 1988 and 2003. The result showed that employment and interest rate has strong positive significant influence on property market; this finding on positive influence of employment rate on property returns is consistent with that of Apergi (2023).

Sari et al. (2017) studied the relationship between macroeconomic and housing market in Turkey between 1961 and 2000. The study adopted multi-equation regression and the result indicated that interest rate has a relative substantial effect on housing investment market than employment rate; this finding is consistent with previous studies (Apergi, 2019; Eldelstine & Tsang, 2019).

Chan, Hendershott and Sanders (2020) use the multifactor pricing model to determine that unexpected inflation and interest rate risk are the main factors that influence the returns of equity REITs; these factors are responsible for up to 60% of the variance in these returns. West and Worthington (2019) use the GARCH-M approach to empirically demonstrate that the macro-economy exhibits a significantly positive relationship with the return of REITs and that certain variables, such as the long run interest rate, the short-run interest rate, unexpected inflation and the construction index, demonstrate particularly high correlations with commercial real estate returns.

Rodenholm and Dominique (2022) studied on Macroeconomic effects on securitized real estate markets which was comparative study of Sweden and Switzerland. The study investigated to what extent macroeconomic factors influence real estate stock prices before and after the outbreak of the financial crisis in 2007. The results show that the macroeconomic effects on real estate stock prices differ among small economies and are inconsistent in a pre-crisis and crisis period. Solely theoretical aspects are not sufficient to describe the varying conditions in the financial markets, which have to be scrutinized in a wider economic context. Those factors that show some regularity in the relation to the real estate markets are all share indices, term structure and real GDP per capita.

Renigier-Bilozor and Wisniewski (2022) used Italy and Polland to determine the impact of macroeconomic factors on residential property and prices indices in Europe. Quarterly time series data constituted the material for testing and empirical results. The developed models show that the economic and financial situation of European countries affects 21% residential property markets. Residential property markets are connected, despite the fact that they are situated in different parts of Europe. The economic countries have variable influence on prices of real estate.

A study on the economic variables that influence the residential property market in South Africa, with a perspective on the developer, between the year 2006 and 2012 was undertaken by (Theuns, 2019). By employing linear regression analysis, the research findings were that the GDP contributed to 69% in the changes that occurred in the house price index and a further 25% contributed by factors together such as: Inflation Rate, household disposable income, final household consumption, household and debt ratio.

Oyewole and Ajayi (2019) found out that GDP, interest rate and employment rate are significant determinants of the performance of office market on performance of office properties in Lagos, Nigeria. The influence of other macro-economic variables such as inflation rate, exchange rate and capital market condition is not statistically significant. Overall, GDP could be regarded as giving the highest contribution to the performance of office market on Performance of Office Properties in Lagos, Nigeria.

Ojetunde (2020) adopted multi-equation regression to examine the existence of long run relationship and influence of macro economy on residential rental performance in Nigeria using annual data from1984 to 2011, the result showed that real GDP and exchange rate forecasted 31.4% of variation and positively influenced residential market and at the same time have positive shock influence on residential rent.

Udoekanem et al., (2021) examined the determinants of commercial property rental value in Wuse commercial district of Abuja, Nigeria between 2001 and 2012. Single equation regression was adopted; the result revealed that real GDP and vacancy rates respectively account for 74% and 83% of variation in office rent, therefore the study concludes that real GDP and vacancy rate are the major drivers of rental change in Wuse market. This finding is consistent with that of previous studies in Nigeria (Ojetunde *et al.*,2019; Udoekanem et al.,2019).

The last 20 years of real estate boom in East Africa has changed the building landscape and inventory, as it quite rightly should have done 7. Cytonn Real Estate (2018) undertook a survey in Dar es Salaam real estate market and its surroundings, specifically for residential development, commercial sector, land and hospitality sectors. The study found out that retail sector recorded the most attractive yields of 9.4%, 2.5% points higher than the consolidated real estate yields, driven by foreign retailers and increasing consumerism. The opportunity for retail is in community malls in prime areas such as Masaki and Upanga with occupancies of above 90.0% and yields of 10.9% and 10.3%, respectively.

