African Journal of Emerging Issues
(AJOEI)
Online ISSN: 2663 - 9335
Available at: https://ajoeijournals.org

ENTREPRENEURSHIP

CAPITAL AS A FACTOR OF PRODUCTION AND GROWTH OF COMMERCIAL REAL ESTATES IN MACHAKOS COUNTY, KENYA

[1*]Augustine James Katiti, [2]Dr. Clemence Niyikiza Omanwa, [3]Dr. Gillian Mwaniki & [4]Dr. Naomi James

[1]PhD Candidate, Kenya Methodist University

[2]Lecturer, Kenya Methodist University

[3]Lecturer, Kenya Methodist University

[4]Lecturer, Daystar University

***E-Mail of the Responding Author:** katitijames88@gmail.com, jkatiti@yahoo.com

ABSTRACT

Purpose of the study: The purpose of this study was to examine the influence of capital as a factor of production on the growth of commercial real estate in Machakos County, Kenya. In Kenya, real estate recorded a growth of 5.8% in September 2018 which was the slowest registered since 2014. Population growth rate is faster than the provision of new housing and housing infrastructure. Real estate provisions have diminished besides the government of Kenya's commitment to provide affordable housing for the period between 2018 and 2022.

Statement of the Problem: In 2018 the real estate sector in Kenya recorded its slowest annual growth in four years, giving weight to property market reports that signaled a slump in demand despite increased supply of new housing units.

Research Methodology: The study adopted a cross-sectional survey research design. The target population for this study was made up of 374 registered property developers with Kenya Property Developers Association operating in Machakos County.The study used census approach to study all the 374 registered property developers. Prior to commencement of the actual study, 40 respondents from Kajiado, a neighboring county to Machakos were used in a pilot study to pre-test the research instrument. The researcher triangulated both structured questionnaires and open ended interview guide to gather and saturate data from the respondents. While the interview guides were bent to gather in-depth qualitative data from the real estate agents, the structured questionnaire was used to collect quantitative data from the respondents who develop the real estates. Both quantitative/ numerical data and qualitative/ descriptive data were collected using structured questionnaire and unstructured interview guide respectively. Qualitative data was analyzed using descriptive statistics while quantitative data was analyzed using inferential statistics. Statistical Packages for Social Sciences (SPSS) software was used for higher statistical computations.

Results: The findings revealed that there was; a positive and significant relationship between capital as a factor of production and growth of commercial real estate in Machakos County, Kenya (β =0.275, p=0.000).

Conclusion: Based on the findings the study concluded that investments for most commercial real estates in Machakos County, Kenya come from personal savings and equity loans from banks; interest rates have a profound effect on the value of income-producing real estate in Machakos County, Kenya just like they do on any other investment.

Recommendation: The study therefore recommended that commercial real estate developers in Machakos County needed to mobilize large amounts of private capital from either primary or secondary market in order to start tackling its unmet housing demand. Growing the size and reach of the mortgage market is part of the solution for the upper and middle income urban segments of the population. Mortgages alone cannot be the only hope to satisfy the entire housing demand. Solutions were also required for lower income groups in the form of housing microfinance, rental frameworks and financing for self-construction, especially on an incremental basis.

Keywords: *Capital, Commercial, Real Estate, Factor of production, Growth, Machakos County, Kenya*

1.1 BACKGROUND OF THE STUDY

One very important aspect of financial management is proper decision-making in relation to investment of resources. Investors have to make informed decisions before committing investment funds to any real estate development project (Dabara, 2015). Among the crucial needs of man, housing comes second. Real Estate investment include diversified amount of wealth which can be attested to by huge number of real estate investors in Kenya. Despite immense returns in terms of wealth accumulation, the real estate industry in Kenya has consistently failed to position itself in order to realize this major role. This is as a result of failing to consider comprehensively the determinants in the sector that influences growth of real estate in this industry. The contributions of real estate sector to any country's economy cannot be overemphasized; it's a sector whose impact has been felt tremendously in economies of both developed and developing nations (Siniak & Marina, 2019). Real Estate is an important part of the economy and is accountable for an extensive part of its development, advancement of any nation's infrastructure stand & major originators of trade and industry activity.

Guo, Zhang, Zhu and Sun (2018) opine that more money has been made in real estate sector alone than all other financial investment streams combined globally and evidence of this are shown in most world top billionaires, people like Donald Bren with a net worth of $15.1 billion, President

Donald Trump with a net worth of $4.5 billion, Rick Caruso, David Lichtenstein, and other world billionaires were listed on Forbes magazine to have made their fortune in Real Estate. This could be because the real estate sector has strong connections with various industries such as tiles, paints, fittings & fixtures, cement & steel to mention a few, so prosperity in this sector means wealth for all other sectors, thereby positively impacting such country's economic growth (Kauškale & Geipele, 2017).

The proportion of the world population living in urban areas rose from about 30% in 1950 to 54% in 2015 and it is being projected to rise to 68% in 2050 (UN-DESA,2018). According to UN-Habitat, 2014 there is need for urban management within the cities since they significantly contribute to socio-economic development. There has been a slow growth in the commercial real estates in Kenya as compared to the demand of the houses (Muli, 2013). Demand for housing units continues to outstrip the supply (Masika, 2010). According to Kenya National Bureau of Statistics (2018), property developers in Kenya had for the past 4 years considerably scaled down their construction activities, pointing to a struggling property sector.

Real estate industry has become immensely attractive and lucrative for many investors due to its size and measure in terms of value (Su, Lin, Che & Li, 2018). Demand and supply are some of the elements of the business sector that have greatly affected the real estate business sector. Some of the piece of evidence of investor confidence in the Kenyan real estate commercial property is Old Mutual Property's recent investment in the Two Rivers Mall. The country real estate sector has also witnessed investments from the Delta Africa Property Fund, Retail Africa and Abland – all from South Africa. AVIC International Holding Corporation of China is also expected to invest over US$ 200M in constructing their Africa Headquarters in Nairobi. The multi-user development has been reported to contain the highest office block in East Africa and will undoubtedly reshape Nairobi's skyline. All these investments are attributed to the vibrant and the growth of real estate sector in Kenya.

Real estate is influenced by various factors which include; macro-economic (Fang, Chang, Lee & Chen, 2019). Macro-economic factors refer to factors that are pertinent to the broad economy at the regional or national level and affect a large population rather than a few select individuals. Macroeconomic factors such as economic output, unemployment, inflation, savings and investment are key indicators of economic performance and are closely monitored by governments, businesses and consumers (Khalid et al., 2012). According to Forrest (2018), social factors can influence property prices, population growth combined with improved economic performance can lead to an increased demand, which leads to a boom in the real estate market. Another social factor that influences home prices is a rise in crime rate in any given area. The increase makes people cautious about living in that area, which can lead to a decrease in demand or a bust.

PWC (2017) in a report indicated that 37% of all homes sold in the U.S. in 2016 were purchased for investment purposes. The homeownership rate in that year was the lowest in 50 years, as renting had been increasingly the more frequent choice compared to purchasing. Following the debacle of 2007-2008, the U.S. real estate market was since then characterized by a significant improvement in prices, number of transactions and mortgage originations which was as a result of an economic recovery that completed its 8th year in 2017. The years 2007-2009 proved to be a historical event for American real estate. The economic crisis, in great part caused by the proliferation of subprime mortgages, led to significant bankruptcies in the financial sector and a recession which shrunk GDP by 0.3% in 2008 and 3.1% in 2009. The effects on real estate prices was swift and significant, as for the first time ever the USA experienced a nationwide fall in housing prices. Case-Shiller U.S. National Home Price Index from a peak of 184.62 in July 2006 reached a nadir of 134.01 in February 2012, or a fall of 27%. Regional markets, in particular Las Vegas, Phoenix, Miami and California, were hit with bigger corrections, ranging from 40% to 65%. Construction activity was likewise hit, with housing starts falling from 1.49 mln a month in March 2007 to below 0.5 mln monthly in the first quarter of 2009.

