RISK MANAGEMENT AND ITS EFFECT ON PERFORMANCE OF COMMERCIAL REAL ESTATE ENTREPRENEURIAL INVESTMENTS IN KENYA

JAMES KARIUKI MBUGUA

A Thesis Report Presented to the Institute of Postgraduate Studies of Kabarak University in Partial Fulfilment of the Requirements for the Award of Degree of Doctor of Philosophy in Business Administration (Entrepreneurship).

KABARAK UNIVERSITY

APRIL, 2020

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The project entitled **"Risk Management and its Effect on Performance of Commercial Real Estate Entrepreneurial Investments in Kenya"** and written by **James Kariuki Mbugua** is presented to the Institute of Postgraduate Studies of Kabarak University. We have reviewed the research thesis and recommend it be accepted in partial fulfilment of the requirement for the Doctor of Philosophy in Business Administration (Entrepreneurship).

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Prof. Robert Otuya

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Dr Stella Muhanji

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DEDICATION

This study is dedicated to our beloved daughter **Mercy Wangeci Kariuki, (aka Maac.valor)** who before passing on to glory (10.1.2018) was a great source of encouragement to me personally and to the entire family (Jane Njeri Kariuki and Daniel Mbugua Kariuki). Her inspirations, her unrelenting, selfless commitment to God's service and her continued assurance of God's providence, purposes and reliance to the family will continually remain in our hearts. "Mercy, you lived with an eternal perspective, you served the Lord in your generation, and you were a candle that lit our lives as a family. Though not advanced in age (25 years), yet you impacted the community around you with godly virtues and was a mentor to many". Glory be to the Lord God in the Highest.

Psalms 97:1 "The Lord reigns; Let the earth be glad; let the distant shores rejoice".

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ABSTRACT

This study was set to investigate risk management and its effect on the performance of commercial real estate entrepreneurial investments in Kenya. Objectives of the study include determination of how technical risk management, financial/economic risk management, market risk management, environmental risk management, political risk management and operational risk management affect the performance of commercial real estate entrepreneurial investments in Kenya**.** The study also sought to find the moderating effect of the adoption of risk management procedure on the performance of commercial real estate entrepreneurial investments. The research was based on and guided by four theories of entrepreneurship and risk management, namely; Strategic Planning Theory, Risk and Uncertainty-Bearing Theory, Enterprise Risk Management Theory and Contingency Theory. The study adopted a descriptive survey design having a quantitative approach**.** The target population for this study was 9,320 real estate entrepreneurs comprised of 884, 95, 320 and 8,021 sourced from SoftKenya directory, Kenya Developers Association, Estate Agent Registration Board and National Construction Authority respectively having their registered offices in Nairobi, Nakuru, Kisumu and Eldoret. A sample size of 384 participants was selected and using a stratified random sampling procedure, participants that participated in the study were identified and later served with online questionnaires using their emails. The collected data was analysed descriptively and inferentially using frequency distribution – mean and standard deviation, Chi-square, Pearson's Correlation and multiple linear regression analysis with the aid of the Statistical Package for Social Sciences (SPSS), version 20.0. The significance of each risk factor within the categories was examined using Risk Significant Index method. Out of 26 risk factors, inadequate site investigation, delayed payments to construction teams, improper market feasibility study, corruption and bribery, incomplete environmental analysis and extended voids/low uptake after completion were found to be the most critical risk factors in each risk category. The study established that technical risk management, financial/economic risk management, environmental risk management and operational risk management significantly affected performance while adoption of risk management procedure by the real estate entrepreneurs was found to have a significant moderating effect on the performance of commercial real estate entrepreneurial investments. Market risk management and political/legal risk management were found not to significantly affect the performance. A small percentage of the respondents use systematic risk management procedure while most of the entrepreneurs depend on judgment, intuition and general experience obtained in the real estate industry in managing their risks. This is attributed to lack of information on the type of risks and their criticality on one side and lack of adequate knowledge on risk management among the entrepreneurs. The study recommends concern authorities to ensure that real estate entrepreneurs undertake adequate site investigation, adhere to environmental requirements, and establish a one-stop-shop for document approvals in each County to minimise bureaucracy and corruption. The government should enhance policy issues that will help in increased adoption of risk management procedure and increase knowledge on real estate entrepreneurial investments risks and management amongst real estate entrepreneurs. The policy framework should include as a prerequisite submission of a risk management plan and staff training in risk management in any commercial real estate entrepreneurial investment approval.

Keywords: Entrepreneurship, risk management, risk factors, performance, commercial real estate entrepreneurial investments.

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ACRONYMS

APM	Association for Project Management
CDF	Constituency Development Fund
CEO	Chief executive officer
EIA	Environmental Impact assessment
ERM	Enterprise Risk Management
GDP	Gross Domestic Product
ISO	International Organisation for Standardisation
KNBS	Kenya National Bureau of Statistics
KPDA	Kenya Property Developers Association
NACOSTI	National Commission for Science, Technology and Innovation
NBI	National Buildings Inspectorate
NCA	National Construction Authority
NEMA	National Environment Management Authority
PMBOK	Project Management Book of Knowledge
PMI	Project management Institute
ROI	Return on Investment
SRI	Significance Risk Index

DEFINITION OF TERMS

Commercial Real estate entrepreneur : Commercial real estate entrepreneur is viewed as the risk-taking entrepreneur (person or firm) who combine land, labour and capital to plan, develop, manage and market facilities which they believe will provide services demanded by space users (Wiegelmann, 2012). In this study a commercial real estate entrepreneur is operationalized to mean a person, construction firm/company and/or a real estate management firm/company that use real estate as a vehicle to generate income by way of construction, and/or management of a commercial real estate entrepreneurial investments.

Commercial real estate entrepreneurial investments : Any real estate investment developed for commercial purposes to generate income in terms of rent streams or sales.

Entrepreneurship : In this study entrepreneurship will be defined as the process of creating real estate investments done in response to an identified space opportunity (this is, an opportunity to earn money through development of commercial real estate entrepreneurial investments).

Environmental risk : This is risk relating to the occurrence of environmental incidents during the course of implementation and lifetime of the project.

Financial/ economic risk : This is the totality of all risks that relate to financial developments external to the entrepreneurial investment and are not in the control of the real estate entrepreneur (Kamane, & Mahadik, 2014. Basically, it is any financing problem caused by inadequate finances for an investment as a result of changes in the sources of finance.

Market risk : This is the risk that the developed real estate entrepreneurial investment fails to generate the anticipated income cash flow as a result of forces of demand and supply in the real estate market.

Performance of real estate entrepreneurial investments : Is when the real estate entrepreneurial investment meets the entrepreneur's objectives in terms of the time of completion, budgeted cost of construction, customer satisfaction and occupation uptake timelines and/or the expected income (sales or rental).

Political/legal risk : This is the possibility that political forces may result in drastic changes in a country's business environment affecting a firm's profits and other goals. In other words, political risk is the risk which causes losses in commercial

real estate entrepreneurial investments resulting from government operations or interventions or changes in the country's political environment, whereas legal risk is the risk of non- compliance with legal or regulatory requirements of the government and its agencies.

Property operational risk : This is the risk of losing expected or anticipated income (rental or sales) and value of a real estate entrepreneurial investment as a result of voids, low uptake or poor management of the investment.

Real estate entrepreneur : Real estate entrepreneur is viewed as the risk-taking entrepreneur (person or firm) who combine land, labour and capital to plan, develop, manage and market facilities which they believe will provide services demanded by space users (Wiegelmann, 2012). In this study a real estate entrepreneur is operationalised to mean a person, construction firm/company and/or a property management firm/company that use real estate as a vehicle to generate income by way of construction, and/or management of a commercial real estate entrepreneurial investments.

Risk criticality : The degree of exposure that risk has on the commercial real estate entrepreneurial investment performance objectives. In

this study, it is taken to mean a function of the frequency that risk occurs and the impact of the risk when it occurs.

Risk factor : Different elements such as circumstances, changes, events and tendencies that have the potential to create risks. Differently stated, risk factors are sources from which a risk may originate and help explain a particular risk.

Risk management : Is a systematic process of identifying, analysing and responding to project risks. In other words, it is a series of systematic steps whose objectives are to identify, analyse, address and eliminate risk items before they become a threat to the successful operation of a project (Project Management Institute (PMI), 2013). In this study risk management will be taken to mean a systematic process that allows individuals risk events and overall real estate entrepreneurial investment risk to be understood and managed proactively, with the aim of minimising its threats and enhancing on the performance.

Technical risk : This is risk in a real estate entrepreneurial investment that arise from activities associated with the acquisition of the development site, construction works and designs, construction materials, construction site and general operation during construction.

CHAPTER ONE

INTRODUCTION

1.1 Introduction

This section of the study covers the background to the study, statement of the problem, objectives, and research hypotheses, scope of the study, justification of the study and the definition of terms.

1.2 Background of the study

Entrepreneurs bear substantial risks and are said to be risk-takers for they commit significant resources to entrepreneurial investments whose outcome is somewhat uncertain. They are also known to undertake calculated risks by way of managing the risks in a bid to improving on the performance of their investment ventures (Koudstaal, Sloof, & Praag, 2014); amongst the many entrepreneurial investments in commercial real estate development.

Real estate sector is globally regarded as an integral part of a country's economy. It is responsible for a considerable part of its development investment with a sizeable amount of economic growth through backward and forward linkages to a considerable number of ancillary industries and sectors. Its contribution to GDP in 2010 was 28% (US) and 28% in the United Kingdom (Kongela, 2013). The Indian real estate sector is one of the most globally recognised sectors. It is slated to grow at 30 per cent over the next decade. Its real estate industry ranks third among the 14 major sectors in terms of direct, indirect and induced effects in all sectors of the economy (Kimani, & Memba, 2017). The GDP share of real estate in India was 6.3 per cent in 2013 and expected to

generate 7.6 million jobs a year. In China, the GDP share of real estate grew from 5 per cent in 2000 to 15 per cent in 2012, with 14 per cent of urban employment coming from real estate and related sectors (Mutreja, Chua, & Guha, 2015). Similar performance was realised by African states were real estate contribution to GDP was 6.82% (Nigeria in 2014), 10.2% (Tanzania in 2012) while in Kenya it registered 4.8% of GDP in the year 2013 (Kongela, 2013; Kenya National Bureau of Statistics (KNBS), 2015).

Although this sector plays a pivotal role in economic development, the performance of real estate properties has perennially been eclipsed by several challenges, including the management of its risks borne throughout their development life cycle. The resultant is a threat to its expected or intended performance (Wiegelmann, 2012).Risk, irrespective of its type, should be managed to achieve the desired outcome (Ghahramanzadeh, 2013). Given that projects undertaken in the real estate sector are widely complex and often have significant budgets, reducing associated risks should be a priority for each real estate entrepreneur (Gajewska, & Ropel, 2011).

At the same time, risk often varies in the likelihood of its occurrence, and its impacts from one real estate entrepreneurial investment to another and risk changes its nature during the investment life cycle. Actually, every phase of real estate entrepreneurial investment life cycle has its own risk factors and negligence or an oversite in one phase affects other phases of the investment. Therefore, the lack of information on possible risks will always lead to a higher degree of failure of real estate entrepreneurial investments (Maina, Mbabazize, & Kibajia, 2016). Risk management is a process designed to remove or reduce the negative effect of the risks that threatened the

objective achievement of the entrepreneurial real estate investment (Project Management Institute, 2013). Although many investors enter real estate market because of its high growth potential and high profitability, achievability of properties' long term and short-term profitability objectives depend on how well the risks are managed (Koirala, 2012). However, as observed by Gajewska and Ropel (2011), there are still many practitioners (entrepreneurs) that have not realised the importance of including risk management in the process of delivering their real estate investment projects. Even in cases where there is an awareness of risk and their consequences, Gajewska and Ropel (2011) observe that some entrepreneurs do not approach them with established risk management methods.

It is, however, important to note that risk management process should address all phases of a real estate entrepreneurial investment including the feasibility phase in order to manage the risk associated with a new investment which is about to start. Ghahramanzadeh (2013) argues that the feasibility phase is where a go or no-go decision is taken for starting a new project. In this case significance of risk management process in this early phase cannot be ignored because it may result in a no-go decision in case of a very risky entrepreneurial investment that leads to failure.

Sibomana (2015) postulates that the cause of real estate entrepreneurial investment failure can be directly related to the extent of risk management undertaken during the development lifecycle of the entrepreneurial investment. Subsequently, risk management strategy is, therefore, an important tool to cope with such substantial risks in their performance. For this performance to be realised, Sibomana (2015) further

purports that risk management methods should be continuously undertaken throughout the lifecycle of the real estate entrepreneurial investment for effective management of risks.

Additionally, Ghahramanzadeh (2013) found that reactive risk management is practised more than proactive risk management, resulting in dismal results. Poor performance is not only as a result of lack of knowledge in a systematic approach to risk management by the real estate entrepreneurs, but the situation is worsened due to information asymmetry about risks in real estate in what are the different types of risks that affect their performances, and which ones can be considered to be major in terms of their severity. Such information is important for effective decision-making process when managing risk. Citroen (2011) states that the wrong decision made on the choice of strategy due to lack of information oftentimes will lead to failure of the entrepreneurial real estate investment or subject the real estate entrepreneur to heavy consequences.

Agreeing to these sentiments, Hallikas, Karvonen, Pulkken, VirolaInen and Tuominen (2004) state that where there is a greater understanding of the risks that may occur, there is likely to be improved decision making and it is possible to categorise the many different forms of real estate risks in terms of how their occurrences would affect the performance of the real estate entrepreneurial investment. Subsequently, Chopra and Sodhi (2004) are of the opinion that an understanding of a range of risk for a given type of real estate entrepreneurial investment and how they interact can bring about efficient risk reduction strategies. Rubin (2014) concludes by postulating that more than 50%

of companies' big real estate investments fail due to lack of taking into account all the potential risks.

1.2.1 Global perspective of risk management of real estate entrepreneurial investments

Management of real estate entrepreneurial investments attract diverse perspectives globally. A study on the management of risk in Malaysia indicated that the Malaysian real estate industry is characterised by poor performance (Ayalew, Dekhili, & Lafhaj, 2016). The study revealed that 92% of the construction of real estate investment projects could not be completed within the contract period, while 89% of the respondents stated that their projects were facing the problem of cost and time overrun in the range of 5-10% of the contract.

Mei (2008) on the other hand, in his study on risk management in Chinese real estate corporations, found that not only is real estate industry one of the challenging and dynamic business, but also one of the most high-risk with a poor reputation of dealing with risks. He further observed that it is widely depicted in the literature that real estate entrepreneurial investment are continuing to fail on the premise of issues mainly related to construction and management.

Additionally, Ghahramanzadeh (2013) found that there was a serious lack of risk management knowledge and expertise among Iranian real estate entrepreneurs associated with the construction and management of real estate projects. In this study, for instance, Ghahramanzadeh (2013) found that reactive risk management is practised

more than proactive risk management, resulting in dismal performance results in this sector.

Successful risks management in each development phase of real estate investment individually and corporately affect the performance of the real estate entrepreneurial investment. Proactive risk management has been considered to be key to the performance of real estate entrepreneurial investments globally (Goh, Abdul-Rahman, & Samad, 2013). However, its implementation is usually disregarded or poorly applied. In their study on risk management during real estate entrepreneurial investments' life cycle amongst real estate entrepreneurs in India, Kumar and Harrison (2016) found one; that risk management depended on intuition judgement and experience of the entrepreneur and two, that formal risk management techniques were rarely used due to lack of knowledge and doubt on the suitability of the techniques. The third thing they found was that some entrepreneurs, including some professionals in the real estate industry, were using some of the management techniques but were not aware of it. Incidentally, the risk is managed every day in the real estate industry, but unfortunately not in a structured way while knowledge of risk management is close to zero, even though its popularity is increasing in literature.

Similar challenges are recorded in the real estate sector in many African countries. Nketekete, Emuze and Smallwoods (2016) postulate investments in real estate entrepreneurial investments in Lesotho are failing due to prevalent risks. In some instances, failure has escalated in the region of 6% to 7% of contract costs, while in others a 90% failure rate has been recorded. In the case of Nigeria, previous studies

have shown that real estate entrepreneurs do not systematically apply risk management practices in Nigeria's real estate industry resulting to negative penalties of the investment performance (Adeleke, Bahaudin, & Kamarudden, 2015). Similar findings by Ayalew et al. (2016) demonstrate that the level of management of entrepreneurial investments in terms of adopting risk management procedure among real estate entrepreneurs in Ethiopia is unsatisfactory leading to the poor performance of the real estate projects. This was no different from Rwanda real estate sector. In their study on the factors affecting effective risk management in public housing construction projects in Rwanda, Maina et al. (2016) postulate that although there is a well- developed, designed and implemented processes of managing real estate entrepreneurial investments risks, such as risk management planning, risk identification, risk assessment, risk analysis and risk response planning, 51% of real estate properties experience failure attributed to the occurrence of risks. In this regard, they advocate for an effective risk management approach that helps to convert uncertainty to the risk and convert risk to opportunity.

1.2.2 Local perspective of risk management of real estate entrepreneurial investments

Real estate development is a complex and continually evolving business. In Kenya, the lucrative real estate sector has rapidly expanded to become the fourth biggest contributor to the country's wealth. In particular, the real estate sector has over the years, registered substantial growth in terms of its contribution to the GDP. In 2013, its contribution to sources of growth for GDP was standing at 4.8% up from 2.8% six years

earlier. Real estate has, therefore, become a centre of focus for many investors, both local and foreign (Kibuyi, Ndiritu, Carcel, & Gil–Alana, 2017).

Nonetheless, failure of real estate entrepreneurial investments in Kenya and the inadequacy of risk management actions within the sector is no different with respect to global reporting. In an audit report covering two and a half years of sampled counties by the National Buildings Inspectorate (NBI) some worrying findings were revealed; out of 4,879 buildings that were inspected during that period, 650 were categorised as very dangerous, 826 as unsafe, 1,185 fair while only 2,170 representing about 44% were found to be safe for occupation (National Building Inspectorate, 2017).

Githenya and Ngugi (2014) argue that despite the vested interest by many stakeholders in the real estate sector, real estate entrepreneurs, policymakers and regulatory bodies, real estate entrepreneurial investments do not always meet key performance goals such as scheduled time, cost, quality or return on investment and hence beg for answers to explain this phenomenon. Similar views are held by Odimabo and Oduaza (2013) who observe that in less developed countries risk management in real estate entrepreneurial investments is considered to be rather informal and intuitive in nature and is normally based on the skill and past experience of the entrepreneur. However, with commercial real estate entrepreneurial investments continuing to fail, effective risk and uncertainty management in this sector is likely to be of great importance towards the sustainability of the real estate entrepreneurial investment market.

This is of great interest to the policymakers. Failure of any commercial real estate entrepreneurial investment in terms of construction time overrun, budget overrun, poor quality (resulting in the collapse of buildings or costly maintenance), delayed or non–occupation after completion, and demolition (due to illegal or inadequate land acquisition procedures on allegedly public land, road reserves), results to heavy financial losses and/or expensive and protracted court cases on the side of real estate entrepreneur. On the other hand, ensuring physical safety in building development is not easy. A single structural failure can cause an entire building to collapse, often leading to injuries and deaths of the occupants or construction workers. In addition, ensuring economic safety of a building can be a daunting task and especially if no proper feasibility study, market survey or due diligence was done at the idea or design stages of the development.

A case at hand is the Kenya Power and Lighting Company real estate project in Thika, where major risk management flows were found to have contributed to the project's completion failure (Kariungi, 2014). Similarly, minimal application of risk management practices was associated with poor performance of the Constituency Development Fund (CDF) real estate projects in Juja (Mwangi, & Kwasira, 2016). In addition to minimal proactive risk management amongst real estate entrepreneurs, there is also lack of adequate insight on key risk factors, their criticality and how they are dealt with by real estate entrepreneurs especially in the less developed economies such as Kenya. Not all risks can be eliminated, yet those being managed are usually very expensive. With limited resources to manage risks, it is therefore pivotal to identify the criticality of each risk with a view to prioritising on which risk to award greatest

emphasis when making risk response decisions. Optimum allocation of resources for risk management should be done based on a priority list from the most critical risk to the least if effective risk management is to be achieved. Such information is lacking amongst the real estate entrepreneurs in Kenya.

In view of the foregoing, the reviewed literature acknowledges that risk management can help in enhancing the performance of real estate properties. However, there is still need for understanding linkage for instance of what is the relative contribution of each risk and how they impact on the performance of these properties in terms of cost overrun, time overrun, return to investment, quality and customer satisfaction or against other performance indicators. Moreover, there is still need for shedding more light on the adoption of systematic risk management procedure among commercial real estate entrepreneurs.

1.3 Statement of the problem

Commercial real estate entrepreneurial investments play a fundamental role in the economic growth of any nation (Mouzughi, Bryde, & Al-Shaer, 2014). In view of this, the Kenya government together with its development partners as well as commercial real estate entrepreneurs continue to allocate huge financial resources to finance real estate development in a bid to earn from its investments. Commercial real estate entrepreneurial investments are considered to be successful when they meet the client's satisfaction in terms of real estate entrepreneurial investment cost, scheduled time, economic and structural functionality, market demands, and return on investments (Hove, & Banjo, 2015).

Notwithstanding the Kenyan Government and other state corporations considering real estate a significant contributor of economic development, more than 70% of real estate entrepreneurial investments in Kenya experience time overrun of the magnitude of over 50%, while 50% of the real estate investments experience excess cost budget of a magnitude of more than 20% (Auma, 2014; Gwaya, Masu, & Wanyona, 2014). In the year 2015, office space absorption levels dipped, rental levels for retail outlets stagnated while the residential accommodation uptake was low (KnightFrank, 2015). In regard to structural failure, collapsing of buildings have reached an 'alarming stage' in the past few years with several buildings structurally failing (Kioko, 2014). Between 2009 and 2014 seventeen buildings spontaneously collapsed, killing and injuring many people (Fernandez, 2014). To date, a total of 87 cases of buildings that have collapsed and a death toll of 170 people has been recorded (Kabala, 2019). On financial performance, the commercial real estate entrepreneurial investments have been declining in the recent times with defaults on mortgage standing at 38 billion shillings by December 2018 and property forfeiture by the financial institutions being on the increase (Central Bank of Kenya, 2018).

Failure of commercial real estate entrepreneurial investments is a common phenomenon world over and Kenya is no exception (Wan, Daud, Zainol, & Mumin, 2017). Much of such failure have been attributed to the lack of proper risk management, lack of adequate insight on key risk factors and their criticality and failure to manage real estate entrepreneurial investment risks in a systematic way by the entrepreneurs. Proper risk management pro-actively determines the potential drawbacks of a real estate entrepreneurial investment so as to prepare mitigation strategies and risk response

plans. In this case, therefore, for the performance of commercial real estate entrepreneurial investments to be realised, insight on key risk factors, their effects on performance and how they are dealt with is necessary to the entrepreneurs. Such information is lacking among real estate entrepreneurs in Kenya. Extant studies in Kenya regarding the failure of commercial real estate entrepreneurial investments have evidently missed out on attribution of such failure to risk management of commercial real estate entrepreneurial investments. This study envisages filling this gap by investigating risk management and its effect on the performance of commercial real estate entrepreneurial investments in Kenya.

1.4 Purpose of the study

The purpose of this study is to examine risk management and its effect on the performance of commercial real estate entrepreneurial investments in Kenya.

1.5 Objectives of the study

The following are the specific objectives of the study

i) To determine the effect of technical risk management on the performance of commercial real estate entrepreneurial investments.
ii) To investigate the effect of financial/economic risk management on the performance of commercial real estate entrepreneurial investments.
iii) To evaluate the effect of market risk management on the performance of commercial real estate entrepreneurial investments.
iv) To assess the effect of environmental risk management on the performance of commercial real estate entrepreneurial investments

v) To examine the effect of political/legal risk management on the performance of commercial real estate entrepreneurial investments.

vi) To analyse the effect of operational risk management on the performance of commercial real estate entrepreneurial investments.

vii) To assess the moderating effect of the adoption of a systematic risk management procedure on the performance of commercial real estate entrepreneurial investments

1.6 Research hypotheses

The hypotheses for this study are: -

i) $H_0$1: Management of technical risk does not have a statistically significant effect on the performance of commercial real estate entrepreneurial investments.

ii) $H_0$2: Management of financial/economic risk does not have a statistically significant effect on the performance of commercial real estate entrepreneurial investments.

iii) $H_0$3: Management of market risk does not have a statistically significant effect on the performance of commercial real estate entrepreneurial investments.

iv) $H_0$4: Management of environmental risk does not have a statistically significant effect on the performance of commercial real estate entrepreneurial investments.

v) $H_0$5: Management of political/legal risks does not have a statistically significant effect on the performance of commercial real estate entrepreneurial investments.

vi) $H_0$6: Management of operational risk does not have a statistically significant effect on the performance of commercial real estate entrepreneurial investments.

vii) $H_0$7: The adoption of systematic risk management procedure does not have a statistically significant moderating effect on the performance of commercial real estate entrepreneurial investments.