In addition, the study realized that the real estate sector has rental yields averaging at 5.2%, 6.4% and 9.4% in the residential, office and retail sectors, respectively and that The market has witnessed a decline in the residential and office sector since 2015 due to implementation of policies that have resulted in lower purchasing power of residents and scaling back of multinationals who were a significant market for real estate.[8]

Kenya has experienced a big boom in the real estate sector in the recent past to be ranked the fourth highest contributor to the economy (Kenya National Bureau of Statistics, KNBS, 2019). This is as a direct response to increased demand. The Kenya population is fast growing coupled with an increase in rural-urban migration. The middle class with demand for housing in the city is fast rising (Mutinda, 2020).

Like any other market in the world, Kenya's real estate market operates in cycles just Kenya cycles starts after a general election and end with the following general elections. Due to 2013 elections, there was slowdown in uptake of houses leading to high vacancies and drop in prices (Gichunge, 2021). This implies that the market was influenced by the political uncertainty that prevailed then (Ungayi, 2019).

Miregi and Obere (2018) studied the effect of market fundamental variables on property price in Kenya between 2001 and 2014; the result of multi-equation regression employed revealed that inflation and interest rates had significant lagged positive and negative influence on property price.

Mbugua (2023) undertook a study on macroeconomic determinants of supply of houses in real estate industry in Kenya. Descriptive correlation research design was used and data on new houses built annually and price levels of houses in Kenya was obtained from the real estate firms e.g. Hass consultant, data for interest rate was obtained from the E (CBK) while data for growth of GDP was obtained from the yearly economic surveys and the statistical abstracts between 1987 and 2012 from Kenya National Bureau of Statistics. A positive and significant relationship between supply of houses in real

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[7] https://constructionreviewonline.com/2019/02/east-african-real-estate-investors-discover-the-working-class/

[8] https://cytonn.com/topicals/dar-es-salaam-real-estate-investment-opportunity

estate sector in Kenya and the price levels was established and that growth of GDP and interest levels have an influence on supply of houses.

Omare (2021) studied the effect of macroeconomic variables on the performance of the real estate developers in Kenya. The results of the analysis showed that the change in the macro-economic variables contributed to an equivalent of 76.1% of a change in real estate investments as depicted by the R-Square equal to 0.761. This means that 23.9% of investment in the real estate industry was explained by other external variables.

Muli (2022), using quantitative research design on a study of Assessment of the Factors Affecting the Growth in Real Estate Investment in Kenya, concluded that GDP, interest rates and inflation rates were the major determinants of real estate investment at the 0.05level as per the SPSS fitted model. Besides GDP growth contributed the most to the growth in real estate in Kenya. Population growth had a statistically insignificant negative impact on real estate investment.

GDP was positively related to real estate investment whereas interest rates and inflation rates were negatively related to the growth in real estate. Factors such as Interest rates, GDP and inflation rate had statistically significant influences on real estate investment population (Muli, 2019).

Kangongo (2020) sought to establish the Relationship between Inflation Rates and Real Estate Prices in Nairobi, Kenya. Simple linear regression model was used to determine the nature of the relationship. Property prices were collected from the ministry Lands, Housing and Urban development, while inflation rates data was collected from the Kenya National Bureau of statistic. The findings of this study show that there is no clear relationship between the property price and the inflation rate.

Karoki (2019) undertook a study on Determinants of real estate prices in Kenya using descriptive and multivariate regression models found out that there are significant relationships between residential real estate prices and interest rates, GDP, and level of money supply. Interest rates have the most significant effect on house prices followed by GDP and level of money supply. Thus, the rise in property prices is well explained by macroeconomic variables.

RESEARCH METHODOLOGY

Research design

The study applied cross-sectional research design and it was qualitative and quantitative in nature. This design is preferred because the study involved elements of quantitative research and the time scope of five years (2015-2019). Mugenda and Mugenda (2019) observed that a descriptive research designs aims at explaining and describing the state of affairs as they are and then report the findings. The designs involve fact finding, formulation of important principles of knowledge and solution to significant problem (Orodho, 2018).

