CRITICAL FACTORS AND REAL ESTATE DEVELOPMENT BY PRIVATE DEVELOPERS IN KIAMBU COUNTY, KENYA

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Full Length Research

ABSTRACT

The real estate sector in and which was previously dominated by individual developers has now seen entry of more institutional developers such as SACCOs, private equity firms and foreign institutions in major towns around the country. The industry however continues to face challenges such as unfavorable interest rate environment and rapid population growth which is creating increased demand for housing, as families grow and consumer needs change to reflect independent living. It is in this light that this study sought to investigate the critical factors of real estate development by private developers. The study's specific objectives were to: assess the role of access to finance; evaluate the role of off-site infrastructure; analyze the influence of land regulation and; examine the effect of technical innovation on real estate development by private developers in Kiambu County. Using descriptive research design, the study targeted 280 respondents that consisted of 120 finance managers and 120 engineers drawn from 18 registered real estate development firms as well as 20 land officials and 20 planning officials from Kiambu County. Using stratified random sampling procedures, the study sampled 84 participants that consisted of 36 finance managers, 36 engineers, 6 land officials and 6 planning officials; however, only 69 participants fully responded to the questionnaires. Data analysis was done using descriptive statistics and regression analysis methods. The study established that access to finance, offsite infrastructure, land regulation and technical innovations have a positive and significant effect on real estate development by private developer in Kiambu County, Kenya. The study concludes that various factors play significant roles in access to finance for development by private developers, among them availability of sources of obtaining finance, security requirements, eligibility requirements and interest rates. Offsite infrastructures significantly affect real estate development by private developers and increases in the activities involving offsite infrastructures would most likely reduce real estate development by private developers. The study concludes that land regulations significantly affect real estate development and that increases land regulations promotes real estate development by private developers. The study further concludes that technical innovation significantly affects real estate development and that increases in technical innovation promote real estate developments by private developers. On access to finance this recommends that the banking institutions needs to come up with appropriate policy framework that supports and promotes private developers efforts in reducing the housing gap in the country. On offsite infrastructure, the study recommends that the County government of Kiambu County should improve the road condition, provide communication infrastructure, availability of drainage systems, the presence of social amenities and the availability of water and power supply so as to improve real estate development in the county. On land regulations, this study recommends that the county government should up its game on land policy so as to make land acquisition, approval, and transfer efficient in order to promote real

estate development. On technical innovations, this study recommends that there is need for policy making it mandatory for investors to use new technologies and technological tools to promote effectiveness and efficiency in real estate development.

Key Words: *critical factors, real estate development, private developers, Kiambu County, Kenya*

INTRODUCTION

Housing sector is an important part of the economic development agenda of any nation. The sector occupies a large part of a country's economy and has been known to have positive effects on developing nations. Today, improvement in the housing sector is central to conducive social and political environment of countries, more so, in developing nations where housing structures consume a large share of household incomes and is also known to be the largest source of expenditure by households. On the other hand, housing structures also forms part of household's largest assets. However, it has been contended that the significance of the housing sector to a country's development agenda is usually affected by several factors, among them land markets, manufacture of durable goods, and labour market developments mostly during transition of economies (Bardhan & Edelstein, 2007).

According to Warnock and Warnock (2014) roughly one billion people, or one-third of the world's urban population, live in slums. And a well-functioning housing market influences not only shelter concerns. At a basic level, a country's housing sector can improve public health, stimulate economic growth and have important social consequences. The best housing sectors should enable the adequate provision of shelter across all segments of the population.

Real Estate Development

Real estate development is business process encompassing activities that range from the renovation and re-lease of existing buildings to the purchase of raw land and the sale of developed land or parcels to others (Geltner, Miller, Clayton & Eichholtz, 2017). Commercial real estate assets are continually bought, sold, developed and redeveloped. This makes real estate investment one of the nation's most active and important business activities. Individuals are waking up to the need to own homes around Nairobi with others buying homes at an early age as a worthwhile investment. Monsod (2011) stated that a functioning real estate market is one where households can translate their hypothetical demand for quality housing into valuable demand at market prices, and where the supply of housing is reactive to that demand.

Messah (2011) indicates that real estate accounts for a big percentage of wealth and it is multifaceted. Prices are determined by the forces of demand and supply. Though, for some other

reason it may be determined by other forces. The real estate market is distinguished by more or less predictable cycles of booms and busts.

Real estate sector is categorized into formal and informal with its market presenting a peculiar complexity with three autonomous but associated markets connected to the economy (Ubale, Martin & Wee, 2013). These markets include the space, asset and development markets which solely portray market areas where trading take place and prices are determined through the interplay of demand and supply. The authors further show that the space market entails the interaction of the demand by residential property users with current stock of space which is made available by landlords. This predicts the patterns of rents and the level of occupancy with vacancy clearing the market.

Critical Factors

According to Milosevic and Patanakul (2012) Critical success factors (CSFs) are traits, situations, or variables that can have a substantial impact on the success of the project whilst accurately sustained, maintained, or controlled. Chan et al. (2014) relate Critical Success Factors (CSFs) under five main factors namely human related, project procedures, project related, external environment and actions related to project management. Critical success factor Critical Success Factors (CSF) could have a significant impact that supplies quantifiable improvements to the achievement of better organizational performance.