The Nigerian real estate industry has witnessed positive growth in recent years (Ogbenjuwa, Egbu & Robinson, 2018). According to a report released by the Nigerian National Bureau of Statistics (NNSE), the real estate sector grew by 5.9 per cent and contributed 8.37 per cent to the gross domestic products (GDP) in the 4th quarter of 2014 alone. Another report by Price water house Coopers (PwC) put the value of the real estate sector in Nigeria at $9.16 billion in 2014. According to the projections, further growth was expected to increase the value of the real estate industry in Nigeria to $11.36 billion in 2015 and $13.65 billion in 2016. According to the report titled "Real Estate: Building the Future of Africa", the Nigerian real estate sector is growing at a rate of 8.7 per cent and is now the sixth largest sector in the economy. The report also indicated that high net worth individuals invest 25 per cent of their assets in real estate compared to 18 per cent or less in equities and other instruments.

Closer home, Rwanda has one of the world's fastest-growing economies, driven by economic and structural reforms and strong international support (Bower & Buckley, 2020). Growth averaged 7.5% annually in the decade to 2018. The government of Rwanda has even higher goals through its National Strategy for Transformation and Vision 2050 strategy: to reach middle-income status in 15 years (Uwayezu & de Vries, 2020). That will require an economic shift toward high-value, competitive sectors, particularly those that could generate exports. With regards to real estate market, demand for secure, affordable housing is surging in Rwanda because of fast urban population growth estimated at 5.75% annually, more than twice the rate of overall population growth in the country. According to Uwayezu and Vries (2020), in Kigali alone, demand for new houses over the next three years is projected at nearly 350,000, with the current pace of only 1,000 housing units built per year illustrating a widening gap in the real estate industry in the country. Secondary cities such as Huye, Muhanga, Musanze, Nyagatare, Rubavu, and Rusizi also face significant housing deficits as new homes are affordable for only the top 20% of the population (Uwayezu and Vries, 2020).

In Kenya, real Estate investment has attracted both local and global investors due to its diversified amount of wealth, return and market availability. In addition, real estate investment is an interest that is placed on buildings and real property housing for commercial and residential purposes. Real estate investment is also referred to as the business of renting, selling or buying buildings or housing (Cummings, 2013). In Kenya, real estate attractiveness has been witnessed because many investors have diversified their savings. That is from the low-yield treasury bills to the huge profitable property market. Banks have boosted this attractiveness through introducing and actively marketing different mortgage products especially to property developers. Capital as a factor of production refers to all resources used in the production process. As far as commercial real estate is concerned, capital needed includes capital structure, accessibility and capital costs associated in commercial real estate production,etc. (Koval, Slobodianiuk & Yankovyi, 2018).

Kenya has a well-developed real estate industry with readily available quality engineering, building and architectural design services (Bor & Ochieng, 2019). Kenya's commercial and residential real estate is currently on an upward trend, due to the implementation of programmes such as the Urban Transport Infrastructure plan. The increase in population and rural to urban migration has presented numerous opportunities for investors, especially in the commercial real estate sector. It is projected that Kenya will have a population of over 60 million people by the year 2030 and more than 50% of them will be living in urban areas, creating a huge demand for new commercial and residential units (Gitau, Kiragu & Riro, 2019). It is estimated Nairobi alone requires approximately 150,000 new housing units per year against a maximum construction of about 10,000 units per year (Chege & Bett, 2019).

According to Kuria, Riro and Kiragu (2018), it is estimated that over 80% of Kenyan population will have migrated from rural areas by 2030, meaning that shelter is one of their basic needs. Presently, slum dwellers are1/3 of the urban dwellers population whereby Kenya's Kibera slum is one of the largest dwelling in Africa yet only approximately three million people are urban dwellers. Hence as more rural urban migration occurs more houses, well-constructed must be built to combat slum uprising problem. The real estate industry must be supported and it will have to grow at a faster pace that it currently does (Mwathi & Karanja, 2017). The Kenya industry is benefiting from economic growth of the country and the inflow of foreign aid is being regarded as a very promising venture. The government is also heavily investing in this industry in various ways such as the inclusion of the ministry of housing in the government body, availing of funds to the housing ministry; enforcement of laws to do urban planning, regulatory laws in license permits (Homes Expo Kenya, 2017).

Commercial real estate is any property that is exclusively used for business activity, it compresses of malls, hotels, health centers, stores, office buildings and industrial parks. Investment in real estate is undertaken for its ability to provide returns inform of capital, income and intangible benefits (Baum & Crosby 2015). However returns in commercial real estate are maximized when there is full occupancy, prompt and total rent collection, full market rent, good physical condition of building, minimal irrecoverable outgoings and low rate of tenant turnover and that is what is referred to as the growth in real estate. The real estate sector is one of the many pillars that define a country's economic and infrastructural growth, as the country's economic growth is connected with its economic evolution and development (Warren C, 2018). The economic condition of a country influences the buying decision of the residents. Thus affects the buyer's ability to invest in properties, as a result, it impacts the overall health of real estate of the country (Sanfelici & Halbert, 2019).

The Kenyan real estate market has experienced increased competition both in residential and commercial properties (Kuria, Riro & Kiragu, 2018). The market has diversified and more innovative houses have attracted a huge number of home buyers. With the formation of the county government, more developments have sprouted as more developers explore the opportunities in the counties. According to Muema and Gladys (2019), residential and commercial properties on the Nairobi outcast have attracted highest increase in prices. This is has been attributed to expansion and developments in this regions especially the infrastructure; roads, electricity and water. The diversified mortgage market has also led to increased competition across the sector. Stand-alone houses, townhouses and apartments in counties like Kiambu, Machakos and Kajiado has experienced higher capital growth and rental yields. Nairobi and it's environ has attracted huge property investors due to its prime market in the high end market. Notably there has been a higher demand for more houses in the high-end market led by the favorable mortgage products. As indicated by Barkham, Bokhari and Saiz (2018) Advanced technology has also contributed to the increased competition. A huge number of property developers and agents have enhanced their online presence to tap a huge online market share.

1.2 PROBLEM STATEMENT

Real estate industry play important role in economic growth. In Kenya, real estate recorded a growth of 5.8% in September 2018 which is the slowest registered since 2014 (KENBS, 2018). Population growth rate is growing faster than the provision of new housing and housing infrastructure (Ogbenjuwa, Egbu and Robinson, 2018). Real estate provisions have diminished besides the government of Kenya's commitment to provide affordable housing for the period between 2018 and 2022. Demand for houses has increased from 150,000 units to 200,000 units per year compared to the production of only 35,000units per year, (NHC, 2018).
Vision 2030 has managed to achieve 10% of the target by 2018 (NHC, 2018) which translates to a short fall of 90% equivalent to 200,000 units. The government of Kenya has come up with the Big Four Agenda after realizing there is a shortage of affordable housing in Kenya.
Several studies have addressed demographic, social –economic and the impact of economic factors on mortgage institutions in Kenya, (Lieser and Groh 2011, Ariemba, Kiweu and Riro 2015). The studies have both contextual and conceptual gaps. This study sought to bridge the gaps by addressing the effect of capital as a factor of production on the growth of commercial real estates in Kenya specifically in Machakos County.

1.3 STUDY OBJECTIVE

To evaluate the influence of capital on growth of commercial real estates in Machakos County, Kenya

1.4 RESEARCH HYPOTHESES

H_0: Capital has no statistically significant influence on growth of commercial real estate in Machakos County

2.0 LITERATURE REVIEW

2.1 Theoretical Study of Variable

2.2.1 Conventional Economic Theory

The conventional economic theory or the Neoclassical is based on a conception that every individual is rational (Nordhaus, 1969). Neoclassical economics is a broad theory that focuses on supply and demand as the driving forces behind the production, pricing, and consumption of goods and services. It emerged in around 1900 to compete with the earlier theories of classical economics. According to Na (2016), one of the key early assumptions of neoclassical economics is that utility to consumers, not the cost of production, is the most important factor in determining the value of a product or service. This approach was developed in the late 19th century based on books by William Stanley Jevons, Carl Menger and Léon Walras. Neoclassical economics theories underlie modern-day economics, along with the tenets of Keynesian economics. Although the neoclassical approach is the most widely taught theory of economics, it has its detractors.