Target Population

Mugenda and Mugenda (2019) described population as the entire group of individuals or items under consideration in any field of inquiry and have a common attribute. The study was conducted in Nairobi County the economic headquarter of Kenya. The county was purposively selected because it has adequate representation of real estate firms and a huge potential for growth in real estate because of the ever increasing rural-urban migration and the growing economy. In addition, the real estate market is well established in Nairobi County than the other counties in Kenya. The study population comprised of all the registered Real Estate Developers operating in Kenya for the period 2015-2019. Accessible population was 78 real estate members of Kenya Property Developers Association (KPDA)[9].

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i.   [9] http://www.kpda.or.ke/property-developers

Data collection

The study obtained all the secondary data on macroeconomic variables proposed for the study from the Kenya National Bureau of statistics (KNBS), Central Bank of Kenya (CBK) and the Hass Consult Property Index.

Data Collection Procedures

After the researcher is given approval to carry out the research by post graduate School, an introduction letter was obtained from the school and then permission sought from National Council of Science &Technology. The researcher obtained data from the relevant firm(s) and government agencies. Priority sources were relevant websites and in the event the data needed the researcher visited the relevant office to request for the data.

Data Analysis Technique

According to Cooper and Schindler, (2019), the whole process which starts immediately after data collection and ends at the point of interpretation and processing data is data analysis. Statistics is also defined as a discipline that provides the tools of analysis in research and one which refers to facts, information or data and to a system of data collection and analysis. Cooper & Schindler points out that, it is a process of bringing order, structure and meaning the mass information collected. Therefore, editing, coding, classifying and tabulating was used to process the collected data for a better and efficient analysis.

The questionnaire responses were grouped into various categories for analysis using descriptive statistics. SPSS version 25 was used to analyze the structured questions while the use of descriptive statistics determined frequencies and percentages. The results were presented in prose, tabular and graphical form.

The study proposes to use analytical model depicted by the regression model:

$$Y = \beta + \beta_1 X_1 + \beta_2 X_2 + \mu i$$

Where,

> Y= Financial Performance of Real Estate Industry

> X_1= Growth in exchange rate, measured as the percentage change in average annual Kenyan currency exchange to USD

> X_2 = Growth in Diaspora Remittances, measured as percentage change average annual amounts as indicated by the Central Bank of Kenya

> β= Beta coefficient of variable *i* that measure the amount of the change in Y associated with a unit change in X.

> While μi –is the error term that is assumed to be associated with the Variables

Test of significance was carried out to gauge the fitness of the proposed model.

RESEARCH FINDINGS AND DISCUSSION

Descriptive Statistics

Descriptive statistics are category of statistics that primarily describe the features and characteristics of a data set. The main aim of descriptive statistics is to provide summaries of a population as well as its measures. Further, descriptive statistics encompass, frequency distribution, percentage as a proportion of the population, measures of spread as well as measures of central tendency. Generally, the measures of spread comprise of minimum values,

variance, standard deviation and maximum values. The measures of central tendency in a data set include median, mean and mode.

In this study, descriptive statistics entailed calculation of standard deviation, mean, maximum and minimum of dependent variable (performance of real estate developers in Nairobi County, Kenya) and the independent variables, interest rates, inflation rates, Gross Domestic Product (GDP), diaspora Remittances (Remittances from abroad. This sub-section entailed presentation of standard deviation(s), minimum(s), mean (s) and maximum values of the variables.

