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ABSTRACT

This research assessed the impact of macroeconomic determinants on the financial wellbeing of the Kenyan real estate industry. The research ascertained the bearing of exchange rates, interest rates, inflation rates, and GDP on the financial performance of the real estate industry. The research design utilized in this research was a causal-effect design. The research focused on the population of the Kenyan real estate business. The research utilized secondary data sourced from the repository of the CBK and the Economic Survey Reports published by the KNBS for the period spanning from 2013 to 2022. The data was subjected to analysis using a VAR time series regression model. This approach enabled the computation of descriptive statistics (means and standard deviations), and inferential statistics for conducting correlational analysis and VAR time series analysis. The data that was analyzed was displayed in the form of tables and graphs. Prior to doing the actual analysis, the researcher performed diagnostic tests like normality test, multicollinearity test, heteroscedasticity test, optimum lag selection, stationarity and autocorrelation for time series regression. Ultimately, strict adherence to ethical principles was ensured. The study suggested that foreign exchange, interest rate, inflation, and GDP, when analyzed individually, each had a statistically significant bearing on the financial health of the property industry. As a result, these hypotheses were rejected. The research determined that foreign exchange rates, interest rates, inflation, and GDP do have an impact on the financial performance of the property industry. The report recommended that the property industry should assess the existing risks and identify the currencies involved with the assistance of a foreign exchange specialist. This serves as a foundation for several tactics that may be employed, including pre-purchasing the currency, using dollar-cost averaging, utilizing forward contracts, employing limit orders, and exploring other temporal alternatives. Equally, the research advises making safer investments for investors wishing to lower the risks associated with interest rates, investing in bonds and certificates with short maturities since they are the safest option. Additionally, the research advises implementing a contractionary monetary strategy and also, real estate firms have more cash so they may raise capital, enhance technology, and grow.

Key Words: *Real Estate, Macroeconomic Drivers, Foreign Exchange, Interest Rates, Inflation Rates, GDP*

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INTRODUCTION

The financial success of the real estate division has played a vital role in global economies, including Kenya, where it is used as a predictive indicator for both real estate demand and overall financial health. In the Kenyan context, it is observed that the real estate sector have a significant part in the nation's GDP, accounting for around 9% of the total output. However, it is noteworthy that the financial performance of this sector has been experiencing a decline, as seen by the average uptake of real estate properties.

The growth seen in the real estate market, namely in terms of sales and prices, may serve as reliable indicators for predicting the demand for real estate. According to Knight Frank (2011), real estate has been recognized as one of the quickest expanding sectors in the economy, including the Kenyan economy, making it a valuable barometer of economic development. According to Mbula (2013) and Klimczak (2013), the returns from the real estate industry have lately surpassed those of government securities and stocks worldwide, including in Kenya. Taylor (2009) has also emphasized the significance of real estate area expansion for the overall growth of a nation. The real estate sector broadly comprises land and its associated upgrades, including considerations of selling prices, rental prices, and further enhancements, alongside the building industry as a whole.

In Kenya the property industry has seen significant growth, exceeding the profits generated by government securities and stocks. The real estate research published by Cytonn Investments (2016) reported that the property industry in Kenya makes a significant contribution of 9% to the country's GDP. Additionally, the report by Hass Consult in 2015 indicates that property prices saw a notable increase in marginal returns towards the end of 2014. Furthermore, according to Omare's (2016) research, there was a decrease of 0.3% in the real estate sector for the year 2017, which may be attributed to the overall underperformance of the market. Based on the findings of the Cytonn Investment Report of 2019 (Cytonn, 2019), it can be observed that in the year 2018, the equities market experienced a negative trajectory. This was evidenced by the decline in the NSE All Share Index (NASI), NSE 25, and NSE 20 by 18.0%, 17.1%, and 23.7% respectively. The aforementioned decline can be attributed to the decrease in value of numerous large capitalization stocks, particularly those associated with the banking and nonbanking financial sectors that provide support to the real estate industry. Additionally, macroeconomic factors also played a significant role in this downward trend. The observed phenomenon may be characterized as a significant indicator of the financial success within the real estate industry. The drop may be ascribed to several variables.

Macroeconomics analyzes the key factors that the government typically employs to make decisions. Modifications in these factors are directly correlated with alterations in the global property industry, particularly in regards to residential property values. Comprehending the essential connections in the property industry in regard to these factors is thus a strategic choice for investing in real estate (Lu & Tang 2014). The determinants identified from the literature include the following: GDP, interest rates, inflation, currency exchange rate, legal and regulatory environment and risk. This work concentrated on GDP, interest rates, inflation and currency exchange rate since they are the determinants that have a substantial link to the real estate sector for making real estate investment decisions.

The term "interest rate" pertains to the proportion of the principal amount that is payable or earned as interest during each specified period of a loan, deposit, or borrowing. According to Barksenius and Rundell (2012), the determination of the overall interest accrued on a loan or deposit is influenced by many factors, including the principle amount, the interest rate, the frequency of compounding, and the duration of the lending, depositing, or borrowing period. The fluctuation of interest rates

may have a multifaceted impact on residential property values. Interest rates may have influence on the expenses associated with borrowing and the rates of mortgages. According to Makena (2012), alterations in capital flows may have a direct influence on the supply and demand dynamics of a property. Mortgages enable market investors to get funds, which they must repay with interest rates, generating revenues for mortgage firms (Gaspareeniene, Remeikiene & Skuka, 2016). Properties are often impacted by high interest rates in an economy, which may have an effect on returns. The reason for this is that elevated interest rates have a tendency to dissuade prospective borrowers from seeking out mortgage lenders due to the fact that the loan repayments would surpass their limit (Barksenius & Rundell, 2012).