Following conventional economic theory, the demand for real estate space can be defined as the quantity of space or number of units demanded at various prices. The nature of real estate market makes it complex to apply an economic theory to it. Therefore, even if you got the difference, quantitatively of supply and demand, the analysis may not be appropriate as it will not show how decisions were reached in the market. This can be confirmed in decisions regarding location as normally it is of temporary nature depending on the prevailing needs or circumstances of the buyer for example the distance from work, school for children and so on. Competition in the real estate market forces both suppliers and buyers to respond appropriately (Brim, 2017). Considerations of trends that shape the competitive field and innovations brought about by technological transfers greatly alter the demand functions which cause effects on the activity in the property market. Despite the difficulties of attaching the economic theories to the real estate market, the market is an institution where ability to pay all debts is key to success in the long term. Moderating variables together with other non-economic deliberations have to be considered as part of the equation. These non-economic considerations emphasize the need to apply solutions that are market based to elements like sustainability and managing growth.

During the evaluation of the supply of real estate property, it is necessary to categorize the property into classes that have almost similar pushers of demand in the market. The property market, like any other market is under the forces of supply and demand laws and thus the prices are determined by the supply and demand factors. When demand exceeds (relatively fixed) supply, the price rises, according to standard economic theory and vice versa. When defining demand, we incorporate effective demand which is defined as demand supported by the power to purchase. Some instances require that the real estate property market analysis may require the need to concentrate on ex-ante demand and not the actual demand. This refers to the consolidated quantity of real estate property desired before the interaction in the market place with consumers. After the interaction, the ex-post demand may be different due to several factors like the constraints of supply.

2.2.2 Liquidity Preference Theory

The theory was developed by Keynes (1936). Liquidity preference theory suggests that an investor demands a higher interest rate or premium on securities with long-term maturities that carry greater risk because; all other factors being equal, investors prefer cash or other highly liquid holdings. This theory states that investors prefer liquidity as opposed to investing in capital items. In practice liquidity preference theory describes the premium offered in advance in relation to expected future rates of return. According to this theory, premium is employed as payment for the use of scarce liquid resources. The preference for liquidity can be accounted for by the fact that economic units need to hold certain levels of liquid assets for purchase of goods and services and the fact that these near term future expenditures can be difficult to predict. This theory further suggests that an investor is interested in an investment with a higher return and premium. In addition, investors also prefer cash or highly liquid investments. The highly liquid investments are easy to dispose off for full value. Keynes (1978) noted that liquidity preference theory is described by three motives which determine demand for liquidity. These motives include; transactions, precautionary and speculative. The transaction motive explains that investors have preference for liquidity so as to guarantee adequate cash on hand for transaction purposes. The precautionary motive on the other hand is concerned with investor's preference for liquidity as additional safeguard just in case unexpected occasion that requires huge amount of cash. Lastly, the speculative motive refers to the investors' overall reluctance to commit the entire capital in the current investment for fear of losing a better investment opportunity in the future. This theory is argued to be one –sided and therefore not general and that interest rate is not the only reward for parting with liquidity. This theory explains the objective on factors of production. The theory is relevant to this study in that, it explains the various sources of capital available for the real estate developers and what dictates feasibility of the chosen option in the long run.

2.2 Empirical Review

Julius, (2012) studied the determinants of Residential Real Estate Prices in Nairobi. The study objective was to evaluate factors that have been affecting the real estate market since there was little empirical study prior to this. In particular the study evaluated how interest rates, level of money supply, rate of inflation, employment rate and population growth affected house prices. Using secondary data collected from the Central Bank of Kenya, Kenya National Bureau of Statistics and the Hass Consulting Ltd., a multivariate regression was done using SPSS to establish the relationships. The study found out that employment growth, population growth and the level of money supply information could give economists and financial analysts a better understanding of the real estate market and its influence on real estate prices.

Schill (2016) examined the impact of the capital markets on real estate law and practice Capital. The findings indicated that capital plays an increasingly significant role in financing the ownership and development of commercial real estate. According to the study, since 1991 real estate investment trusts (REITs) emerged as substantial inquisitors of commercial real estate, underwriters of commercial mortgage-backed securities have emerged as important sources of credit for the acquisition and development of commercial real estate.

Nduku (2015) conducted a study to assess the effect of Capital Structure on the Profitability of the Real Estate Firms in Kenya. The main objective of the study was to determine the effect of capital structure on the profitability of real estate firms in Kenya. The study adopted a descriptive research design and used regression model to determine the nature and extend of relationship Secondary data was collected using data collection templates. The study targeted the 78 real estate firms in Kenya covering a period of 7 years, 2008 – 2014. The findings indicated that although capital structure does affect the profitability of real estate firms, this relationship is weak and statistically insignificant. The ratio of short term debt to total debt revealed the most effect on profitability while the overall debt revealed the weakest. Thus there are other major factors affecting profitability of the real estate firms other than capital structure. The study further asserted that, while capital structure of a firm may not have any direct effect on the sales/income of a firm, it very well affects one of the profitability elements, expenses hence its effects on profits. According to the findings by Nduku (2015), every type of financing comes with its costs, while with equity dividends have to be paid to equity holders, for debt interest has to be paid on the principal sum at an agreed rate at specified times, normally monthly, quarterly or annually (Chandra, 2000). The use of debt comes with a tax benefit equivalent to the respective country's income tax rate. The study concluded that capital structure does have an effect on profitability of real estate firms in Kenya. However, this effect is statistically insignificant. Short-term debt does have a significant effect on profitability. This can be attributed to the trends in the commercial bank sector where short-term debt is more preferred thus cheaper.

Ibbotson and Siegel (2018) in a study found that investors who bought a property based on the yield alone, with the area selected staying stagnant for years and achieved no capital growth. It was affirmed that, without capital growth, their ability to grow their portfolio came to a crashing halt. So, assessing a property for potential drivers of capital growth as well as yield becomes critical for your portfolio growth. Other investors decided to buy a cheaper property, based on affordability and the promise from the seller or the agent that it would be positively geared. They then found that the cost of holding the property was much higher than first thought. Continual repair and maintenance costs of the property eroded their anticipated cash flow. So, assessing a property for potential cash flow as well as yield becomes of prime importance. The promise of high yields can be found in many areas especially when a market is coming out of a booming period. Reading the advertisements for properties in several areas and the high rents being achieved makes them appealing to investors. However, with high returns comes high risk. Volatility in the market is to be expected. A new investor wanting to start their portfolio may find the risks too high. The study concluded that, the assessment criteria when selecting a property should be based on more than just rental yield alone. Gross rental yield is not a reliable indicator of whether a property will have a positive or negative cash flow, will have future capital growth or will be a high-risk investment. Due diligence and research is required to assess potential for growth as well as the level of risk. Another very important factor is the investment period.

Hartmann (2015) in study noted the underlying linkages between the sector and the overall economy to be due to the fact that the real estate sector is largely financed by credit. The study also notes that the lenders tend to be leveraged as well, and thus when real estate prices decline, the risk of default is amplified: decreasing asset prices leads to borrowers to have relatively higher debt burdens compared to the value of the asset. When the asset, for example residential real estate, is sold, the borrower is able to obtain less than initially has paid for the asset and thus may not be able to finance the remaining credit payments. If the lender is also leveraged, the inability of the borrower to meet the credit payments is directly reflected to the ability of the lender to finance their credit payments.