1.7 Justification and significance of the study

Real estate industry is characterised with many unique features such as multiple participants, long gestation periods (between conception and delivery/occupation), large financial requirements and dynamic environment. All these have made the risk and uncertainties related to commercial real estate entrepreneurial investments more peculiar in relation to other industries (Ejohwomu, Hammond, Shofoluwe, Ejohwomu, & Akinwum 2014). Although it has been recognised that real estate risks cannot be fully eliminated, with effective management, risk consequence can be minimised and performance enhanced.

1.7.1 Justification of the study

The high cost of failure of any commercial real estate entrepreneurial investment (financial or otherwise) makes it important to understand what causes poor performance in this category of investments and ways to circumvent the pitfalls. Whenever a failure

presents in commercial real estate entrepreneurial investment, and especially, for instance, one that leads to deaths of people, or where millions of public funds are at stake, a blame game ensues within the public corridors as to who will be held responsible. The blame game usually quickly degenerates into a vicious cycle that denotes lack of goodwill or ignorance of stakeholders on risk and risk management in the industry. This is as a result of very scanty information that is available in the literature on the criticality of risk factors and how risk management affects the performance of this type of investments. The study offers the needed information to all real estate stakeholders such as entrepreneurs, policymakers and real estate financiers, among others, in a bid to enhance performance. This concern provided the impetus for the current study.

1.7.2 Significance of the study

The findings of this study help increase the understanding of policymakers as to key risk factors and their criticality. In other words, it will help create awareness of the potential risks in commercial real estate entrepreneurial investments and given their criticality, be able to formulate policy guidelines for other interested parties/stakeholders such as NCA, NBI, NEMA and County government engineering departments to be used during the approval and/or inspection stages.

Besides the entrepreneurs, the second most affected stakeholders in the event of failure of a commercial real estate entrepreneurial investment are the financier who financed the investment. Irrespective of the nature of the consequence of the risk, be it demolition, abandoned sites, collapse, protracted court battles or delayed returns caused

by non-occupation, poor uptake or below market rates rentals, the financiers' money is usually at stake. Failure of commercial real estate entrepreneurial investments may lead to default risk where the entrepreneur is unable to meet the mortgage repayments. Findings from this study will, therefore, help the financier when undertaking the mortgagor's analysis as an audit tool in assessing the entrepreneur's awareness of the potential risks and their management.

To the scholars**,** although there is a large number of studies which provide knowledge and guidelines on the management of the risk of different investment sectors, generally there is a knowledge gap especially in developing countries on the effects of risk management on the performance of commercial real estate entrepreneurial investments. This study will, therefore, enhance the understanding of risks management and its effect on performance as well as the criticality of potential risk in commercial real estates in Kenya. The findings of this study could as well be applied, compared and contrasted with other developing countries.

For the entrepreneur to manage his/her risks effectively, a clear understanding of the nature and criticality of the risks is paramount and especially given the limited resources available to manage these risks. Normally, given that the entrepreneur has limited resources to manage every significant risk, risks need to be responded to based on their criticality. The tendency of most entrepreneurs is to manage risks that are perceived to have the greatest impact, forgetting that one can have a risk with less impact yet with high frequency that ends up affecting the performance the most. The awareness shared

in this study of managing these risks throughout the development phases, and their prioritisation will be of great help to the entrepreneur in his/her risk response strategy.

1.8 Scope of the study

Commercial real estate entrepreneurial investments are multifaceted in nature with several stakeholders. In view of its extensive nature, a comprehensive study would require participation and the gathering of the views from all the stakeholders. This will include, the entrepreneur, the consumers (space user), financiers and government (policymakers). However, this study was confined to the views of the entrepreneurs only. In this regard the study was carried out among commercial real estate entrepreneurs in Kenya as listed in Property Directory 2017 Softkenya.com/property); Kenya Property Developers Association (KPDA); Estate Agent Registration board and registered building works contractors (GOK, 2016) whose registered offices are in Nairobi, Nakuru, Kisumu and Eldoret.

Secondly, the topic of risk management in real estate encompasses many aspects. This study was, however, confined to the set objective, thus; risk management and its effect on the performance of commercial real estate entrepreneurial investments in Kenya. Finally, the real estate industry is comprised of several sector segments, namely; commercial investments, residential, industrial, mixed-use development and special properties. To some risks, their criticality and management may be sector-specific. For this reason, the study focused on commercial real estate entrepreneurial investments.

1.9 Limitations of the study

Risk and risk management of commercial real estate entrepreneurial investments is considered a sensitive issue in Kenya given the general public outcry and the hiked government surveillance. Consequently, most respondents declined to fill the physical questionnaires citing possible victimisation. However, this limitation was overcome by the use of online questionnaires that was emailed to the respondents with guaranteed anonymity. In some cases, some respondents deliberately avoided some questions in the questionnaires may be fearing divulging some information may damage their professional image or that negative response would suggest on their inability in the manner they managed risks and eventually affecting their reputation or that of their firm. Any shortfall or inconsistencies that emanated from this action was managed during the data cleaning process of the questionnaires.

1.10 Assumptions of the study

The study is based on the assumption that entrepreneurial risks occur in every commercial real estate entrepreneurial investment; if it occurred, it would be a threat, and if it is managed it will lead to improved performance of the entrepreneurial investment.

Secondly, it is assumed that unless these risks are known to the real estate entrepreneur, they cannot be effectively managed, which would negatively affect the performance of their investments. Finally, the study further assumed that the respondents were honest and objective in their responses.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews and discusses concepts and theories relevant to the current study. Subsequently, in order to provide the background for the identification of the research gap and to thereafter express the research problem and formulate the research objectives, a comprehensive review of the relevant literature is undertaken.

The chapter begins by discussing the concept of entrepreneurship and entrepreneurial risks in regard to risk management and its process before reviewing the real estate attributes that are associated with the occurrence of risks. The development stages of real estate entrepreneurial investments are then explained with a view to identifying and categorising the entrepreneurial risks that are elicited throughout the investment life cycle and how they relate to their performance indicators. A study of the theoretical framework that will guide the research follows before a conceptual framework for the study is presented. The chapter concludes by presenting a critique of the literature review and identifying the knowledge gap in the literature for this study.

2.2 Entrepreneurship, risk and risk management

Entrepreneurship is the willingness and ability of an individual to seek out investment opportunities and take advantage of scarce resources to exploit the opportunities profitably. It is the process of creating something new with value by devoting the necessary time and efforts, assuming the accompanying financial, psychic and social risks, and receiving at the end receiving resulting rewards of monetary and personal

satisfaction and independence (Mbazor, Adedayo, & Ige 2017; Hisrich, & Peters, 2002). In other words, entrepreneurship activities involve gathering of productive resources in an attempt to begin a business enterprise or an entrepreneurial investment with the expectation of providing a reasonable income to the entrepreneur. These resources include manpower, equipment and tools, finances, time, land and basic raw materials which may entail some risks in procuring it. To minimise losses and increase profits, these resources, along with its associated risk, should be recognised and managed. Akin to other business ventures, a hereditary risk exists in all the processes of real estate entrepreneurial investment starting from the ideation, conceptualisation, property production, commercialisation and ending with the disposal or management of the investment. Generally, entrepreneurship refers to an individual's ability to convert ideas into reality. It includes creativity, innovation, and taking calculated risks as well as the ability to plan and manage projects in order to achieve objectives (Mbazor et al., 2017). In this regard entrepreneurship in real estate as opined by Wiegelmann, (2012) entails combining land, labour and capital to plan, develop, manage and market facilities which provide services (accommodation) demanded by space users.

Entrepreneurs have been considered as bearers for risks and uncertainties in making business choices (Knight, 1921), and make innovations for new goods, new methods of production, new markets, and new types of industrial organisation (Schumpeter, 1934). Hisrich and Peters (2002) defined that an entrepreneur is characterised as "someone who demonstrates initiative and creative thinking, is able to organise social and economic mechanisms to turn resources and situations to practical account, and accepts risk and failure" (Eroglu, & Picak 2011).

According to Kuratko and Hodgetts (2000), an entrepreneur is one who undertakes to organise, manage, and assume the risks of a business. He is an innovator or developer who recognises and seizes opportunities; converts those opportunities into workable/marketable ideas; adds value through time, effort, money, or skills; assumes the risks of the competitive marketplace to implement these ideas, and realises the rewards from these efforts.

From the above definitions, it can be concluded that an entrepreneur is a risk-taker and is prone to assume business risks. Any error in making a business decision is a probable source of threat or opportunity in assuring the success of the business. Knight (1921) further added that entrepreneurs calculate the risks associated with uncertain business situations and make informed judgments and decisions with the expectation that – if they assessed the situation and made the correct decisions – they would be rewarded by earning a profit (Chell, 2008). Consequently, failure of entrepreneurial investments or business disappointments may be attributed to the entrepreneur's misjudgements, mismanagement of risk and changes in corporate governance requirements.

The word 'risk' is a common and widely-used part of today's vocabulary, yet somewhat surprisingly, there is still no broad consensus on the meaning of this term (Wiegelmann, 2012; Gehner, 2008). However, in order to make the concept of risk operational, risk is usually defined as a function of probability and impact. The probability of a risk event represents the chance or likelihood that an event will occur. The impact or consequence of a risky event is expressed in terms of deviation from the expected or desired outcome (Gehner, 2008). Some literature interchangeably uses risk and uncertainty, although it

has come to be unanimously agreed that the two differ (Nguyen, 2007). Knight F. H. (1885-1972) is often credited with introducing the distinction between risk and uncertainty (Rakow, 2010). He distinguished between measurable uncertainty and unmeasurable uncertainty; he used the term 'risk' to designate the former and the term 'uncertainty' for the latter.

In other words, he argues that risks are those objective outcomes that can be measured and insured while uncertainty is the subjective outcome that can neither be measured nor insured. Miller (1992) observes that uncertainty occurs when a factor "reduces the predictability of corporate performance, that is, increases risk". He hence concludes that uncertainty leads to risk, which in turn results in vulnerability. ISO 3100 (2009) on the other hand in making a distinction between risk and uncertainty, defines risk as "the effect of uncertainty on objectives" and uncertainty as "a state or condition that involves a deficiency of information and leads to inadequate or incomplete knowledge or understanding. In this case, they acknowledge that we indeed operate in an uncertain world, and whenever we try to achieve an objective, there is always a chance that things will not go according to the plan, or that we do not get the results that we originally expected.

According to Nguyen (2007), uncertainty is a situation where one cannot attach probabilities to the occurrence of events because the likelihood of such occurrence is not known. He further explains that uncertainty covers all things that could happen but which the decision-maker would never expect to happen. On risk, Nguyen (2007) argued that risk is a complex concept, which does not easily lend itself to a neat, one-

line definition. He, however, suggested a working definition of risk to be "a situation that is characterised by an inability to predict the future but where it is possible, at least in principle, to determine objective probabilities about possible outcomes". In this case, risk can be considered as an unwanted event that can be identified and quantified through its impact and probability of occurrence (Koirala, 2012). Stated differently, risk can be stated as a situation where the actual outcome of an activity deviates from the estimate or forecast value. Thus, according to Koirala (2012), the major difference between risk and uncertainty is related to its quantification. Risky situations have quantifiable attributes, whereas uncertainty does not. If risk arises, it is possible to apply statistical methods to quantify the magnitude of the risk by using hard data. On the other hand, uncertainty cannot be quantified and is used to describe situations where it is impossible to attach a probability to the likelihood of occurrence of an event.

Concluding on the difference between risk and uncertainty, Hillson and Murray—Webster (2004) argue that the key distinction between uncertainty and risk arises from consideration of the consequences. According to them, the simplest definition of risk is "uncertainty that matters" since uncertainty without consequence poses no risk. In view of this Gajewska and Ropel (2011), observed that there is a strong relationship between risk management and success of any entrepreneurial venture and advocated for effective risk management to be continuously undertaken throughout the lifecycle of the entrepreneurial investment to enhance its success.

There are many and varied views and descriptions of what risk management involves, how it should be conducted and what it is for Wiegelmann, (2012), leading to various

definitions and number of stages in the process. According to Wiegelmann (2012), risk management is a structured and disciplined approach that aligns strategy, processes, people, technology and knowledge with the purpose of evaluating and managing the uncertainties a real estate organisation faces as it creates value. Uher (2003) defined risk management as "a systematic way of looking at areas of risk and consciously determining how each should be treated. It is a management tool that aims at identifying sources of risk and uncertainty, determining their impact and developing appropriate management responses.

Nguyen (2007) defines risk management to be a process of identifying, assessing, treating and implementing actions to reduce risk and enable real estate entrepreneurs/developers to strike a balance between losses and opportunities. In other words, the risk management process is the basic principle of understanding and managing risks in a project. Nielsen (2010) introduces a further aspect of risk management to mean the identification, assessment, and prioritisation of risks followed by coordinated and economical application of resources to minimise, monitor, and control the probability and/or impact of unfortunate events or to maximise the realisation of opportunities. He further postulates that by introducing prioritisation in the definition, he recognises that most management practices to a large extend are about prioritisation.

This also goes for risk management and assists in ensuring that the involved parties realise and accept that risk management is not a "catch-all or fail" exercise. In addition, the phrase "economical application of resources" brings the attention to the fact that

resources are generally scarce, and there is need for prioritisation of the risks when it comes to deciding the appropriate risk mitigating actions (Nielsen, 2010). Risk management is, therefore, a proactive rather than a reactive concept which should be fully embraced rather than the risk disaster management that is more common with real estate entrepreneurs.

2.3 Risk management process

As there is a varied definition of risk management, there also are many variations of the risk management process available in the literature. According to Ennouri (2013) risk management process is executed in four steps, risk identification (detect the uncertain events), risk assessment (for selection of suitable corrective actions for the risk identified), risk management (selection and implementation of the optimal corrective strategy) and finally risk monitoring where the system is supervised to measure the efficiency of the corrective action and detect the potential risks not identified in the previous steps.

According to Garvey (2001), the risk management process is characterised by six elements, where the first three elements address the risk analysis aspects of the process. The last three address the risk management aspects of the process, as indicated in figure 2.1.

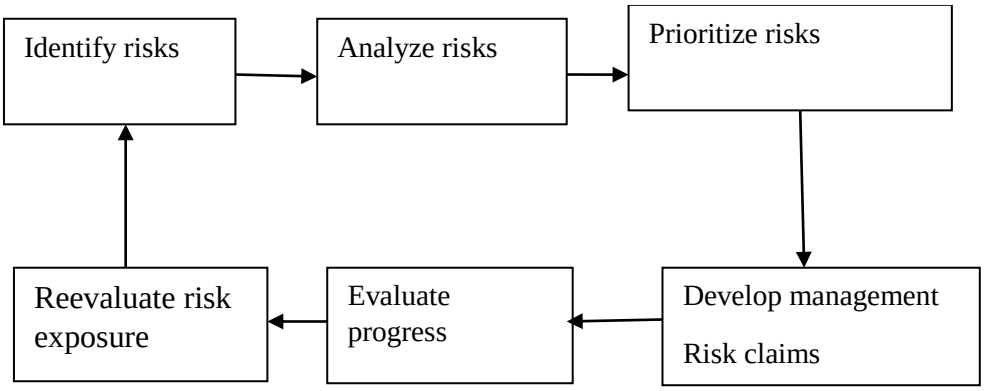

Figure 2. 1: Risk management process (Garvey, 2001)

Similar sentiments are the views of Chapman and Ward (2003) who assert that the risk management process is comprised of two broad categories, namely risk assessment and risk control. Risk assessment, according to them comprises of risk identification, risk analysis and risk prioritisation, while risk control consists of risk management planning, risk resolution and risk monitoring. Additionally, McCormack and Sheen (2013) suggest a four-stage risk management process which includes risk identification and assessment (identify and assessing risk which might be exposed and setting up monitoring mechanisms), risk measurement and monitoring (setting up of specific risk indicators and a threshold for measuring the risk identified risk). The third stage is risk control (applications of suitable actions through, effective communication channels) while the fourth stage is reporting where the management receive regular risk management updates.

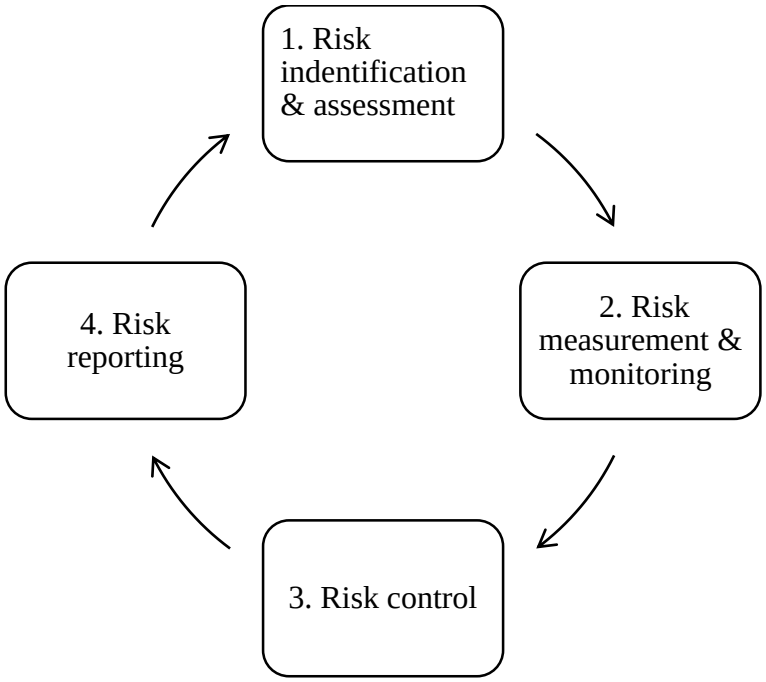

Figure 2.2: Risk management process (Mc Cormack, & Sheen, 2013))

Although the different risk management frameworks apply different approaches and definitions, as evidenced from the above scholars, the majority follow the same overall generic structure, which is - risk identification, assessment/analysis, response planning, and action implementation/response (Wiegelmann, 2012; Gajewska, & Ropel, 2011). Some framework of risk management process consists of one more step added to the process, and the majority of sources identify it as risk monitoring or review (Gajewska, & Ropel, 2011). Ceric, Marcic and Ivandic (2011) discuss a cyclical risk-management process which is carried out independently for each phase of the entrepreneurial investment. According to their methodology, risk identification should follow phases of the real estate entrepreneurial investment since different phases of the life cycle have their own specific features that may eventually demand a separate approach to risk management. These phases are discussed later in this study under 2.4.2, development phases of commercial real estate entrepreneurial investments.

This study nevertheless adopts the core traditional six-stage risk management process having the objective setting, risk identification, risk assessment, risk prioritisation, risk response and risk monitoring while appreciating the development phases in the life cycle of the entrepreneurial investments.

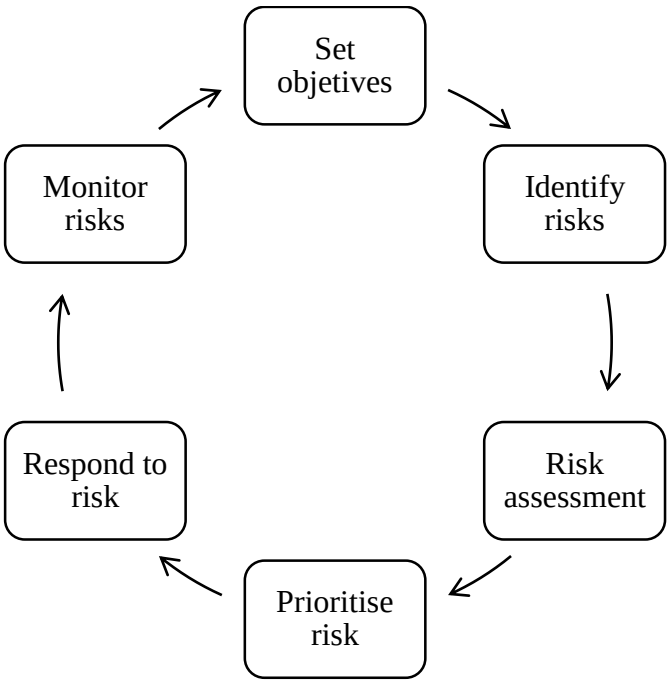

Figure 2.3: Risk management process (Van der Waal, &Versluis, 2017))

To achieve an effective risk management process, various professional bodies and national associations have suggested standards, guidelines and format for managing real estate entrepreneurial investment risks. One of such is the ISO 3100 (2009), which is a brief and high-level set of principles and guidelines on how to implement risk management. The standard presents principles, a framework, and a process that can be tailored to fit an organisation of any type and of any size (Lark, 2015). This guide recommends that risk management is implemented by developing a clear risk management plan, implementing the plan as it was designed and then verifying that the

plan is delivering the objectives that have been set (in this case the objectives for implementing risk management). Finally, the plan is modified in response to the information developed during the monitoring and review stages on what is working well and what should be adjusted to improve the results.

The risk management plan is a document that a real estate entrepreneur prepares to foresee risk, estimate impacts and define responses to issues. It also contains a risk assessment matrix (Jaber, 2014). Viewed differently, it is a systematic description of how risk management should be carried out. When a risk is identified, it is first assessed to ascertain the probability of occurring, the degree of impact to the schedule, scope, cost and quality and then prioritised. According to Jaber (2014), all identified risks should be entered into a risk register and documented as a risk statement.

This systematic approach to risk management makes risk explicit; they are formally described and make them easier to manage. Once the approach is adopted, it supports in the decision – making and informs the entrepreneur instinctive judgement. According to Godfrey (1996), systematic risk management help in identifying, assessing, ranking the risks, and hence making the risks explicit. It also helps in focusing the major risks in the project, as well as making informed decisions on the provision for adversity, for instance, mitigation measures. Mills (2001) confirms that systematic risk management allows the early detection of risks. As a result, the limited resources are concentrated on the major risks to achieve maximum effect. Lack of clarity in the recognition or acceptance of risk is a risk itself that will tend to magnify the overall cost of risk. Mills (2001) further postulates that systematic risk management will encourage the real estate

entrepreneur to itemise and quantify risks and consider risk containment and reduction policies.

Adding to the importance of systematic risk management, Hillson and Murray – Webster as cited in Motaleb and Kishk (2013), postulates that risk that materialises in any type of project can cause losses, increase costs, time delays and a drop in quality; certainly, any one of these outcomes will result in client dissatisfaction. It is, therefore, crucial that risks are effectively reduced and eliminated where possible. Systematic risk management helps to achieve this goal.

Additionally, risk management contributes to a better view of possible consequences resulting from unmanaged risks and how to avoid them (Jaber, 2014). This information can be shared among the stakeholders at a different level of the development process. In circumstances where risks are identified at the start of a real estate entrepreneurial investment, they can be acknowledged in the formal contract drawn up between the entrepreneur and the construction team. This will, in turn, increase the level of control over the whole entrepreneurial investment and more efficient risk associated problem-solving process.

Therefore, the risk management process, as mentioned earlier, should be part of any real estate entrepreneurial investment. This process cannot remove all (negative) risk from the investment, but it is helping the entrepreneur to take the right risks and ensuring that risks are managed in an appropriate manner (Ghahramanzdeh, 2013). To achieve this, appropriateness, Ceric et al. (2011) suggest that the risk management

process should be repeated at every phase of the entrepreneurial investment life cycle. Ghahramanzdeh (2013) further postulates that risk management aims at creating an organised framework to aid decision-makers to manage risks competently. However, irrespective of differing number of stages in the risk management process, of importance is for the process to address all possible risks in order to achieve the performance objective of the real estate entrepreneurial investment. A detailed explanation of the process follows:

2.3.1 Stating objectives (Defining context)

The first stage in the risk management process is to clearly state the objective to be achieved. It is considered the first stage because without objectives, there are no risks, and without risk, no risk management is needed (Van der Waal, & Versluis, 2017). Planning is a key component in any management process. In the case of risk management, planning turns risk information into decisions and actions for both present and future. It involves developing actions to address individual risks, prioritising risk actions and creating a risk management plan. This stage recognises that it is not effective to try to identify future scenarios and estimate potential losses and opportunity before one has thought about what one is trying to achieve and why (Nguyen, 2007). Context should be established early enough because this exercise is critical to the success or failure of the process. Steps undertaken to establish it include: defining the scope (timeframe, resources required, roles and responsibilities, record keeping requirements); defining strategic and organisational context, defining the evaluation criteria - this is, decide what level of risk the organisation is prepared to accept for a particular event or activity (Van der Waal, & Versluis, 2017).