Finance is one of the essential inputs into housing production. Therefore, the level of financing is directly related to the level of real estate development (Okonkwo, 2017). According to Zhu (2016) it is also widely understood that the provision of housing services depends upon a well functioning housing finance system. Indeed, without a properly functioning housing finance system that operates in an allocation wise and operationally efficient manner, the "real" housing market would be sub-optimal. Noppen (2012) indicates that the issue of mortgage loans and real estate financing is very important in housing investment as in most cases it is the key for making a transaction feasible and profitable.

Offsite infrastructure has been promoted as one of the solutions to the industry's performance problems (Bauml, 2017). Gibb and Isack (2013) qualified those drivers in terms of what clients see as the benefits of off-site production which include cost, time and quality. The author also noted that client's also perceived disadvantages to offsite infrastructure as some products are poorly built, some contractors are not experienced enough and some original designs do not suit offsite.

Regulations governing the use of land have become more numerous and more difficult in recent decades and housing has become more costly in some metropolitan areas (Glaeser & Ward, 2009). Ohls, Weisberg and White (2014) argue that municipalities that restrict the use of land within their boundaries will effectively reduce the price of land by limiting the potential for

developer profits. On the other, land use regulations might also increase prices of land through a positive amenity effect if the regulated jurisdictions do not have close substitutes in the same metropolitan area.

The need for innovation is caused by the competitiveness that forces organizations to invest in product and service innovations to ensure their survival (Febraban, 2013). Technological innovation can be performed on the product, service or process and can be performed either incrementally or through a radical transformation. Thus, technological innovation addresses matters that are not part of a company's operation that must be incorporated in an economically viable manner. Ireland (2012) argues that when a project involves new technologies, it is important that the organization either have a high level of knowledge of the specific component to solve unexplored engineering problems or acquire solutions using innovations.

Real Estate Development by Private Developers in Kiambu County

The housing gap in Kenya has given rise to increased activities by private developers who have now turned to be major suppliers of formal housing units, especially in Nairobi (Hassanali, 2009). The interest in real estate development by private developers' has been brought about by the declining role of government in housing provision as well as due to growth in middle class population. In Kenya, the middle class account for 44% of population compared to Africa's 34.3% (African Development Bank, 2010). The growth in middle class population is usually followed by quick growth in urban centers, increased expenditure on consumables and demand for housing. Though private developers are the main producers of houses in Kenya; however, they also face numerous challenges.

Though private developers are relatively inexperienced, it has been noted that they can develop between 200 to 250 units of large houses (ADB, 2013). These large developments usually allow scale economies that in turn can affect house prices in the market. A vast majority of developers can be traced back to businesses owned by families that have grow from single or double housing unit investments into Small and Medium Size Enterprises (SMEs)with the capability to deliver several housing units.

The cornerstone of housing is regulations on land and property titles. In the case of Kenya, land and property regulations have been inherited from colonial times and involve a rather complex tenure mechanism framed in many different laws. By-and-large, land tenure was administered through a system of customary laws and can vary depending on ethnic groups, predominant land use or cultural practices (World Bank, 2011). Provisions in the 2010 constitution regarding equal access to land (Articles, 60 to 68) seek to bring in clarity to the matter. Regulatory stability and intelligibility are required for property market development. Indeed, in order to attract the private developers in housing and in particular in the middle to low market segments, relaxed and straightforward land regulation are needed (Hoek-Smit, 2011).

Kiambu County is endowed with huge resources ranging from rich agricultural land to industries, and most recently a real estate property boom. The infrastructure development especially the Northern bypass and Thika superhighway are among the reasons why there has been a boom in the real estate coupled with migration of middle class people working in Nairobi, to this County (Mwololo, 2013). Recently constructed gated communities like five star Meadows, Eden Ville and Four Ways Junction on Kiambu road are indicators of the real estate boom. Also coming up are the city developments consisting of residential houses combined with a mall or recreational centers like golf courses, for instance, Two Rivers Mall (TRM), Tatu City and Thika Greens among others. This has resulted to an all time high demand for rental units in this area.

STATEMENT OF THE PROBLEM

The survival and success of an organization occurs when the organization creates and maintains a match between its strategy and the environment and also between its internal capability and its strategy (Ongore & Kusa, 2013). The real estate industry in Kenya has been in a state of constant change that due to economic liberalization, competition has become stiff, forcing them to conform to the changing economic environment. According to Noppen (2012) building of real estate has been occupied by individuals or groups with the commercial sector lagging behind due to uncertainties and challenges including speculation, in-availability of funds, materials bias, volatile economic environment and delays. The real estate sector contributes 9% of Kenya's Gross Domestic Product (GDP). Real estate sector has consistently outperformed other asset classes in the last five years, generating returns of between 25% and 30% and making it the most lucrative business to venture in with zero losses. The real estate sector in and which was previously dominated by individual developers has now seen entry of more institutional developers such as SACCOs, private equity firms and foreign institutions in major towns around the country. The industry however continues to face challenges such as unfavorable interest rate environment and rapid population growth which is creating increased demand for housing, as families grow and consumer needs change to reflect independent living. According to Noppen (2012) building of real estate has been majorly by individuals or groups with the commercial sector lagging behind due to uncertainties and challenges including speculation, in-availability of funds, materials bias, volatile economic environment and delays. The mounting pressure on urban land has accelerated the rise in housing prices, and made housing markets mostly dysfunctional in many major metropolitan areas of developing countries. Koech (2010) did a study on the effect of real estate development on the growth of estate agents in Nakuru Municipality and recommended that the County government should further team up with property developers and selected marketing companies so as to promote Nakuru County as the ultimate investors' choice in regard to property development. However, the study was qualitative in nature and lacked conclusive findings. Sirya (2017) study examined on factors influencing real estate companies' investment decisions and found that infrastructure development was found to be a key driver of investment in real estate business in Nairobi. However, the study context was commercial properties in Nairobi County, Kenya. Therefore, this study sought to establish how

critical factors influence the real estate development by private developers in Kiambu County, Kenya. Research Objectives

GENERAL OBJECTIVE

This study aimed to investigate critical factors on real estate development by private developers in Kiambu County.