2.4 CONCEPTUAL FRAMEWORK

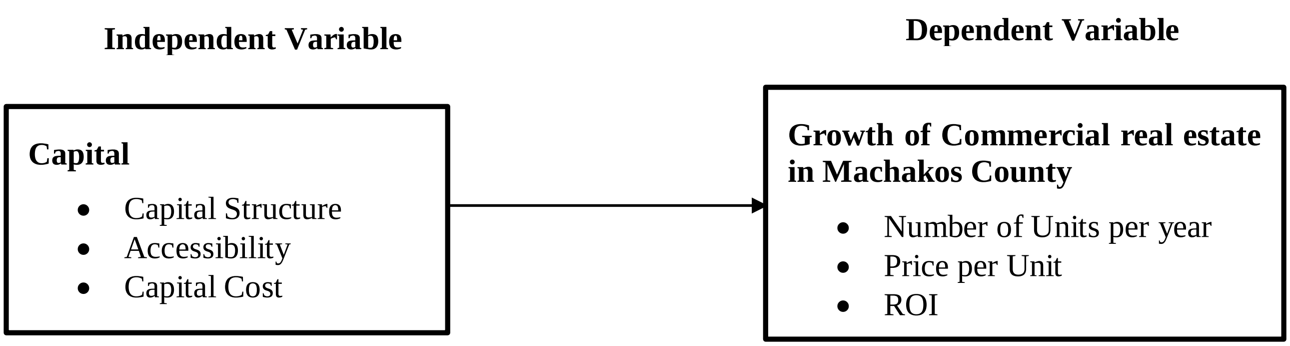

Figure 1: Conceptual Framework

3.0 RESEARCH METHODOLOGY

The study adopted a cross-sectional survey research design. The target population for this study was made up of 374 registered property developers with Kenya Property Developers Association operating in Machakos County. Census approach was used to study all the 374 registered property developers. Prior to commencement of the actual study, 40 respondents from Kajiado, a neighboring county to Machakos were used in a pilot study to pre-test the research instrument. The researcher triangulated both structured questionnaires and open ended interview guide to gather and saturate data from the respondents. While the interview guides were bent to gather in-depth qualitative data from the real estate agents, the structured questionnaire was used to collect quantitative data from the respondents who develop the real estates. Both quantitative/ numerical data and qualitative/ descriptive data were collected using structured questionnaire and unstructured interview guide respectively. Qualitative data was analyzed using descriptive statistics while quantitative data was analyzed using inferential statistics. Time series was also be utilized in this study. Statistical Packages for Social Sciences (SPSS) software was used for higher statistical computations.

A linear regression model and path analysis technique was used to show the relationship between the independent variable to the dependent variable as follows;

$$\mathbf{Y} = \boldsymbol{\beta}_0 + \boldsymbol{\beta}\mathbf{X} + \epsilon$$

Where;
Y =Growth of Commercial Real Estate
X = Capital
The error (ϵ) term capture the unexplained variations in the model.

4.0 RESULTS AND DISCUSSION

4.1 Descriptive Statistics

The results in Table 1 show that most of the respondents agreed that availability of equity capital impacts on the growth of commercial real estate in Machakos County as affirmed by a mean of 4.255 and standard deviation of 0.894. The result implies that since financing real estate development is a costly affair, most investors have to consider the source of their capitals. The study established that there are a number of large investors located throughout Machakos County who constantly lend money on real estate. These investors include individuals with available funds, groups of investors seeking mortgage ownership and large investment companies desiring to hold a diversified portfolio. They deal both direct and through mortgage brokers. Additionally, many of these investors seek to take an equity position in real estate. It is thus possible to raise equity capital through syndication instead of relying solely on mortgage funds. The responses are consistent with the findings of Nguyen and Steininger (2019) which indicated that, through seeking additional finance form business owners, generating finance internally and other equity sources such as partners. It can also be through the use of shareholders' funds either in the form of retained earnings from a company or by way of creating more shares in a company, which is known as a rights issue.

In addition, most of the respondents indicated that access to loans effects the growth of commercial real estate in Machakos County as indicated by a mean response of 4.393 and standard deviation of 0.914. The results imply that the availability of loan for the real estate investors in Machakos County is an important aspect of capital. Since housing is the primary tangible asset of a developing or transitioning economy, it can then also be used as collateral to borrow funds in order to carry out productive capital investment. Further, the results show that majority of the respondents agreed to the fact that cost of loans was affecting their investments and therefore effect on the growth of commercial real estate in Machakos County. This was shown by a mean of 4.255 and standard deviation of 0.997. Unlike residential loans, the terms of commercial loans typically range from five years (or less) to 20 years and the amortization period is often longer than the term of the loan. A lender, for example, might make a commercial loan for a term of seven years with an amortization period of 30 years. In this situation, the investor would make payments for seven years of an amount based on the loan being paid off over 30 years, followed by one final "balloon" payment of the entire remaining balance on the loan.

The results show that most of the respondents believed that the process of raising equity capital was key determinant of the growth of commercial real estate in Machakos County as indicated by a mean of 4.386 and standard deviation of 0.957. These results imply that real estate investors in Machakos have their decisions to invest determined by the availability and the process of raising equity capital. Raising capital for real estate can be a challenge for many new investors, but it is a necessity for anyone looking to succeed. The key to learning how to raise capital for real estate is to focus on identifying what today's lenders covet the most (and give it to them). If one succeeds, there's no reason they shouldn't be able to raise the real estate investment capital they need for your next deal.

Similarly, majority of the respondents agreed that the process of accessing loans determines growth of commercial real estate in Machakos County (M=4.241, SD=0.947). The results imply that qualifying for a real estate mortgage loan involves a specific process involving a number of parties and qualification standards. Finally, the results show that most of the respondents (M=4.386, SD=0.943) agreed to the fact that collateral security was an important aspect of loan since most of the banks were asking for collateral before issuing loans to the real estate investors, this was found to have serious impact on the growth of commercial real estate in Machakos County. For an investor, having a "first mortgage on a property" means that he/she has a mortgage in the first lien position (the highest debt position) on the associated property. Essentially, in the event of a default where the associated collateral or property has to be liquidated, investors with a first lien have priority over investors who are lower in the debt stack and are the first to receive any proceeds from a sale of the associated property.

The results had an overall average mean of mean of 4.320 and standard deviation of 0.942 implying that most of the respondents agreed to the statements on capital. These findings are in agreement with the findings of study by Kodongo, Mokoaleli-Mokoteli and Maina (2015) which pointed out that, while capital structure of a firm may not have any direct effect on the sales/income of a firm, it very well affects one of the profitability elements, expenses hence its effects on profits. Every type of financing comes with its costs, while with equity dividends have to be paid to equity holders, for debt interest has to be paid on the principal sum at an agreed rate at specified times, normally monthly, quarterly or annually.

Table 1.0: Descriptive Statistics on Capital

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	SD
Lack of equity capital has negatively influenced growth of commercial real estate.	3.40%	2.10%	3.40%	47.60%	43.40%	4.255	0.894
Inability to access loans has effect on growth of commercial real estate.	4.10%	1.00%	1.70%	37.60%	55.50%	4.393	0.914
Cost of loans is a factor on growth of commercial real estate.	4.50%	3.80%	1.70%	41.70%	48.30%	4.255	0.997
The process of raising equity capital has effect on growth of commercial real estate.	2.40%	5.90%	1.70%	30.70%	59.30%	4.386	0.957
The process of accessing loans determines growth of commercial real estate.	2.80%	4.80%	4.50%	41.40%	46.60%	4.241	0.947
Collateral security has influence on growth of commercial real estate.	4.10%	0.30%	6.60%	30.70%	58.30%	4.386	0.943
Average						**4.320**	**0.942**

The results in Table 2.0 show that majority of the respondents were in agreement with the statement that there had been an increase in the number of units of commercial properties built each year within Machakos County over the past 12 years. This was indicated by a mean of 3.979 and standard deviation of 1.170. This implies that Machakos County has been recording an increase in the number of real estate properties over the past decade. The results also show that most of the respondents were in agreement with the fact that prices per unit of a commercial property in Machakos County had influenced the growth of commercial real estate in the county as indicated by a mean of 3.928 and standard deviation 1.179.