2.3.2 Risk identification

This is the first step risk management process, and as Gajewska and Ropel (2011) states, it is usually informal and can be performed in various ways, depending on the organisation and the real estate construction team or the concerned real estate entrepreneur. It means that the identification of risks relies mostly on past experience that should be used in upcoming real estate entrepreneurial investments (Gajewska, & Ropel, 2011). The purpose of this phase is to obtain a list of potential risks in the development life cycle of the entrepreneurial investment in order for the real estate entrepreneur team to be aware of the risk (Gajewska, & Ropel, 2011) and be able to manage them (Wiegelmann, 2012).

The effectiveness of risk identification has a marked impact on downstream management processes. It is important, therefore, to ensure that each risk is carefully defined and explained to facilitate further analysis. Evidently, since only those risks that have been identified can be analysed and controlled risk identification remains critical to successful risk management. The importance of efficient risk identification is vividly acknowledged since errors in risk identification only become apparent when an undetected risk becomes acute and therefore potentially threatens the very existence of the enterprise/development (Wiegelmann, 2012).

In real estate development, any condition, situation or event that can occur and would jeopardise the development's objective constitutes a risk factor. To a certain degree, the identification of risk in real estate development is expected to be performed intuitively and therefore, based on subjective experience. Subsequently, the level of knowledge,

the qualifications and the experience of the personnel involved in risk identification play a significant role within the identification process (Crouhy, Galai, & Mark, 2006).

2.3.3 Risk assessment /Analysis

Risk assessment is the process of trying to determine the significance of the risk (Rejda, 2011). Risk assessment is the second stage in the risk management process, where collected data about the potential risk are analysed. It can be described as short-listing risks with the highest impact on the project, out of all threats mentioned in the identification phase (Gajewska, & Ropel, 2011). The methods used for risk assessment depend on the wealth of the organisation and the quality of available information (Gajewska, & Ropel, 2011). Assessment methods can be broken down into quantitative methods and qualitative methods. The quantitative approaches are based on mathematical methods and only apply if sufficient risk-specific data are available (Wiegelmann, 2012). However, due to the asymmetrical nature of risk information in real estate entrepreneurial investments, entrepreneurs tend to rely on qualitative technics that are more or less subjective rather than the objective – quantitative ones.

Risk assessment involves rating each risk against two dimensions: probability or 'likelihood' and impact or 'consequence' (Wiegelmann, 2012; Almadani, 2014). For good decisions to be made, both of these dimensions need to be understood and should be qualified if different risks are to be analysed, compared and classified (Ceric et al., 2011). The 'probability' aspect of risk assessment involves deciding how likely it is that the risk will occur. It can be calculated statistically where there is a relevant database about similar past events on which to base the probability distribution. Ceric

et al. (2011) opine that in practice, this is very difficult to achieve because a very small number of databases exists for potentially risky events.

He further postulates that where there is no relevant database to draw from, the risk is determined subjectively on the basis of available information and greatly depends on the experience and knowledge of the entrepreneur. If there is sufficient information, the probability is usually estimated at a numerical value between 0 and 1. If there is little or very little information, risk probability is verbally assessed as low, medium or high. According to Almadani (2014), each risk should fall into one of the three categories: High probability - the risk might occur once every one to two years; Medium probability - the risk might occur once every three to five years; Low probability - the risk might occur less frequently than once in five years.

When it comes to the 'impact' aspect of risk assessment, Almadani (2014) suggests that it involves considering what the potential impact of the risk would be on the organisation, client or project. In practice, since it is often impossible to calculate risk impact quantitatively, a qualitative appraisal is usually made estimating the impact - as low, medium, or high. Almadani (2014) similarly came up with a three-tier category where each risk should fall, namely: High impact - the organisation might be forced to terminate activities as a result of a catastrophic failure or occurrence defined by the risk; Medium impact - the organisation would continue, but the risk will have significantly affected its performance, time scales or costs; Low impact - the impact would be small and easily managed at a relatively routine level within the organisation. This is best explained by the use of a risk matrix. A risk matrix is a table that has several categories

of “probability,” “likelihood,” or “frequency” for its rows (or columns) and several categories of “severity,” “impact,” or “consequences” for its columns (or rows, respectively) (Cox, 2008). It may take the form of a 3 x 3, 4 x 4, or 5 x 5 grid. Figure 2.4 shows an example of a 3 x 3 grid matrix. The green, yellow, and red cells indicate low, medium, and high-risk levels based on ratings of probability (horizontal axis) and impact (vertical axis) ranging from “L” (low), “M” (medium) to “H” (high).

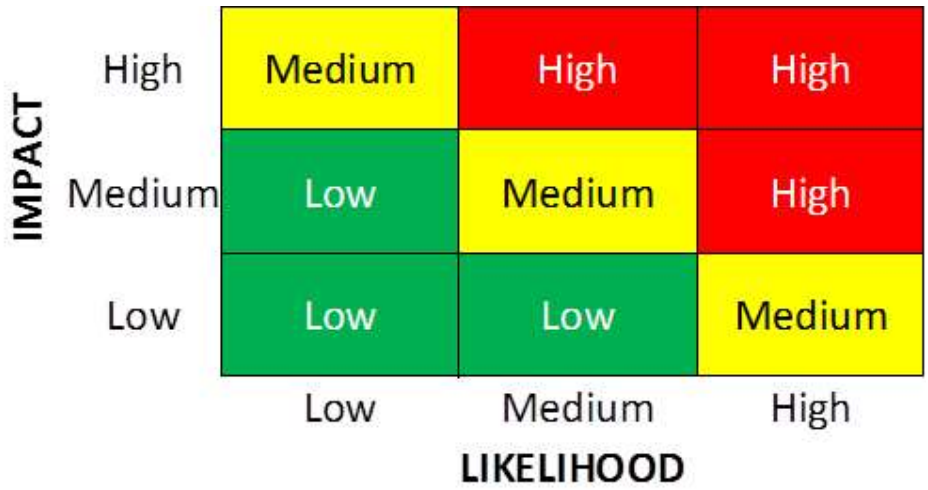

Figure 2.4: Risk matrix (Dumbrava, 2013)

The risk rating helps guide risk responses. For example, risks that have a negative impact on objectives if they occur (threats), and that are in the high-risk (Red) zone of the matrix, may require priority action and aggressive response strategies. Threats in the low-risk (Green) zone may not require proactive management action beyond being placed on a watch list or adding a contingency reserve (PMI, 2008).

2.3.4 Risk prioritisation

Risk factors vary greatly in the level of importance as well as in their contribution to overall risk exposure. Certain risk factors have the potential to cause a business

interruption or failure themselves, while other risk factors must work in combination with factors of equal or greater importance to cause such consequences (Ismail, Abd, & Chik, 2008). If risks are improperly prioritised and assessed, time can be wasted in dealing with risk factors that are less important to performance objectives of the entrepreneurial investment and consequently diverting resources.

Risk probability (likelihood) and impact (severity) are the traditional criteria for risk prioritisation found in the literature. However, several other criteria have been suggested in risk assessment and prioritisation. These include transferability, controllability (the degree to which the risk's owner – or owning organisation, is able to control the risk's outcome), variability (uncertainty of outcome), propinquity (the acuteness of risk as perceived by an individual or group) and urgency (the nearness in time by which responses to risk must be implemented in order for them to be effective) (Association for Project Management (APM), 2008).

The risk urgency assessment, as a tool of prioritisation, is a real estate entrepreneurial investment management process that reviews and determines the timing of actions that need to happen sooner than the other risk items. According to PMI (2014), it is concerned with how much time the real estate entrepreneur has in order to implement an effective response to the risk. In other words, what time is available to put a risk response into motion? The purpose of this particular type of risk assessment is that it identifies the near-term risks. This means that it allows real estate entrepreneurs to identify which risks should be considered urgent or requires their immediate attention. If an entrepreneur must act now to address the risk, he/she should give it a higher

priority than one where he/she has a longer time to respond. In this case, a risk that is going to occur now is considered more urgent to address than a risk that might occur say a month from now. He/she need to ascertain the time left before measures or responses would need to be implemented. The focus is on the measures or responses that are to be implemented in a timely fashion. Urgent risk requires urgent responses. APM (2008) contend that a risk that could have already been classified by the probability-impact-matrix as a lower classified risk could become more important than the higher classified if it occurs in the near future. This study will, however, be limited to prioritisation based on the traditional criteria of likelihood and severity. The concept of risk prioritisation is discussed further in this study in section 2.6.

2.3.5 Risk response

The risk impacts and their probabilities are assessed in order to manage or 'treat' them properly. The risk response (risk control/treatment) is the process of choosing and implementing risk options individually or in combination, due to risk characteristics, tolerance, firm characteristics, and entrepreneurs' characteristics among other criteria. It is identified as the most important stage in the process of risk management since it determines the ability of entrepreneurs to enhance opportunity and reduce threats in the development (Motaleb, & Kishk, 2013). These options are considered as risk management strategies which include: Avoidance: withdraw, remove, stop/terminate or not to start activities enhancing risk; Mitigation: optimise, control, reduce, limit, hedging, due diligence or diversify; Sharing: shift to others, transfer or insure; Retain: accept, tolerate, postpone or monitor (Sitthiyot, 2011).

2.3.5.1 Risk avoidance

Avoidance means a certain risk is never acquired or an existing risk is abandoned. Wiegelmann (2012) rate it to be the most radical form of risk management as it prevents any risks from materialising by reducing their likelihood to nil. In order words, if the risk has a significant impact on the project, the best solution is to avoid it by changing the scope of the project, procurement route, supplier, sequence of activities or, worst scenario, cancel it. For instance, a potential risk at the investment decision or land acquisition stage can be avoided by changing the intended investment product or not acquiring the specific parcel of land, respectively. At the production stage, a possible risk can be avoided by avoiding an unfamiliar subcontractor. Avoidance seems to be all answers to the risks, but at the same time, this way of risk response also avoids the possibility of earning potential gains (Mei, 2008). The advantage of avoidance is that the risk is reduced to zero if the risk is never acquired (Rejda, 2011). But its major disadvantage is that the firm/entrepreneur may not be able to avoid all the risks or it may not be feasible or practical to avoid particular risk. Therefore, risk avoidance will generally apply only where a risk represents a significant exposure potential when using alternative management measures and if it exceeds the risk appetite of an organisation (Wiegelmann, 2012)

2.3.5.2 Risk reduction

If you don't want to abandon the activity altogether a common approach is to reduce the risk associated with it; steps are taken to make the negative outcome less likely to occur or to minimise its impact when it occurs to an acceptable threshold. Risk reduction is, therefore, the prevention or limitation of loss by decreasing the likelihood

of a disturbance occurring and its significance (Wiegelmann, 2012). Rejda (2011) views risk reduction and prevention separately. He views risk reduction to refer to measures that reduce the severity of a loss after it occurs. For instance, a real estate entrepreneur can install an automatic sprinkler system that helps extinguish a fire promptly. On the other hand, a preventive measure can be taken to reduce the likelihood of a fire occurring. This is usually done by the use of materials impregnated with fire retardant agents, to avoid material from bursting into flames. One way to reduce risks in an entrepreneurial investment is to add expenditures that can provide benefits in the long term. Some projects invest in guarantees or hire experts to manage high-risk activities such as Valuers, Quantity Surveyors, Physical planners, Architects, Conveyancing experts and contractors, among others. Those experts may find solutions that the c0nstruction team has not considered (Sibomana, 2015). Other examples include training the personnel to increase awareness of the possible risks; the real estate entrepreneurs change the construction teams if they find they do not have sufficient ability or other shortcomings. Outsourcing could be an example of risk reduction if the outsourcer can demonstrate higher capability at managing or reducing risks (Mei, 2008).

2.3.5.3 Risk transfer

In the case of risk transfer, an organisation/entrepreneur transfers the risk implications of the entrepreneurial investment to external risk bearers (Wiegelmann, 2012). In other words, it involves finding some other party who is willing to accept responsibility for its management, and who will bear the liability of the risk should it occur. In principle, this strategy does not eliminate the cause of risk but merely passes the implications of

risks on to third parties (Wiegelmann, 2012). The aim of this strategy is to ensure that the risk is owned and managed by the party best able to deal with it effectively (Mhetre, Konnur, & Landage, 2016). The obvious example of this response is an insurance policy. When a firm or person is not able to cover the impact of a risk, an insurer can be approached to cover the risk for a certain payment (Wiegelmann, 2012), although Dodd and Wang (2012) contents that the cost and availability of insurance do not seem to be favourable and especially for micro and small real estate entrepreneurs. Additional methods include the real estate investor outsourcing the construction team by way of signing contracts to transfer great risks on the team.

2.3.5.4 Risk-retention

Retention is leaving the risk as is without taking any action. This can be done when risk is of negligible size and is considered an acceptable risk, either before or after the implementation of other risk responses and cannot be further responded to. It is also considered an option where the cost of insuring against the risk would be greater over time than the total losses sustained (Mei, 2008). Otherwise, a risk of substantial size can be tolerated if the presence of the risk is vital for the existence and continuity of an organisation. Any risks that remain and are tolerated should be subjected to monitoring, for they should not evolve from a tolerated acceptable risk into an unacceptable risk.

As risk retention or acceptance indicates that the risk remains present in the project, two options are available when retaining the risk: either to develop a contingency plan in case a risk occurs or to take no actions until the risk is triggered (Osipova, 2008). In agreement, PMI (2013), assert that the common risk acceptance response strategy is to

establish a contingency allowance, including amounts of time, money, or resources to account for known risks. This allowance should be determined by the impacts, computed at an acceptable level of risks exposure, for the risks that have been accepted.

2.3.5.5 Risk monitoring and control

This is the final stage to risk management process, but it does not represent the end of the risk management cycle (Wiegelmann, 2012) since other risks could be exposed at this stage that was not evidenced earlier, the proposed treatment did not treat the risk as intended or the emerging of secondary risk (a risk that may arise after implementation of a risk response) leading to further analysis, decision making and treatment (Ghahramanzdeh, 2013). Similarly, as the real estate entrepreneurial investment matures, new risks may emerge, or anticipated risks may disappear necessitating the risk monitoring to continue throughout the investment life cycle. Risk monitoring and control is, therefore, the process of keeping track of the identified risks, monitoring residue risk and identifying new risk, ensuring the execution of risk plans, and evaluating their effectiveness in reducing risk (PMI, 2013). The goal of risk monitoring and control is, therefore, to examine to what extent operating process adhere to the planned standards and how effective the chosen strategy(s) has been in the treatment of the identified risk. Good risk monitoring and control process provide information that assists with making effective decisions in advance of the risk occurring and the same communicated to all real estate stakeholders (PMI, 2013; Wiegelmann, 2012; Sitthiyot, 2011).

2.4 The riskiness of commercial real estate entrepreneurial investment: Attributes and development phases

The riskiness of commercial real estate entrepreneurial investments is better understood through the prisms of its attributes, development phases and types of risks associated with them.

2.4.1 Attributes of real estate entrepreneurial investment

Real estate development starts as an idea that comes to fruition when consumers - tenants or owner-occupants - occupy the brick and mortar (space) put in place by the real estate entrepreneur (Gehner, 2008). In this case, land, labour, capital, management, entrepreneurship, and broadly defined partnerships are needed to transform the real estate idea into reality. The industry has unique characteristics that are defined by the uniqueness of the real estate products, which in turn have a great bearing on the risk and risk management of its developments. Li (2011), while discussing the competitiveness of the real estate industry in China, summarised these characteristics as heterogeneity, complicated contractual process, numerous participants, resource-intensive and illiquidity.

A key characteristic of commercial real estate entrepreneurial investments is the fact that they are largely heterogeneous - land cannot be reproduced. Consequently, any structures built or developed on a specific piece of land are characterised by a high degree of uniqueness in terms of location, design and construction material and its immobility nature (Wiegelmann, 2012). In other words, there are no two pieces of land that are similar, even when the development design is similar, a different type of risks

will be born as a result of location, real estate entrepreneurial investment design orientation, influence by type of neighbouring development, varied physical planning requirement among others.

Real estate entrepreneurial investments are highly risky due to long and complicate the contractual process with numerous participants. Their development is highly complex, dynamic and multi-disciplinary and involving a number of lengthy activities (Li, 2011). The development process brings several persons or groups into play such as lawyers, general contractor, architect, managing agent, consultants, financial institution, national and county government. All these people, besides their professionalism, have their experience and personality traits which may have a particular risk orientation of the investment. According to Goh and Abdul-Rahman (2013), the perception of risk varies at both individual and organisational levels because different people hold different views and have a different understanding of particular risk components, sources, probabilities, consequences and preferred actions. Strong management is critical to building a shared culture within the development process (Koirala, 2012).

The duration and complexity of the development process involve a considerable amount of time and, as a consequence, real estate entrepreneurs lack the relative flexibility to respond and adjust quickly to any fluctuations in the industry such as tenant and investment markets, availability of raw materials, policy and regulation. Such inflexibility will more often than not results in increased economic risk, technical risk and political risk, respectively.

As a result of this complexity, real estate entrepreneurial investments have an attribute of being heavily resource-intensive. Finance is the most crucial factor for the successful completion of a real estate development (Li, 2011; Gehner, 2008). Heavy financial involvement is required during the development process from the site purchase right through the construction and the management. These finances could be either owner's equity, mortgage finance or a combination of the same. Both sources pose different challenges to the entrepreneur, while the former is usually inadequate the cost and the procedure of obtaining the latter is usually a daunting task to most entrepreneurs. Any changes touching on the financial capabilities of the entrepreneur will expose the real estate entrepreneurial investment to possible risks that may lead to unsuccessful delivery of the real estate project.

Their economic life is considerably long (Li, 2011). Unlike other investments that have fixed maturities, there is no fixed maturity for real estate entrepreneurial investments. It can be sold after a short while to a third party if one finds a good opportunity or it can be held for several decades. Wiegelmann (2012) postulates that the economic life span of real estate development ranges between 20 and 100 years plus, and during this long period of time properties have to be maintained, refurbished or repositioned. As a result, the real estate entrepreneurial investment is prone to numerous management and operational risks, which may include damage to the investment, tenants' turnover, and health and safety issues, criminal offences such as vandalism, among others.

Another key characteristic of real estate entrepreneurial investment that makes it be regarded as highly risky is its illiquid nature. They are considered illiquid because they cannot be easily sold without substantial loss in value. It takes a considerable amount of time to purchase, rehabilitate, find a buyer and close a real estate transaction deal. The process can complicate further when the entrepreneurial investment is let out to different tenants.

2.4.2 Development phases of commercial real estate entrepreneurial investments

Notwithstanding the pre-investment analysis done at the initial phases of development; the dynamism in the industry, the long production duration and the cyclical character of the real estate market, make prognostication in real estate difficult. As it unfolds, the real estate entrepreneurial investment pass through several phases and in each of them it is possible to identify a large number of potential risks, i.e. events whose unfavourable outcome may be adverse for its success (Ceric et al., 2011). Furthermore, as the real estate entrepreneurial investment progresses, types and extent of risks may change. New risks may emerge, and existing risks may change in their importance. The resultant uncertainty is better understood by viewing the process through its development stages or phases. Gajewska and Ropel (2011) postulate that subdivision of development into phases and further activities in each phase provides easier and more accurate potential risk identification and makes risk management process more effective.

Ceric et al. (2011) have argued that every real estate entrepreneurial investment can be divided into discrete phases, each of which has its purposes, duration and scope of work. However, since there is no single model of the real estate developmental process that

can be applied universally, several models are discussed in literature having different developmental stages, albeit more or less related (Gehner, 2008; Li, 2011). One will find in literature; therefore, a different number of phases/stages and sub-phases with different headings. Among them, Li (2011) suggests a five-stage process model from an entrepreneur's point of view include concept and initial consideration; site approval and feasibility study; detailed design and evaluation; contract and construction and, marketing, managing and disposal. Gehner (2008) similarly proposes a 5 – phase model but comprised of initiation, feasibility, commitment, construction and management. Miles, Berens and Weiss (2000) suggested eight stages as follows: Inception of the idea, refinement of the idea, feasibility contract negotiation, formal commitment, construction, formal opening and assessment and management of the investment. On the other hand, Gehner (2008) alludes that the traditional development process is comprised of the initiation phase, feasibility phase, commitment (applying for a building permit) construction phase (tendering the project) and management phase (selling of the project).

This study, however, adopts a three-stage developmental process comprised of - Acquisition, Production and Disposal as suggested by Byrne and Cadman (1984). The first stage of acquisition under this model comprises the acquisition of the land upon which the development is to take place and to obtain of the appropriate planning permission. The second phase comprises the construction of the building or buildings, and the third phase comprises of their disposal both for occupation and investment (MartinKute, & Rutkauskas, n.d; Wiegelmann, 2012). The first phase of the development process commences by the real estate entrepreneur scouting for a suitable

site to have his or her development. Several factors are considered to arrive at the highest and best use (HBU) of the development site. This includes the location, terrain, shape, geological factors (soil composition and texture), availability of infrastructures such as water, electricity and sewerage. Other factors of concern also include physical planning requirement (zoning, plot ratio and coverage) and tenure characteristics. It is important also to establish whether the real estate entrepreneurial investment is encumbered or existence of overriding rights such as easements, prohibitions or restrictions.

Most real estate entrepreneurs will attempt to identify and determine all these factors before committing themselves to the purchase of the land, which forms the first major commitment of capital in the development process. Prior to the acquisition of the development site, the entrepreneur is usually engaged with several other fundamental activities aimed at the conversion of the entrepreneurial idea into a marketable product in the form of a building project. This, in essence, is the equivalent of the pre-start-up stage of a venture life cycle where the enterprise entrepreneur is involved with a myriad of activities which sum up by the opening of the doors of the enterprise. This includes specific market research to ascertain demand from potential users/tenants and potential investors, a feasibility study to ascertain its viability in terms of economic, political and societal suitability.

Wiegelmann (2012) purports that this phase can be qualified as one of the most important one in the development process, given its influence on the decision-making of the entrepreneur. Prior to committing funds to the entrepreneur, as well as his

stakeholders and financing partners, need a confirmation that market fundamentals will support the values assumed in the investment appraisal. In this case, therefore, besides the feasibility study to ascertain its viability in terms of economic suitability, due diligence process is required in ascertaining the legality of the land to be acquired. Examples at hand include the Kenyan case where several buildings have been demolished either because the sites were irregularly acquired, are on public utilities or on road reserves (Manji, 2014; GoK, 2004; Nyangito, 2011).

The level of uncertainty is higher at the initial stages of the development process; while the degree of manoeuvrability mostly decreases the further the development advances (Wiegelmann, 2012). Stating it differently, he posted that as the process takes place, the entrepreneur's knowledge of the likely outcome increases but, at the same time, the room for manoeuvre decreases. Thus, while at the start of the process entrepreneurs have maximum uncertainty and manoeuvrability, at the end they know all but can do nothing to change their product which has been manufactured on an essentially once and for all basis. This explains further the risky aspect of real estate development and further emphasises the need for thorough and well-searched decisions at early stages of real estate development (Wiegelmann, 2012). Figure 2.5 illustrates this further.

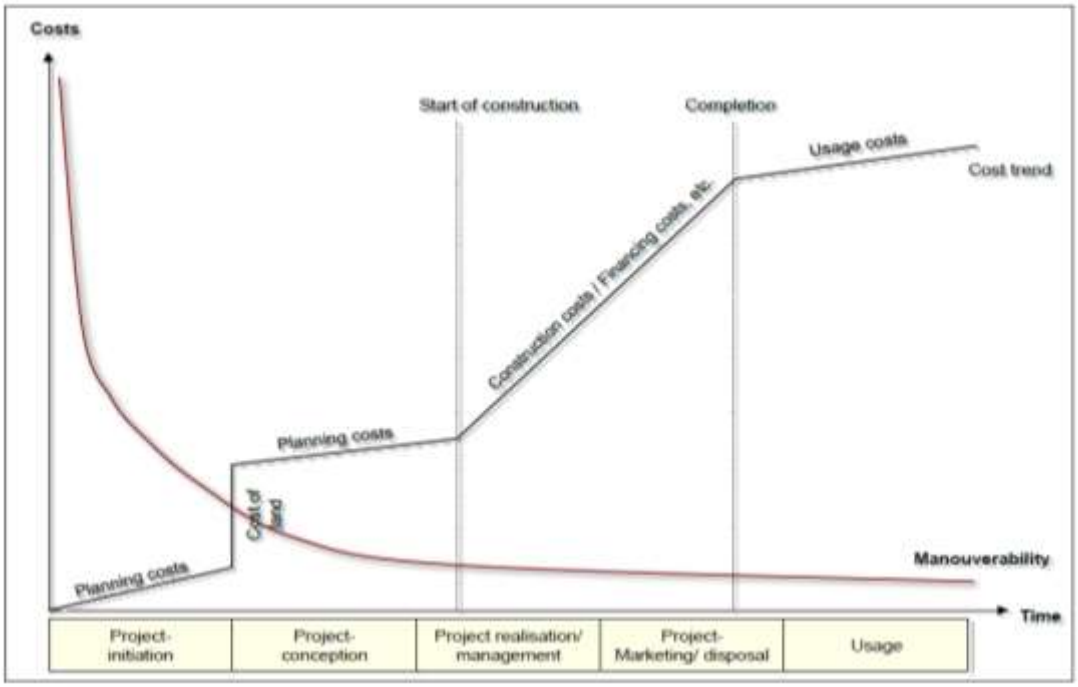

Figure 2.5: The real estate entrepreneur's manoeuvrability over the life cycle of an entrepreneurial investment (Wiegelmann, 2012, p. 45).