Table 4. 1: Mean Estimation

Obs	Mean	Std. Dev.	Min	Max
47	4.753801	4.008427	-.799494	22.17389
47	-6.514894	4.611001	-17.2	4.95
47	.7467643	.7550896	.004721	3.457345
47	12.11159	8.052508	1.554328	45.97888
47	49.98745	24.33682	21.36	131.9

The results, as shown in Table 4.1, indicated that the average interest rates for the period between 1970 and 2017 was 4.753801 per cent and the standard deviation was 4.008427 per cent. The minimum interest rates during the study period was -0.799494 and the maximum was 22.17389. In addition, the average inflation rates for the period between 1970 and 2017 was -6.514894 and the standard deviation was 4.611011. The minimum inflation rates were -17.2 and the maximum was 4.95. Further, the results indicated that the average Gross Domestic Product (GDP) measured in terms of net inflows as a percent of the GDP for the period between 1970 and 2017 was 0.7467643 per cent and the standard deviation was 0.7550896 per cent. The minimum Gross Domestic Product (GDP) was 0.004721 per cent and the maximum was 3.457345. The findings also indicated that the average diaspora Remittances (Remittances from abroad) for the period between 1970 and 2017 was 12.11159 and the standard deviation was 8.052508. The minimum diaspora Remittances (Remittances from abroad) during the study period was 1.554328 and the maximum was 43.97888.

Trend Analysis

Trend analysis is the direction a market takes during a specific period of time. Although, there is no specific period of time that can be considered minimum for a direction to be considered as a trend, trends that cover longer periods of time are considered more notable. The Trend Analysis can help identify trends in the input dataset. This section shows patterns of change in an indicator over time. This section presents the trend analysis for the four independent variables and the dependent variable.

Performance of real estate developers

Performance of real estate developers in Nairobi County, Kenya was measured in terms of profitability. Figure 4.2 shows the trend of house development for the period ranging from 1971 to 2017.
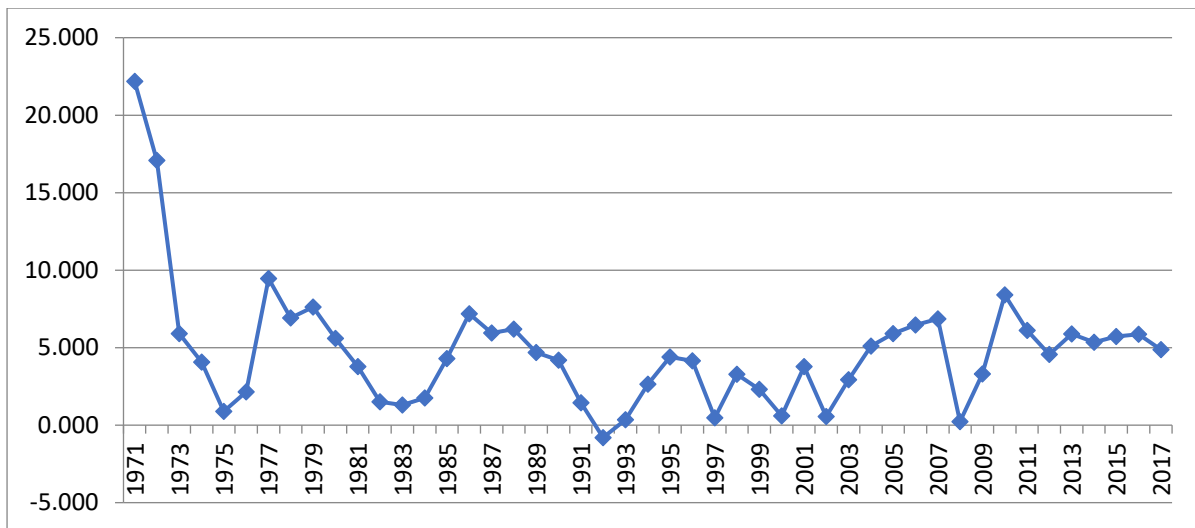
Figure 4. 1: Trend of Performance of real estate developers

According to the findings, Performance of real estate developers in Nairobi County, Kenya has been flactuating over the years. The highest Performance of real estate developers in Nairobi County, Kenya for the period between 1971 and 2017 was in the year 1971 at 22.174% and in the year 1972 at 17.82%. Other peaks during the study period were in 1977 at 9.454%, 1986 at 7.178%, 1995 at 4.406%, 2007 at 6.851% and 2010 at 8.406%. However, Performance of real estate developers in Nairobi County, Kenya was lowest in 1992 at -0.799%. Other years with low Performance of real estate developers in Nairobi County, Kenya were 1975 at 0.882%, 1997 at 0.475% and 2008 at 0.232%. In the year 1992, low Performance of real estate developers in Nairobi County, Kenya can be attributed to tribal clashes and elections while low Performance of real estate developers in Nairobi County, Kenya in 2008 can be attributed to post-election violence.