It is the evaluation of a company's effectiveness in using its assets to create income, as outlined by Fama and French (1992). Accounting-based performance analysis is utilized to demonstrate the firm's financial performance. The financial metrics often used in evaluating a company's performance are ROE and ROA, which are calculated by dividing the net income by the total assets. In addition, market-based indicators such as Tobin Q have been discussed by Lee and Lam (2008).

Brueggeman and Fisher (2015) define real estate as including land and any structures and fixtures that are affixed to it in a permanent and immovable manner, including buildings and fences. Cummings (2010) posits that real estate investment encompasses the procurement, proprietorship, administration, letting, and/or disposition of real property with the objective of generating financial gains. Investing in real estate is pursued due to its potential to offer several forms of returns, including capital appreciation, income generation, and intangible advantages. Maximising profits in the commercial real estate sector is contingent upon many key factors, including achieving full occupancy, ensuring fast and complete rent collection, securing market-appropriate rental rates, maintaining the property in excellent physical condition, minimizing irrecoverable outgoings, and mitigating tenant turnover rates.

Muli (2012) employed a quantitative research approach to examine the variables influencing the growth of real estate investment in Kenya and reached a determination that, at the 0.05 level, GDP, interest rates, and inflation rates were primary considerations that impacted real estate investment. Furthermore, the rise of Kenya's real estate sector was mostly driven by the increase of its GDP. An investment in real estate is negatively affected by population growth in a statistically negligible way. There exists a positive link amongst property investment and GDP, but interest rates and inflation rates exhibit an adverse correlation with the expansion of the property sector. Although this research was conducted in the same industry as the present one, it had a conceptual flaw that the current study would attempt to remedy by adding additional variables.

Kenya has a robust construction and building sector, characterized by the presence of widely accessible engineering, building, and architectural design services of high quality. The present trajectory of the sector is experiencing an increasing trajectory, mostly attributed to the successful execution of initiatives such as the Urban Transport Infrastructure plan. The acceleration of population growth and the migration of individuals from rural to urban regions have generated a plethora of investment opportunities, notably within the housing sector (Mwangi, 2013). Over the last ten years, there has been significant growth in Kenya's real estate area, with the construction industry estimated to have generated over 92,000 private sector employment opportunities in 2010, as reported by the Hass Property Index in 2013. This is particularly applicable to international investors who see the Kenyan market as interactive. According to Renigier-Biłozor (2014), the profit margins ranging from 20 to 30 percent are considered high. The author further contends that achieving such profit margins is unattainable, especially in well-established markets like the

United States of America or Europe. Prominent multinational real estate corporations have allocated substantial financial resources towards the acquisition of opulent houses, with a specific focus on the high-end market catering to expats, diplomats, and affluent individuals from Kenya.

Statement of the Problem

The field of real estate investment plays a significant role in several aspects, including the provision of job opportunities, the provision of housing to families, the enhancement of income distribution, and the reduction of poverty (Masika, 2014). The real estate business in Kenya is now unable to effectively serve its core purpose, mostly owing to a variety of distinctive characteristics that impact the sector. The performance of the real estate business is contingent upon many key macroeconomic indicators, including the interest rate, GDP, exchange rate, and inflation. In order to remove uncertainty in real estate industry, both potential and actual investors hope that these factors remain constant so that the returns on their investments are not affected, guaranteeing their profitability (Golob, Bastic & Psunder, 2018).

The Real Estate publication by Cytonn Investments (2020) stated that the property industry in Kenya makes a significant contribution of 9% to the country's GDP. Nevertheless, the industry has seen heightened rivalry in both the residential and commercial real estate sectors. The fragility of the real estate market performance is apparent in the current Hass Property Index (HPI) produced by KBA, as well as in data from other private organizations. Based on the most recent Human Performance Index (HPI) report published by the Kenya Bankers' Association and the KNBS in late January 2023, the data over the last decade suggests that the banking industry exhibits a state of fragility and falls short of meeting anticipated performance levels. For instance, the HPI index for the last seven years were as follows 12.2%, 10.8%, 5.6%, 5.3%, 5.8%, 6.7% and 5.4% for the period 2016, 2017, 2018,

2019, 2020, 2021 and 2022 respectively. This observation suggests that the real estate industry has not met the anticipated level of performance (KBA, KNBS & REIT, 2023). Several research have been conducted about the performance of the real estate industry. Rodenholm & Dominique (2013) conducted research on the influence of macroeconomic aspects on securitized real estate markets. Specifically, they focused on comparing the impacts in Sweden and Switzerland. In their research, Demewez and Olof (2015) examined the impact of interest rates on property values within the context of Sweden. Locally, study conducted by Ariemba, Kiweu, and Riro (2015), an assessment was made on the influence of macroeconomic variables on the development of the mortgage market in Kenya. Oware (2022) conducted an evaluation of the bearing of macroeconomic variables on the financial health of the real estate industry in Kenya. In a similar vein, Njambi (2020) conducted an evaluation of the bearing of some macro-economic determinants on the success of the property sector. The existing body of research has yielded varied results, identified conceptual gaps, and highlighted contextual and methodological limitations. Consequently, the current research tackled these gaps by examining the impact of macroeconomic determinants on the performance of the Kenyan real estate business.