Potential risk activities threating the success of the real estate entrepreneurial investments at this phase include unsatisfactory site investigation, poor assessment of environmental Impact, ill-defined final statement of needs and inadequate substantive cost-benefit analysis, unsatisfactory market research. Other potential risks include a lack of historical data analysis and poor communication (Ceric et al., 2011).

The second phase comprises of the production period. During this stage, detailed plans for the intended development, structural and capital improvements are prepared and necessary permits and licenses obtained from respective authorities. But before then, a constructability analysis will need to be undertaken to determine whether the proposed development is easy to build and what effect it will have on schedule, cost or customer satisfaction. All construction, planning and consulting contracts are entered into. This

stage represents the second major capital commitment (MartinKute, & Rutkauskas, n.d; Wiegelmann, 2012). With the documentation and tendering process having been concluded, the appointed constructor moves to the site and commences the construction work which lasts until the building is handed over to the entrepreneur. Ceric et al. (2011) further assert that this phase is arguably the most critical of all the other phases. Some of the activities of the possible risk under this phase include inappropriate changes to design resulting from the construction phase, unsatisfactory Monitoring of quality and cost of construction work and unsatisfactory procurement plan, among others.

The third phase of the development process can be seen as comprising both the disposal of the building to one or more occupiers (tenant) and its disposal as an investment (MartinKute, & Rutkauskas, n.d). As the completion of the construction entrepreneurial investment approaches, activities shift increasingly in favour of marketing. Subsequently, concerted marketing efforts usually take place after the completion of the development to expose the investment further either for sale or rental. However, some individual marketing tasks will have proceeded with the entire development process. The tasks associated with marketing can be assigned to third parties, i.e. brokerage organisations. Lease negotiation and execution involves the screening of prospective tenants, and negotiating, preparing, and executing lease agreements, thus allowing the entrepreneurial investment to be leased at the highest possible rent to tenants with low credit risk. Ideally, the quality of the tenant will enhance the value of the location. Significant risks of the leasing process are that not sufficient tenants are attracted to the development. In a bid to achieve full occupancy, larger incentives may

have to be provided to tenants, and sub-optimal contracts are signed, ultimately resulting in lower returns (Wiegelmann, 2012).

The development process ends with the completion, handover for use and / or disposal of the entrepreneurial investment. The timing of its sale is dependent on the exit strategy of the entrepreneurs. Risks related to exit can be caused by a failure to exit at the right time. There are also execution risks in the form of inadequate due diligence procedures (post-sales risk) and mismanagement of the closing process. Both can cause uncertainty, delays and financial loss. An insufficient executive approval process shows the failure of internal risk management (Wiegelmann, 2012). Other risk activities include unsatisfactory maintenance plan, and inconsistence maintenance update and lack of lifecycle budgetary requirements update. The phases are summarised below:

Table 2.1: Development phases of real estate entrepreneurial investment

Development Phases	Activities
Acquisition	- Idea generation - Market and feasibility survey - Initial budgeting and sourcing for finances (equity/mortgage) - Site selection - Investigation of land ownership - Site acquisition (purchase) - Site preparation
Production	- Preparation of building plans, submission and approvals (County government, NCA, NEMA) - Sourcing for finance - Selection of architect and other land and building construction team - Tendering and signing of contracts - Construction process
Disposal/post-construction	- Market analysis, promotional activities - Preparation of lease/sale agreements - Appraisal, sale contracts - Management of the entrepreneurial investment

Source: Byrne and Cadman (1984) modified

The activities in each phase interact while in some cases, are time and phase-specific. Interaction means that a single activity can span several phases in the development process, and several different activities will be ongoing in any particular phase (Gehner, 2008). Each stage of real estate entrepreneurial investment involves the participation of

different stakeholders from different discipline; landowners, surveyors, legal (lawyers), design and construction consultants, and management firms etc.

2.4.3 Typology of entrepreneurial risks in real estate entrepreneurial investments

Alongside the discussion on entrepreneurship, risk definition, risk management and risk management process, scholars have also equally spent some time in discussing its classification. Risk classification relates to how an organisation defines the risks it faces. However, while firms may have a coherent system for classifying risks that meet their own requirements, such systems are unlikely to be identical between firms/industries. Each system represents a risk "language" bespoke to the firm, with firms using different terminology for the same risks, or the same terminology for completely different risks (Kelliher, Wilmot, Vij, & Klumpers, 2011). Entrepreneurial risks in the real estate sector are not exceptional.

Generally, entrepreneurs face a number of different types of risk. Fredrick, O'Connor and Kuratko (2016) have grouped entrepreneurial risks into four basic areas: (1) financial risk (the likelihood of losing significant portion of their savings or other resources invested in ventures), (2) career risk(the likelihood of losing their old job should their venture fail), (3) family and social risk (the possibility of being cut off from their families and social networks) and (4) psychic risk (psychological impact upon failure of a venture or any consequences thereof). Nevertheless, since it is not possible to list all the risks in a real estate entrepreneurial investment, risks are usually

categorised into clusters so as to have a wider spectrum and inclusiveness which in return will help manage risks effectively.

They are validly categorised in literature; Country risk (fundamental, macro-economic, demographic and political aspects); Property market risk (yields, rental development, and vacancy risk); financial risk (interest rate risk and debt availability risk); Structure risk (legal and fiscal aspects) and Management risk - the track record of management (Gajewska, & Ropel, 2011; Koirala, 2012). Others categorise risk in real estate entrepreneurial investments as Personal risk (sub-construction, client and labour); Technical risk (material, site condition, construction process); Political, Environmental and Financial (Hlaing, Singh, Tiang, & Ehrlich, 2008; Santoso, Ogunlana, & Minato, 2003). Kohonen (2015), on the other hand, discusses a number of categorisations as follows based on predictability, outcome and target. Starting with predictability, he categorised risks as static risk (those whose impact can be predictable such as weather) and dynamic risk as being those that are more or less connected to changes in the environment (economy), involving mechanism that has not been experienced before.

On outcome category, he had pure and speculative, where he defined pure risk are those that involve only the possibility for the negative outcome without any possibility of gain (downside risk), e.g. health and safety hazards and speculative risks to be those that involve the possibility for both negative and positive outcome (upside risk) which may allow some parties to benefit from the impacts. He finally categorises risk based on the target range to include systematic and unsystematic risks. Systematic risks – are risks that affect a range of targets in a similar way. For instance, inflation that is same

to all actors in the same market. They include market risks, non – specific risks and non–diversifiable risks. On the contrary, unsystematic risks are those related to specific targets and their effects are usually related to this one target only. They include asset-specific, non – market and diversifiable risks. In essence, systematic risks are those that arise due to macroeconomic factors such as social, political or economic factors. These factors are beyond the control of the organisation, whereas unsystematic risks are those arising due to microeconomic factors. These are factors that are existing in the organisation and are within the control of the organisation (Capozza, & Schwann, 1990).

In addition, Ghahramanzadeh (2013), on the other hand, has also categorised risks as either being subjective or objective. Subjective risks being those that are analysed based on the experience and knowledge of the analyst (qualitative), whereas objective risks are analysed by calculation of their impact and likelihood (quantitative). Adams (2008) believes that most risks of real estate properties are subjective as not sufficient historical data for their quantitative analysis and should thus be analysed according to analyst judgement. Ghahramanzadeh (2013) further contends that risks can be classified into external and internal risk. Internal risks are those generated inside the real estate entrepreneurial investment and more probable to be controlled, whereas external risks are originated outside of the investment and therefore, mostly not controlled. Wiguna and Scott (2006) had four categories, namely, economic and financial risks, external and site condition risks, technical and contractual risk, and managerial risks. Further categorisation is given by Dikmen, Birgonui and Han (2007) who categorised risks into eight ways: technical, managerial, resource, productivity, design, payment, client and

subcontractors' risks. Chen and Khunphaisals (2009) had their categorisation reduced into three, namely; environmental, social, economic and technological risks.

Wiegelmann (2012) discusses the risks in real estate entrepreneurial investments to include development risk, time risk, financial risk and building site risk. He defines development risk as to the risk that the leasing or sale of the entrepreneurial investment will generate insufficient returns to cover the cost and create the desired return due to a lack of sales or inadequately meeting the needs of the market in terms of type and location. Time risk occurs when the planned time of completing development of the real estate entrepreneurial investment is exceeded. This, in general leads to two main risks: cost of capital such as interest paid increases with delays reducing returns from the investment, and market conditions which change over time, reducing the reliability of forecast data.

In principle, the cost risk is closely related to time risk, as the time needed for real estate development enables cost factors to vary and reduces the reliability of cost forecasts on which the feasibility analysis is based. This means that all other risk categories also affect the cost risk. On financing risk, Wiegelmann (2012) further observes that interest rates and financing conditions affect real estate entrepreneurs both directly and indirectly. As few investments are entirely equity-financed, the availability and cost of debt financing affect the overall return and feasibility. Increasing interest rates also increase the expected yield of investment, thus reducing the sale value of the real estate entrepreneurial investment at the same level of rental income. Building risk on the other side, this is the risk that the selected site is unsuitable, or needs to be modified at a cost

to become suitable, for the intended use due to environmental issues, legal or its natural characteristics or approval. This study nonetheless adopted categorisation advocated by Boateng, Chen, Ogunlana and Kediashi (2012) which comprises of Technical risk, Financial/economic risk, market risk, environmental risk, political/legal risk and property operational risks.

Table 2.2 summarises the risk factors found in the literature that forms the basis for investigation and analysis in this study. In this case, therefore, based on the knowledge obtained from literature, a total of 26 risks factors are considered in this study grouped into six categories.

Table 2.2: Entrepreneurial risk categories and risk factors

	Entrepreneurial risk categories	Risk factors
R_1	Technical risk	1- Inadequate site investigation 2- Uncertainty over the source and availability of materials 3- Delay to obtain design approval on time 4- Incompetence of the management team 5- Late changes of design from client side 6- Lack of consistency between bills of quantities, drawing and specification
R2	Financial/ economic risk	7- Changes in interest rates 8- Inflation and changes in prices 9- Delay payments to construction team 10- The inability of debt servicing 11- Construction cost overrun
R3	Market risk	12- Improper real estate entrepreneurial investment market feasibility studies 13- Improper forecast about market demand and supply (change in demand)
R4	Environmental risk	14- unpredictable weather condition on completion of the real estate entrepreneurial investment 15- Inadequate environmental analysis 16- Acts of God
R5	Political/legal risk	17- Corruption or bribery 18- Changes in zoning laws and other government rules, controls and regulations 19- Delay in dispute resolution 20- Political/civil disturbance
R6	Operational risk	21- Decline in value of real estate entrepreneurial investment 22- Incompetence of management firm/team 23- Extended vacancies/ sold out after completion 24- Fall short of expected income from the entrepreneurial investment 25- Unexpected termination of the contract 26- Pilfering – stealing by the employees

Source: Author, 2019

2.5 Independent variables and performance of commercial real estate entrepreneurial investments

To investigate the effects of risk management on the performance of commercial real estate Entrepreneurial investments based on the objectives of the study, a detailed understanding of each risk category and its management was considered and is discussed below.

2.5.1 Technical risk management and performance of real estate entrepreneurial investment

Technical risk is risk associated to the combination of construction methods, construction materials, construction work tasks, designs and identification of suitable development sites encountered by a real estate entrepreneur in a bid to provide space users with desired accommodation. This risk is related to technical problems that are familiar to the design/construct professions; certain design assumptions which have served the professions well in the past but could have become obsolete in the present time and some site conditions that may cause a lot of uncertainty.

According to Koirala (2012), technical risk is created by several factors. Firstly, it could be due to the unavailability of skilled and experienced construction team leader who does not study and correctly interpret the documents and ends up not implementing the real estate entrepreneurial investment in accordance to the plans and specification. Secondly due to unskilled and inexperienced awarded consultants and contractors who do not in some cases adhere to or incorporate clients' requirements and ends up reflecting their own feelings in the design and construct differently rather than specified one. Poor plans, wrong specifications and wrong interpretation of the client's desire

will lead to poor performance in terms of the wrong product being offered to the market at unbudgeted costs.

Technical risks would also come about as a result of the construction team not being responsible due to either not understanding the work properly, or due to being overconfident or just choosing to be unprofessional. Lack of professionalism was found to affect performance of construction projects in Nepal, where Koirala (2012) found that there was no concrete policy from the government to demark which professional and non-professional real estate entrepreneurs who were not registered actively engaged in the construction industry. This in itself exposes the real estate entrepreneurial investments to possible failure as a result of lack of know-how, compromised standard and lack of integrity among the real estate entrepreneurs.

In some cases, entrepreneurs engage a cheaper technical team, and they are therefore not able to complete the work as required in terms of quality and time. In other cases, in a bid to save or the contractual sum, the construction team hurries the construction work ignoring the laid down structural requirement resulting in building failure. A case at hand is the collapse of a three-storey commercial building in Kapsabet town, Nandi County, Kenya on 21 September 2017. The collapse of this building was blamed on hurried construction which had hardly taken three months, use of substandard materials and poor supervision by the National Construction Authority (NCA) and the County officials (Lubanga, & Bii, 2017). Technical risks are the subject of case surveillance; responsible teams need to ensure that the building is being constructed in accordance to design specification and most of government requirements. The bigger and more

complicated a project, the more it is crucial to have the responsibilities related to various aspects of the building under construction to people who have the required expertise if performance is to be achieved.

In line with the discussions under section 2.4.2 of this study, Kaklauskas, Zavadskas, Dargis and Bardauskiene (2015) postulate that mistakes or oversights made in the initial phases of the real estate entrepreneurial investment development process are compounded and usually impossible to overcome. For this reason, the initial feasibility, assessment and planning stages are considered the most critical for overall success of the entrepreneurial investment; and also, where most failure occurs. One of the risk factors casually ignored is the cost component of the land for development. Kaklauskas et al. (2015) assert that with the exception of a number of specialised property development market segments if the land component of a real estate entrepreneurial investment exceeds 14% to 16% of the overall development budget, it becomes very difficult to secure a reasonable return on capital invested.

Technological development within the building industry has brought about mega changes to market development. Technological innovations being experienced in building materials, building elements, designs, and enhanced services has continued to be sources of either unexpected profit or loss. For instance, new technological innovation will result in increased demand with relatively likened sales/rental values, while on the other hand, it will force the entrepreneur to renovate or rebuild their units in a bid to remain competitive. An entrepreneur who will be able to correlate new

technological advancement in the industry to his/her development will be assured of better performance that one who will not.

Wang et al. (2004) and Koirala (2012) postulate that technical risk came about whenever the local or central government authority and its agencies fail to approve the project related issues in time or even cancels the already approved ones. On their study on risk management of China's infrastructure projects, they observed that obtaining approvals for a project from a complex web of government agencies and departments can be an extremely time-consuming process, delaying entire projects and hurting their financial viability. Beside the building design approvals, the impacts of the developments to its environment have become a thing of great concern in the recent past. Globally, governments and international non-governmental organisation are taking great initiatives in seeking solutions to prevent environmental degradation. Subsequently, almost all commercial real estate properties are subjected to an environmental impact assessment and audit for new projects or existing one, respectively.

In the case of Kenya, NEMA requires an environmental impact assessment preliminary report be undertaken on a real estate entrepreneurial investment prior to its construction. Consultants registered by NEMA are the only ones allowed to provide environmental impact assessment submissions, whether as EIA report or a full EIA study. On the basis of this submitted report, the authority undertakes to prepare a summary public consultation supplement, which is printed on public newspapers for inputs from the public, especially regarding environmental impact assessment studies. The authority

may accept or reject with the reason an application for approval with valid reasons or may call for the real estate entrepreneur to carry out a full detailed environmental study for it if it deems it fit and especially for sensitive real estate investments (GOK, 2012). Basically, approval permits at any of the development stages of the real estate need to be easy, transparent and less time consuming (Koirala, 2012). If not so, it affects the performance of the entrepreneurial investment.

On the other hand, during the post-construction phase, technical risk will include the overall technical condition of the building, its equipment and systems. This may include issues related to heating, cooling, water and sewage, ventilation, air conditioning, sprinklers, power supply, stand by power, lighting, elevators, fire and burglar alarm systems. In this regard, the real estate entrepreneur is expected to identify the technical defects on the building and any neglected maintenance that can affect the financial value of the real estate entrepreneurial investment and its functionality, and give recommendations and costs for maintenance, repairs and renovations. Failure to attend to any identified defects or maintenance concern may compromise the structural stability/functionality of the investment leading to demolition or a collapse, high tenancy turnover or uncalled for litigations negatively impacting on its performance.

The importance of managing technical risk is evidenced by Karim, Rahman, Memmon and Azi (2012) when investigating the significant risk factors based on contractors' perception in Malaysia. They found that out of 25 risk factors that were considered for investigation, the five most important risk factors affecting performance were shortage of materials, late deliveries of materials, insufficient technology, poor quality of

workmanship and cash flow difficulties; all from the technical risk category. In this study, as is with Jaber (2014), the data gathered was analysed using relative important index (RII) to determine the relative significance and ranking of risk factors. The researchers observed that for the entrepreneurial investment to be successful, the revealed significant risk factors should be prioritised in managing the investment risks.

Similar findings were arrived at by Srinivas (2015). Having classified risk into six categories comprising of 33 risk factors that would delay construction of infrastructure projects in India, he found that construction risk (technical risk) had the highest impact on performance. Using a risk management index (an indicator of the extent to which a construction property is exposed to risk), he found that infrastructure projects under study had a 61% risk exposure. By industrial standards, this was found to be very high.

Technical risk management entails, therefore, engaging technically sound and skilled persons throughout all the life cycle of the development project, undertaking a comprehensive site investigation procedure that will help advice on the salient features of the development site. Procedures that help the company/firm minimise delays in getting document approvals need to be developed, as well as inculcating a due diligence culture in all its undertakings. Technical risk management will also include reviewing the product design with the client in a bid to unearth any design problems early enough not to affect the performance of the entrepreneurial investment. Other technical risk management strategies include training of the staff on matters related to risk management and the top management having close surveillance on the development of the real estate investment.

2.5.2 Financial/Economic risk management and performance of real estate entrepreneurial investment

These are mostly risks of financing the entrepreneurial investment that evolves during the delivery of the real estate entrepreneurial investment such as inadequate sources of funds by an entrepreneur or funding agent, financing problems caused by inadequate sources of funds, costs influenced by fluctuations in the exchange rates of foreign currencies, inflation, and many other financial and economic factors such as tariffs and fiscal policies (Anton, Rodriguez, & Lopez, 2011).

The real estate investment is a production process, commencing from the purchase of the development land to the construction of the real estate entrepreneurial investment and managing it throughout its life cycle. During this period, heavy financial obligations are instituted by the real estate entrepreneur (s) where borrowed money should be repaid together with interest accrued. Interest rate fluctuation determines the internal rate of return, which consequently affects the investment possibility of real estate investment. Mei (2008) postulates that if the inflation fluctuated, the interest rate of credit would fluctuate consequently. The rising interest rate of the credit will increase the financial cost of the real estate investment and will counteract large parts of the expected profit.

Given the long-protracted life cycle of a real estate entrepreneurial investment government and commercial banks in their financial policy change their interest rates which cause uncertainty and affect the entrepreneur's cash flow management. Kamane and Mahadik (2006) contend that the effects of financial risks include lower

productivity, poor performance and an increase in the cost of the projects. In their study on risk factors impacting construction projects in Ghana, Chileshe and Yirenkyi-Fianko (2014) found that financial/economic risk was the most composite risk factor impacting on the performance of the projects. In their study on contractors' perspective on risk management in Palestine, Enshassi, Mohamed and Mosa (2008) found financial risk had the highest impact on performance with more than 80% failure associated to it.

Odeyinka, Aladapo and Dada (2000) undertook a study on the relative likelihood and impacts of risk factors at pre and post contract stages of construction projects in Nigeria. In this study, the survey responses were analysed by computing the relative index of each factor and ranking the indices. The result showed that performance of real estate entrepreneurial investment was most affected by financial risk category. Other risk categories followed in the order of political risk, contractual risk, logistic risk, legal risk and environmental risk. Financial/economic risk sources in the literature include: Change in government funding policy, Taxation change Local inflation changes, Wage inflation, Foreign exchange rate, material price changes, Energy price change/interest rate, changes/fluctuation in foreign exchange, Return of funds, delays in payment, local Taxes and Inflation.

Financial and economic risk management encompasses several strategies which include the company confirming creditworthiness of the client prior to commencement of the project. Whenever possible, clients who do not pay in a timely manner and have poor financial status is avoided. During cost estimation or during the pricing of tender documents cost related to the exchange rate fluctuation are included in the rates. Where

the real estate entrepreneurial investment is immense, and the duration is long, the inflation can be unpredictable with far-reaching effect on the cost of materials and other related costs. Contract with a fluctuation clause should be preferred to a fixed sum contract. Alternatively, a provisional allowance is usually made to cushion the entrepreneurial investment against the impact of this cost (Njogu, Ahmad, & Gwaya, 2015). Choosing the right mortgage plan is a top priority to any real estate entrepreneur. With real estate investment being financial intensive, a good mortgage plan that will check on risks associated with a fluctuating interest rate is considered.

2.5.3 Market risk management and performance of real estate entrepreneurial investment

The market analysis concerns itself with the supply and demand situation in short to medium term. It identifies the specific market segment (in terms of use, geographical location and technical submarkets) applicable to the project. In line with this, the main criteria to be considered are the requirements of potential users, how readily the real estate entrepreneurial investment will be absorbed by the market and subject to the effects of this absorption, the rent and property values applicable to the projects (Wiegelmann, 2012). A considerable number of real estate entrepreneurs are continuing to develop and build a product with little or no engagement with their customer. As a result, developments lack amenities customers are seeking or incorporating components customers don't need or want. This oversite may delay the letting or uptake of particular properties or increase the tenant's turnover leading to cash flow challenges. In addition, some real estate entrepreneurs fail to anticipate potential changes in market conditions at the planning stage, with significant adverse consequences (Kaklauskas et al., 2015).

Demand for real estate entrepreneurial investments is a function of various factors such as the disposable income of the population, taste and demographic changes. Any change in any of these factors will reflect in the marketability of the real estate entrepreneurial investment. Any development coming up into the market will definitely face competition from the existing commercial properties and other upcoming ones. In this regard, a better understanding of the potential competitors will be required. The objective of any real estate entrepreneurial investment is to meet client needs while differentiating the development as much as possible from competitors. It is the meeting of these needs that translate into the performance of the entrepreneurial investment.

As was stated earlier under development phases of real estate properties (section 2.4.2), the manoeuvrability of the real estate entrepreneur reduces as the development process comes to an end. This is to say at the end of the process they will have 'known all' but can do nothing to change their product which has been manufactured on an essentially befitting a particular market set up. Some factors create uncertainty as to whether the final product can be sold at an economical price in order to produce an acceptable return on investment. In addition, Gichunge (2000) observes that the intervening period between the commencements of the production stage and eventual sale is a major component of market risks. Boateng et al. (2012) are of the view that good real estate markets are characterised by strong occupancies and steady rent growth, while downturns often result in lower occupancies and flat or even discounted rents. There are myriad market risk factors that can trigger imbalance in the supply and demand for space leading to poor performance of real estate entrepreneurial investment. These factors include changes in the general price level, market potentiality and technology

(Gichunge, 2000). Taste is another factor which can also change in the twinkling of an eye due to change in choice and preference Gichunge, (2000), and may call for very frequent checks on the market, or otherwise, one may be priced out of the market sector.

Market risk is about the saleability of the real estate entrepreneurial investment the entrepreneur has introduced in the market and its ability to recoup the invested amounts and satisfying the users. Two broad strategies are deployed to manage this risk. A comprehensive feasibility study enables the entrepreneur to understand the market needs and therefore tailor his or her product to satisfy this need in terms of product design, type, segment and locality. A post-construction demand and supply survey backed with a marketing strategy enables the entrepreneur to minimise delays in letting or uptake rates while managing competition.