Gross Domestic Product (GDP)

Gross Domestic Product (GDP) was measured through output, expenditure and income. Figure 4.3 shows the trend of inflation rate for the period ranging from 1971 to 2017.
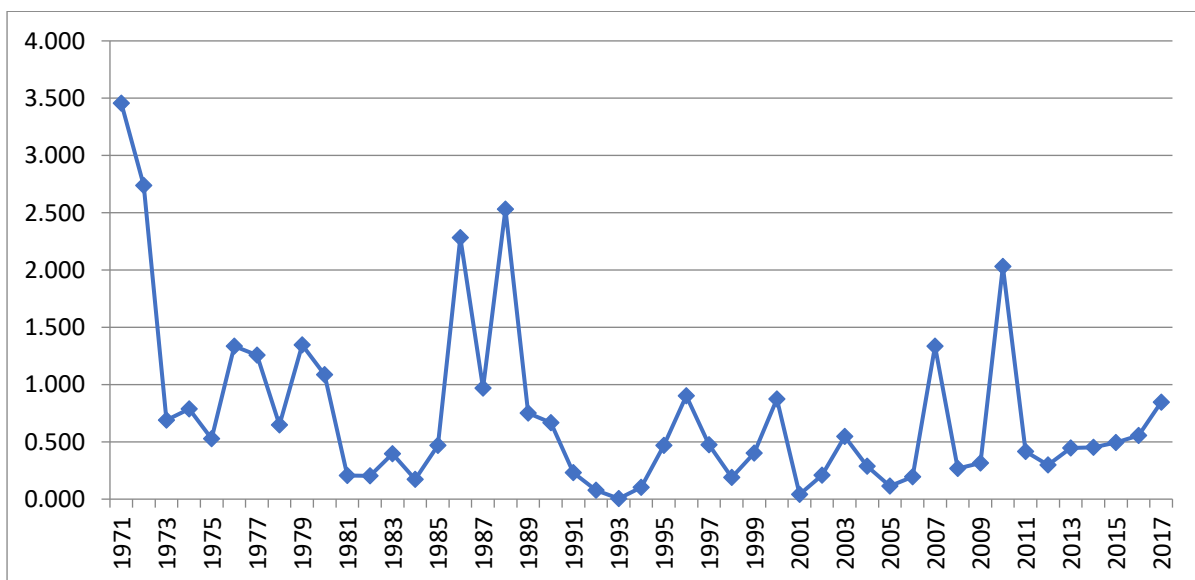

Figure 4. 2: Trend of Gross Domestic Product (GDP)

From the findings, Gross Domestic Product (GDP) has been fluctuating over the years. The highest Gross Domestic Product (GDP) was in the year 1971 at 3.457 per cent. Other years that

had high Gross Domestic Product (GDP) were in the years 1972 at 2.738 per cent, 1988 at 2.532 per cent, 1986 at 2.281 per cent and 2010 at 2.031 per cent. During the study period, the years with the lowest Gross Domestic Product (GDP) were in 1993 at 0.005 per cent, 2001 at 0.041 per cent, 1993 at 0.005 and 1984 at 0.174 per cent. These findings imply that Gross Domestic Product (GDP) has been fluctuating over the years for the period between 1971 and 2017.