Objectives of the Study

The general objective of this study was to establish the effect pf Microeconomic determinants on the financial performance of Kenyan Real Estate Sector. The study was guided by the following specific objectives;

- To establish the effect of foreign exchange rates on the performance of the Kenyan Real Estate
- To evaluate the effect of interest rate on the performamnce of the Kenyan real estate
- To evaluate the effect of inflation rates on the performamnce of the Kenyan real estate
- To evaluate the effect of gross domestic product on the performance of the Kenyan

real estate sector

Research Hypotheses

- H_{01}: Foreign exchange rates have no statistical effects on the performance of the Kenyan real estate industry.
- H_{02}: Interest rates have no statistical effects on the performance of the Kenyan real estate industry.
- H_{03}: Inflation rate has no statistical effect on the performance of Kenya real estate industry
- H_{04}: Gross Domestic Product has no statistical effect on the performance of Kenyan real estate industry

LITERATURE REVIEW

Theoretical Review

Real Estate Cycle Theory

The proponent of this theory is Homer Hoyt who in the 1930s based his observations of the housing market in the United States. Hoyt analyzed historical data and identified recurring patterns of expansion and contraction in real estate markets (Beauregard, 2007). Hoyt's emphasized the influence of economic factors, such as population growth, employment levels, and construction activity, on the real estate market. Hoyt argued that these factors drive the cyclicality of the market, with periods of boom characterized by increasing prices, high demand, and extensive construction, followed by contractions marked by falling prices, reduced demand and a slowdown in construction. The theory assumes that the overall economy experiences periods of expansion and contraction. Economic conditions, such as GDP growth, employment levels, and interest rates has a substantial influence on the real estate market (Mueller, 2002).

The theory assumes that the supply and demand for real estate are not always in perfect balance. Changes in population growth, migration patterns, household formation, and investor sentiment can lead to imbalances between the supply of available properties and the demand for housing or commercial space. These imbalances result in price fluctuations and market cycles. The theory assumes that real estate markets do not instantaneously adjust to changes in supply and demand. Instead, there is a time lag between shifts in economic conditions and their impact on the real estate market (Pyhrr & Born, 2005). The theory assumes that real estate investors are influenced by market cycles and exhibit certain behavioral patterns. During periods of economic expansion and rising property prices, investor optimism tends to increase, leading to increased investment and speculative behavior. The theory assumes that market participants, including developers, investors, and policymakers, respond to market signals and adjust their behavior accordingly (Lee, 2011).

The critics argue that the Real Estate Cycle theory struggles to accurately predict the timing and severity of market cycles. Real estate markets are impacted by a complex interplay of economic, social, and political factors, making it difficult to precisely forecast when shifts will occur. Critics argue that real estate markets do not always exhibit the efficiency assumed by the theory. Information asymmetry, where buyers and sellers have different access to market information, can lead to market inefficiencies and distortions (Pyhrr & Born, 2005).

The theory has highlighted these macro-economic factors such as economic growth, interest rates, inflation and exchange rate affect the real estate market. Thus, the theory provides a useful framework for understanding market dynamics and the theory was relevant in establishing the macroeconomic elements of the performance of the Kenyan property industry.

The Loanable Fund Theory

This theory is often attributed to its proponent, who is closely linked to Wicksell in the year 1930. Robertson (1934) contributed significantly to the development of the loanable fund's theory. According to Robertson (1934), the setting of interest rates is influenced by the interaction between the supply of and demand for loanable

funds. The loanable funds hypothesis provides an explanation for the setting of interest rates based on the interplay between the demand and supply of loanable funds or credit. As per the theoretical framework, the determination of the interest rate occurs at the point where the demand schedule for money intersects with the supply schedule of saves. The supply schedule is specifically conceptualized in relation to savings derived from current income (Lindner, 2013). The demand for loanable cash originates from three primary sources, namely the government, companies, and consumers. According to Okoye and Onyekachi (2013), this theory posits that savings play an essential part in supplying loanable money and the reallocation of assets from the production of existing customer products towards the development of capital goods.

On the contrary, investment is considered as generating the demand for cash available for lending. Shapiro (1992) and Hardwick, Khan, and Langmead (1986) found a correlation between interest rates and people's tendency to save. As the interest rate increases, people become more inclined to save and are ready to forgo current consumption in favour of future consumption. The neo-classical theory fails to include the potential existence of specific intentions among savers, such as the desire to save funds for the purpose of acquiring a residential property. One fundamental inference drawn from the theory is that a decrease in interest rates will stimulate an increase in investment activity. Therefore, the concepts of income, consumption, and saving are all applicable within the same temporal framework (Shapiro, 1992). Therefore, it is essential to implement policies that foster competition and enhance efficiency in order to optimize the rates offered to consumers and investors. Therefore, it is apparent that the theory supports a system in which there is no limit on loans, allowing interest rates to be decided by market forces.