2.5.4 Political/legal risk management and performance of real estate entrepreneurial investment

Political/Legal risk is risks that may arise from the interactions between the government and the surrounding environment or society. Typically, they prevail from politically motivated events that adversely affect investments, contracts, or other businesses, be it national or international. For instance, in an unstable political condition, people are unable to make correct predictions on future economic development. Similarly, in a situation of frequent change in government, the policy made by one government may be changed by the incoming government. These situations end up hiking the uncertainty within the industry (Koirala 2012). People who feel insecure and fearful will not be in a position to be productive within the sector of their engagement. Consequently, the

real estate business during this situation reduces and the real estate investors' opportunity to gain profit becomes minimal. A case in hand is the low economic activities that were experienced during the 2017/2018 electioneering period in the country where many activities were paralysed. Expressed differently, political risk would exist as a result of government intervention as well as due to uncertainty of law and order, respective policies, socio-economic or civil insurgency (Koirala, 2012).

Other sources of political risk include a change in law, corruption and delays in approval (Wang et al., 2004). Corruption is defined as the misuse of power for private gain either at one's own instigation or in response to inducements. Corruption (including bribery, embezzlement, kickbacks and fraud) in construction projects undermines the delivery of services (Sohail, & Cavill, 2008). Corruption can be 'grand' involving large amount and taking part within the highest levels of society or 'petty' involving smaller amounts of money. Irrespective of its magnitude, corruption is harmful. In particular, the corruption that leads to poor quality construction or which supports an environment of poor investment selection and insufficient maintenance can significantly reduce the economic returns to investment, loss of the entrepreneurial investment through demolition, and carry high human costs in terms of injury and death.

A study by Othmann and Harinarain (2012) on the risk sources to the contractors in South Africa found the government authority as a key source of risk to the contractor and especially dealing with regulation. Real estate entrepreneurial developments operate with a legal framework of planning and environment regulations, codes of practice, safety regulation, insurance and taxation laws (Akanni, Oke, & Akpomiemie,

2015). These laws, code and regulations are generally well defined, making it relatively possible to predict their impact on real estate entrepreneurial investments. However, any changes that might occur during the life cycle of the entrepreneurial investment bring about a risk challenge.

A legal concern also arises on the acquisition of the land for real estate entrepreneurial development. These are situations where fake documentation are used in a real estate transaction; the land was initially fraudulently acquired/allocated or is a subject of public utility. Similarly, lack of due diligence in real estate entrepreneurial investment acquisition may lead to heavy debts on levies which need to be paid, such as land rates and rents, encumbrances, prohibition, cautions and court issues that may end up delaying the registration of the entrepreneurial investment. Real estate transactions are normally lengthy and time-consuming. In this kind of situation, some of the government staffs would require some money paid if anyone wanted his or her work done quickly (Koirala, 2012).

Anyone ready to spend money may get the approval early but who does not spend has to spend more time to get the approval. Koirala (2012) found that most of the real estate entrepreneurs in Nepal India offer ‘bribes’ to enhance the approval process and not to suffer from the hurdles. A survey of leading real estate entrepreneurs in Indonesia where 71 real estate development risk factors were assessed, revealed that the most important risk categories that were seen as having the highest overall risk level in the real estate entrepreneurial investment development process were a political risk, technical risk, social risk and economic risk in that order. Based on these findings, they recommended

key strategies be developed aimed at mitigating the ranked risks (Muka, Tewin, & Wibowo 2015).

Using 65 risk factors found in the Iranian real estate industry, Jaber (2014) found that the most ten important factors based on frequency, severity and importance were all under technical and political risk categories. Risk factors under political/legal category included; security measures, the loss incurred due to corruption and bribery, loss due to bureaucracy for late approvals, un-official holidays and loss incurred due to political changes. Overly, related political risks were found to have the greatest importance, followed by market-related factors, related social factors and management-related factors. In this study, Legal related factors were ranked least in importance. Based on these findings, Jaber (2014) posited that contracting companies should compute with high accuracy and consider risk by adding a risk premium to quotation and time estimation. Secondly, they should modify and improve clauses to meet the impact of the political situation in the country.

In essence, therefore, political/legal risk is caused by changes in the political environment, governance, authorities, legislation and regulations, which may impact the existing business environment. On a county level, these issues include domestic politics, (appointment of the new government), civil disturbances, foreign politics (issues on foreign investors), legislations (laws or their interpretation), taxation (change or introduction of the new tax regime), and governance (reporting requirements and regulation set by authorities) (Fletchers, & Pendleton, 2014).

To manage political/legal risk in commercial real estate entrepreneurial investments, real estate entrepreneurs deploy several management strategies aimed at addressing risks factors emanating from the company's internal environment and those from the external environment. Internally, the company/firm encourages a culture of the transparent and ethical way when engaging with government and its agents, maintain a maintenance, repair and renovation record and funds. For the external risks, the entrepreneur should obtain all necessary approvals in a timely manner to minimise the chance for the corrupt individual to obstruct work, maintain good relations with relevant government officials and relevant authorities, provide dispute settlement clauses in the contract, develop own contingency plans for possible political instability by way of maintaining a political risk insurance policy from credible insurance companies (Ghahramanzadeh, 2013).

2.5.5 Environmental risk management and performance of real estate entrepreneurial investment

Effects of environment on a real estate entrepreneurial investment are associated with risks on natural hazards and influences of nature on the project. Similarly, in practice, environmental risk will include considerations such as the possible contamination, pollution and emissions on the site (such as different harmful chemicals and radiation) that might cause significant purifying liabilities for the entrepreneur during construction or post-construction phases (Kohonen, 2015) and in some instances non adherence to environmental laws and requirements. Many only see weather disruptions as the direct time lost during the bad weather. Unfortunately, some events can cause damage to partly completed structures which could take days or weeks to repair. Recovering from

one hour of rain could take days while we pump work areas dry, clean debris and wait for materials to dry out. Adequate insurance can cover us for some of the damages, but they usually don't cover for the delays caused to the project.

Several environmental attributes that would affect the performance of the investment have been indicated in the literature to include climate change, severe weather condition such as wind, precipitation, floods and hail. For instance, the rain will stop work due to discomfort as well as the safety of workers; it may cause damage in terms of excavations collapsing and or make roads impassable. In some instance, these attributes will affect the entrepreneurial investment by reducing visibility, and inability to manoeuvre construction and operation equipment's, delay in receipts of materials and or suppliers, shortening of working hours, increased structural loading, and loss of electrical power.

Newell and Steglick (2006) in their study on assessing property development risk factors in Australia, divide the development of entrepreneurial investment into pre-construction phase, contract negotiation phase, formal committed phase, construction phase and finally post-construction phase. In this study, they found that given the uncertainty in the pre-construction phase and some factors being out of the entrepreneur's control, the pre-construction phase was regarded to have the highest overall risk. The environmental risk was found as the highest risk factor not only in the pre-construction phase but was regarded as the overall highest risk impacting on performance.

In his assessment on risk factors in real estate projects in Iraq, Jaber (2014) found that of the risk factors under the environmental category, change in climate condition was found to have the greatest impact on the projects. However, Wang, Dulaimi and Aguria (2004) in an evaluation performance of real estate properties in developing countries, the environmental risk was found to have the least impact on their success. Similar findings were arrived at by Tipili and Ilyasu (2014), who found that the environmental risk factor had the least likely to occur and had the least score.

To manage environmental risk, the entrepreneur undertakes a comprehensive environmental impact assessment audit for all the projects and adheres to the environmental requirements as laid down in the environmental impact assessment report approved by NEMA. The company may also exclude weather conditions which are worse than the normal from the bid price and time. Additional risk management strategy of environmental risk is for the entrepreneur to schedule construction activities that can be impacted by bad weather elements outside their respective position; risk factors associated with real estate entrepreneurial investment activities impacting negatively on its surrounding and those from acts of God (Force Majeure), the entrepreneur mitigates by including a disclaimer in the contract document.

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2.5.6 Operational risk management and performance of real estate entrepreneurial investment

Upon completion of the real estate entrepreneurial investment, it must be operated and maintained in such a manner that the development can realise the anticipated revenue as well as comply with all its obligations (Fletchers, & Pendleton, 2014).To ensure that

the investment operates at the level required to generate the revenues forecasted and needed to repay the loans, the entrepreneur will assume management role or may, among other things engage a competent project manager, who will establish effective risk management procedures. The entrepreneur is expected to obtain optimum rents for the investment by obtaining realistic estimation on the highest possible rents considering the market rents and the comparative advantages and disadvantages of the premises. Other concerns include accounting for possible vacancies, tenants' turnover and default. Still, others will include annual operation cost such as salaries, utilities, contract services, administrative and management costs.

To manage operational risk, the real estate entrepreneur usually hires a competent real estate manager, and has clear contractual terms and conditions, agree on one accounting standard and define clear authority and responsibility in the management contract. He or she should periodically undertake a solvency assessment of existing tenants and maintain a lease maturity evaluation. Additionally, he (entrepreneur) takes appropriate insurance policies from reputable insurance companies covering the entrepreneurial investment against various liabilities.

2.5.7 Moderating role of adoption of risk management procedure

The term moderating variable refers to a variable that can strengthen, diminish, negate, or otherwise alter the association between independent and dependent variables. Moderating variables can also change the direction of this relationship (Cooper, & Schindler, 2006). Moderation, therefore, occurs when the effect of an independent

variable on a dependent variable varies according to the level of a third variable, termed a moderator variable, which interacts with the independent variable (Lai, 2013).

Commercial real estate entrepreneurial investments, owing to their complex nature, are beset with risks which if not systematically managed can cause it to miss its set objectives (Garrido, Ruotolo, Ribeiro, & Naked, 2011). Traditionally risk management has been applied instinctively, with risks remaining implicit and managed by judgement and informed by experience (Mills, 2001). This approach has affected the realisation of performance objective amongst the real estate entrepreneurs. The systematic approach, on the other hand, makes the risks clear, formally describing them and making them easier to manage (Mills 2001).

Managing of real estate entrepreneurial investment risks in a systematic approach entails establishing the context under which the management will take place; identification, analysing, responding and monitoring of all the risks that pose a threat to the performance of the investment. Bahamid and Doh (2017) opined that making use of the risk management process; one can achieve a major improvement in the performance of real estate investment. The goal of the risk management process is not to completely remove all risks but aims at producing an organised framework that will make the entrepreneur/management manage risks, most importantly the crucial ones in a more efficient and effective way. Goh and Abdul-Rahman (2013) add that effective implementation of a risk management system not only brings a higher level of awareness of the consequences of risk but also can help reduce long-term loss expenses and maintain its worthiness. However, even with these gains, most real estate

entrepreneurs are not keen towards the implementation of risk management practices (Goh, & Abdul-Rahman, 2013). They further found that resistance to change and the satisfaction of the entrepreneurs with the current informal management system to be the main contributors to lack of adoption.

According to a study carried out by Bowers and Khorakian (2014) in most real estate industries in developing countries of the world, very little facts on the successful implementation of risk management systems are known. The same sentiments were arrived at by Bahamid and Doh (2017) who similarly posited that risk management approach of the real estate industry of developing countries, generally attempts to avoid or shifts risks, which result in risk management practices among the real estate entrepreneurs being reactive and informal. Investigating various structural and cultural factors concerned with the implementation of risk management, Uher and Toakey (1999) found that while most industry practitioners were familiar with risk management, its application was relatively low, qualitative rather than quantitative analysis methods were generally used, widespread adoption of risk management was impeded by a low knowledge and skill base, resulting from a lack of commitment to training and professional development. A further investigation of the level of adoption of a systematic risk management approach among real estate entrepreneurs in Malaysia by Goh and Abdul-Rahman (2013) revealed that only 17.78% employed a formal risk management process in their practice. Most respondents practised only risk identification without further analysis.

Emphasising on the need for a systematic approach, Mills (2001) views systematic risk management as a management tool which required practical experience and training in the use of the techniques. Lack of it or its inadequacy leads to poor performance. More findings are evident in literature where poor risk management skills and lack or low application of the systematic approach to risk management has been identified to impact negatively on the performance of real estate entrepreneurial investments (Maina et al., 2016; Rabechini Jr., & Monterio de Carvalho, 2013; Enshassi et al. (2008). Zwikael and Ahn (2011) in their study carried out in three countries, (New Zealand, Israel and Japan), with 701 project managers in 7 industrial sectors found that risk management, even when moderate, has a relationship with the level of success of real estate investments.

Subsequent to foregoing literature, the current study hypothesises that the effectiveness of the risk management strategies by the real estate entrepreneur on the performance of the commercial real estate entrepreneurial investments will depend on the extent he (entrepreneur) will adopt risk management procedures.

2.6 Performance of real estate entrepreneurial investment

Performance indicators are measurements that reflect the critical success factors of an organisation which are agreed on upfront (Passenheim, 2009). They help the organisation to define and measure progress towards organisational goals or objectives. According to Venkatraman and Ramanujam (1986), performance can be divided into three domains: financial performance, business performance and organisational performance. They expound on financial performance to be those that focus on the use

of simple outcome-based financial indicators, whereas business performance comprises of the indicators of non-financial indicators in addition to indicators on financial performance. For organisational performance, they posited to be organisational effectiveness examined through the perspectives presented in different frameworks such as the balanced scorecard or performance prism. In addition, Matsuno and Mentzer (2000) observed that performance measures could be categorised into two; economic and non-economic measures. Economic performance indicators to include return on investment, return on assets, profit revenue, product or service quality and overall financial position. Finally, non-economic factors encompass indicators such as customer loyalty, customer satisfaction, company image and social acceptance.

The financial framework is the oldest paradigm for performance evaluation. Its roots are in the areas of accounting, financial management and economics (Marie, Ibrahim, & Al Nasser, 2014). The founders of financial performance measurement are considered to be the Dupont cousins who in early years of 20th century after creating the Dupont company, installed "best practice" of the day and devised the return on investment (ROI) measure to serve as both an indicator of efficiency and a measure of company performance (Neely, 2007). Despite there being a considerable number of key financial performance indicators, a number of scholars have argued that as much as these financial indicators have widely been used in measuring performance, they fail to sufficiently approximate the actual performance and should, therefore, be supplemented by other non - financial measures. (Kaplan, & Norton, 1992; Marie et al., 2014)

As noted by Seabrooke, Kent, & How (2004), measuring the performance of real estate investments is not an easy undertaking, given its complexity and many stakeholders. Consequently, there has been no single set of criteria that is totally comprehensive when it comes to defining the success or performance of real estate properties. In literature, however, real estate performance has been measured and evaluated using a variety of various dimensions such as time, cost, quality, client satisfaction, client change, business performance, health and safety (Enshassi et al., 2009). Others include the return on the asset (Hammes, & Chen, 2005) and the internal rate of return - IRR (Fisher, & Goetzmann, 2005). However, time, cost and quality are the three predominant performance criteria used traditionally referred to as the "iron triangle". Memon, Rahman and Azis (2012) postulate that construction time and cost are fundamental considerations in the management of real estate entrepreneurial investments and regarded as the most important parameters for measuring the success of any development.

A general assumption is at times made that if a real estate entrepreneurial investment is completed on time, within the agreed budget and set quality (the iron triangle), the entrepreneurial investment is deemed successful. However, evidence suggests that this is not always the case since there are some real estate entrepreneurial investments that meet all the three targets, yet considered failure. For instance, a real estate entrepreneurial investment that although it meets all the criteria, and yet has a very low commercial success may not necessarily be considered a success. Being of the same views, Rashvand and Majid (2013) argue that success criteria cannot be limited to meeting just the three traditional criteria. They further posited that satisfaction is a

subjective and critical measurement for the stakeholders' performance. Doyle (1995) contends that the most suitable measures of performance are customer satisfaction and customer loyalty and asserts that customers who are satisfied with the value being provided purchase the product repeatedly (for instance take up additional space or buy more units in the case of real estate).

On the other hand, the primary role served by the financial performance measurement lies within the province of the finance function and is concerned with the effective and efficient use of financial resources. This is key since the finance function serves a boundary role, it is an intermediary between the internal operations of an organisation and the key external stakeholders who provide the necessary financial resources to keep the organisation viable. Neely (2007) further argues that performance is a multi-dimensional construct, and any single index may not provide a comprehensive understanding of the performance relationship relative to the constructs of interest. Subsequently to capture performance of commercial real estate entrepreneurial investments throughout their development lifecycle; during land acquisition, construction and post-construction, this study adopted four performance criteria namely: time, cost, and return on investment and client's satisfaction.

2.6.1 Cost performance

The cost of a real estate entrepreneurial investment is one of its most important criteria in measuring its success and is of great concern to those who are involved in the real estate industry. Ali and Rahmat (2010) indicate that cost variance was the most common technique used to measure design performance. It is not only confined to the

tender sum but the overall cost that a real estate investment incurs from inception to completion, which includes any cost that arises from variations, modification during the construction period and the cost arising from the legal claims, such as litigation and arbitration. According to Memon et al. (2012), cost overrun can be considered as the difference between the actual cost of a real estate investment and its cost limit. It occurs when the resultant cost target of an investment exceeds its costs limit – where cost limit of a real estate investment refers to the maximum expenditure that an entrepreneur is prepared to incur on a completed real estate entrepreneurial investment while cost target refers to the expected expenditure for each element of an investment project. It can be measured in terms of unit cost, percentage of net variation over final cost (Ali, & Rahmat, 2010). In this study, cost overrun was calculated by the variance between the actual and the budgeted cost of the real estate entrepreneurial investment.

2.6.2 Time performance

It is very important for real estate entrepreneurial investments to be completed on time. Akinsiku and Akinsulive (2012) view delay as a pervasive phenomenon in real estate investment delivery with many real estate investments unable to meet their timelines. According to them, it is the most common, costly and risky problem encountered in commercial real estate development with a debilitating effect on the parties to a contract. When it occurs, it creates an adversarial relationship, distrust, litigation, cash flow problems, abandonment of entrepreneurial investment and the general feeling of apprehension towards each other. The clients, users, stakeholders and the general public who usually look at the success of a real estate entrepreneurial investment from the

macro view, have their first criterion for its success to be the completion time (Ali, & Rahmat, 2010).

Memon et al. (2012) define delay as the time overrun either beyond the completion date specified in the contract or beyond the date that the parties agreed upon for delivery of the completed investment project. They further state that it occurs when the progress of a contract falls behind its scheduled programme. According to Ali and Rahmat (2010), construction time can be regarded as the elapsed period from the commencement of site works to the completion and handover of a building to the client and is usually specified before the commencement of construction. They further observe that the time can be deduced from the entrepreneur's brief or derived by the construction planner from available information on the investment.

2.6.3 Client's satisfaction performance

Satisfaction is regarded as a function of comparison between an individual's perception of an outcome and its expectations for that outcome (Ali, & Rahmat, 2010). According to Soetanto and Proverbs (2004), satisfaction is regarded as an internal frame of mind, tied only to mental interpretations of performance levels. That is to say, the performance assessors (for instance, a client) will have their own psychological interpretations of the performance of the project. The basic notion behind customer satisfaction is that customers have expectations about the products and services they buy and are more or less satisfied depending on how well the consumption experience meets or exceeds those expectations (Neely 2007). Hague and Hague (2016) are of the view that the product and its features, functions, reliability, sales activity and customer support are

the most important topics required to meet or exceed the satisfaction of the customers. Satisfied customers usually rebound and buy more. Besides buying more, they also work as a network to reach other potential customers by sharing experiences. They further found that service quality, product quality and values for money have a direct positive impact on customer satisfaction.

In commercial real estate entrepreneurial investments, customer satisfaction has been considered as a dimension of quality and as an important factor indicating the success of the investment. It could be determined by the extent to which a physical facility (product) and a construction process (service) meet and/or exceeds a customer's expectations (Karna, & Veli-Matti, 2009). This expectation should be in conformance to specifications (the entrepreneurial investment must produce what it said it would produce) and fitness for use (the product or service produced must satisfy real needs). In his study, Karna (2004) as (cited in Rahman and Alzubi, 2015) found that the need for real estate entrepreneurs to improve performance related mostly to quality assurance, handover procedures and materials. The author found that low satisfaction could be found in items related to quality assurance and handing over.

Chan and Chan (2004) in their study, they combined traditional "hard" measures and softer subjective measures. They determined quality, functionality, the end user's satisfaction, the client's satisfaction, the design team's satisfaction and the constructions teams' satisfaction as subjective measures in contrast to objective measures such as construction time, unit cost and net present value. According to Karna and Veli-Matti (2009), the importance of customer satisfaction and orientation has

grown in real estate industry in the recent times due to the tightened competition and more demand from customers as a response to industry's poor performance. In principle, Sibiya, Aigbavboa and Thwala (2014) postulate that the clients' success factor includes: on schedule; on budget; function for the intended use (satisfy users and customers); end result as envisioned; quality (workmanship, products); aesthetically pleasing; return on investment (responsiveness to the audience); the building must be marketable (image and financial); and aggravation in producing a building.

2.6.4 Return on investment (ROI)

After the completion of the commercial real estate entrepreneurial investment, it is important to measure it with different parameters by which it will be possible to ascertain its performance. ROI indicates cumulative return in terms of value which has been generated as revenue through the investment. A commercial real estate entrepreneurial investment can be considered to be successful if the rate of investment (returns) exceeds the value of investments. Stated differently, ROI is a performance measure used to evaluate the efficiency of an investment or to compare the efficiency of a number of different investments (Botchkarev, & Andru, 2011). There are, however, many other definitions in the literature of ROI; such definitions reflect the fact that approaches to ROI and even ROI concepts vary from company to company and from practitioner to practitioner. Despite the diversity of the definitions, the primary notion is the same: ROI is a fraction, the numerator of which is "net gain" (returns, profit, benefit) earned as a result of the entrepreneurial investment (activity, systems, operations), while the denominator is the cost (investment) spent to achieve the result (Botchkarev, & Andru, 2011). To calculate ROI, the benefit (return) of an investment

is divided by the cost of the investment; the result is expressed as a percentage or a ration. The formula is (Botchkarev, & Andru, 2011):

$$\text{ROI} = \frac{\text{Gain from investment} - \text{cost of investment}}{\text{Cost of investment}}$$

The main attributes of the traditional ROI that are notable that are the traditional ROI is calculated in retrospective and that accounting records, for instance, official financial documents or accounting systems, are used as sources of cost and return data (Botchkarev, & Andru, 2011). Accordingly, in the current study, data on net rental income, sale value and development cost of the properties was gathered to facilitate this computation.

2.7 Theoretical framework

This section offers the theoretical foundation of the study with the aim of determining the existing theories that could support and explain effective risk management strategies in the commercial real estate industry. The theoretical framework is the "blueprint" for the entire dissertation inquiry that serves as the guide on which to build and support the research study (Grant, & Osanloo, 2014). It consists of the selected theory (or theories) that undergird the researcher's thinking with regards to how he/she understands and plan to research his/her topic, as well as the concepts and definitions from that theory that are relevant to the topic (Grant, & Osanloo, 2014). Harvett (2013) notes that a theory is "a set of interrelated constructs (variables), definitions and propositions that presents a systematic view of phenomena by specifying relationships among variables, with the purpose of explaining natural phenomena". According to Hudin and Hamid

(2014) assertions, the more recent study argued that the utilisation of a single theory is insufficient to explain the risk management phenomenon. They, therefore, suggest the pluralism approach where more than one theory is suggested.

A theory of entrepreneurship is defined as a verifiable and logically coherent formulation of relationships or underlying principles that explain entrepreneurship. These principles predict entrepreneurial activity (for example, by characterising conditions that are likely to lead to value creation or social opportunities and the formation of new enterprises), or provide normative guidance (that is, prescribe the right action in particular circumstances (Fredrick, O'Connor, & Kuratko, 2016).

In the study of contemporary entrepreneurship, one concept recurs: entrepreneurship is interdisciplinary, which means combining fields and crossing boundaries between disciplines or schools of thought. As such, it contains various approaches that can increase one's understanding of the field. Therefore, there is need to recognise the diversity of theories as emergence of entrepreneurial understanding. One way to examine these theories is within a 'schools-of-thought' approach that divides entrepreneurship into specific activities. These activities may be within a macro view or a micro view, yet all address the conceptual nature of entrepreneurship (Fredrick, O'Connor, & Kuratko, 2016). Guided by these sentiments, three theories from entrepreneurship schools of thoughts and one from management have been advanced to underpin the theoretical framework of this study, namely; Strategic Planning Theory, Risk and uncertainty - bearing theory, Enterprise risk management theory and Contingency Theory.