The results further show most of the respondents agreed that being able to offer competitive prices per unit had effected the growth of commercial real estate in Machakos County significantly. The results had a mean of 4.024 and standard deviation of 1.169 implying most of the respondents was in agreement with the statement, even though the responses were varied sharply. Majority of the respondents believed that the price of a commercial property in Machakos County had gone high attracting more investors to venture in real estate business in the county. The result recorded a mean of 3.969 and standard deviation of 1.160 implying that in deed the prices of property in Machakos County have become attractive to the real estate investors. According to the results, most of the respondents indicated that cost of investment was a factor on growth of commercial real estate in Machakos County. The results had a mean of 3.955 and standard deviation of 1.192.

Similarly, the results show that most of the respondents indicated that expected returns on properties had gone higher in Machakos County as indicated by a mean of 3.948 and standard deviation of 1.159. Finally, it was established that most of the respondents were of the opinion that ease to adapt to changes of prices in the real estate industry had effected growth of commercial real estate. The statement had a mean of 3.997 and standard deviation 1.169 implying that most of the respondents were in agreement with the statement. In general, the statements on growth had an average mean and standard deviation of 3.971 and 1.171 respectively implying that most of the respondents agreed with all the statements of growth of commercial real estate in Machakos County.

Table 2.0: Descriptive Statistics on Growth of Commercial Real Estate

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	SD
There has been an increase in the number of units of commercial properties built each year within the County over the past 12 years.	7.60%	5.20%	8.30%	39.70%	39.30%	3.979	1.170
Price per unit of a commercial property has influence on growth of commercial real estate.	6.90%	7.90%	7.90%	40.00%	37.20%	3.928	1.179
Being able to offer competitive prices per unit has an effect on growth of commercial real estate.	6.60%	6.90%	6.90%	36.90%	42.80%	4.024	1.169
The price of a commercial property in this county is high.	6.60%	7.20%	7.60%	40.00%	38.60%	3.969	1.160
Cost of investment is a factor on growth of commercial real estate.	7.20%	7.60%	6.90%	39.00%	39.30%	3.955	1.192
Expected returns on properties have influence on growth of commercial real estate.	7.60%	5.20%	8.60%	42.10%	36.60%	3.948	1.159
Ease to adapt to changes of prices in the real estate industry has effect on growth of commercial real estate.	7.60%	4.80%	8.30%	39.00%	40.30%	3.997	1.169
Average						**3.971**	**1.171**

Results on Secondary Data (Descriptive Statistics on Numbers of Units and Price Per square Unit)

Apart from the primary data, this study collected secondary data on the number of commercial properties and unit price of the property in a period of 12 year (2008-2019). The findings were as presented in Table 3 and Figure 2

Table 3.0: Descriptive Statistics on Secondary Data

	Minimum	Maximum	Mean	Std. Deviation
Year	2008	2019	2013.5	3.606
Number of Units	650	2237	1313.67	563.538
Price Per sq. Metre (Ksh)	12000	30000	20733.33	6316.225

The results in Table 3 show that the minimum number of units of commercial properties in Machakos County was in 2008 which was 650 units, while the maximum number of units was in 2019 showing that there was growth in commercial real estate in Machakos County between 2008 and 2019. In addition the results show that the mean number of units was 1313.67 and standard deviation of 563.538 showing that the number of commercial properties in Machakos County is approximately 1314 units; however the number is spread. The minimum price per square metre of commercial unit in Machakos was found to be Ksh 12,000 which was the price in 2008, while the maximum was Ksh 30,000 recorded in 2019. The mean price per square metre of a unit was Ksh 20,733.33 with standard deviation of Ksh.6, 316.225. The results imply that there has been significant growth in commercial real estate in Machakos County in the past twelve years (2008-2019).

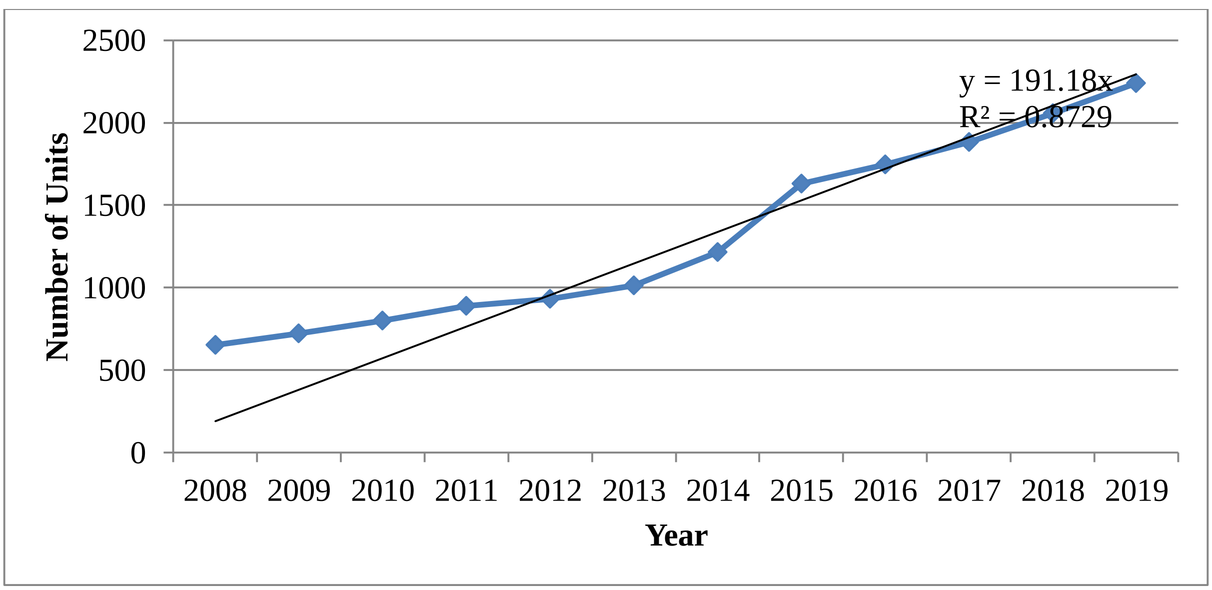

Figure 2: Number of Units

The trend line in Figure 2 show that the number of commercial properties units was on an upward trajectory in the last twelve years (2008-2019). In 2008, there were 650 commercial properties in

Machakos County which moved up to 721 in the following year. In the year 2010, the number of commercial properties in Machakos County was 801 representing 11.0% growth compared to 2009; this number went up by 10.7% in 2011 to 887 units. According to the results the number of units grew in 2012 to 933 commercial units representing 5.2% growth in the number of commercial properties in the County. In 2014, the total number of commercial properties in Machakos was found to be 1011 units representing 7.9% growth compared to 2013, a number which grew further by 19.98% to 1213 units in the following year. In the year 2015 the total number of commercial properties in Machakos County was 1630 representing 34.4% growth in the commercial real estate in the county.

In 2016 the total number of commercial properties in the county went up by 7.1% to 1745 units. Based on the results on the trend line, the number of commercial properties in the county further grew by 7.8% to a total of 1881 units in 2017. In the year 2018, Machakos County had a total of 2055 units representing 9.3% growth compared to the previous year. Finally, in 2019 the total number of commercial properties in Machakos County was 2237 representing 8.9% growth compared to what was recorded in 2018. The trend line shows that there has been consistent growth in commercial real estate in Machakos County over the past twelve years. The study found that the county recorded growth in the number of shopping centres, medical facilities, stores, malls and office properties. In addition to the growth in the number of commercial properties in the county, the study sought to establish the price trends of the commercial properties in the County and the results are presented in Figure 3.