Classical Theory of Inflation

This Theory was formulated by Irving Fischer during the early 20th century. Money is the medium of exchange that individuals use to acquire goods and services in a routine manner. Money serves as the primary medium of trade throughout contemporary economies. In an economic context, inflation occurs when there is a widespread upward shift in the overall price level, accompanied by a corresponding rise in the demand for goods and services. The origin of the classical notion of inflation may be attributed to certain circumstances. The quantity theory of money is the theoretical framework that establishes the relationship between inflation and the amount of money in circulation. The theory discussed below, as part of the classical theory of inflation, is used to elucidate the primary and enduring factors that influence the inflation rate and price level. Inflation is a pervasive phenomenon that has a comprehensive influence on the whole economy. It permeates across the whole of the economy. This phenomenon has a significant influence on the whole economy and pertains to the valuation of the medium of exchange within an economic system, specifically focusing on money. The growth of the money supply induces an upward trajectory in the price level, leading to a reduction in the purchasing power of money, often known as currency devaluation.

The government exercises control over the money supply via the implementation of an open market policy. The open market mechanism is a potent instrument for regulating the money supply. The desire for money is contingent upon several things. These factors include variables such as interest rates and the average level of prices in the economy. All economic systems aim to attain a condition of equilibrium whereby the demand for and supply of money are in equilibrium. Marx provided a definition of inflation based on its underlying cause, which he identified as the devaluation of a currency resulting from an excessive issuance of non-convertible paper money (Keynes, 1923)).

Balance of Payments Theory of Exchange

This Theory is often characterized as the Demand-Supply Theory of Exchange. The hypothesis was proposed by Frenkel and Johnson in 1976 within the

framework of the monetary approach to balance of payments. The theory elucidates the exchange rate dynamics that underlie the equilibrium position of the balance of payments between two or more nations involved. Based on the theoretical framework, the balance of payments is initially characterized by a state of imbalance, wherein there is either an inflow or outflow of international funds (Frenkel and Johnson, 1976). Consequently, a favourable inflow of international funds (reflected in the balance of payments) results in an appreciation of the country's currency in the global market, whereas an unfavourable international fund flow leads to a depreciation of the currency's external value.

According to the theory, the exchange rate between foreign currency and local currency is governed by the interplay of demand and supply in the foreign exchange market. Hence, the external valuation of a nation's currency is contingent upon the factors of currency demand and supply. The theory elucidates the factors influencing the forces of demand and supply, which are ascertained by many components within the balance of payments. These factors include the trade of products (both exports and imports), the availability and demand for foreign currency, and the foreign exchange rate. Based on the theoretical framework, it is posited that a country has the potential to encounter either a deficit or surplus in its balance of payment.

Empirical Literature Review

Ogutu (2022) focused on the effect of exchange rate and financial health of Kenyan real estate investment. It has been determined that the short-term growth rate of the property sector is typically unaffected by fluctuations in the currency rate within the economy. This is due to the fact that real estate development is a long-term process that cannot be expedited or altered in response to immediate changes in the exchange rate. In essence, in the near term, remittances from overseas are mostly allocated towards real estate investments, after thorough due diligence. Even though these projects are started promptly, a considerable amount of time is required for their completion. Hence, it may be inferred that the growth rate of the real estate sector (REG) in Kenya has a low degree of sensitivity to fluctuations in exchange rates, particularly in the near term. Conversely, a conceptual gap exists as the research was restricted to solely one macro-economic factor which is exchange rate.

Jack, Okyere and Amoah (2019) studied effects of exchange rate volatility on real estate prices in emerging economies in Ghana. The study used explanatory research design and used panel data. Diagnostic tests were carried out as well as inferential statistics. The results of the research suggest that there is not a statistically significant correlation between fluctuations in exchange rates and the values of real estate. Additionally, the analysis suggests that historical real estate prices don't have any influence on present house prices. The available evidence suggests that remittances have a favourable influence on real estate values, both in the immediate and extended periods. More precisely, a rise in remittances results in an escalation in real estate values. This situation poses challenges for the Ghanaian real estate market and the government's endeavors to address housing deficits through affordable housing projects. Consequently, it is necessary to implement measures aimed at reducing the influx of remittances. However, there's a contextual gap as the research emphasis was in real estate in Ghana while there was a conceptual gap as the study was restricted to only one macro-economic factor which is exchange rate, which this study sought to fill.

Kabir (2022) focused on examining the influence of monetary policy on the performance of the private sector in Nigeria. The study analyzed four variables, namely the fraction of credit to the private sector in relation to economic development, the total money supply, the real interest rate, and the real exchange rate. Yearly longitudinal data from 1981 to 2021 was employed for the analysis. The outcome demonstrated that the wide money supply has a significant favourable influence on the performance

of the private sector both in the short and long terms. It was determined that the real interest rate had a substantial detrimental consequence on the performance of the private sector. To enable the systemic infusion of the ideal amount of money, it was advised that expansionary monetary policy be maintained. To stimulate access to credit from the financial sector to the private sector and boost the performance of the latter, the interest rate had to be decreased. However, a conceptual gap exists since the analysis was restricted to just one macro-economic component, namely interest rate, and a contextual gap exists since the research's emphasis was primarily on private sector performance in Nigeria. The present study strived to fill these gaps.