2.7.1 Strategic planning Theory

The theory, domicile in the strategic formulation school of thought of entrepreneurship, emphasises the planning process in successful venture development (Fredrick, O'Connor, & Kuratko, 2016). Strategic planning was borne out of military conflicts, and the use of a superior strategy enabled one warring party to defeat another (Quaye, Osei, Sarbah, & Abrokwah, 2015). It entails prior arrangement before engaging the enemy with the intention of disadvantaging the enemy and tactfully manoeuvring to undo the enemy (Narikae & Lewa, 2017).

The use of strategy in decision-making is the primary way in which real estate entrepreneurs take into account of a constantly changing external environment. An effective strategy allows them to use their organisation's resources and capabilities to exploit opportunities and limit threats in the external environment in order to achieve competitive advantage (Quaye et al., 2015). Mintzberg (1994) places strategy on a continuum of intended and emergent strategy, which leads to realised strategy and concludes that the strategic process falls mainly between these two extremes. He further observed that outcomes are emergent and do not often correlate with an entrepreneur's initial intentions (Mintzberg, Ahlstrand, & Lampel, 1998).

There are three most typical approaches of strategic decision making under strategic formulation theory as advocated by Mintzberg (Cole, 2004): entrepreneurial mode (the focus is on opportunities, problems are secondary), adaptive mode (this decision-making mode is characterised by reactive solutions to existing problems, rather than a proactive search for new opportunities) and planning mode (involves the systematic

gathering of appropriate information for situation analysis, the generation of feasible alternative strategies, and the rational selection of the most appropriate strategy. It includes both the proactive search for new opportunities and the reactive solution of existing problems).

Risk management is about making decisions from a set of options on how best to minimise the impact of the threats to the firm's objectives. With the real estate entrepreneurs faced with a myriad of risks threatening the performance of their entrepreneurial investments, strategic planning is crucial. The best strategic plan will be influenced by many factors, among them the ability of the entrepreneur, the complexity of the venture and the nature of the industry (Kuratko, & Hodgetts, 2000). Irrespective of the situation, strategic planning follows five basic steps. The first step is to examine the internal and external environment of the venture (strengths, weaknesses, opportunities and threats), secondly, formulate the venture's long-range and short-range strategies (objectives and strategies) while the third step is to implement the strategic plan (programs, budget and procedures). The fourth step in strategic planning is to evaluate the performance of the strategy, and finally, the fifth step is to take follow up action through continuous feedback (Kuratko, & Hodgetts, 2000).

Miller and Cardinal (1994) propose that since the complexity of projects requires diverse functional experts to get together to solve problems, an explicit, codified strategy is needed to coordinate and focus the efforts of second-tier managers. Real estate entrepreneurial investments are complex and multidisciplinary, and therefore, management of its risks will require a systematic approach advocated by the strategic

formulation school of thought. However, as was evident in literature most of the real estate entrepreneurs tend to have inexplicit, intuitively derived strategies that reside mainly in the mind of the entrepreneur, and the strategies are rarely written down. According to the strategic theory, entrepreneurs can reduce risks through adaptive learning, increasing scientific knowledge, effective adaptation and mitigation measures, and other choices. Or they can do the opposite through insufficient mitigation, mal-adaptation, failure to learn and use knowledge, and other actions whose resultant is poor performance of their ventures (Fredrick, O'Connor, & Kuratko, 2016).

An issue to be addressed is whether the concept of strategic management is compatible with the concept of entrepreneurship. Fredrick, O'Connor and Kuratko (2016) postulate that an entrepreneurial strategy may be defined as: design or plan that integrates an entrepreneurial team's intent into goals, policies and action sequences to build a cohesive business model. A well-formulated strategy helps to marshal and recruit resources, complement team competencies, compensate for relative shortcomings, anticipate changes in the environment and contingent moves by intelligent opponents, and to form an organisation with a unique and viable posture. Since strategy formation entails some of the entrepreneurial attributes such as behaviour, vision and leadership style, the implicit assumption in personality trait theory is that strategy formation is intentional, and under the control of the entrepreneur and for this reason it reflects the will of entrepreneurs and leads to improved performance (Tegarden, Sarason, & Banbury, 2003). McCarthy (2003) further argues that strategy may be formed in a deliberate manner; it may emerge over time or may contain both deliberate and emergent elements. The degree to which the firm acts entrepreneurially in terms of

innovativeness, risk-taking and pro-activity is related to dimensions of strategic management. Correspondingly, specific domains that define the extent of wealth creation have been delineated from the commonalities of entrepreneurial and strategic actions (Fredrick, O'Connor, & Kuratko (2016). In this regard, strategic management is seen to be a key concept in entrepreneurship.

The theory anchors the study by explaining the role of the real estate entrepreneur in the formulation of the risk mitigation strategies and in the decision – making of the strategy to use for a different type of risk.

2.7.2 Risk and uncertainty - bearing Theory

This theory was propounded by an American economist Prof. Frank H. Knight (Knight, 1921), and elsewhere referred to as "Knightian entrepreneurship" (Wood, 2005). The theory is based on the expression of self-confidence in one's abilities to forecast the future, undertake and secure the factors that will help someone to start and manage an enterprise successfully towards the production of goods for unknown future demand by consumers, with superior opinion in the face of uncertainty (Wood, 2005). The theory places great emphasis on the entrepreneur's ability to make decisions under uncertainty, and as Knight (1921) states, uncertainty and risk are the basic building blocks of this theory.

Knight categorised his risks into two; foreseeable risk (measurable risk) and unforeseeable risk (unmeasurable risk) and used the term "risk" to mean measurable uncertainty and unforeseeable to mean "uncertainty" (Rakow, 2010). The measurable

risks are insurable since the probability of their occurrence can be statistically calculated. Their loss can be avoided by paying some fixed premium. Therefore, these insurable risks do not cause uncertainty. For instances, risks that are associated with the loss of real estate entrepreneurial investment due to fire accident, or loss due to theft and robbery, etc. These losses can be recovered by purchasing insurances (Wood, 2005).

He identified some of the non-insurable risks which arise to include the following; competitive risk (entering into the market unexpectedly), technical risk (change in technology), Government risk (interfering by the government into the affairs of the industry such as price control, tax policy, import and export restrictions) and Cyclical risk-economic risk (economic changes). These risks cannot be foreseen and measured, they become non-insurable, and the uncertainties have to be borne by the entrepreneur. According to this theory, there is a direct relationship between profit and uncertainty bearing (Coşgel, & Langlois, 1993: Wood, 2005).

Applying Knight's concept of entrepreneurship to risk management of real estate entrepreneurial investment, the concept of risk and uncertainty offers an important factor on how risk is to be managed. First Knightian entrepreneur looks at alternative sets of plans, and he also evaluates the likelihood of correctness of each forecast, selecting not necessarily the "best" plan (i.e., the most profitable), but the plan most likely to succeed; i.e., the correct forecast. In the same way, real estate entrepreneur should be able to evaluate his/her environment and based on the risk management options available select the most practical option. Secondly, given that risks in

commercial real estate entrepreneurial investments broadly fits in the Knight's categorisation of measurable and immeasurable risks, the real estate entrepreneur will be guided on how to respond. Whether and when to adopt risk avoidance, risk reduction, risk transfer or risk retention as a mitigation strategy.

This study agrees with the theory that goods (and in this case commercial real estate investments) are produced for a market on the basis of an entirely impersonal prediction of wants, not for the satisfaction of the wants of the producers themselves, and yet the producer takes the responsibility of forecasting the consumer's wants. The real estate entrepreneur introduces real estate investments into the market with a hope that it will meet the desire of the customer. This uncertainty leads to many commercial real estate entrepreneurial investments remaining unsold or unoccupied way after completion.

2.7.3 Enterprise risk management (ERM) Theory

Enterprise risk management is a management theory that advocates for the measurement and management of all significant risks facing a given entity holistically rather than the measurement of each risk independently (Mwangi, & Kwasira, 2016). According to Casualty Actuarial Society (CAS), ERM is the discipline by which an organisation in any industry assesses, control, exploit, finance, and monitor risks from all sources for the purpose of increasing the organisation's short and long term value to its stakeholders (D'Arcy, 2001). It is acknowledged to be an orderly or pattern of behaviour for an enterprise, that it has the full support and commitment of the management and that it influences corporate decision making. The CAS further enumerate the type of risk subject to enterprise risk management as a hazard (to include

fire, business interruption, pollution), financial (to include interest rates, foreign exchange rate and liquidity risk), operational (customer satisfaction, product development, management fraud) and lastly strategic (technological innovation, customer preference and regulatory or political impediments) (D'Arcy, 2011).

ERM was born out of problems experienced in traditional risk management. Since the hazard risk manager and the financial risk manager both generally reported to a common position, frequently to the treasurer or chief financial officer of the firm, the different and separate approaches to dealing with risk created a problem (D'Arcy 2001). Potentially, each area could be expending resources to deal with a risk that in aggregate, would cancel out within the firm. These discrepancies provided the impetus for developing common terminology and common techniques for dealing with risk; hence the enterprise risk management approach. It is, therefore, a framework for achieving a better-governed risk management system. The enterprise risk management framework emphasises the active involvement of senior company executives and participation of all employees in the risk management process of identifying, analysing and responding to a wide range of company risks (Hallowell, 2013**).** It, therefore, challenges the status quo and requires managers and leaders to step out of their organisational comfort zones and into a collaborative environment to discuss not only common risks but uncover latent risks as well (Hardy, 2010).

The theory contends that organisations can improve their risk management capacity by having formal policies that define their risk appetite and tolerance, strategic goals and systematic risk management process (Mwangi, & Kwasira, 2016). In so doing,

enterprise risk management assists the management with evaluating the likelihood and impact of major events and developing responses to either prevent those events from occurring or manage their impact on the entity if they do occur (Protiviti, 2006). It postulates that with most organisations still focusing on traditional risks that have been known for some time, they often learn of critical risks too late or by accident, spawning the 'firefighting' and crisis management which drains resources. For this reason, ERM promulgates that if the risk is built into the equation when setting strategy for the entire project, then risk management can become a holistic process that starts the organisation (Hardy, 2010). By so doing, this will help weave risk management strategies into everyday operations and strategic decision making and finally enhance awareness. By creating awareness, ERM helps in improving the management of increasing risk mitigation costs and the success rate of achieving business objectives (Protiviti, 2006). It, therefore, help to advance the maturity of the organisation's capacities of managing the priority risk and enable the management to successfully enhance optimisation of the cost of managing risk, establishing a sustainable competitive advantage and improving business performance (Renault, Agumba, & Ansary, 2016).

Although the Enterprise Risk Management model was developed for use in managing company risks, it has become popular in the project management sphere (Mwangi, & Kwasira, 2016). Renault et al. (2016) argue that since real estate project objectives are within the corporate objectives, it suffices to adopt ERM theory in the management of real estate entrepreneurial investment risks. Emphasising on its applicability, Protiviti (2006) postulates that to any organisation that faces risks, takes the risk and responds to risks; ERM will help the real estate entrepreneurs understand the nature of risks,

develop a differentiated skill in selecting the best bets for the organisation. With the ERM theory advocating for greater understanding of all potential risks in a project, creation of risk awareness, prioritisation of risks to enhance the optimal allocation of resources, and eventually maturing the organisation in their risk management capabilities, the theory help in explaining the objectives of this study.

2.7.4 Contingency Theory

Contingency theory was first introduced in the organisational theory literature through the empirical researches of Lawrence and Lorsch (1967), Woodward (1965) and Burns and Stalker (1961) as a response to the rapid changes and increasing environmental uncertainty (Abugalia, 2011). Previously, traditional management theories such as scientific management theory by Fredrick Tylor and bureaucratic theory by Max Weber considered that there is only one way to structure an organisation. These management theories until the late 1950s were mostly concerned with finding a universal "the best way" to manage an organisation (for instant the most effective organisational form, production methods, or personality traits and working styles of managers). These theories were deficient in that they formally ignored the implications of the different objectives and environmental pressures on the organisation (Bowey, 1976). Contingency theory has then become a promising alternative (Abugalia, 2011), and in the 1970s, it became the dominant way to study organisations (Child, 1972).

The theory proposes that there are many ways to attain a given end, but for every situation there is an ideal way to attain that end, to achieve optimal organisational performance Mitchell, (2006) and that the optimal course of action is contingent

(dependent) upon the internal and external situation (Hai, & Nawi, 2012). This is considered one of the primary insights of the theory, in that, instead of propagating universally applicable organisation-management principles, the theory tries to demonstrate that different circumstances require different organisational structures. The theory does not, however, ignore the existence of universal principals of management, but highlights the uniqueness of each management situation. In this case, the theory uses these universal principals together with unique specifications of the current situation and proposes the most appropriate way of managing that situation (Ghahramanzadeh 2013). Given the fact that management situations are not similar, explain why specific management practices are successful in some situations but not in others.

In this case, therefore, the organisational effectiveness is dependent on a fit or match between the type of environmental volatility, the size of the organisation, the features of the organisational structure and its information system/communication cost, culture, people involved, supply chain and strategy (Ghahramanzadeh, 2013; Hudin, & Hamid 2014; Islam, 2012). Wood (1979) suggests that since the relationship between the organisation and the environment is a result of human choices; this relationship could be manipulated to attain the optimal organisation performance for a given situation. Central to contingency theory (Wood, 1979; Mitchell, 2006), is the premise that for each organisation, there is an optimal fit between the organisation and the context. The closer the fit between the organisation and the context, the greater the organisational performance. They further observed that the degree of fit could be manipulated through human action. Nissen (2014) postulates that the concept of fit exists when alignment of key organisational and environmental contingencies affect organisational performance

positively. Internal fit refers to the alignment of organisational strategy structure and process, while external fit refers to the alignment of the organisation with its environment. When misfit occurs, either internally or externally, organisational performance is negatively affected.

In adopting contingency theory, this study hypothesises that the closer the fit between the real estate entrepreneur's way of managing the risks and systematic risk management the greater is the performance of the respective commercial real estate properties. Secondly, since the objective of this study is to investigate the effect of risk management on the performance of commercial real estate projects, management of any of these risks should have an influence on the performance of these properties, and therefore contingency theory can be suitable to be used for covering these effects.

According to Oyewobi, Windapo and Cattell (2014) and Henschel (2010), most entrepreneurs of real estate have often been portrayed to be poor at managing risks. They further argue that they are unfamiliar with these risk factors and do not have experience and knowledge to manage them effectively. Consequently, they rely on assumptions, rule of thumb, experience and intuitive judgement. As a result, Henschel (2010) suggests that individual knowledge and experience need to be accumulated and structured to facilitate the analysis and retrieval by others.

In this regard, the contingency theory will be key in the explanation of the role played by organisational structure, and in particular, its risk management culture and risk management strategies it has in place given the various identified risk factors that affect

the performance of the properties. Although the contingency refuses the existence of one best way for managing risk, it proposes that there is one most appropriate approach for each specific situation contingency (Ghahramazadeh 2013). Further, contingency thinking recognises the uniqueness and complexities of construction projects and attempts to identify practices that best fit with the unique demands of different situations (Ortiz-Gonzalez, Pellicer, & Howell, 2014). It, therefore, acknowledges the need to identify risk factors that negatively impact on the performance of real estate properties and have them managed in a systematic manner. Secondly, with appropriate information on the organisational environment, real estate entrepreneurs are facilitated in choosing the adequate strategy for their projects, and therefore optimising performance.

2.8 Conceptual framework

A conceptual framework is a set of broad ideas and principles taken from relevant fields of inquiry and used to structure a subsequent presentation (Kombo, & Tromp, 2006). It, therefore, assists a researcher to organise his/her thinking and complete an investigation successfully. Kombo and Tromp (2006) further state that it helps explain the relationship between interlinked concepts and connection between variables.

The conceptual framework (Figure 2.6) presents the postulated factors (the independent variables) and the dependent variables (performance of commercial real estate entrepreneurial investments) and illustrates the expected relationship between the independent variables and the dependent variables. As was indicated in Table 2.2, risks

under study are grouped into six categories, and 32 risk factors were identified. The risk categories are identified as:

R1 - Technical risk

R2 - Financial/economical risk

R3 - Market risk

R4 - Environmental risk

R5 - Political/legal risk

R6 - Operational risk

Risk factors on the other side are similarly numbered where those under technical risk are denoted by $R1_1$, $R1_2$, $R1_3$… $R1_6$, environmental risk category as $R4_{14}$, $R4_{15}$, ...$R4_{16}$ and those under political/legal risk category as $R5_{17}$, $R5_{18}$,... $R5_{20.}$ All the others follow the same numbering format.

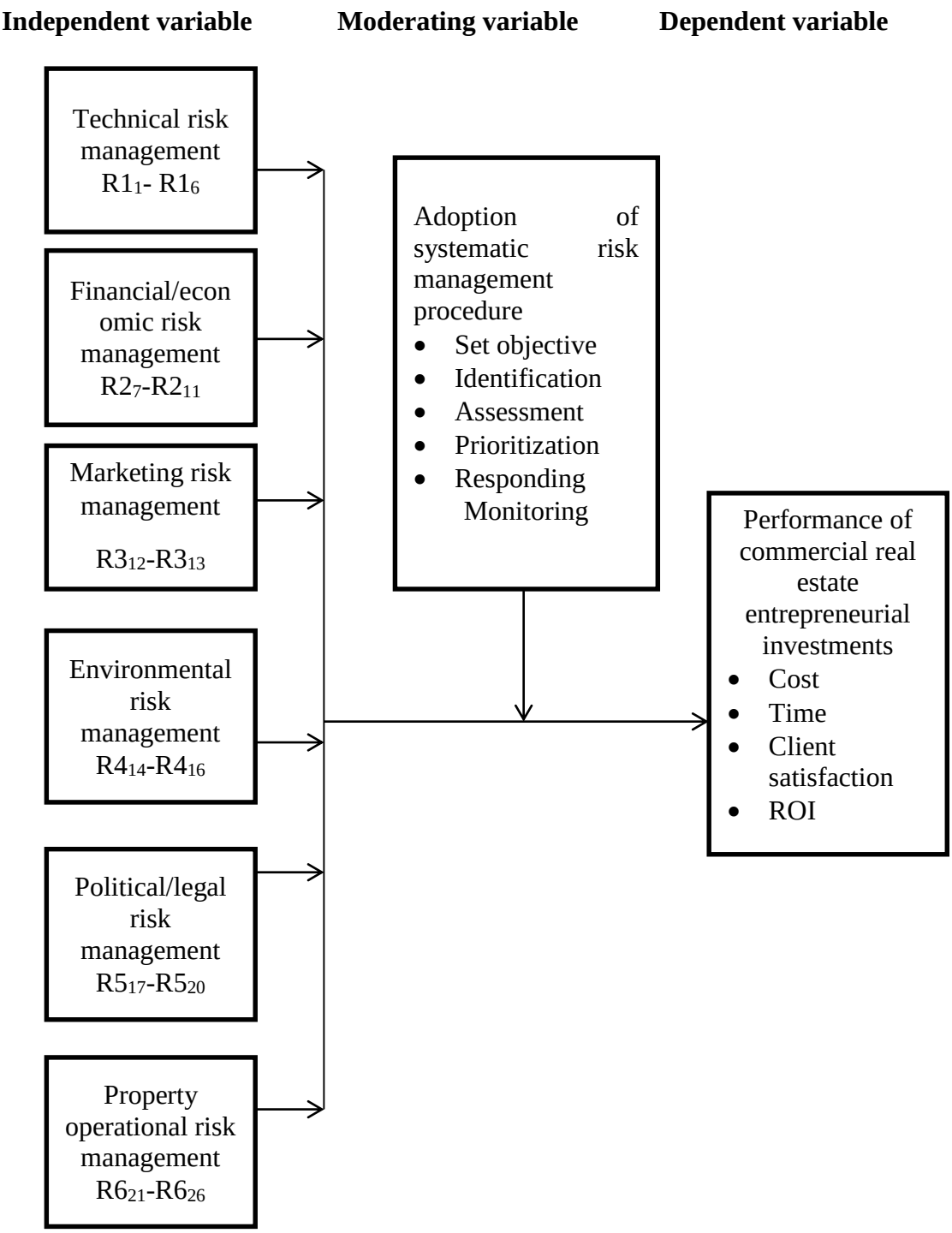

Figure 2.6: Conceptual framework

Source: Researcher (2019)

The conceptual framework hypothesises that if the associated risks of real estate entrepreneurial investments: technical, financial/economic market, environmental,

political/legal and property operational risk denoted as R1 – R6 in the framework together with their corresponding risk factors denoted as $R1_1$ – $R6_{26}$ are identified, analysed and followed by proactive responses, the commercial real estate entrepreneurial investments will actualise their objective performance based on the performance indicators (cost, time, client satisfaction and ROI).

To measure the independent variables, a Likert scale for each variable was developed, as indicated in section C (1), (2) and (3) of Appendix 2. For instance, to measure technical risk management, a 5 point – 7 items Likert scale was used while to measure operational risk management, a 5 point – 5 items Likert scale was used. On the other hand, the dependent variables were similarly measured using Likert scales, as indicated in section D (I), (II), (III) and (IV) of Appendix 2. From the reviewed literature, the risk management procedure was found to play a critical role in the effectiveness of risk management strategies. Therefore, the level to which a real estate entrepreneur will adopt the procedure would determine the performance of the investment. For this reason, adoption of risk management procedure was considered to have a moderating effect on the performance.

2.9 Critique of the existing literature and the research gap

Risk management in the real estate industry is a well-covered subject in literature. Gehner (2008) undertook a comprehensive study on real estate as an investment, where he argued that the real estate entrepreneur knowingly take a risk whenever he undertakes a real estate investment. He postulates that knowingly taking a risk is making timely, justifiable and accountable decisions. According to him, a rational

decision-making process will most likely result in effective decisions within the context of real estate development. The study, therefore, informs the real estate entrepreneur on the risk inherent in real estate development which he (the entrepreneur) is likely to face when choosing real estate as an investment via-a-vis other types of investments. Whereas the study sheds light on risk management in real estate, it is more of a precautionary study to those intending to invest in real estate option but fails to give an account on how to manage the risks within the investment project. The current study not only identifies risks in commercial real estate entrepreneurial investments but also identifies management strategies available to entrepreneurs in mitigating these risks.

Similarly, Wiegelmann (2012) carried an extensive study on the risk and risk management in real estate with an emphasis on risk management approaches. The aim of the study was to explore, describe and explain actual risk management practice in real estate development amongst pan-European developers. Beside it targeting the developed countries, it only sampled the leading real estate entrepreneur expected to have fully developed risk management systems or models. Although his findings indicated that the entrepreneurs' approach towards the management of risks tends to be characterised by a lack of formalisation and co-ordination and that it largely relied on individual judgment and experience (synonymous mainly with small-sized entrepreneurs), these findings may not be rightly generalised to the entrepreneurs of commercial real estate entrepreneurial investments in the developing economies like Kenya. The sample for this study was drawn from a well representative target population that comprised of a wide range of commercial real estate entrepreneurs in Kenya.

Osipova (2008) undertook a study on risk management in construction projects in Sweden although he found the need for the systematic risk management procedure for effective risk management, his research dwelt on procurement options, design – bid – build contract, design-build contract. He found that design-build type contract exposes the client to lesser risks than the former and may perform better on a time scale. The shortfall of this study is two way; first, it's objective was to apportion property risks based on the procurement contract type and compare which of the two is more ideal, two it assumed or ignored all other risk sources such as financial, environmental, operational and market and their management yet they are key in understanding performance of commercial real estate entrepreneurial investments. This omission is addressed in the current study.

From the literature review, a number of studies on risk management have been carried out in Kenya and globally but only a few have dwelt on the performance of commercial real estate entrepreneurial investments in relation to their risk management. However, even those that have attempted, their research has covered risk at the planning stage or during construction stage Njogu et al. (2015) and none during post-construction. Auma (2014) investigated the performance of construction projects in Kenya. Her objective was, however, to determining how the cost of equipment and materials, cost of variation orders, cost of rework, time management and the leadership style adopted on-site affected the performance of construction projects. It, however, failed to address the management of various risk factors.

Mwangi and Kwasira (2016) undertook a study on the influence of risk management practices on the successful implementation of projects. In their study, they targeted public secondary schools whose projects are under special properties category while the current study is on the commercial segment. As was stated earlier, some risks are segment specific in that risks in special real estate category may not necessarily be the same as those in the commercial, residential or mixed user segment. Subsequently, their management could be varied. Secondly, their study dwelt on the components of risk management process; risk identification, analysis, risk treatment and risk control and how they (components) influenced project implementation. The study was not able to neither identify various risk factors associated with real estate properties nor prioritise them so as to help real estate entrepreneurs optimally allocate the scarce resources when managing risks. The current study was able to identify, categorise and prioritise different types of risks that affect the performance of commercial real estate entrepreneurial investments.