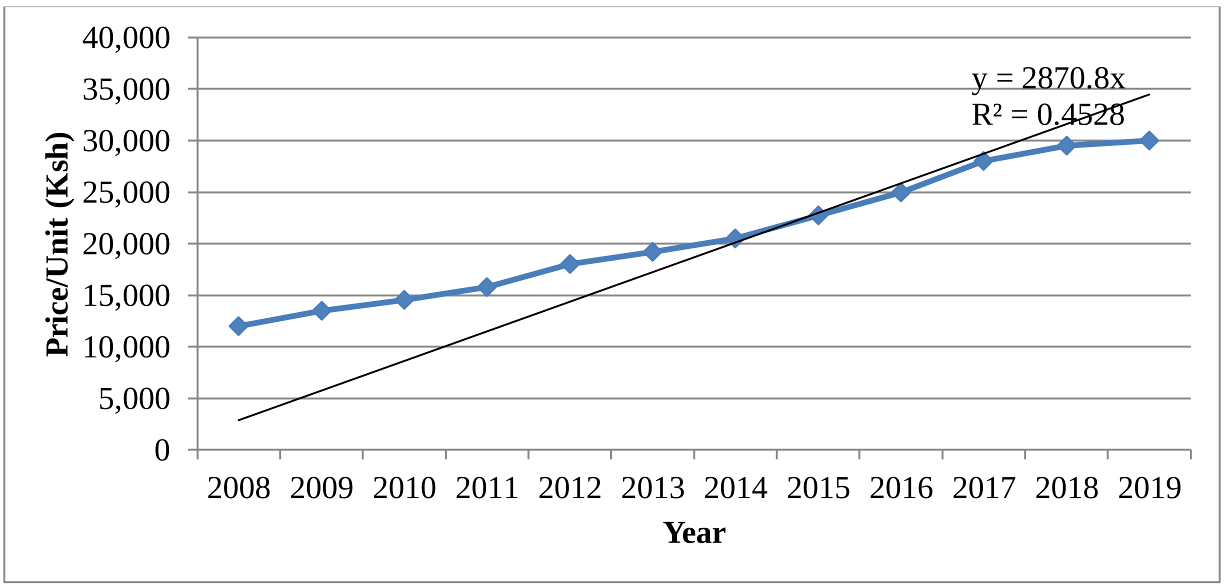

Figure 3: Price per Square Metre of Commercial Property

Based on the trend line in Figure 4.2, the price per m^2 of commercial property in Machakos has been on an upward trend since 2008. The results show that in 2008 the price per m^2 of commercial property in Machakos County was averagely Ksh. 12,000, a figure which went up by 12.5% to Ksh. 13,500 in 2009. In the year 2010, the price per m^2 of commercial property in Machakos County was averagely Ksh. 14,550 representing 7.8% increase in price compared to the previous year. In 2011, the price per m^2 of commercial property in Machakos was going for Ksh 15,800 on average representing 8.6% increase in property prices compared to 2010. This figure grew further by 13.9% to Ksh 18,000 per m^2 of commercial property in 2012. Based on the results, the price per

m^2 of commercial property in Machakos County in 2013 was averagely Ksh 19,200 indicating 6.7% increase in property price per m^2 in Machakos County compared to 2012.

The results in addition show that the price per m^2 in Machakos County grew by 6.8% in 2014 up from Ksh 19,200 per m^2 in 2013. The price per m^2 of commercial property increased further to Ksh 22,750 in 2015 representing 11.0% increase compared to the previous year. In 2016 the county saw a 10.0% increase in the price per m^2 of commercial property compared to what the properties was going for in the year before. The prices continued skyrocketing in the subsequent years and in 2017 the price per m^2 of commercial property was Ksh 28,000, which increased by 5.4% in the following year to averagely Ksh 29,500 per m^2 of commercial property. Finally, in the year 2019 the price per m^2 of commercial property was found to be Ksh 30,000 on average indicating 1.7% increase. The trend line implies that since 2008 the price per m^2 of commercial property has been on the increase consistently through 2019 which imply that there has been growth in commercial real estate in the County.

In addition to the primary data and secondary data results presented above, the interview guide was administered to the CEC in charge of housing in Machakos County in which he was asked to compare the population of people in the county and the number of housing units available for them. The CEC indicated that;

‘‘... The population of Machakos County has increased enormously over the last 15 years. However, housing production has remained far below the targets in the five-year national development plans and even further below actual demand for housing. Most of the urban population in Machakos County, especially low-income households cannot afford to buy or build their own homes and as a result, most of the housing in towns within Machakos County is rental housing. The rental housing sector is a complex one involving many actors. Tenants’ rights are poorly respected, especially in the informal settlements that provide most of the accommodation to low-income renters. So in short, the number of both commercial and residential properties within Machakos County is still way below than what is demanded and therefore there is need for more developers to invest in real estate industry within our county.’’

The CEC was further asked to indicate some of the challenges facing real estate industry in Machakos County and what was being done by county government of Machakos to mitigate the challenges. The CEC indicated that;

‘‘...as a government we have been conducting surveys to assess the real estate market industry within our county and the common challenges faced by developers include lack of affordable development-class land, increase supply, competition of property and high costs of funds as a property development requires a huge sum of capita. In addition, there is no insurance program that covers funds invested in real estate projects or protects investors from the failure or malfeasance of a sponsor of a real estate investment. Therefore, at times real estate investors within Machakos may find themselves unable to sell a property for as much as they originally paid for it when they are ready to exit the investment.’’

‘‘...Contrary to most securities, most real estate transactions within Machakos County are done in private markets. Whereas public markets offer daily pricing and extensive consumer knowledge, private markets are priced on “as-needed” basis and lack transparency. Private markets are harder to access as well, as many private markets require a degree of credibility or status to enter into. Last but not least, real estate closings require several interested parties and a lot of paperwork. Between structuring an offering, arranging financing, and gathering necessary due

diligence items, the process could take weeks, only contributing to lack of ability to turn real estate into cash quickly this demoralizes investors.''

Concerning mitigation measure by county government of Machakos on these challenges the CEC indicated that;

''...as a county government we are trying our level best to ensure the laws imposed on real estate industry within our county are favourable so as to attract more investors to invest in real estate in this county. This will help in addressing the shortage of both commercial and residential properties within the county.''

Finally, the CEC was asked to indicate the message he could have to the developers within Machakos County and across Kenya and the Public and the CEC indicated that;

''...Since development projects in real estate industry often spans two or more years, the real estate developers and investors in Machakos County should understand where they sit in the property cycle and pay attention to the big picture economic factors that will affect the real estate market. Additionally, I wish to point out that investors should not always believe the selling agent when they tell them the property will make a great development site, instead they (investors) need to undertake careful areas due diligence including checking the council zoning, as well specific property due diligence, things like checking the title for covenants, easements and overlays, the neighbourhood character as well as adjoining buildings and trees the topography of the site.''...Finally I wish to state that we have witnessed cases of conman-ship in the past where investors in real estate development have been swindled of their money. It is therefore necessary that any investor who wish to invest in real estate in this County puts everything in writing, especially when dealing with consultants and contractors. This helps avoid misunderstandings and confusion and keep very clear accounts. If your paperwork isn't in order, it'll only cause headaches further down the line.''

4.2 Correlation Analysis

Table 4.0: Correlation Matrix

		Growth	**Capital**
Growth	Pearson Correlation	1.000	
	Sig. (2-tailed)		
Capital	Pearson Correlation	.795**	1.000
	Sig. (2-tailed)	0.000	

** Correlation is significant at the 0.01 level (2-tailed).

Results in table 4.0 revealed that there was a strong positive and significant association between capital and growth of commercial real estate in Machakos County (r=0.795, P-value=0.00). The study concluded that increased demand for real estate property in most urban areas leads to building more housing developments and accelerated growth in supply of property in that area.