SPECIFIC OBJECTIVES

1. To identify the effect of access to finance on real estate development by private estate developers in Kiambu County, Kenya
2. To determine the effect of off-site infrastructure on real estate development by private developers in Kiambu County, Kenya
3. To analyze the influence of land regulation on real estate development by private developer in Kiambu County, Kenya
4. To examine the effect of technical innovation on real estate development by private developers in Kiambu Count, Kenya

THEORETICAL REVIEW

Agency Theory

This study was guide by agency theory by Eisenhardt (1989). According to Eisenhardt (1989) agency theory deals with the principal agent problem, in which the principal delegates an activity to an agent. Principals and agents are assumed to be self-interested, rational and risk-averse (Gereffi & Wadhwa, 1993). Agency theory deals with two problems. The first is the agency problem, in which the agent's goals do not always meet with the principal's, and it is difficult or expensive for the principal to verify or control the agent's behavior. The second problem is that of risk-sharing. Since both the agent and the principal are risk-averse, they may prefer different approaches towards risk-sharing. This results in increased agency costs for developing monitoring and enforcing contracts.

This theory was relevant to the study because it suggests that the firm can be viewed as a nexus of contracts between resource holders. The primary agency relationships in real estate development is the private developers, the house owners and the County government of Kiambu. These relationships are not necessarily harmonious; indeed, agency theory is concerned with so-called agency conflicts, or conflicts of interest between agents and principals. The theory was used to explain technical innovation variable.

Theory of Constraints

Eliyahu developed the theory of constraints in the early 1980s to help organizations decide what to change, identify a desirable new condition and how to trigger the change. He recommended first identifying the main factors affecting budget estimates in an organisation. He then suggested that the managers figure out how to handle the constraints or barrier to success within prescribed budget. By focusing on fixing the main problem, overall performance could be improved. Additionally, Baloi and Price (2003) observed that most organizations fail to examine their operations as a whole when developing cost estimates. By focusing only on short-term goals, long-term success becomes jeopardized so he suggested establishing a long-term view.

Theory of Constraints, which opines that an organization facing challenges in cost management, poor performance and chronic conflicts is as a result of poor management practices and lack of necessary intervention (Goldratt, 1999). According to Noreen, Smith and Mackey (2009) all systems operate in an environment of cause and effect. One event causes another to happen thus prompting for factors analysis as a measure. Adherence to cost estimates is either a constraint or has the potential to become a constraint. This cause-and- effect relationship can be very complex, especially in complex systems such as those of construction projects. Capturing the essence of cause and effect within the system and identifying factors that emulate these relationships are the keys to system performance and excellent adherence to cost estimates.

This theory is relevant to the study as it shows it is a systematic and iterative approach to management that emphasizes adapting business practices in order to best cope with limitations, or constraints, that stand in the way of key objectives. The goal of TOC is to maximize the efficiency of a process selectively at the most critical points and thereby maximize profitability, quality, or other corporate objectives. Therefore, private developers in real estate should consider key areas within the organization for competitive improvement, key technologies and techniques, improvement and investment opportunities related to the development of real estates. The theory was used to explain off-site infrastructure variable.

Resource Based Theory

This study was guided by Resource Based View theory as proposed by Grant (1999). According to Grant (1999) firm is a collection of physical capital resources, human capital resources and organizational resources. The core premise of the resource-based view is that organizational resources and capabilities can vary significantly across firms, and that these differences can be stable. The theory focuses on the idea of costly-to-copy attributes of the firm as sources of business returns and the means to achieve superior performance and competitive advantage.

Grant (1999) indicates that organizational capabilities emanate from lower management, middle and top management and that a firm can gain competitive advantage when its resources and capabilities are used properly. He further states that if these organization capabilities were

carefully synchronized and assimilated it could achieve the economies of scale and scope needed to compete in national and international markets.

Barney (2001) states that, "sustainable competitive advantage is derived from resources that are valuable, rare, imperfectly imitable (due to path-dependence, causal ambiguity, and social complexity), and no substitutable". A resource-based view of the firm accepts that attributes related to past experiences, organizational culture and competences are critical for the success of the firm.

This theory is relevant to the study because it shows that private developers in real estate development manage their projects on the basis of their resources and capabilities. A firm resource must, in addition, be valuable, rare, and imperfectly imitable and substitutable in order to be source of effective management of construction wastes. Resources may increase the company's capacity for proper management of wastes and, thus contribute to project performance by helping the firm to appropriate the value. Furthermore, resources may be used to erect entry barriers and so increase performance at the industry level. The theory explained access to finance variable.