Nduta (2021) focused on the impact of interest rate capping on performance of REIT in Kenya. Descriptive research was adopted in conjunction with content analysis. The research utilized primary data collection methods via the utilization of a questionnaire. The acquired data will be subjected to quantitative analysis methods. The data was analyzed utilizing the SPSS, and the descriptive statistics utilized in the analysis comprised frequencies, percentages, standard deviation, and arithmetic mean. The study of the qualitative data obtained from the open-ended questions was conducted utilizing the content analysis. The analysis determined that implementing a limit on interest rates would result in a substantial rise in the returns of REITs. This is because managed interest rates would lower the cost of borrowing for REITs and so increase borrowing, spending, and investment. The study also found that the fluctuating economic variables would be the cause of varied interest rates, but would not negatively impact REIT performance. Therefore, there's a contextual gap as the research focus was restricted to real estate investment trusts while a conceptual gap exists as the research was restricted to just one macro-economic factor which is interest rate which the current study sought to address.

Odondo (2021) studied the connection between inflation and Kenyan real estate growth. The research was grounded on the positivist paradigm. The analysis used monthly time series data obtained from the World Bank, which was sourced from the KNBS. The data spanned from January 2017 to February 2020. The study's findings suggested that there is insignificant long-term connection amongst the expansion of the real estate sector and other characteristics of inflation, including core inflation, energy inflation, and food inflation. Nevertheless, there is evidence of short-term causation from energy inflation to the expansion of the real estate sector. This observation exemplifies the substantial impact of energy on the property sector. The research discovered that core inflation had a statistically significant beneficial impact on the expansion of the property industry. Conversely, the analysis revealed that food inflation had a statistically negligible positive influence on real estate growth. Nevertheless, there's a contextual gap as the research focus was restricted to only one macro-economic factor which is inflation which the current study sought to address.

Ling, Wang and Zhou (2020) studied the impact of COVID-19 on commercial real estate prices in the USA where a review of empirical literature was undertaken. It was revealed there was a consistent adverse link between real estate investment and national growth rate of COVID-19 cases. Moreover, during times of crisis, companies that primarily operate in the retail and residential property sectors have a comparatively more adverse response. In contrast, there was a positive association between the performance of the health care and technology industries and the Geo-COVID phenomena.. The adverse economic consequences of implementing social distancing measures were particularly pronounced for enterprises that largely rely on in-person interaction or close physical proximity. Consequently, the COVID-19 pandemic had a detrimental impact on economic growth and investments in the real estate industry. Nevertheless, there is a contextual gap in the

previous research as it just concentrated on the US and examined only one macroeconomic indicator, namely GDP growth. The current research aimed to rectify this limitation.

Conceptual Framework

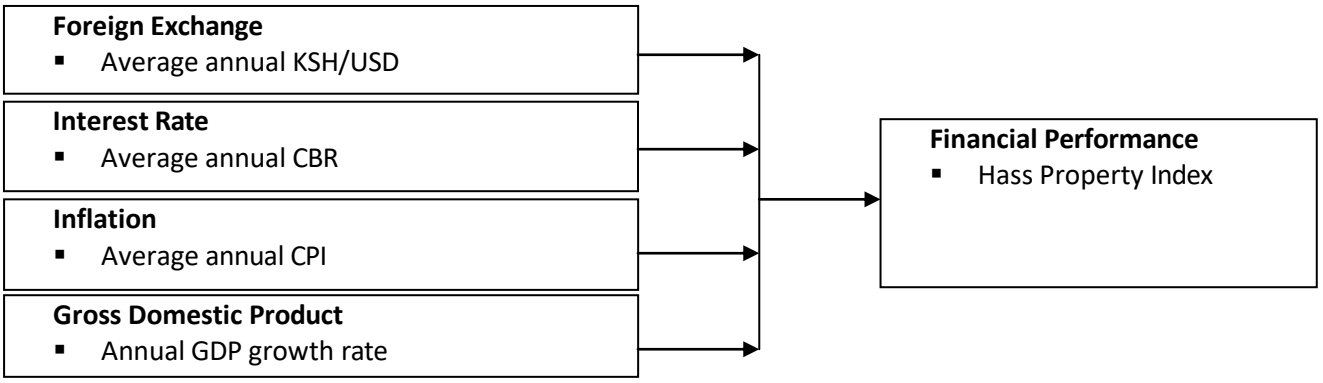

Figure 1: Conceptual Framework

METHODOLOGY

The research design utilized in this study was a causal effect research design. The demographic for this study was the property sector as a singular and the Hass Property index was obtained from this sector for a period of ten years. The unit of analysis constituted the real estate sector while unit of observation entailed the Hass Property index. The study used a census sampling design since the study focus was a singular unit of observation. Secondary data utilized was retrieved from the CBK reports, KNBS and the Hass Consult Property Index. The study period ranged from 2013 to 2022 and the data used was yearly.