4.3 Normality Test

Table 5.0: Test for Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	**df**	**Sig.**	**Statistic**	**df**	**Sig.**
Growth of Commercial Real Estate	.170	290	.082	.918	290	.200

a. Lilliefors Significance Correction

The result in Table 5.0 indicates the dependent variable (Growth) was normally distributed since p-values for both Shapiro-wilk and Kolmogorov test were greater than 0.05. These values confirm further that the data was normally distributed. In addition, normality was visualized using the Q-Q plot for the dependent variable and the diagram representation is illustrated in Figure 4.

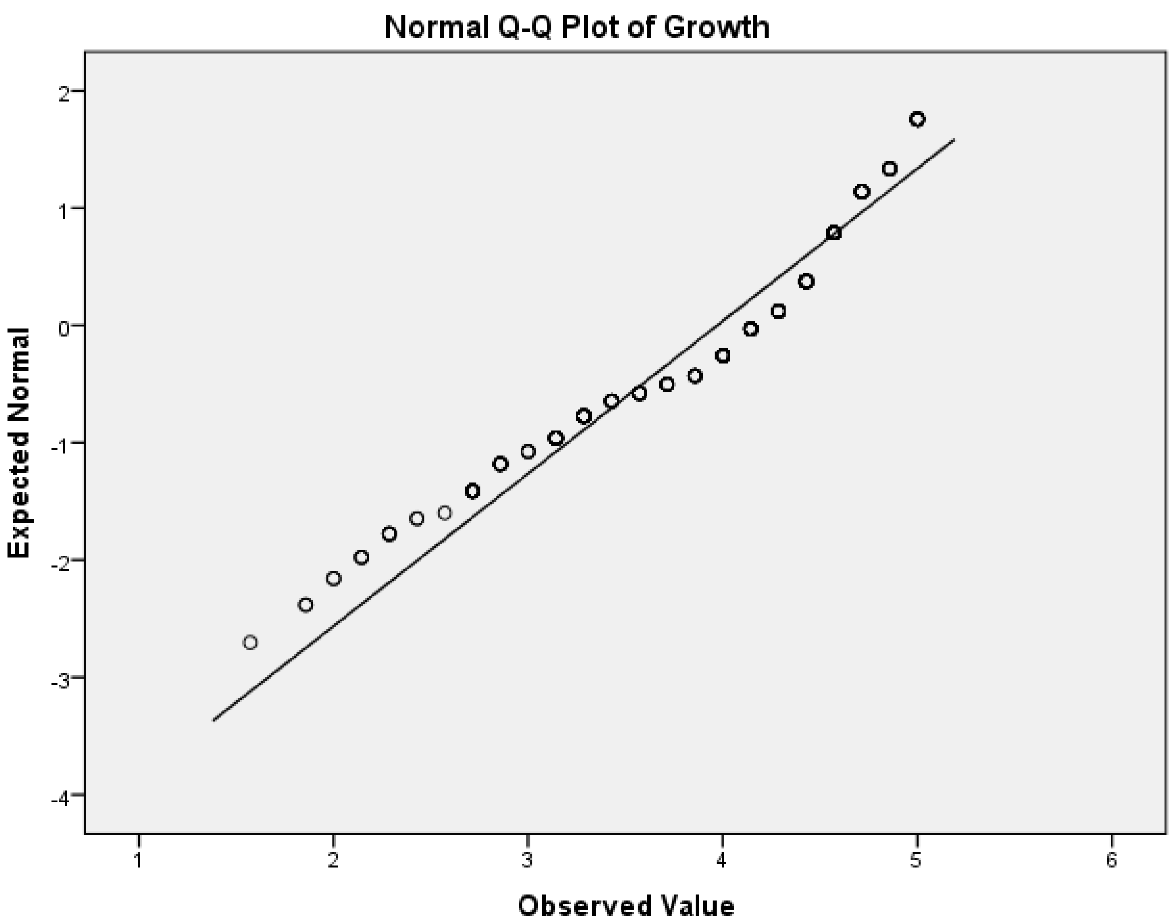

Figure 4: Normal Quantile Quantile (QQ) plot for Growth of Commercial Real Estate

A variable is said to be normally distributed if most of its points are lying on the theoretical quartile line which is fitted from the normal QQ plot (Shenoy & Pant, 1994). This indicates the observed values versus the expected normal values are randomly distributed along the line of the best fit indicating which means that the dependent variable is normally distributed. Figure 4 shows the normal QQ plot which indicates that the condition for normality for the dependent variable (Growth of commercial real estate in Machakos County) was met. The study hence concludes that the data was normally distributed.

4.4 Regression Analysis

Table 6.0: Model Fitness

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.795[a]	.632	.630	.46779

a. Predictors: (Constant), Capital

Model fitness results in 6.0 shows that the coefficient of determination also known as R Square was 0.632 and R is 0.795 at 0.000 significance level. The model indicates that capital as a factor of production explains 63.2 percent of the variation in growth of commercial real estate in Machakos County. This means 63.2 percent of the growth of commercial real estate in Machakos County is influenced by capital as a factor of production. Table 7.0 shows the ANOVA results on capital.

Table 7.0: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	108.046	1	108.046	493.746	.000[b]
	Residual	63.023	288	.219		
	Total	171.069	289			

a. Dependent Variable: Growth

b. Predictors: (Constant), Capital

The results in Table 7.0 show that the model was statistically significant in explaining the influence of capital as a factor of production on the growth of commercial real estate in Machakos County as indicated by a p-value of 0.000<.05. The regression coefficient results are presented in Table 8.0.

Table 8.0: Regression Coefficient

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.479	.160		3.005	.003
	Capital	.863	.039	.795	22.220	.000

a. Dependent Variable: Growth

Growth = 0.479+ 0.863X

Where X=Capital as a factor of Production

The regression coefficient results in Table 8.0 show that capital positively and significantly influences the growth of commercial real estate in Machakos County (β=0.863, p=0.000). The gradient coefficient as indicated by the beta value shows the extent to which unit change in the independent variable causes a change in the dependent variable which in this case is a change in growth of commercial real estate in Machakos County due to a unit change in aspects of capital as a factor of production. This implies that a unit change in aspects of capital leads to an improvement in growth of commercial real estate in Machakos County by 0.863 units. These results are consistent with the findings of Nduku (2015) which pointed out that, the ratio of short term debt to total debt revealed the most effect on profitability while the overall debt revealed the weakest. Thus there are other major factors affecting profitability of the real estate firms other than capital structure. The study further asserted that, while capital structure of a firm may not have any direct effect on the sales/income of a firm, it very well affects one of the profitability elements, expenses hence its effects on profits.

4.5 Hypotheses Testing

H_0: *Capital has no statistically significant influence on growth of commercial real estate in Machakos County.*

The hypothesis was tested by using linear regression and determined using p-value and t-statistic. The acceptance/rejection criteria were that, if the p value is less than 0.05, we do not reject the H_0 but if it is more than 0.05, then H_0 is rejected. Therefore, the null hypothesis was that capital has no statistically significant influence on growth of commercial real estate in Machakos County. Results in Table 7.0 shows that the p-value was 0.000. This was supported by a calculated t-statistic of 8.406 which was larger than the critical t-statistic of 1.96. The null hypothesis was hence rejected. The study adopted the alternative hypothesis that capital has statistically significant influence on growth of commercial real estate in Machakos County, Kenya.

5.0 Conclusion

This study found that capital budgeting decisions need substantial amount of capital outlay in the real estate industry. This underlines the need for thoughtful, wise and correct decisions as an incorrect decision would not only result in losses but also prevent the firm from earning profit from other investments which could not be undertaken. Based on the findings, the study concludes that, investments for most commercial real estates in Machakos County come from personal savings and equity loans from banks. It is further concluded that, interest rates have as profound effect on the value of income-producing real estate in Machakos County just like they do on any other investment. This is especially true about the rates on interbank exchanges and Treasury bills. Because their influence on an individual's ability to purchase residential properties (by increasing or decreasing the cost of mortgage capital) is so profound, many people make the incorrect assumption that the only deciding factor in real estate valuation is the current mortgage rate.