EMPIRICAL REVIEW

Access to Finance and Real Estate Development

Mwathi and Karanja (2017) study examined the effect of financing sources on real estate development in Kenya. The population of this study was all the real estate firms in Nairobi. This study used secondary data for five years. The data was then analyzed in terms of descriptive statistics. The findings indicated that mortgage financing is the most used source of financing, with equity and venture capital being the least source of financing used. The findings also indicated that there is a significantly positive relationship between mortgage financing and real estate development.

Kitavi (2013) study investigated the effect of Mortgage Finance on Development of the Real Estate Sector in Nairobi County. The study was a descriptive survey. The target population consisted of 33 licensed mortgage lenders in Kenya. Collection of data was done by way of in-depth document analysis guide. Inferential statistics multivariate regression analysis was used to determine the relationship between variables. The study established that there is a positive relationship between annual number of house units build and annual housing loans allocated.

A study conducted in Ghana established that younger development firms are dependent on credit since they could not rely on the revenues they had accumulated in investments over the past (Esperanca Gama & Gulamhussen, 2003). However, firms that diversify flow of cash can potentially experience less profit fluctuations and reduced bankruptcy risks. Liquidity and hedging have also been known to cause high debt financing by firms with liquidity being the

capability to quickly convert assets to cash without losing initial value while hedging reduces risks associated with exchange rate.

Nkyi (2012) study examined strategies for financing real estate development in Ghana. A total of 48 real estate firms were involved in the study. The data collected were then analysed using both descriptive. Statistics and multivariate analyses, which reduce the number of variables and detected the structure of relationships between them. The study established the major financial sources of real estate finance in Ghana to be retained profits and advance deposits with former as the main finance acquisition pattern.

In a study conducted in Nigeria, it was found that numbers of residential properties constructed for sale by firms' developers were positively related with firm age, yearly mean expenditures, and size of firms (Nkyi, 2012). It was further found that real estate firms in Nigeria depended on retained profits as well as advance deposits and the major sources of finance for their developments. There were also prevalent financial challenges, mostly from medium to long term that affected lending of finance. It was also identified that real estate firms were unable to present collaterals that were acceptable and also that transaction cost were among the key challenges that confronted developers in their efforts to obtain finance.

Off-site Infrastructure and Real Estate Development

Kolo (2015) study examined on Housing Stakeholders Perspective on offsite manufacturing in Nigeria. In -depth interviews were conducted with experts directly involved in housing delivery. Data gathered from the experts were analysed using exploratory thematic analysis. Nvivo software was used to transcribe and analyse research data. Findings from the in-depth interviews showed that the housing deficit in Nigeria is on the increase and nothing significant is being done at the moment. This study concludes that for offsite manufacturing to be adopted in Nigeria, there is a need for proper sensitisation, collaboration and encouragement from government.

Durodola, Oloke and Opoko (2016) study investigated on co-operative housing and basic infrastructure provision: a conceptual framework for effective public private partnership. The study undertook a comprehensive review of extant literatures on infrastructure provision and national development particularly as it relates to housing delivery in Nigeria. The study evaluates the current issues and challenges facing infrastructure provision in co-operative housing estates and proposed a framework that emphasize active collaboration of co-operative societies with institutional stakeholders such as insurance companies or pension funds, federal ministry of works and housing, thereby bolstering infrastructure development and housing provision efforts of co-operative societies in Nigeria.

A study conducted in France to determine the effect of rail transport on price of property revealed that development of infrastructural networks promotes gains in property (Boucq & Stratec, 2011). Locally, in Kenya, improvement in infrastructural networks has helped reduce

travel time. For example, between the year 2010 to mid 2012, due to heavy traffic jams, it used to take more than two hours to travel to Kiambu County from Nairobi Central Business District (NCBD) during peak hours; however, with the completion of construction of Thika super highway, travel time was substantially reduced on the route; it now takes thirty minutes to travel to Kiambu County during peak hours and only takes fifteen minutes to travel during off peak hours. The consequence of such reduction in travel time has been seen in the rising prices of residential properties in the area. The findings concur with results of other studies.

A study conducted by John (2018) in South Yorkshire, United Kingdom (UK] found that development of new transport networks influenced value of property and that anticipating construction of a super tram consequentially caused reduction in the price of houses (). The reduction is could be due to expected disruptions in the process of erecting the transport system. With the completion of South Yorkshire super tram, reduction in the prices of property ceased thus indicating that construction of tram influences prices of houses.

In a study carried Ki and Jayantha (2010) study investigated the effect of re-development on value of houses in specified locations, results indicated that there was a significant increase in the value of property right from the implementation stage up to after the completion of the project. Further, in a study that assessed economic value of attributes of agricultural land using hedonic model of pricing, it was found that distance to irrigation water as one of the factors that affected land value.

Land survey studies conducted in Shafield, both in the city center and upper and lower Don valley areas in respect to roads and infrastructure development, indicated a clear trend between the 'before' and 'after' the urban infrastructure construction periods (Dabinett, 1998). Objectives of the study were to assess the extent to which infrastructure investment promotes additional economic development rather than its redistribution within or between urban areas; the role of public transport provision versus road building as the best means to reduce urban traffic congestion, but at the same time maintaining comparative urban competitiveness; and the need to integrate the planning of transport investment with strategic land use plans to exploit potential benefits to the full.

Land Regulations and Real Estate Development

A study carried out by Kazimoto (2016) focused on challenges facing real estate investment and economic growth. The study used descriptive approaches. Questionnaire was used and purposive sample method was used to collect data from 87 respondents. The study concluded that there is relationship between challenges facing real estates investment and economic growth in Arusha. The study recommends reforms and improvement on land laws for requisition and registration and communication infrastructure.