Diaspora Remittances

Diaspora remittance was measured in terms of per cent of Remittances from abroad to the GDP. Figure 4.5 shows the trend of diaspora remittance for the period ranging from 1971 to 2017.
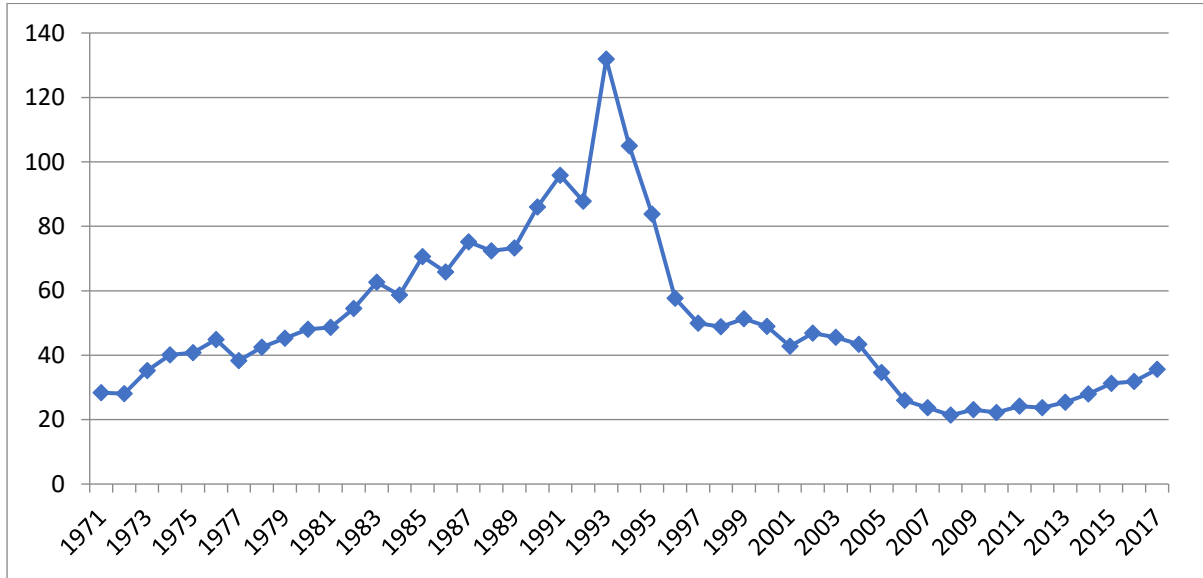

Figure 4. 3: Trend of Diaspora Remittances

According to the findings, diaspora remittance increased from the year 1971 to the year 1993 and began decreasing considerably to the year 2008. Between the year 2008 and 2017 diaspora remittance has been increasing. The highest diaspora remittance was in the year 1993 at 131.9 per cent. The lowest diaspora remittance was in the years 1972 at 28.03 per cent, 2010 at 22.2 per cent and 2008 at 21.36 per cent. These findings imply that diaspora remittance can be categorized into three periods. The first period between 1971 and 1993 indicates that diaspora remittance has been increasing. The second period between 1993 and 2008 indicates that diaspora remittance was generally decreasing. However, the third period between 2008 and 2017 indicates that diaspora remittance has started increasing.

Correlation Analysis

Table 4. 1: Correlations Coefficient

		Performance of Real Estate Developers	Gross Domestic Product	Diaspora Remittances
Performance of Real Estate Developers	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	47		
Gross Domestic Product	Pearson Correlation	.808**	1	
	Sig. (2-tailed)	.002		
	N	47	47	
Diaspora Remittances	Pearson Correlation	.877**	.563**	1
	Sig. (2-tailed)	.001	.000	
	N	47	47	47

The findings indicated that Gross Domestic Product (GDP) had a positive and significant relationship with performance of real estate developers in Nairobi County, Kenya (r = 0.808, p-value=0.002). These findings are in line with Behera (2019) findings that Gross Domestic Product (GDP) positively and significantly correlated with performance for South Asian nations. Also, the study found a positive and significant relationship between diaspora remittances and performance of real estate developers in Nairobi County, Kenya (r = 0.877, p-value=0.001). These findings are in line with Jabran *et al.* (2018) argument that that diaspora remittances had both a short run and long run positive influence on economic growth.