The sharp fluctuations in commercial properties will increase the depreciating risk of the collateral value, and the default risk of the borrowers will increase accordingly. Therefore, house price fluctuations should be taken into account when mortgage lenders price the collateral and they should pay close attention to the land leverage, mortgage, investment demand ratio, regional position, the government regulation and county government policy.

This study finally concludes that property loan market penetration is still low in Kenya, Part of the reason is lack of affordability due to a combination of low incomes, high interest rates, high inflation and the inability of the financial markets to cater for long-term funding. Most housing units built is financed primarily through debt. Considering the time needed for construction, potential delays as well as high and fluctuating interest rates, the cost of debt weights negatively on the total financing structure of developments.

6.0 Recommendations

This study also recommends that commercial real estate developers in Machakos County needs to mobilize large amounts of private capital from either primary or secondary market in order to start tackling its unmet housing demand. Growing the size and reach of the mortgage market is part of the solution for the upper and middle income urban segments of the population. Mortgages alone cannot be the only hope to satisfy the entire housing demand. Solutions are also required for lower income groups in the form of housing microfinance, rental frameworks and financing for self-construction, especially on an incremental basis.

The study recommends that the government should lower interest expenses so as to encourage the increase in supply of affordable commercial real estate property. The bank should also lower their interest rates so that the real estate firms can be able to increase the supply of housing. The government should also regulate the cost of building materials so as to be affordable to the real estate firms so as to increase the supply of housing.

Further, given the outbreak of Covid-19 the most important thing at present is that all real estate investors adheres to the recommended protective measures by the government and that the number of people who fall ill remains within the limits of what our health system can respond to. Then the economy can also recover and the market for commercial real estate in every sector can pick up again. Rent collection is down across the board compared to previous months with many tenants asking for waivers or rent reductions. Some tenants are expecting the government to intervene and issue a decree waiving rent payments but GoK has made its position clear that landlords/tenants should work to find common ground. This study established that some landlords were already reducing rents for their tenants for up to 3 month periods and the majority were not locking or evicting anyone for non-payment.

REFERENCES

Alin, A. (2010). Multicollinearity. *Wiley Interdisciplinary Reviews: Computational Statistics*, *2*(3), 370-374.

Barkham, R., Bokhari, S., & Saiz, A. (2018). Urban big data: city management and real estate markets. *GovLab Digest: New York, NY, USA*.

Bower, J., & Buckley, R. (2020). Housing policies in Rwanda.

Brim, O. (2017). *The economic theory of representative government*. Routledge: London, UK.

Chege, P. W. (2017). *Factors Affecting Housing Supply in Nairobi County, Kenya* (Doctoral dissertation, KCA University).

Chege, S. W., & Bett, S. (2019). Total Quality Management Practices and Performance of Organizations in the Real Estate Industry, Case of Property Developers in Nairobi City County, Kenya. *International Journal of Current Aspects*, *3*(IV), 14-31.

Cummings, T. (2013).*Risks assessment in real estate development: an application of analytic network process.*Liverpool: Liverpool John Moores University.

Dabara, D. (2015). *The inflation-hedging performance and risk-return characteristics of residential property investments in Gombe,* Nigeria.

David, M. & Zhu, W. (2014).*International Real Estate Fund Vehicles using opportunistic strategies: An Agency Theory Based Analysis.Working Paper Series* # 06-002. Real Estate Management Institute (REMI)

Gitau, G. G., Kiragu, D. N. U., & Riro, G. K. (2019).Effect of Heuristic Factors and Real Estate Investment in Embu County, Kenya.

Guo, P., Zhang, X., Zhu, J., & Sun, L. (2018). The Moderate Investment Scale Study of Real Estate Promoting Economic Growth. In *ICCREM 2018: Analysis of Real Estate and the Construction Industry* (pp. 238-246). Reston, VA: American Society of Civil Engineers.

Ibbotson, R. G., & Siegel, L. B. (2018).Real Estate Returns. *A Comparison with Other Investments*.

Jia, S. (2019). Supervision of and Response to China's Real Estate Bubble: The Effects of the Loan-to-Value Ratio Policy.

Kauškale, L., & Geipele, I. (2014).Urban Entrepreneurship Development Trends in Real Estate Market in Latvia. *Globalization*, *1987*, 6.

Kauškale, L., & Geipele, I. (2017). Integrated approach of real estate market analysis in sustainable development context for decision making. *Procedia Engineering*, *172*, 505-512.

Kodongo, O., Mokoaleli-Mokoteli, T., & Maina, L. N. (2015). Capital structure, profitability and firm value: panel evidence of listed firms in Kenya. *African Finance Journal*, *17*(1), 1-20.

Koval, V., Slobodianiuk, O., & Yankovyi, V. (2018). Production forecasting and evaluation of investments using Allen two-factor production function.

Kuria, A. M., Riro, G. K., & Kiragu, D. N. U. (2018). Effect of prospect based behavior biases on the performance of real estate investments in Kenya.

Mwathi, J., & Karanja, J. M. (2017).The effect of financing sources on real estate development in Kenya. *International Journal of Finance and Accounting*, *2*(2), 43-62.

Na, N. (2016). The economic theory of 'managerial'capitalism.Springer.

Nduku, M. J. (2015). The Effect of Capital Structure on the Profitability of the Real Estate Firms in Kenya.

Nguyen, L., & Steininger, B. I. (2019). The Impact of Misvaluation on Financing Decisions: Evidence from the Real Estate Investment Trust (REIT) Sector. *Available at SSRN 3507164*.

Nguyen, N. T. P., Nguyen, L. P., & Dang, H. T. T. (2017). Analyze the determinants of capital structure for Vietnamese real estate listed companies. *International Journal of Economics and Financial Issues*, *7*(4), 270-282.

Nordhaus, W. D. (1969).An economic theory of technological change. *The American Economic Review, 59*(2), 18-28.

Ogbenjuwa, L., Egbu, C., & Robinson, H. (2018).A strategic approach to real estate financing: challenges & opportunities in real estate financing in Nigeria.

Sanfelici, D., & Halbert, L. (2019). Financial market actors as urban county government policy-makers: The case of real estate investment trusts in Brazil. *Urban Geography*, *40*(1), 83-103.

Schill, M. H. (2016). The impact of the capital markets on real estate law and practice. *J. marshall L. rev.*, *32*, 269.

Siniak, N. G., & Marina, N. (2019). Real estate market transparency as an important factor in investment and decision making.

Tang, R. (2019). *Real estate crowd funding in China* (Doctoral dissertation, Massachusetts Institute of Technology).

Uwayezu, E., & T de Vries, W. (2020). Can In-Kind Compensation for Expropriated Real Property Promote Spatial Justice? A Case Study Analysis of Resettlement in Kigali City, Rwanda. *Sustainability*, *12*(9), 3753.

Uwayezu, E., & Vries, W. T. D. (2020). Access to Affordable Houses for the Low-Income Urban Dwellers in Kigali: Analysis Based on Sale Prices. *Land*, *9*(3), 85.

Warren, C. M. (2018).Global property market update. *Property Management*.

Wong, P., Higgins, D., & Soemarsono, C. (2018).Australian Housing Market and the Indonesian Foreign Real Estate Investment. In *APHRN 2018: Smart and Sustainable Housing Futures* (pp. 87-97). University of Hong Kong.

Zhang, D., Cai, J., Liu, J., & Kutan, A. M. (2018). Real estate investments and financial stability: evidence from regional commercial banks in China. *The European Journal of Finance*, *24*(16), 1388-1408.