Hesse (2014) study examined on Land for logistics: locational dynamics, real estate markets and political regulation of regional distribution complexes. The paper finds that rising locational competition contributes to accelerated land consumption andfurther dispersal. Speculative development and outsourcing of facilities are 'mobilising' not only goods flows but also logistics infrastructure. Both practices, originally developed in the USA and the UK, are now changing land markets in continental Europe and affect urban and regional development.

Studies conducted in five western states between 1982 and 1997 found regulations on land use by local governments reduced developments on land by ten percent, and that larger percentage reduction rates recorded were 13%, 12.63%, 9.5%, 4.7% and 2.8% for Washington, Oregon, California, Idaho, and Nevada respectively (Wu and Cho, 2007). Other studies have also shown that housing supply responsiveness can be affected by unavailability of land, barriers from the regulatory environment, season, and processes of regulation linked to plans, property development and the building process (Grimes, Hyland, Coleman, Kerr & Collier, 2013).

On the other hand studies have also shown that those participating in informal markets for land have had their fare share of challenges. These challenges included doubtful and ownership claims that have not been recorded, sale of one property to several clients, and multiple expenses due to insecurity of right to property (Fekade, 2000). Similarly, it has been observed that even though informal markets for land can help supply low cost land, however, the market is characterized by high costs of transaction and in some instances property rights have been found to be defective. Other challenges are inefficient information on available land thereby leading to reliance on word of mouth communication, high chances of fraud, and extended negotiation between parties. Further, lack of appropriate frame work on land pricing and lack of official title posses challenge to informal land markets (Kironde, 2003).

Technical Innovations and Real Estate Development

Chan, Darko and Ameyaw (2017) study examined strategies for promoting green building technologies adoption in the construction industry. Empirical data were gleaned through a questionnaire survey with 104 green building experts around the world. The analysis results validated the importance of all of the 12 promotion strategies used for the study. The research findings provide a valuable reference to assist practitioners and policy makers in developing practical strategies for promoting green building technology adoption to eventually achieve the sustainable development of buildings.

Chomba (2013) study examined innovation strategies and the growth of real estate developers in Nairobi County. The population of this study comprised of all players in the industry who include; contractors, developers and financiers located in Nairobi County; however the study concentrated on developers only. The study used both primary and secondary data. The results suggest that the relationship between process innovation strategy and product differentiation

strategy was statistically significant. Process innovation strategy and technology strategy denoted statistical significance.

Wainaina (2014) study examined on the application of information technology in real estate firms in Kenya. The primary data were collected in a questionnaire survey conducted which involved a sample of 153 firms randomly selected from office buildings located in the Central Business District (CBD) and other key submarkets in the fringe of CBD in Nairobi. The findings from the analysis of data provide evidence that Information Technology has a significant, positive impact on the way real estate firms carry out their activities.

Dixon (2015) study examined the impact of information and communications technology on commercial real estate in the new economy. The research is based on a critical review of existing literature and draws from examples of previous empirical research in the field. The paper suggests that a "socio- technical framework" is more appropriate to examine ICT impact in real estate than other "deterministic" frameworks. Therefore, ICT is an important part of the new economy, but must be seen in the context of a number of other social and economic factors.

Halim (2010) study assessed the application of information and communication technology in real estate practice: A Case Study of Lagos Metropoli. The study adopted survey method for collecting data. Random sampling technique was used, and a sample size of 160 respondents was drawn from the study population. The questionnaires were administered to practitioners both private and government agencies. Interviews, primary and secondary data were also used. The result of the study reveals that ICT application has helped in expanding and facilitating the development of contemporary practice of real estate in Nigeria.

RESEARCH METHODOLOGY

Research Design

This study used descriptive survey in describing and testing the relationships between variables in the study and to respond to research questions. Descriptive design enables testing hypotheses as well as answering research questions on the present state of affairs of subjects (Mugenda & Mugenda, 2003). This design was the most appropriate design for obtaining factual and attitudinal information or for research questions about self-reported beliefs, opinions, characteristics and present or past behavior (Sutton, 2004). Descriptive design was chosen due tothe fact that the interest of study was to demonstrate relationships between variables and to describe the state of affairs based on self reported information without manipulation.

Target Population

Target population refers to a set of all elements with characteristics or properties of interest to the present study (Thomas, Buckland, Rexstad, Laake, Strindberg, Hedley, Bishop & Marques, 2010); thus, they can respond to the research questions or hypotheses. In this study, the population was employees from registered real estate firms and land officials in Kiambu County. However, the target population for the research study comprised of 280 individuals consisting of 20 planning officials; 20 land officials in the County's land board; 120 finance officers and; 120 engineers from 120 registered real estate firms in Kiambu County. This target population is appropriate for the study to elucidate on determinants of real estate development by private developers. The real estate firms finance managers and engineers are involved in decisions on projects to be undertaken, the source of finance and innovations to be devised by the firm. On the hand, land officials administrate matters of land while planners classified land use and permit real estate development.