Regression Analysis

Multivariate regression analysis was used to assess the relationship between independent variables (Gross Domestic Product (GDP) and diaspora Remittances (Remittances from abroad) and the dependent variable (performance of real estate developers in Nairobi County, Kenya)

Table 4.2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.931	.857	.858	.10428

a. Predictors: (Constant), Gross Domestic Product (GDP), diaspora Remittances (Remittances from abroad

The model summary was used to explain the variation in the dependent variable that could be explained by the independent variables. The r-squared for the relationship between the independent variables and the dependent variable was 0.857. This implied that 85.7% of the variation in the dependent variable (performance of real estate developers in Nairobi County, Kenya) could be explained by independent variables (Gross Domestic Product (GDP), diaspora Remittances (Remittances from abroad).

Table 4. 3: Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	141.081	2	70.54	205.09	.000[b]
1	Residual	7.254	44	.172		
	Total	148.335	46			

a. Dependent Variable: Performance of real estate developers in Nairobi County, Kenya

b. Predictors: (Constant), Gross Domestic Product (GDP), diaspora Remittances (Remittances from abroad

The ANOVA was used to determine whether the model was a good fit for the data. F calculated was 205.09 while the F critical was 2.480. The p value was 0.000. Since the F-calculated was greater than the F-critical and the p value 0.000 was less than 0.05, the model was considered as a good fit for the data. Therefore, the model can be used to predict the influence of Gross Domestic Product (GDP), diaspora Remittances (Remittances from abroad on performance of real estate developers in Nairobi County, Kenya.

Table 4. 4: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	**Std. Error**	**Beta**		
1	(Constant)	0.239	0.061		3.918	0.000
	Gross Domestic Product	0.357	0.098	0.356	3.643	0.002
	diaspora Remittances	0.375	0.099	0.376	3.788	0.001

a Dependent Variable: Performance of real estate developers in Nairobi County, Kenya

The regression model was as follows:

$Y = 0.239 + 0.357X_1 + 0.375X_2 + \varepsilon$

Furthermore, the results revealed that Gross Domestic Product has significant effect on the performance of real estate developers in Nairobi County, Kenya, $\beta1=0.357$, p value= 0.002). The relationship was considered significant since the p value 0.002 was less than the significant level of 0.05. The findings are in line with the findings of Wenbo and Qin (2020) that there is a very strong relationship between Gross Domestic Product and performance.

In addition, the results revealed that diaspora Remittances has significant effect on the performance of real estate developers in Nairobi County, Kenya, $\beta1=0.375$, p value= 0.001). The relationship was considered significant since the p value 0.001 was less than the significant level of 0.05. The findings are in line with the results of Otim (2017) who revealed that there is a very strong relationship between diaspora Remittances and performance.

Conclusion

The study concludes gross domestic product has a positive and significant effect on the performance of real estate developers in Nairobi County, Kenya. The relationship was considered significant since the p value 0.002 was less than the significant level of 0.05. This implies that an increase in gross domestic product subsequently leads to an increase in performance of real estate developers in Nairobi County, Kenya.

The study also concludes that diaspora remittance has a positive and significant effect on the performance of real estate developers in Nairobi County, Kenya. The relationship was considered significant since the p value 0.002 was less than the significant level of 0.05. This implies that an increase in diaspora remittance subsequently leads to an increase in performance of real estate developers in Nairobi County, Kenya.

Recommendations

In addition, the government should implement policies aimed at controlling inflation to protect the performance of real estate developers in Nairobi County. Specifically, the central bank should focus on maintaining stable inflation through effective monetary policies, such as adjusting interest rates and regulating money supply to prevent inflationary pressures. Additionally, the government could promote the use of inflation-indexed financing options for real estate developers, ensuring that development projects remain financially viable even during periods of high inflation.

The government should introduce a fiscal policy framework that reduces the cost of construction materials by lowering import duties and providing tax incentives for local manufacturers. This would help mitigate the impact of inflation on real estate developers by controlling the rising costs of inputs, which are directly affected by inflationary pressures. By making construction materials more affordable, developers can maintain profitability even in high-inflation environments, ensuring the continued growth of the real estate sector and addressing housing shortages in Nairobi County.

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