The study used STATA Version 14 as a data analysis tool. The research employed descriptive statistics, specifically utilizing metrics of central tendency (mean) and dispersion parameters (standard deviation), which was employed and analyzed. In addition, inferential statistics was used. The study utilized a multivariate regression approach in order to explore the connection between the variables. The selection of the regression approach is based on its ability to evaluate the influence of individual independent variables on the dependent variable being studied. VAR regression model used to assess the collective influence of three predictor variables on a response variable.

The VAR time series regression model was as follows:

$$Y_t = \beta_o + \beta_1 X_{1t} + \beta_2 X_{2t} + \beta_3 X_{3t} + \beta_4 X_{4t} + \epsilon$$

Where: Y_t = Performance over time, 2013-2022; β0 = Constant Term; β1, β2, β3 and β4 = Beta coefficients; X1= Foreign exchange rates; X2= Interest rates; X3= Inflation rate, X4= GDP and ε = Error term

FINDINGS AND DISCUSSION

Descriptive Statistics

This assists to highlight the most important aspects of the data used. The findings of the descriptive statistics analysis were exhibited in the table 1

Table 1: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
HPI	60	2.085417	.0097308	2.072	2.104
Foreign Exchange	60	.00935	.0006594	.008	.01
Interest Rate	60	.0808333	.0106232	.07	.1
Inflation Rate	60	.0571667	.0078312	.05	.08
GDP Rate	60	.048	.0266044	0	.08

Source: Study Data (2024)

The HPI mean is 2.085417, the standard deviation is 0.0097308, and the range of values is 2.072-2.104, as per the results. This implies that the HPI exhibits both consistency and stability over the duration of the inquiry. The Foreign Exchange had an average value of 0.00935 and a variance of 0.0006594. The lowest value recorded was 0.008, while the highest value was 0.01. This is comparable to the stability seen in the Interest Rate throughout time. Inflation Rate had a minimally variable average of 0.0078312 and a deviation of 0.0078312, with a low of 0.05 and a high of 0.08. GDP demonstrated stable overall performance, with a mean of 0.048 and a variation of 0.0266044, with a low of 0 and a high of 0.08. This aligns with Koris (2019), who employed HPI as a performance metric to establish the relationship between the variables due to its reliability and constancy, resulting in a more precise and reliable conclusion. It aligns with the conclusions of Oware (2022), who undertook an assessment of how macroeconomic determinants influence the financial health of the real estate sector in Kenya.

Correlation Analysis

The correlation matrix amongst the variables as captured in table 2.

Table 2: Correlation Analysis

	HPI	Foreign exchange	Inflation rate	Interest rate	GDP
HPI	1.0000				
	60				
	0.6420	1.0000			
Foreign Exchange	0.0006				
	60	60			
Inflation	0.5790	0.0190	1.0000		
	0.0006	0.8856			
	60	60	60		
Interest rate	0.4920	-0.4830	0.3599	1.0000	
	0.0421	0.0001	0.0047		
	60	60	60	60	
GDP	0.7190	0.5312	-0.2499	-0.8731	1.000
	0.0148	0.0000	0.0541	0.0000	
	60	60	60	60	60

Source (Study data, 2024)

The Pearson correlation coefficient for the link between Kenyan foreign exchange and financial success of real estate industry was strong, positive, and significant at 0.0006 ($p<0.05$). These findings support the conclusions of Njoroge, Muturi, and Oluoch (2019) that there is a statistically significant correlation between the exchange rate and the performance of the residential property market in Kenya. The findings disagree with those by Jack, Okyere and Amoah (2019) who that there is not a statistically significant correlation between fluctuations in exchange rates and the values of real estate.

The link amongst inflation and financial performance of property industry was moderate and positive, with a Pearson coefficient of 0.5790 and a significant level of 0.0006 ($p<0.05$). This result is congruent with those of Odada, Obere and Osiemo (2021) who found a positive correlation between long-term property investments and the prevailing inflation rate. On the contrary, this finding disagrees with those by Odondo (2021) who found that there is insignificant long-term connection amongst the expansion of the real estate sector and other features of inflation, including core inflation, energy inflation, and food inflation.

The Pearson correlation coefficient between financial success of real estate industry and interest rates was 0.4920, with a significance level of 0.0421 ($p<0.05$). These findings were moderate and significant. This finding aligns with Kabir (2022), who demonstrates that the broad money supply has a substantial positive impact on the performance of the private sector in both the short and long run. The connection between Kenya's GDP and financial performance of real estate industry was strong and positive, with a Pearson coefficient of 0.7190 and a significant level of 0.0148 ($p<0.05$). This result is in line with those by Njambi (2020) who found a substantial positive connection amongst real estate prices and the pace of GDP growth.

Time Series Regression Analysis

The time series data was determined to be stationary without the need for differencing, denoted as I(0), as shown in table 3. Therefore, in such instances, the data may be examined using either the Ordinary Least Squares (OLS) or Vector Autoregressive (VAR) model (Shrestha & Bhatta, 2018). Furthermore, given that all the variables were stationary at I(0), cointegration is unnecessary at this level. The findings of this inquiry, using a VAR time series regression based on an empirical model, can be observed in Table 3.