Sampling Design and Sample Size

The term refers to the steps taken in selecting participants in a study from a given set of population (Ogula, 2005). This study adopted stratified random sampling technique to select participants by dividing the population into three strata, that is, real estate firms, planning officials and land officials. The land and planning officials possess respective knowledge on land and planning matters while land officials will provide information on land -an integral part of real estate, planning officials bears information on housing planning, development and issuing of permits. This ensured that the sub-groups in the population were adequately represented in the study (Orodho, 2009). The study sampled 30% of the target population; this percentage has been noted as adequate for social science studies (Mugenda & Mugenda, 2009). Thus, the calculated sample size was 84 respondents. Thereafter, the sample size was proportionately allocated each stratum and then individual respondents randomly picked from each stratum

Data Collection Instruments

In this study, questionnaires were the primary data collection instruments. In this case, every individual was required to answer the same set of research questions in a predetermined manner (Saunders, Lewis & Thornhill, 2009). The use of questionnaires was most appropriate due to its ability in gathering large volume of data in a reasonably quick span of time, is economical and guarantees confidentiality of the source of information while ensuring standardization of data. The questionnaires consisted of structured likert scale questions and unstructured questions. There were two sets of questionnaires: the first set was addressed to firm employees and was broken down into five subsections: subsection A collected general information; subsection B gathered data on the effect of access to finance, subsection C collected data on the effect of off-site infrastructure, subsection D gathered data on the effect of land regulation and subsection E

on technical innovation and real estate development and; subsection F sought respondents opinions on the state of development in real estates. The second set of questionnaires sought to gather data from county planning officials and land officials on off-site infrastructure, land regulations and technical innovations to corroborate information gathered from firm employees on determinants of real estate development.

Data Collection Procedures

In this study, only questionnaires were used to collect primary data from respondents. However, prior to data collection, the researcher sought for permission from the concerned institutions. As such, researcher sought for letter of authorization from the School of Business Administration, Kenyatta University which was used to seek for permission to gather data from real estate development firms and government officials in Kiambu County as well as to acquire authorization permit for research from the National Commission for Science, Technology and Innovation (NACOSTI). In administering questionnaires, the study used drop and pick later method and face to face. Use of delivery and collection method afforded those not able to immediately respond to the questions time to respond to them at their own time while face to face enabled the researcher to clarify any areas of misunderstanding as well as to control time taken to fill questionnaires. A grace period of one week was allowed before the completed questionnaires were collected for analysis.

Data Analysis and Presentation

Data collected from the questionnaires was organized into a meaningful format and coded for easy analysis. Descriptive statistical analysis such as mean and standard deviation was used to analyse quantitative and presented in terms of tables, frequencies, graphs and charts. This was made possible by use of Statistical Package for Social Sciences (SPSS) version 20.0. Multiple regression analysis was used to determine whether a combined group of independent variables predicts a given dependent variable (Cooper & Schindler, 2011). Because the study involved more than three variables multiple regression analysis was used which resulted to a model as described below:

$$Y = \beta 0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where: **Y** =Real Estate Development; **X_1**= Access to Finance; **X_2**= Offsite Infrastructure; **X_3**= Land Regulation; **X_2**= Technical Innovations; **β1, β2, β3** are coefficients of determination; **ε** is the error term

RESEARCH RESULTS

The general objective of this study was to investigate critical factors on real estate development by private developers in Kiambu County. The specific objectives were to identify the effect of

access to finance, offsite infrastructure, land regulations and technical innovations on real estate development by private estate developers. target population for the research study comprised of 280 individuals consisting of 20 planning officials; 20 land officials in the County's land board; 120 finance officers and; 120 engineers from 120 registered real estate firms in Kiambu County, Kenya.

The first objective sought to identify the effect of access to finance on real estate development by private estate developers in Kiambu County, Kenya. From the findings, the respondents agreed that access to finance affects real estate development to a great extent as shown by aggregate score of 3.47 with significance variance of 0.75. The respondents strongly agreed on the statements that eligibility requirement do not affect access to loans for development and that accessibility to finance do not influence real estate development as indicated by mean score of 4.10 and 3.92 respectively and a standard deviation of 1.43 and 1.45 respectively.

The second research objective sought to determine the effect of off-site infrastructure on real estate development by private developers in Kiambu County, Kenya. From the findings, the respondents agreed that offsite infrastructure affects real estate development to a great extent as shown by aggregate score of 3.71 with significance variance of 0.80. The respondents strongly agreed on the statements that the availability of water and power supply do not influence real estate development in the county and the availability of communication infrastructures do not influence real estate development in the county as indicated by mean score of 4.21 and 4.02 respectively and with significance variance of 1.29.

The third research objective sought to analyze the influence of land regulation on real estate development by private developer in Kiambu County, Kenya.From the findings, the respondents agreed that land regulations affects real estate development to a great extent as shown by aggregate score of 3.77 with significance variance of 0.72. The respondents strongly agreed on the statements that land regulations do not influence real estate development by private developers in the county and property registration procedures do not have effect on real estate development as shown by mean score of 4.21 and 4.00 respectively and a standard deviation of 1.42 and 1.44 respectively.

The fourth research objective sought to examine the effect of technical innovation on real estate development by private developers in Kiambu Count, Kenya. From the findings, the respondents agreed that technical innovations affects real estate development to a very great extent as shown by aggregate score of 3.86 with significance variance of 0.71. The respondents strongly agreed on the statements that costs associated with structural plans and draftsmanship do not affect real estate developments and that technical skill and competencies by private real estate developers do not influence real estate development as shown by mean score of 4.23 and 4.04 respectively.