As was evident under section 2.6 on performance of real estate entrepreneurial investments, there has been no single set of criteria that is totally comprehensive when it comes to defining the success or performance of a real estate entrepreneurial investments and single index may not provide a comprehensive understanding of the performance relationship relative to the constructs of interest. To capture the performance of commercial real estate entrepreneurial investments throughout their development lifecycle, this study used financial and non – financial performance indicators. None of the other studies measured performance using a combination of financial and non – financial performance indicators.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

The objective of this study is to examine risk management and its effect on the performance of commercial real estate entrepreneurial investments in Kenya. Commercial real estate entrepreneurial investments in Kenya continue to realise poor performance in terms of cost and budget overrun, client dissatisfaction, poor rate of investment, collapsing of buildings and termination of construction due to irregularities associated with land acquisition. The poor performance may be attributed to lack of adequate insight on key risk factors and their criticality and failure to manage real estate entrepreneurial investment risks in a systematic way. This chapter describes the development of a research methodology that is used to address the problem and the objectives, as stated in Chapter one.

The chapter is divided into eleven main sections that describe the research design, area of study, population, sample size, sampling procedure and data collection methods. It also describes the validity and reliability of instruments, data analysis, and concludes by discussing the ethical considerations of this study.

3.2 Research design

A research design is a plan showing how the problem under investigation will be solved. The function of research design is to ensure that the evidence obtained enables the study to answer the research question as unambiguously as possible. Descriptive survey research according to Cohen, Manion and Morrison, (2005) is concerned with

conditions or relationships that exist, practices that prevail, beliefs, points of views or attitudes that are held; processes that are going on, effects that are felt or trends that are developing. Cohen et al. (2005). It deals with the systematic collection of data from a large population and seeks to find relationships that exist and describe the characteristics and behaviour of the subjects. Cohen et al. (2005) further postulate that survey research has several characteristics and several claimed attractions such as generalisability or universality, it ascertains correlation and provides descriptive, inferential and explanatory information.

There are several important factors that determine the design that can best be used in research. Two of these factors are the number of variables and the sample size (Glasow, 2005). On this basis, Glasow (2005) posited that survey design is best suited to collect information about so many variables and is designed to efficiently cope with a large number of respondents.

The objective of the study was to investigate the effect of risk management on the performance of commercial real estate entrepreneurial investments. To get this kind of data that display existing relationships, one would require an objective approach to data collection by use of questionnaires which is envisaged by descriptive survey design. Secondly, given a large number of variables involved (30) and the heterogeneity of the commercial real estate sector, a large sample was needed to enhance on the generalisation of the findings which is possible with this type of research design.

3.3 Location of the study

The research area for this study was four major cities/towns in Kenya, which were purposefully selected due to their significance in commercial the real estate entrepreneurial development in the country. These cities/towns are Nairobi, Kisumu, Nakuru and Eldoret. Secondly, most established commercial real estate entrepreneurial investors have their main offices in these cities/towns and their operations cut across the other counties.

3.4 Population of the study

A population consists of the entire subject to be studied and to which the result will be generalised to, also referred to as the target population. The study population, on the other hand, is the portion of the population to which the researcher has reasonable access; maybe a subset of the target population (Mugenda, & Mugenda, 2003). The target population for this study is all the real estate entrepreneurs in Kenya whereas the study population is all the real estate entrepreneurs operating in the four major town/cities of Kenya, namely Nairobi, Nakuru, Kisumu and Eldoret.

A sampling frames is a list of all the elements in the population from which the sample is drawn. Since there is no one official list of 'registered' real estate entrepreneurs in the country and in order to obtain viable participation and meaningful results, four sources were used to formulate the sampling frame for this study. The sources are; Kenya property directory SoftKenya (2018); Property Developers Association of Kenya KPDA, (2018), Estate Agent Registration Board (estateagentsboard.or.ke) and Register of Contractors by National Construction Authority (GOK, 2016). These

sources are considered to be credible enough and provided a basis of established and stable players in the real estate industry in the country to participate in this study.

The membership list of KPDA is comprised of construction firms, property developers' category, law firms, financial institution and industrial suppliers. For the purposes of this study, the companies under the categories of construction firms, property developers and real estate were considered. Similarly, those categorised as Property and Real estate developers and Real estate companies in Kenya by the Kenya property directory of SoftKenya and registered estate agents sanctioned to practice by the Estate Agents Registration Board (EARB) in 2017 were considered for participation. From the National Construction Authority (NCA), registered contractors of building work category for the year 2016/2017 were considered.

To obtain the sampling frame for this study, a list of all real estate entrepreneurs from each source and whose registered address appeared under any of the four towns/cities under study was generated. To begin with, four lists of all real estate entrepreneurs were generated first from each of the four sources, having regard only to entrepreneurs whose registered address appeared under the four towns/cities. A consolidated list from the four sources was later compiled to remove replication of any company/firm appearing in more than one source. This is to say the sampling frame was a combined list comprised of all real estate entrepreneurs from the four sources (KPDA, SoftKenya, EARB and NCA) but having their residence addresses in Nairobi, Nakuru, Kisumu and Eldoret.

From this exercise, a total of 9,320 firms/companies was arrived at. This included 884 from SoftKenya directory, 95 from KPDA, 320 from Estate Agent Registration Board and 8,021 registered building works contractors from NCA. Table 3.1 shows the sampling frame for the study.

Table 3.1: Sampling frame

SoftKenya directory: Property and Real estate developers Real estate companies in Kenya	884
Kenya Property Developers Association (KPDA)	95
Registered real estate agents	320
Registered building works contractors	8,021
Total	**9,320**

3.5 Sampling procedure and sample size

3.5.1 Sample size

There are varied opinions on the appropriate sample size to be used in a quantitative design. As the sample size also affects the generalisability of the result findings, Creswell (2012) advocates that the most important thing in deciding a sample size is that the sample must sufficiently represent the population of interest. Cooper and Schindler (2006) suggest that as a general rule, the sample should be of an optimum size. It should neither be excessively large nor too small. It should be large enough to reproduce the salient characteristics of the accessible population to an acceptable degree but small enough to allow for intensive study method.

To determine the sample size for this study Yamane (1967) formula was used. The sample size is calculated as follows: -

Yamane's formula $n = \frac{N}{1+N(e)^2}$

Where n = sample size required

N = population size which is 9,320

e = error of precision or margin error of 5%

$$n = \frac{9,320}{1+ 9,320\ (0.05)^2} = \frac{9,320}{24.30} = 384$$

3.5.2 Sampling procedure

A stratified proportionate random sampling technique was adopted for this study where the obtained sample size of 384 was proportionately distributed amongst the four sources namely; the Kenya Property directory, Kenya Property Developers Association (KPDA), SoftKenya directory, Estate Agent Registration Board and National Construction Authority (NCA). According to Kothari (2004), stratified random sampling is used where the population embraces a number of distinct categories; the frame can be organised by these categories into separate "strata." Each stratum was then sampled as an independent sub-population, out of which individual elements were randomly selected. All the members of each subpopulation (stratum) were assigned numbers, and by use of random tables available in research and statistical textbooks, the participants were identified. In the selected firms or companies, the owner of the firm/company, being the risk bearer, was considered first. In the event of his/her inaccessibility, the top management was considered to be key informant as he/she was found to have the necessary information to answer the research questions in the study.

Table 3.2: Sampling frame and sample distribution

Real estate entrepreneurs	Sampling frame	Sample size
Kenya Property directory (Softkenya)	884	37
Kenya Property Developers Association (KPDA)	95	4
Estate Agent Registration board	320	13
National Construction Authority (NCA)	8,021	330
Total	**9,320 (N)**	**384 (n)**

3.6 Instrumentation

This section describes the tools for data collection and justify their use in the study

3.6.1 Pilot testing

For the purpose of obtaining valid and reliable data in a research study, the research instruments should be piloted (Cooper, & Schindler, 2007) before being administered to the target population. The purpose is to check whether the questions raised are simple, easy to read and to determine the time required to complete the questionnaire. The process also helps to improve the quality of the questionnaire, achieve a better response rate and to establish whether the data to be collected will be suitable for analysis. It is a mini – version of a full-scale study or a trial run of all the procedures planned for use in the main study (Wanjala, Iravo, Odhiambo, & Shalle, 2017). One form of pilot testing is pre-testing (Cooper, & Schindler, 2007), which undertakes the pre-testing of the research instruments such as questionnaires and interview schedules.

A pre-test study was undertaken by administering the questionnaires to randomly select 19respondents in Eldoret town. These participants were selected from a sample that was similar to the one under study. According to Mugenda and Mugenda (2003) and

Wanjala et al. (2017), a sample of 1% to 10% of the population is usually acceptable in a pilot study. Although the procedures used in pre-testing the questionnaire were similar to those in the actual study, the subjects from the actual sample did not participate in the pre-testing.

3.6.2 Validity of the instruments

The validity of a research instrument indicates the degree to which an instrument measures what it is supposed to measure (Kothari, 2004). It refers to the accuracy of a measurement in terms of the likelihood that research questions are misunderstood or misinterpreted and on whether the research instruments provide adequate coverage of research objectives. According to Varkevisser, Pathmanathan and Brownlee (1988), an instrument is said to be valid if it successfully targets the objectives of the study. In quantitative data, validity might be improved through sampling, appropriate instrumentation and appropriate statistical treatment of the data (Cohen et al., 2005). It is impossible for research to be 100% valid since it possesses a measure of standard error which need to be acknowledged. For this reason, validity in research should be seen as a matter of degree rather than as an absolute state. Subsequently, the objective of a researcher would be to strive to minimise invalidity and maximise validity (Cohen et al., 2005).

In this study, the validity of the research instruments was achieved by presenting the first drafts of the instruments to the supervisors of the research for expert opinion and suggestions on the format, content and other related issues. The opinions and

suggestions got from the supervisors, together with the results from the pre-test study were used in the improvement of the final copy of the research instrument.

3.6.3 Reliability of the instruments

Reliability refers to the consistency of the scores – how consistent they are for each individual from one administration of an instrument to another and from one set of items to another (Fraenkael, & Wallen, 2015). The objective is to ensure that if a later investigator followed exactly the same procedures, the same findings and conclusions would result. In this case, a research instrument is considered to be reliable if it provides consistent results after repeated trials (Mugenda, & Mugenda, 2003). In this study, the reliability of the instruments was achieved by computing the Cronbach's Alpha using scores obtained from a single test based on the split-half technique administered by the researcher to a selected sample of sixteen respondents in Eldoret town. For research purposes, a useful rule of thumb is that reliability should be at least 0.70 and preferably higher (Fraenkael, & Wallen, 2015). Table 3.3 indicates the Cronbach alpha scores for each of the six risk factor categories, risk management and performance scale. The Cronbach alpha score of all the scales was above 0.7, an indication that acceptable reliability and hence no amendments were made on the original instruments. The overall Cronbach alpha score was 0.797, equally confirming the internal reliability of the scales.

Table 3.3: Reliability test results

Item	No of items	Cronbach Alpha	Comments
Risk Factors Scales			
1. Technical risk	6	0.798	Reliable
2. Financial/ economic risk	5	0.800	Reliable
3. Marketing risk	2	0.805	Reliable
4. Environmental Risk	3	0.801	Reliable
5. Political risk	4	0.804	Reliable
6. Operational risk	6	0.802	Reliable
Risk management Scales			
1. Technical risk management	7	0.754	Reliable
2. Financial risk management	4	0.761	Reliable
3. Marketing risk management	2	0.792	Reliable
4. Environmental Risk management	3	0.768	Reliable
5. Political risk management	4	0.759	Reliable
6. Operational risk management	5	0.759	Reliable
7. Risk management procedure adoption	5	0.791	Reliable
Performance Scale	10	0.760	Reliable

3.7 Data collection procedure

The data for this study was collected using questionnaires. Kothari (2004) postulates that a questionnaire gives the respondents adequate time to give well thought out answers. The questions in the questionnaire comprised of open-ended, close-ended and matrix type (Likert-type scales). Whereas the close-ended types facilitate consistency of certain data across respondents, Creswell (2012) asserts that open-ended types of questions give the respondents freedom to express themselves and share their views or suggestions on particular issues and hence enhancing on the richness of the data. In addition, Kothari and Pals (1993) noted that Likert-type questions serve to assess the extent of the persuasiveness of given campaign materials.

The questionnaire was organised into five sections namely A, B, C and D. Section A sought for demographic data of sampled real estate entrepreneurs such as sex, age, level of education, number of years in real estate industry et cetera. Section B aimed at establishing the criticality of risk factors in commercial real estate entrepreneurial investments in Kenya based on the likelihood and severity. Twenty-six (26) risk factors that were identified in the literature were considered in this section where they were grouped in six (6) categories namely: technical risk, financial/economic risk, market risk, political/legal risk, environmental risk and property operational risk. Section C aimed at establishing risk management of these risks by the real estate entrepreneurs while section D of the questionnaire was designed to measure how the risk management affects the performance of commercial real estate entrepreneurial investments based on four performance criteria namely: time, cost, client satisfaction and return on investment (ROI).

After obtaining research consent from Kabarak University and the National Commission for Science, Technology and Innovation (NACOSTI), the first set of questionnaires were self – administered with the help of research assistants. However, the administering of the questionnaires faced a challenge with many real estate entrepreneurs failing to return the questionnaires dropped at their offices or development sites. After several repeated attempts, only ten questionnaires were returned. With the majority of the entrepreneurs preferring online questionnaires with anonymity on their side, an online questionnaire (Google forms) was developed based on the physical copy and emailed to the respondents. The process was successful as reported later under 4.2 - response rate.

3.8 Data analysis and presentation

The research instruments were first edited by checking each question to ensure that each has been answered and that there is no missing data. The data was then coded before entering into the computer and analysing it using the Statistical Package for Social Sciences (SPSS - version 20.0).

The data was analysed using both descriptive and inferential statistics. The descriptive statistics was used to describe the characteristics of the respondents and the variables of the study. This involved computation of frequency distribution, mean, standard deviation and chi-square analysis. For the descriptive analysis the percentage mean score for the frequency and severity of the risk factors was achieved by the use of the following working formula: -

Percentage mean score = $\left[\frac{\sum_{s}^{1} X_k Y_k}{ns}\right]$ x 100 ……..1

Where;

X = number of responses who selected-response k

Y= weighting of response k (Likert rank)

n = total number of responses

s = number of Likert rank

Source: Author, 2019

To assess the relative significance among risks, previous literature study suggests establishing a significant risk index by calculating a significance score for each risk (Gupta, Sharma, & Trivedi, 2016). Two attributes for each risk are considered; likelihood level of the risk occurrence denoted by α and the degree of impact denoted by β. For calculating the significance score, multiply the probability of occurrence (α) by the degree of impact (β). Thus, Gupta et al. (2016) and Jayasudha, Ridivelli and

Surjith, (2014) posited that the significance score of each risk assessed by each respondent could be obtained through the following formula …2

$S^i_j = \alpha^i_j \beta_j{}^i$ …….2

Where S^i_j= significance score assessed by respondent j for risk i

α^i_j = occurrence of risk i, assessed by respondent j and

$\beta_j{}^i$ = degree of impact of risk i, assessed by respondent j

By averaging scores from all the responses, it is possible to get an average significance score for each risk, and this average score is called the Risk Index Score (RIS) and is used for ranking the risks (Gupta et al., 2016; Jayasudha et al., 2014). The formula used for calculating the risk index score is defined as:

$RIS^i = \frac{\sum_{j=1}^{T} s_j^i}{T}$ ……3

Where: RIS^i = index score for risk i

S^i_j= significance score assessed by respondent j for risk i

T = total number of responses

To calculate S^i_j, the five-point scale for α and β was converted into numerical (Likert scale) scales, as shown in Table 3.4 (Gupta et al., 2016).

Table 3.4: Numerical conversion for the rating attributes

α, β	
Rating attributes	Numerical conversion
1	0.2
2	0.4
3	0.6
4	0.8
5	1.0

The research questionnaire used in collection data used multiple items in measuring each variable. While multiple-item questions approach moderates responses and minimise outliers, Creswell (2014) cautions of biased estimates when items fail to measure the same latent construct and recommend the use of confirmatory factor analysis (Fraenkael, & Wallen, 2015). Prior to using factor analysis, sample adequacy assumption was confirmed based on Kaiser-Meyer-Olkin Measure of Sampling Adequacy with a cut score of 0.5 and Bartlett's Test of Sphericity chi-square *p*-value of less than 0.05. Items with Eigen values greater than one (1) were extracted and rotated using varimax for ease of interpretation. Items that failed to load on extracted components were excluded from the computation of the variable score.

Pearson's Correlation test was performed to investigate the existence of an association between the variables in the study. In estimating how well the independent variables predicted the dependent variable, multiple linear regression analysis was used. Multiple Regression technique is a statistical procedure that estimates the relationship between a single dependent variable and several independent predictor variables (Creswell, 2012). It estimates how well the independent variables predict the dependent variable

and indicate their relative contribution to the overall prediction qualities of the final model. The regression analysis model with the interaction effect for this study is: -

$Y = \alpha + \beta_1 TRMGT + \beta_2 FRMGT + \beta_3 MRMGT + \beta_4 ERMGT + \beta_5 PRMGT + \beta_6 ORMGT + \beta_7 ARMGTP\ (TRMGT + FRMGT + MRMGT + ERMGT + PRMGT + ORMGT) + \varepsilon$, where,

Y= Performance of commercial real estate properties

α = Performance of commercial real estate entrepreneurial investments independent of the factors under study.

β (1-7) = regression coefficients

TRMGT = Technical risk management

FRMGT = Financial/economic risk management

MRMGT = Market risk management

ERMGT = Environment risk management

PRMGT = Political/legal risk management

ORMGT = Property operation risk management

ARMGTP = Adoption of systematic risk management procedure

ε = Error term

The estimated parameter coefficients in the fitted regression model were tested for significance using t-test at 0.05 level of significance. The null hypotheses of variables with *p*-values less than 0.05 were rejected.

3.9 Ethical consideration

In the context of research, ethics refers to the suitability of the behaviour of the researcher in relation to the rights of those who become the subject of the work or are influenced by it (Ghahramanzadeh, 2013). According to Cooper and Schindler (2007), ethics is defined as the "norms or standard of behaviour that guide moral choices about researchers' behaviour and relationships with others.

Prior to the commencement of data collection, consent approvals to undertake the study was obtained from the relevant authorities such as Kabarak University, National Commission for Science Technology and Innovation (NACOSTI) – Appendix 3 and 4. Participants were assured that their information would be kept confidential. They were further assured of their right to withdraw data they will have provided at any point of their concern since everything was to be done based on their consent.

All sources of information for instance from textbooks, journals, has been acknowledged, and as stated by Kombo and Trump (2006) all the data that was collected was managed without any manipulation to make the study come out on its own form.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND DISCUSSION

4.1 Introduction

To examine the relationship between risk management and performance of commercial real estate properties in Kenya, descriptive and inferential analysis was employed. This chapter is divided into three key sections; a presentation of background information of respondents; a descriptive analysis of the study variables and inferential analysis, a basis on which hypotheses were tested. The organisation of entire data analysis was done in-line with the research objectives set out in chapter one and using the specific data analysis test and models outlined in the methodology section.

4.2 Response rate

A good response rate not only is an indicator of good sampling design but also enhances the quality of the parameter estimation. As set out in the sampling design section in the preceding chapter, 384 respondents were sampled and issued with questionnaires. Three hundred and twenty-nine (329) questionnaires were received back, representing 85.7% response rate. However, three questionnaires had more than 30% missing responses, while two questionnaires had little variability in responses. All the five questionnaires were dropped from the analysis, leaving 84 %of the response for analysis. According to Arber (2001) response rate of 65% and above for self-filled questionnaires are adequate.

Comparatively, the current response ranks relatively higher compared to similar studies in the construction sector. For instance, Ondara, Bula & Kamau (2018) achieved

81% response rate in their assessment of risk management risks among construction firms in Kenya. Njogu et al. (2015) attained a 52% response rate when assessing the effects of construction risk on project delivery in Kenya while Jayasudha and Vidivelli (2016) achieved an 80% response rate on a study on risk rating in India. The relatively high response rate attained in this study could be attributed to the use of both direct (physical delivery) and email methods in administering the questionnaires. The responses are summarised in Table 4.1

Table 4.1: Sampling frame and actual sampling distribution based on responses

Real estate entrepreneurs	**Target population**	**Sample size**	**Actual sample size**
Kenya Property directory (Softkenya)	884	37	30 (9.3%)
Kenya Property Developers Association (KPDA)	95	4	4 (1.2%)
Estate Agent Registration board	320	13	10 (3.1%)
National Construction Authority (NCA)	8,021	330	280 (86.4%)
Total	**9,320(N)**	**384(n)**	**324(n) 100%)**

Source: Author, 2019

4.3 Background information of the respondents

As seen in Table 4.2, the distribution of respondents based on gender was found to be skewed with male respondents taking up more than 70% of the responses received. This was a close representation of the construction sector in Kenya, where males own 71% of registered firms and employ more than 80% of male workers (National Construction Authority, 2014). In this study, the majority of respondents who answered the questionnaires were mainly aged between 31 and 40 years, accounting for 42.3% of the

respondents. Slightly more than a quarter of the respondents were aged below 30 years, an indication that the sector is attracting the younger professionals. Those who were aged between 41 and 50 years accounted for 20.4% while the smallest proportion (10.2%) of the respondents was above 50 years.

Besides the industry attracting the younger generation and especially the middle-income category, there is the likelihood of older respondent who more often holds managerial and advisory positions delegated the filling of the questionnaire to the younger staff due to the technical nature of the industry. Another explanation of the youthfulness of the real estate entrepreneurs could be that with the devolved model of government, a notable number of construction projects that previously were awarded to selected giant construction companies under the national government are now being awarded to upcoming and newly registered real estate entrepreneurs in the county governments.

Table 4.2: Demographic characteristics of respondents

Demographic characteristics	Frequency	Per cent
Gender of the respondent		
Male	233	71.9
Female	91	28.1
Total	**324**	**100.0**
Age of the respondent		
Below 30 Years	88	27.2
Between 31-40 Years	137	42.3
Between 41 -50 years	66	20.4
Over 50 Years	33	10.2
Total	**324**	**100.0**
Highest level of education		
Diploma	102	31.5
Degree	155	47.8
Post Graduate	67	20.7
Total	**324**	**100.0**

Source: Author, 2019

Regarding respondent's highest levels of education, close to a half (47.8%) of the respondents had an undergraduate degree as their highest level of education. Diploma holders who accounted for 31.5% of the responses followed while those with postgraduate qualification accounted for 20.7% of the responses. A look at the respondent's profession of the real estate entrepreneurs reveals that contractors were the most dominant making up 37% of the total responses followed by project managers and valuers and estate agents who accounted for 24.1% and 19.4% of the responses received respectively. Architects, quantity surveyors, clerk of works, realtors, and

managing agents individually accounted for less than 10% of the total responses, as seen in Table 4.3.

Table 4.3: Profession and experience in the sector

Demographic characteristics	Frequency	Per cent
Respondents profession		
Project Managers	78	24.1
Contractors	120	37.0
Realtors & Managing Agents	2	.6
Architects	26	8.0
Quantity surveyors	25	7.7
Valuers and estate agents	63	19.4
Clerk of Works	10	3.1
Total	**324**	**100.0**
Years of experience in the sector		
1 year to 5 year	27	8.3
5 years to 10 years	133	41.0
10 years to 15 years	89	27.5
More than 15 years	75	23.1
Total	**324**	**100.0**

Source: Author, 2019

A significant proportion of the respondents hold less than 10 years' experience in the sector with the majority (41%) having been in the sector for between 5 and 10 years. Those with 10 – 15 years stay in the sector accounted for 27.5% while those with more than 15 years accounted for 23.1% of the respondents. Those who have been in the sector for less than 5 years accounted for 8.3% of the respondents. This strongly reflects that growth of the construction sector in the last few years due to its central role in

Kenya's blueprint Vision 2030, the big 4 government agenda and the enactment of policies that have created favourable conditions for growth in the sector.

The firms where respondents came from were largely small with more than half (58.3%) indicating that they were in organisations that employed between 5 and 10 employees. As seen in Table 4.4, those employing between 10 and 20 employees accounted for 21.3%, followed by those who had less than five employees, constituting 11.7% of the respondents. Those with more than 20 employees but less than 50 accounted for 6.2% while 2.5% of the respondents came from firms that employed more than 50 employees.

Table 4.4: Number of employees

Number of employees	Frequency	Per cent
Less than 5	38	11.7
Between 5 – 10	189	58.3
Between 11- 20	69	21.3
Between 21-50	20	6.2
Over 50 years	8	2.5
Total	324	100

Source: Author, 2019

4.4 Descriptive analysis

The descriptive analyses are discussed below.