Table 3: Regression Coefficients

Vector Autoregression (VAR)					
Sample: 1960m4 - 1965m1					No. of obs = 58
Log likelihood = 209.8061					AIC = -6.993314
FPE = .0000538					HQIC = -6.89645
Det (Sigma_ml) = .0000422					SBIC = -6.744639
Equation	Parms	RMSE	R-sq	chi2	P>chi2
HPI	7	.006929	0.5590	73.52145	0.0000
HPI	Coef.	Std. Err.	z	P>z	[95% Conf. Interval]
HPI					
L1.	.9257121	.1132124	8.18	0.000	.7038199 1.147604
L2.	-.5502965	.1200007	-4.59	0.000	-.7854936 -.3150994
Foreign exchange	-.019631	2.421363	-0.01	0.014	-4.765416 4.726154

Interest rate	.1063397	.1201685	0.88	0.036	-.1291863 .3418658
Inflation rate	.0672288	.189906	0.35	0.023	-.3049801 .4394376
GDP	-.030565	.0366803	-0.83	0.045	-.102457 .0413271
_cons	1.291746	.2310821	5.59	0.000	.8388339 1.744659

Source: Researcher (2024)

The equation obtained was:

HPIt=1.291746-0.019631FXt+0.1063397INTt+0.0672288INFt -0.0672288GDPt

The findings suggest that the explanatory factors in the model explained 55.9% of the variability in financial success, as seen by the simultaneous effects of the independent variables assessed using the R Square (0.5590). Consequently, 44.1% of the financial health outcome remained unaccounted for by the variables in the model, indicating that it was influenced by external factors not included in the research. The p-value of 0.0000, <0.05, implies that this discovery is statistically significant.

When the predictor factors were ignored, the real estate HPI increased by 1.291746. The rise is substantial, as evidenced by the p value of 0.000. The results suggest that a unitary rise in foreign exchange would result to 0.019631 decrease in financial performance. A p value of 0.014<0.05 meant that it was both favorable and significant statistically. Accordingly, objective one was rejected. Also, the findings infer that a unitary rise in interest rate led to 0.1063397 rise in financial performance. A p value of 0.036<0.05 meant that it was both favorable and significant statistically. Hence, objective two was rejected. The findings equally show that a unit rise in inflation would lead to 0.0672288 rise in financial performance. A p value of 0.023<0.05) meant that it was statistically significant. Consequently, objective three was rejected. The findings also demonstrates that a unit rise in GDP would result to 0.0672288 decline in financial performance. A p value of 0.045<0.05) meant that it was both favorable and significant statistically. Thus, objective four was rejected.

Discussion

In this part of the enquiry, the study's specific objectives were assessed and hypothesis used to test the significance levels of the variables. According to the first specific objective, financial success of real estate industry is significantly affected by foreign exchange. Regarding the second specific objective, financial health of real estate industry is significantly impacted by interest rate. In light of the third premise, it can be noted that inflation has been shown to significantly affect the financial performance. And finally, the fourth premise, it was noted that GDP has been shown to significantly affect the financial health of real estate industry.

Effect of Foreign Exchange on Financial Performance

The outcomes demonstrate that the p-value was smaller than threshold of significance, indicating that it was favorable and statistically significant. Hence, hypothesis one was rejected. This could be attributed to occasionally intervening in the foreign exchange market to stabilize the currency. CBK may engage in currency intervention by purchasing or selling their own currency in order to exert control over its valuation. The diversification of the economy involves lowering reliance on a particular sector by expanding and varying the economic activities. A well-diversified economy is often more resilient to external shocks. These outcomes support the findings of Njoroge, Muturi and Oluoch (2019) who found statistical significant existence link amongst the exchange rate and the performance of the Kenyan residential property market. The findings disagree with those by Jack, Okyere and Amoah (2019) who found no statistical significant correlation between fluctuations in exchange rates and the values of real estate.

Effect of Interest Rate on Financial Performance

The results demonstrate that the p-value was smaller than the threshold of significance, indicating that it was favorable and statistically significant. Consequently, hypothesis two was rejected. This might be explained by the fact that interest rates have a significant impact on real estate investment decisions. When deciding how to finance assets, investors need to take borrowing costs into account. The cost of financing for real estate investments may also be impacted by interest rates, and this can have an impact on the market's supply and demand for real estate. This outcome is consistent with research by Kabir (2022), who discovered that a large money supply significantly improves the private sector's performance over the short and long run.

Effect of Inflation Rate on Financial Performance

The results demonstrate that the p-value was smaller than the threshold of significance, indicating that it was favorable and statistically significant. Accordingly, hypothesis three was rejected. These outcomes disagree with the findings of Odada, Obere and Osiemo (2021) who found a positive correlation between long-term real estate investments and the prevailing inflation rate. On the other hand, this finding disagree with those by Odondo (2021) who found that there is insignificant long-term connection amongst the expansion of the real estate sector and other characteristics of inflation, including core inflation, energy inflation, and food inflation.

Effect of GDP on Financial Performance

The outcomes suggests that p-value was smaller than the significance level meaning that it was favorable and statistically significant. Accordingly, hypothesis four was rejected. These outcomes concur with the outcomes of Njambi (2020) who found a substantial positive connection amongst real estate prices and the pace of GDP growth.