INFERENTIAL ANALYSIS

Inferential analysis was done to establish strength of relationships between access to finance, offsite infrastructures, land regulations and technical innovations as the independent variables and real estate development as the dependent variable using Karl Pearson correlation analysis, coefficient of determinant and multiple regression analysis. To begin with, collinearity test was conducted to detect the presence of high inter-correlation between predictors and the dependent variables as shown in regression model. Findings showed the values obtained by all the predictors were below the VIF value of 10 thus indicating the absence of higher inter-correlations in the model. The findings are presented in table 1.

Table 1: Collinearity Test Coefficients

Model		Collinearity Statistics	
		Tolerance	VIF
	Access to Finance	.345	2.901
1	Offsite Infrastructures	.244	4.090
	Land Regulations	.461	2.171
	Technical Innovations	.282	3.548

a. Independent Variable: Real estate development

In this study, Karl Pearson's correlation coefficient (r) was used to quantify the strength of relationships between predictor variables and dependent variable as shown in Table 2.

Table 2: Karl Pearson's Correlation Coefficients

	Access to finance	Offsite Infrastructures	Land regulations	Technical Innovations	Real estate development
Access to finance	1				
Sig. (2-tailed)					
Offsite Infrastructures	.764**	1			
Sig. (2-tailed)	.000				
Land regulations	.646**	.697**	1		
Sig. (2-tailed)	.000	.000			
Technical Innovations	.592**	.829**	.545**	1	
Sig. (2-tailed)	.000	.000	.000		
Real estate development	.607**	.420*	.416**	.645**	1
Sig. (2-tailed)	.000	.023	.001	.000	

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Table 2 shows correlations analysis was conducted at 95% confidence level. The correlation matrix indicates that access to finance is strongly and positively correlated to development in real

estate with a coefficient of 0.607; offsite infrastructures is moderately and positively correlated to real estate development with coefficient of 0.420; land regulations is moderately and positively correlated to real development with coefficient of 0.416 and; technical innovation is strongly and positively correlated to real estate development with coefficient of 0.645 respectively.

From the correlation matrices, the four independent variables were deemed to determine real estate development rate with technical innovations having the highest influence, followed by access to finance, offsite infrastructures and land regulations. In this study, technical innovations contributes 64.5%, access to finance 60.7%, offsite infrastructures 42.0% and land regulations contributes 41.6% respectively to real estate development. Empirical evidence have shown that access to finance, off-site infrastructure, land regulations and technical capacity are among the key elements in housing dynamics (Ball & Lizieri, 2013).

The regression analysis was conducted to find out effect of access to finance, off-site infrastructure, land regulations and technical innovation on real estate development. This was to enable determination of how well the proposed statistical model is likely to predict future outcomes of the determinants of real estate developments. In this study, the coefficient of determinant was used to explain the extent to which variations in real estate development could be explained by changes in access to finance, off-site infrastructure, land regulations and technical innovations. The findings are presented in table 3.

Table 3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.885[a]	.782	.746	.152399	.782	21.570	4	65	.000	

a. Predictors: (Constant), Technical innovation, Land regulations, Access to finance, Offsite infrastructures

From the results shown in table 3, model 1 shows a goodness of fit as indicated by the adjusted R² value of 0.782. This implies that the four independent variables, namely technical innovation, land regulations, access to finance, offsite infrastructures explain 78.2% of the variations in real estate development by private developers in Kiambu County while 21.8% of the variations in real estate development are due to other factors not captured in this study; this calls for the need for further studies to establish the factors not captured in this study. The finding therefore implies that the regression equation is useful and can be used in predicting real estate developments since the value of R square is very close to one. Further, the significance of change is also statistically significant.

The study further used ANOVA statistics to establish significance of the relationship between real estate development and the predictor variables. From the findings, the regression model was statistically significant given the level of significance at 0.000 (p = 0.000) for the model which is below 0.05. Further, the obtained F ratio for model the is 21.570 while the critical value of F is 2.78; thus the obtained F ratio is larger than the critical F value implying that the obtained F ratio is likely to occur by chance with a p<0.05. The findings on ANOVA test are presented in table 4.

Table 4: ANOVA [a]

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	2.004	4	.501	21.570	.000[b]
1	Residual	.557	65	.023		
	Total	2.561	69			

  a. Dependent Variable: Real estate development
  b. Predictors: (Constant), Technical innovation, Land regulations, Access to finance, Offsite infrastructures

Table 5: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
	(Constant)	.612	.247		5.099	.000
	Access to finance	.433	.137	2.512	3.156	.004
1	Offsite infrastructures	.667	.137	4.940	4.880	.000
	Land regulations	.325	.111	1.411	2.932	.007
	Technical innovations	.487	.106	3.824	4.591	.000

a. Dependent variable: Real estate development

As shown in Table 5, the established regression equation by the study was:

$$Y = 0.612 + 0.433X_1 + 0.667X_2 + 0.325X_3 + 0.487X_4.$$

Where: **Y**=Real Estate Development; **X₁**= Access to Finance; **X₂**= Offsite Infrastructure; **X₃**= Land Regulation; **X₂**= Technical Innovations

From the results in Table 5, holding access to finance, offsite infrastructure, land regulations and technical innovations, real estate development would be 0.612. In addition, the findings show that a unit increase in access to finance, offsite infrastructure, land regulations and technical innovations would lead to 0.433, 0.667, 0.325 and 0.487 increase in real estate development respectively. Offsite infrastructure had the greatest (66.7%) effect on real estate development followed by technical innovations (48.7%), access to finance (43.3%) and land regulations (32.5%).