SUMMARY

The initial goal was to look at the link between foreign exchange and financial performance. According to the findings, there is moderate association between foreign exchange and financial health. There was a statistically significant association between foreign exchange and financial performance, according to correlation data (r=0.6420, p-value=0.0006). The VAR regression analysis confirmed the second hypothesis by demonstrating a substantial and negative correlation between foreign exchange and the financial health (p-value=0.014).

The second goal was to look at the link between interest rate and financial performance. As per the findings, there is a moderate association between foreign exchange and financial health. There was a statistically significant association between foreign exchange and financial success, according to correlation data (r=0.5790, p-value=0.0006). The VAR regression analysis confirmed the second hypothesis by revealing a positive and statistically significant correlation amongst interest rates and financial health (p-value=0.036).

The third goal assessed how inflation had an influence on financial performance. The findings show a modest link between inflation and financial performance. According to correlation analysis, there was a moderate positive (r=0.4920, p-value=0.0421) and statistically significant association between inflation and financial performance. The third hypothesis was disproved by VAR regression analysis, which demonstrated a positive and statistically significant correlation amongst the inflation rate and financial success (p-value=0.023).

The final goal looked at the bearing of GDP on financial success of real estate sector in Kenya. The findings indicate a strong positive link amongst GDP and financial health. There was a statistically significant link between GDP and financial health, according to correlation data (r=0.7190, p-value=0.0148). The VAR regression analysis confirmed the fourth hypothesis by revealing a substantial and negative correlation between GDP and financial health (p-value=0.045).

CONCLUSION

As per the study's findings, foreign exchange significantly affected the financial success of real estate sector in Kenya. As a result of this finding, foreign exchange will have an impact on financial performance, thus addressing foreign exchange component will lead to improvement of the financial success of real estate. The significance of foreign exchange lies in its ability to induce substantial fluctuations, which in turn may greatly influence the participation of foreign investors in this market.

Equally, the study's outcomes indicate that interest rates have a major influence on financial performance of real estate sector in Kenya. As a result, the interest rate has a distinct impact on financial performance, thus addressing the level of interest rates will lead to improvement of financial success of real estate. This depicts how changing the central bank rate affects the financial performance of the real estate. Interest rates have a considerable impact on the choices made about real estate investments. The interest rate is a vital consideration for investors seeking to fund their ventures. Furthermore, the interest rate has the potential to impact the expense of borrowing for real estate investments, thus influencing the supply and demand dynamics of properties in the market.

Additionally, the study's outcomes indicate that inflation has a major influence on financial performance of real estate sector in Kenya. As a result, the inflation has a distinct impact on financial performance, thus addressing the level of inflation will lead to improvement of financial success of real estate. This depicts the introduction of unpredictability in the markets due to inflation. During instances of increasing inflation, the profitability and growth margins of enterprises may be negatively impacted, which may have a detrimental effect on investor confidence and their readiness to accept.

Finally, the study's outcomes indicate that GDP has a major bearing on financial performance of property sector in Kenya. As a result, the GDP has a distinct impact on financial performance, thus addressing GDP rate will lead to improvement of financial success of real estate. The purpose of GDP is to offer a concise overview of a country's economic status. It is utilized to evaluate the magnitude of an economy and its rate of expansion, as well as to serve as a benchmark for comparing other countries as well as a broad measure of economic progress for real estate investors.

RECOMMENDATIONS

The study also found that foreign exchange significantly improves financial health of real estate sector in Kenya. Consequently, this research proposes that the real estate industry should assess the potential risks and identify the specific currencies involved by consulting a foreign currency specialist. These techniques include acquiring the currency in advance, averaging in, utilizing forward contracts, employing limit orders, and other time options. They are all built upon this foundation.

The study suggested that interest rates have a detrimental influence on the financial performance of property sector. The research advises making safer investments as a result. For investors wishing to lower the risks associated with interest rates, investing in bonds and certificates with short maturities is the safest option. Short-term securities are less susceptible to changes in interest rates.

The study found that inflation has a considerable bearing on financial performance of real property sector in Kenya. To mitigate inflation, this article recommends adopting a contractionary monetary policy. The study found that GDP significantly improves financial performance of property sector in Kenya. This study therefore suggests that property firms have more cash so they may raise capital, enhance technology, and grow.

Contribution to Knowledge

This study will clarify the influence of macroeconomic determinants on the financial performance of real estate in terms of finance theory. Moreover, this research has the potential to advance the comprehension of real estate,

particularly as it relates to macroeconomic variables and the economic viability of Kenya's real estate market. This would be beneficial for scholars and researchers in the academic community. The analysis will also provide a useful foundation for problems involving future profit arrangement.

The findings of the inquiry are important because they may provide management with guidance on the implications of the profit payout plan, available offer fees, and implementation. They will receive growth advice from the analysis, which will also educate them about the potential profit structure of their businesses.

Suggestions for Further Studies

This study evaluated the bearing of macro-economic determinants on financial success of real estate in Kenya. Nevertheless, only 55.9% of the fluctuation in financial performance could be attributed to macroeconomic determinants, leaving 44.1% unaccounted for. Therefore, more investigation is needed to identify the other variables influencing financial performance.

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