According to Zhu (2016) it is also widely understood that the provision of housing services depends upon a well functioning housing finance system. Offsite infrastructure has been promoted as one of the solutions to the industry's performance problems (Bauml, 2017). Regulations governing the use of land have become more numerous and more difficult in recent decades and housing has become more costly in some metropolitan areas (Glaeser & Ward, 2009).

$H0_1$: There is no significant relationship between access to finance and real estate development.

The null hypothesis that access to finance does not affect real estate development was thus rejected based on the fact that t statistics 3.156 has a p value of 0.00 which is less than 0.05.

$H0_1$: There is no significant relationship between offsite infrastructure and real estate development.

The null hypothesis that offsite infrastructure does not affect real estate development was thus rejected based on the fact that t statistics 4.880 has a p value of 0.00 which is less than 0.05.

$H0_1$: There is no significant relationship between land regulations and real estate development.

The null hypothesis that land regulation does not affect real estate development was thus rejected based on the fact that t statistics 2.932 has a p value of 0.00 which is less than 0.05.

$H0_1$: There is no significant relationship between technical innovations and real estate development.

The null hypothesis that technical innovations do not affect real estate development was thus rejected based on the fact that t statistics 4.591 has a p value of 0.00 which is less than 0.05.

QUALITATIVE ANALYSIS

Respondents indicated that there were very few financial institutions willing to finance real estate projects, that there were no adequate alternative credit sources from the informal sector and, that government support in accessing finance for private developers was lacking. These challenges chock private real estate developers' efforts to access finance to enable them put up adequate housing units to meet the market demand.

Respondents further indicated that to promote real estate development, the county government had taken initiatives aimed at influencing development by building new road networks, sewerage systems, ensuring adequate water and power supply, easing new property registration process, and enhancing security in the county as prerequisites for promoting housing developments in the county.

Respondents also indicated that lands department in the county experienced challenges in their attempt to enforce land regulations. They revealed the challenges as including multiple sales of the same property, unrecorded ownership claims by developers, and land fraud by some scrupulous agents. To ensure land regulations promote real estate development, there needs to be relaxed and straightforward land regulation through appropriate policy changes to enhance access to information, standardize pricing systems, outmatch corrupt practices and reduce prohibitive land transaction costs

They also indicated that the county had come up with several technical innovations to be implemented by real estate developers, among them that they need to consult architectures, engineers, and undertake cost and estimates prior to any project undertaking. They further indicated that for both houses built for either commercial or residential purposes, constructors should be guided by product specifications, existing quality standards and installation specifications. They added that it was mandatory that foundations for both commercial and residential houses should be concrete mix and that the materials to be used for concrete, pillars, walling and roofing should be of high quality standard

CONCLUSIONS

The study concludes that:

Access to finance has a positive and significant effect on real estate development by private developer in Kiambu County, Kenya. It is also conclude that various factors play significant roles in access to finance for development by private developers, among them availability of sources of obtaining finance, security requirements, eligibility requirements and interest rates. It is further concluded that most private developers obtain finances for development from personal savings, informal sector lenders, remittances from abroad, business earnings, sale of personal properties, venture capital and bank loans; however, those seeking for finance from lenders faced challenges that chock their efforts in accessing finance for developments, among them unwillingness by some banks to fiancé housing developments, high costs of loans, lengthy application procedures, long waiting periods and high collateral requirements.

Offsite infrastructures significantly affect real estate development by private developers and increases in the activities involving offsite infrastructures would most likely reduce real estate development by private developers. It is also concluded that various offsite infrastructural factors are pivotal to its contribution to real estate development, among them roads condition, availability of communication infrastructures, availability of drainage systems, presence of social amenities and availability of water and power supply.

The study concludes that land regulations significantly affect real estate development and that increases land regulations promotes real estate development by private developers. It was also clear that land policy, property registration procedures, integrity of ownership records, incidental

costs of property rights and pricing systems as well as accessibility of information on land and the level of transparency in land dealings all contribute to the effects of land regulations on real estate developments.

The study further concludes that technical innovation significantly affects real estate development and that increases in technical innovation promote real estate developments by private developers. In this respect, it is also concluded that giving priority technical consideration such as new technological developments, costs associated with structural plans and draftsmanship, technical skills and competencies, technical quality and feasibility of projects and, availability of technical tools prior to commencement of projects greatly contributes to efficiency and feasibility of real estate developments.

RECOMMENDATIONS

On access to finance this recommends that the banking institutions needs to come up with appropriate policy framework that supports and promotes private developers efforts in reducing the housing gap in the country. Further, the government through its main agency, the Central Bank of Kenya should reign on the high mortgage rates to make mortgage acquisition affordable to private developers

On offsite infrastructure, the study recommends that the County government of Kiambu County should improve the road condition, provide communication infrastructure, availability of drainage systems, the presence of social amenities and the availability of water and power supply so as to improve real estate development in the county.

On land regulations, this study recommends that the county government should up its game on land policy so as to make land acquisition, approval, and transfer efficient in order to promote real estate development.

On technical innovations, this study recommends that there is need for policy making it mandatory for investors to use new technologies and technological tools to promote effectiveness and efficiency in real estate development.

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