4.4.1 Perceived assessment of risk categories

Numerous types of risk exposure directly or indirectly affect the performance of commercial real estate entrepreneurial investments in the real estate sector. In the current study, six types of risk were identified for analysis; technical, financial, market, environmental, political/legal and operational. It is important to note that the risk category is not independent of each other but have a collective contribution to the overall risk levels in a real estate investment of great concern among real estate entrepreneurs in shaping their risk management strategies is on the potential negative impact that the risk exposure will bear on the return from their investments. Based on this understanding, the respondents were asked to indicate the risk category they perceived as most critical. Using a six-point six items Likert scale, the ranking of the six selected risk categories based on the perceived assessment from the participating respondents is as indicated in Table 4.5

Table 4.5: Ranking of risk category based on perceived assessment

Risk Type	LC	SC	MDC	C	VC	MSC	% Mean	Chi Sqr	P-value	Rank
Technical	59	0	14	1	39	211	80.5	443.3***	.000	1
	(18.2%)	(0%)	(4.3%)	(0.3%)	(12%)	(65.1%)				
Environmental	35	43	64	79	71	32	60.5	36.7***	.000	3
	(10.8%)	(13.3%)	(19.8%)	(24.4%)	(21.9%)	(9.9%)				
Market	30	46	93	88	22	45	58.3	81.9***	.000	5
	(9.3%)	(14.2%)	(28.7%)	(27.2%)	(6.8%)	(13.9%)				
Financial	24	9	56	74	94	67	70.8	94.4***	.000	2
	(7.4%)	(2.8%)	(17.3%)	(22.8%)	(29%)	(20.7%)				
Political	124	45	83	23	38	11	41.7	164.6***	.000	6
	(38.3%)	(13.9%)	(25.6%)	(7.1%)	(11.7%)	(3.4%)				
Operational	35	77	60	39	67	46	58.5	25.6***	.000	4
	(10.8%)	(23.8%)	(18.5%)	(12%)	(20.7%)	(14.2%)				

Note 1: LC; Least critical, SC; Somewhat Critical, MDC: Moderately Critical, C: Critical, VC: Very Critical, MSC: Most Critical.

2. The degree of criticality was assigned a score of 1 for the least critical and 6 for the most critical.

Source: Author, 2019

To arrive at the ranking of the risk categories, formula 1 in section 3.8 was adopted. Based on this, the technical risk category was found to be the most crucial having a percentage mean score of 80.6%while political risk category was ranked the least crucial, with a score of 41.8%. Real estate sector is a capital-intensive investment with a relatively long duration of development. It involves a great number of players majority being of diverse professions given its technical nature. The importance of these attributes is reflected in the rating given by the respondents. The wellbeing of a real estate entrepreneurial investments is best viewed from its structural performance; how it is designed, how it is constructed, and how it is managed, before considering its financial performance. In other words, the quality of finished real estate entrepreneurial investment depends greatly on the technical qualities and the adequacy of financial resources required.

A high percentage of the total capital goes into activities related to the structural aspect of the development. Consequently, real estate entrepreneurs consider technical risk and financial risk as "a make it or not" risk, that is, you either manage it, and the real estate entrepreneurial investment performs, or you don't and the converse stands. This is in agreement with the findings of Sambasivan and Soon (2007) and Sweis, Sweis, Hammad and Shboul (2008) who found that technical risk in Malaysia and financial risk in Egypt to be the most critical risks, respectively. Similar findings were evidenced in Ghana where delay in payments and inflation and financial failure (financial category) were found to be the most critical (Nicholas, & Odwao, 2011). It is important to note that after the two risk categories that affect the commercial real estate entrepreneurial investment directly (technical and financial), environmental risk is

ranked third, reflecting the growing awareness of its importance caused by massive demolitions of real estate entrepreneurial developments in the recent times alleged to violate the environmental legislations. Political/legal risk category must have been viewed holistically by the respondents with more emphasis being on the political aspect and hence more or less seen as an occasional risk; only occurring whenever there is a political disturbance. In this regard, it was ranked as the least critical risk category.

4.4.2 Risk occurrence over the real estate entrepreneurial investment life cycle

The levels of risk will often vary based on the activities undertaken in each phase of the entrepreneurial investment life cycle and the type of investment involved. Development of commercial real estate entrepreneurial investments have three major phases; acquisition, implementation and post-implementation phase. From the responses obtained from the sector, the phase where more risks are likely to occur were as shown in Table 4.6

Table 4.6: Risk occurrences over real estate entrepreneurial investment life cycle

Phase	LO	MO	HO	%MS	Chi sq	p-v	Rank
Acquisition phase	25 (7.7%)	168 (51.9%)	131 (40.4%)	77.7%	103.0***	0.000	2
Implementation phase	32 (9.9%)	104 (32.1%)	188 (58%)	82.8%	112.9***	0.000	1
Post implementation phase	213 (65.7%)	82 (25.3%)	29 (9%)	47.7%	166.1***	0.000	3

Where:

LO is Least occurrence; MO is Moderate occurrence, HO is High occurrence

Source: Author, 2019

The potential of risk occurrences in the acquisition phase of commercial real estate entrepreneurial investment was moderate but strongly leaning towards being a potentially high-risk occurrences phase. Nearly half (51.9%) of the respondents noted that the probability of high-risk occurrence at the acquisition phase was moderate, while 40.4% indicating that it was a high-risk phase. The implementation phase was identified as potentially high risk by 58% of the respondents, with 32.1% associating it with moderate risk. The majority (65.7%) of the respondents noted the post-implementation phase was the least risk occurrences phase. Evidently, the implementation phase was the most risk occurring phase in the real estate entrepreneurial investment life cycle.

In essence, therefore, the implementation phase was considered to have the highest risk occurrence phase, with a mean percentage score of 82.8%, followed by the acquisition phase with a percentage score of 77.7%. An interesting observation is that when moderate and high occurrences rating is cumulatively considered, acquisition phase tends to rank highest with 92.3% against 90.1% of the implementation phase and 34.3% of post-implementation phase further confirming the high-risk nature of these two phases. As evidenced earlier under section 2.4.2, real estate entrepreneur's manoeuvrability of the development diminishes as it approaches completion and very little changes can be done. In view of this, most real estate entrepreneurs considered the post-construction stage a less risk phase. A confirmation of the implementation phase as the riskiest is evident from the work of Goh and Abdul-Rahman (2013) where out of five development phases; feasibility, design, tendering, construction and handling and maintenance, construction was highest in likelihood and severity in Malaysia real estate projects.

After the discussions in sections 4.3.1 and section 4.3.2, indicating an overview position, a deeper understanding of the nature of risks in commercial real estate entrepreneurial investments is sought further. To achieve this, the risk factors based on their prevalence/frequency and severity as constituted in each risk category (Table 2.2) was analysed as follows:

4.4.3 Frequency and severity of technical risk

A key approach in the measurement of risk is the probability of the specific risk recurring within a specified timeframe. While this will indicate the prevalence, the negative outcomes arising from risk event is equally important measurable through a severity indicator. The frequency and severity of technical risk factors based on respondents rating are summarised in Table 4.7. Columns 1 – 8 represent the frequency of technical risk factors, and columns 9 – 16 represent the severity of the same technical risk factors.

Table 4.7: Frequency and severity of technical risk factors

Risk Factor	VR	R	S	F	VF	%MS	Chi sq	P-v	NS	LS	MS	S	VS	%MS	Chi sq	P-v
Inadequate site investigation	12	45	55	111	101	75%	103.7	.000	10	6	42	93	173	85.4%	300.7	.000
	3.7%	13.9%	17%	34.3%	31.2%				3.1%	1.9%	13%	28.7%	53.4%			
Uncertainty over the source and	26	104	99	87	8	56.8%	122.4	.000	32	78	72	110	32	62%	68.2	.000
availability of materials	8.02%	32.1%	30.56%	26.85%	2.47%				9.9%	24.1%	22.2%	34%	9.9%			
Delay to obtain design approval in	8	19	43	135	119	80.8%	210.9	.000	16	8	60	104	136	80.8%	188.8	.000
time	2.47%	5.86%	13.27%	41.67%	36.73%				4.9%	2.5%	18.5%	32.1%	42%			
Incompetence of the proper	16	68	83	96	61	67.2%	57.3	.000	10	18	50	119	127	80.6%	188.6	.000
management	4.94%	20.99%	25.62%	29.63%	18.83%				3.1%	5.6%	15.4%	36.7%	39.2%			
Late changes of design from client	2	25	60	119	118	80.2%	174.7	.000	2	27	57	157	81	77.8%	219.1	.000
side	0.62%	7.72%	18.52%	36.73%	36.42%				0.6%	8.3%	17.6%	48.5%	25%			
Lack of consistency between bill of	2	40	141	104	37	68.2%	195.6	.000	2	27	91	145	59	74.4%	193.3	.000
quantities, drawing & specification	0.62%	12.35%	43.52%	32.1%	11.42%				0.6%	8.3%	28.1%	44.8%	18.2%			

Note: Frequency scale : 1= Very rare (VR) 2 = Rare (R) 3 = Sometimes(S) 4 = Frequently (F) 5 = Very frequently (VF)

Severity scale: 1 = Not severe(NS) 2 = Less severe (LS) 3 = moderately severe (MS) 4 = Severe (S) 5 = Very severe (VS)

%MS: Percentage mean score. Chi sq = ***

Source: Author, 2019

In computing the percentage mean score for all the risk factors, formula1 in section 3.8 was adopted. From the results, it is evident that delays in design approvals were the most prevalent technical risk factor with a percentage mean-score of 80.8% and availability of materials with a score of 56.8% as the least prevalent risk factor.

The importance of the design phase sharply comes into focus based on the current findings, where the top two most prevalent risks factors are concerned with design. The findings of Azmi Nawawi and Rosman (2014) and of Enshassi et al. (2008) presents a similar picture, placing a strong emplacing on the need to have qualified and competent design teams and client involvements at the design phase for minimal changes during the implementation phase. Delay in obtaining design approval is more or less a factor of the concerned authorities, and the real estate entrepreneur may not have much influence. Several approvals are needed for construction to take place; architectural approval, structural plans, National Construction Authority, National Environmental Management Authority approvals and occupational permit. To get any of these approvals, it takes a considerable amount of time. For instance, when a real estate entrepreneur submits his or her architectural plans in Nairobi County, the application is then forwarded to the different departments; Physical Planning, Public Health, Road Department, Water Authority, Fire Department, Electricity Authority, and Water Authority. Every department takes at least one week to process. However, to avoid the delay that might affect performance, more time should be allocated in the development schedule on the side of the entrepreneur while added advocacy be done on the side of authorities concerned to minimise process bureaucracy.

It is important to note that the order of prevalence of different technical risk factors varies from one country to another. For instance, in Gaza, out of a ranking list of 44 risk factors, incompetence of the construction team was ranked first, lack of consistency between bill of quantity and drawing specification was ranked sixth while late changes of the design were ranked 36th (Enshassi et al., 2008). In India, designs issues were ranked second while changes in design by the client were ranked fourth under construction category (Srinivas, 2015). A similar disparity is evident in Malaysia, where a shortage of raw materials topped a list of 22 risk factors, while a delay in obtaining approval and change in design took 15th and 11th positions, respectively.

Inadequate site investigation stands out as the most severe technical risk factor with a percentage mean score of 85.4% while the least severe technical risk factor was the uncertainty over the source and availability of materials with a mean percentage score of 62%. It is important to note that the majority of the respondents indicated in all the six technical risk factors that they were either severe or very severe. This is in agreement with the criticality of risk category under 4.3.1, where technical risk was ranked highest. While inadequate site investigation may not be the most frequent technical risk factor, its severity is high. The importance of site investigation cannot be overemphasised since feasibility studies, planning, design and construction all require reliable and relevant data about the ground conditions of a potential site, which is achieved through site investigation. Inadequate site investigations may lead to the wrong choice of design, incorrect dimensioning, inadequate foundation solution, encroachment on neighbouring properties or easements (road reserves, pipelines, and overhead supply lines), ill-judged or dangerous execution of ground construction work as well as damage

to neighbouring buildings or other structures. The economic cost can be enormous. Design of the buildings in the form of approval or changes by the client remained of great concern as a source of technical risk, agreeing to a similar view held by Azmi et al. (2014) and Goh and Abdul-Rahman (2013). Source and availability of materials were the least ranked both in frequency and severity, a likely pointer to reliable supplier networks and construction material sources for the sector in Kenya.

Risk prevalence and severity bring to the fore two important attributes of each risk factors inherent in the real estate sector; however, evaluated independently limits the true indication of the inherent risk. Measuring risk holistically is done through a risk index, a score that ranges between zero and one, with a higher score signifying the overall risk exposure to the firm. Berg, Jha and Murdoch (2012) posited that a composite risk index carries more weight in the assessment of the true property risk citing reliance on a single risk attribute is often limited in both accuracy and adequacy. Using the formula proposed by Gupta et al. (2016) outlined in the methodology section (formula 2 under Section 3.8), the risk index of each risk factor of the six risk categories were determined. The results for the technical risk are summarised in Table 4.8.

Table 4.8: Risk index – Technical risk

Technical risk factors	Mean	SD	Rank
Inadequate site investigation	0.676	0.286	1
Uncertainty over the source and availability of materials	0.376	0.222	6
Delay to obtain design approval in time	0.668	0.257	2
Incompetence of the management team	0.561	0.261	4
Late changes of design from client-side	0.634	0.233	3
Lack of consistency between bills of quantities, drawing & specification	0.515	0.196	5

Source: Author, 2019

By combining, the likelihood of occurrence and the corresponding impact factor, the significance of risk factors in the technical risk category registered some changes. Whereas, delay in obtaining design approval was found to be the most prevalence technical risk (80.8%) and inadequate site investigation as the most severe (85.4%), inadequate site investigation was ranked first as the riskiest factor followed by delay to obtain design approval in time. Similar to findings on prevalence and severity, uncertainty over the source and availability of building materials was found to be the least risky technical factor as per the risk index. This is in agreement with the findings of Jayasudha and Vidivelli (2016) in their study on analysis of major risks in construction projects.

4.4.4 Financial risk; Frequency and severity

Commercial real estate entrepreneurial investments are intensive investments that require substantial financial resources spread over a long period before the realisation of cash inflows. The lengthy implementation period exposes investors to a number of risk factors that may affect their return in the end. Table 4.9 presents the frequency and severity of financial risk factors, respectively. Columns 1 – 8 represent the frequency of financial risk factors, and columns 9 – 16 represent the severity of the same financial risk factors.

Table 4.9: Prevalence and severity of financial risk factors

Financial Factors	VR	R	S	F	VF	%MS	Chi sq	P-v	NS	LS	MS	S	VS	%MS	Chi sq	P-v
Changes in interest rates	0	107	123	29	65	49.0%	66.7	.000	36	103	121	55	9	53.8%	133.6	.000
	0%	33%	38%	9%	20.1%				11.1%	31.8%	37.3%	17%	2.8%			
Inflation and changes in prices	92	129	50	47	6	44.4%	136.6	.000	61	68	134	57	4	52.2%	132.3	.000
	28.4%	39.8%	15.4%	14.5%	1.9%				18.8%	21%	41.4%	17.6%	1.2%			
Delay payments to construction team	4	39	75	56	150	79.0%	182.1	.000	10	16	63	89	146	81.2%	193.9	.000
	1.2%	12%	23.1%	17.3%	46.3%				3.1%	4.9%	19.4%	27.5%	45.1%			
Inability of debt servicing	6	55	51	79	133	77.2%	132.7	.000	6	32	62	84	140	79.8%	163.0	.000
	1.9%	17%	15.7%	24.4%	41%				1.9%	9.9%	19.1%	25.9%	43.2%			
Construction cost overrun	2	40	61	108	113	78.0%	135.2	.000	14	23	69	106	112	77.2%	127.6	.000
	0.6%	12.3%	18.8%	33.3%	34.9%				4.3%	7.1%	21.3%	32.7%	34.6%			

Note: Frequency scale: 1= Very rare (VR) 2 = Rare (R) 3 = Sometimes(S) 4 = Frequently (F) 5 = Very frequently (VF)

Severity scale: 1 = Not severe (NS) 2 = Less severe (LS) 3 = moderately severe (MS) 4 = Severe (S) 5 = Very severe (VS)

%MS: Percentage mean score. Chi sq = ***

Source: Author, 2019

A close relationship was evident between the prevalence and severity of the financial risk factors. Changes in interest rates and inflation were the least prevalent and severe financial risk factors. This can be closely attributed to the fact that interest rates in Kenya have greatly remained stable since the introduction of the interest rate cap, significantly reducing associated risks. Cost of borrowing affects the supply and demand for a real estate entrepreneurial investment, with low-interest rates increasing both the supply and the demand.

But as to whether it is a high-risk factor may not necessarily have much impact. It is not how high or low, but how erratic the rate of interest will be within an ongoing mortgage period. Similarly, inflation has remained relatively stable in the medium term leading to stable prices of construction materials and inputs.

Delayed payments to construction teams were, on the other hand, regarded highest both in prevalence and severity. Delay in payment causes severe cash-flow problems to construction teams leading to a devastating effect down the contractual payment chain and eventually on the overall construction process. Construction teams are highly dependent on regular interim payments from their clients during the course of construction to help discharge the debt so accrued. It follows then, when any of the construction team does not receive interim payments on time or in accordance with the terms agreed or for the proper amount, not only does the interest he or she needs to pay in the form of finance charges to the bank invariably increase but penalties and/or disputes ensue due to breach of contracts with other concerned parties.

Several factors are associated with delayed payments in real estate developments; client's poor financial management, withholding payment due to defective construction work, or disputed work, disagreement on the valuation of work done and delay in certification of work done by the architecture or contract administration. To beef up on the understanding, risk index of the financial risk was computed, and results are summarised in Table 4:10.

Table 4.10: Risk index – Financial risk

Financial risk factors (indicators)	Mean	SD	Rank
Changes in interest rates	0.288	0.242	4
Inflation and changes in prices	0.252	0.181	5
Delay payments to construction team	0.679	0.305	1
Inability of debt servicing	0.648	0.305	2
Construction cost overrun	0.627	0.283	3

Source: Author, 2019

The trend with technical risk is repeated in financial risk, where risk factors with the highest prevalence and severity also registered the highest risk index. Delayed payment to construction team was considered most prevalence and severe financial factor as well as having the highest risk index (M= 0.679, SD = 0.305), followed by the inability of debt servicing. The real estate entrepreneurs considered inflation and price changes to be the least financial risk factor (M = 0.252, SD = 0.181). With delayed payment, most projects are not completed on time affecting their marketability, or they end up stalling. Similar findings were evident amongst Malaysia real estate entrepreneurs where Karim et al. (2012) found that cash flow difficulties and financial inadequacy were the riskiest financial factors while financial failure was ranked third out of 36 risk factors in South Africa construction industry (Renault et al., 2016)

4.4.5 Frequency and severity of market risk

The bulk of the investments in the real estate sector are destined for sale as complete units or for rental purposes. Two factors associated with market risk were assessed, and the results were as summarised in Table 4.11. Columns 1 – 8 represent the frequency of market risk factors, and columns 9 – 16 represent the severity of the same market risk factors.

Table 4.11: Frequency and severity of market risk factor

Market Risk Factors	VR	R	S	F	VF	%MS	Chi sq	P-v	NS	LS	MS	S	VS	%MS	Chi sq	P-v
Improper market feasibility studies	12	23	124	165	12	85.2%	210.2	.000	8	12	28	87	189	87.0%	359.4	.000
	3.7%	7.1%	38.3%	50.9%	3.7%				2.5%	3.7%	8.6%	26.9%	58.3%			
Improper forecast about Changes in demand and supply	18	46	114	146	18	80.0%	129.7	.000	10	36	47	152	79	75.6%	184.5	.000
	5.6%	14.2%	35.2%	45.1%	5.6%				3.1%	11.1%	14.5%	46.9%	24.4%			

Note: Frequency scale : 1= Very rare (VR) 2 = Rare (R) 3 = Sometimes(S) 4 = Frequently (F) 5 = Very frequently (VF)

Severity scale: 1 = Not severe (NS) 2 = Less severe (LS) 3 = moderately severe (MS) 4 = Severe (S) 5 = Very severe (VS)

%MS: Percentage mean score. Chi sq = ***

Source: Author, 2019

Lack of proper market feasibility studies was identified as the most prevalent market-related risk factor having a score of 85.2%and most severe with a score of 87.0%. Several factors strongly determined the value of real estate entrepreneurial investments in Kenya, among them; the property class, Location and the types of units within each class (Vuluku, & Gachanja, 2014). With the unprecedented growth in the sector driving more units into the market every year, significantly improving consumer choice, improper market feasibility can be costly, a likely explanation for the high ranking in both prevalence and severity.

The growth of the middle class in Kenya comes with mobility associated with taste and preferences, a strong factor that may be attributed to changes in demand for space and type of real estate entrepreneurial investments (Njaramba, Gachanga & Mugendi, 2018). A risk index analysis reveal similar ranking where improper property market feasibility studies was ranked higher than changes in demand (M = 0.755, SD = 0.239 and M = 0.622, SD = 0.254) respectively. The results are summarised in table 4:12

Table 4.12: Risk index – Market risk

Market risk factors (indicators)	Mean	SD	Rank
Improper real estate market feasibility studies	0.755	0.239	1
Changes in demand	0.622	0.254	2

Source: Author, 2019

4.4.6 Frequency and severity of environmental risk

Despite most environmental risk emerging from sources that are beyond the control of real estate entrepreneurs, it is expected that should not only anticipate their occurrence but also put in place measure to minimise the resulting impact. The frequency and severity of environmental factors assessed in the current study were as summarised in Table 4.13. Columns 1 – 8 represent the frequency of environmental risk factors, and columns 9 – 16 represent the severity of the same environmental risk factors.

Table 4.13: Frequency and severity of environmental risk

Environmental Risk Factors	VR	R	S	F	VF	%MS	Chi sq	P-v	NS	LS	MS	S	VS	%MS	Chi sq	P-v
Unpredictable weather condition on completion of investment	12	39	81	177	15	68.8%	289.9	.000	8	26	56	152	82	77.0%	196.1	.000
	3.7%	12%	25%	54.6%	4.6%				2.5%	8%	17.3%	46.9%	25.3%			
Incomplete environmental analysis	16	37	61	133	77	73.4%	122.9	.000	20	20	58	93	133	78.4%	146.7	.000
	4.9%	11.4%	18.8%	41%	23.8%				6.2%	6.2%	17.9%	28.7%	41%			
Acts of God	75	165	70	14	0	41.4%	144.5	.000	54	88	64	93	25	56.8%	46.8	.000
	23.1%	50.9%	21.6%	4.3%	0%				16.7%	27.2%	19.8%	28.7%	7.7%			

Note: Frequency scale: 1= Very rare (VR) 2 = Rare (R) 3 = Sometimes(S) 4 = Frequently (F) 5 = Very frequently (VF)

Severity scale: 1 = Not severe (NS) 2 = Less severe (LS) 3 = moderately severe (MS) 4 = Severe (S) 5 = Very severe (VS)

%MS: Percentage mean score Chi sq = ***

Source: Author, 2019

Failure to complete environmental analysis as a potential source of the environmental risk exposure was the most prevalent factor attaining a score of 73.4%. A similar ranking was upheld on risk severity, where incomplete environmental analysis scored a high of 78.4%. Its criticality based on risk index computation assumed the same trend of being the most critical environmental risk factor (M = 0.613, SD = 0.295), as shown in Table 4:14.

Empirical evidence on environmental risks in the real estate sector remains indeterminate. For instance, Jaber (2014) and Amoatey and Danquah (2018) found environmental factors to bear the greatest risk in projects in Iraq and Ghana respectively, while a study by Tipili, & Ilyasu (2014) finds environmental risk factors as the least likely to occur. Environmental occurrences that are beyond the control of players in the real-estate sectors; acts attributed to God, are rare in Kenya as confirmed by lower rating. Broadly, weather conditions in Kenya are predictable and seasonal. It would be expected, therefore that, at the planning phase, adequate measure be put in place to mitigate any potential adverse effects. This can also be attributed to incomplete environmental analysis, given its relatively strong rating in both prevalence and severity.

Table 4.14: Risk index – Environmental Risk

Environmental risk factors (indicators)	Mean	SD	Rank
Unpredictable weather condition on completion of project	0.554	0.230	2
Incomplete environmental Analysis	0.613	0.295	1
Acts of God	0.254	0.179	3

Source: Author, 2019

4.4.7 Prevalence and severity of political/legal risk factors

Corruption or bribery not only topped the prevalence list of political risk factors with a mean percentage score of 80.0% but also featured highly in severity in commercial real estate entrepreneurial investments scoring 89.4%. Delay in dispute resolution was ranked the second most frequent risk factor while changes in zoning laws and other government rules, controls and regulations were ranked third in prevalence. The least frequent political risk was civil or political disturbance associated with political events. The results are summarised in Table 4.15. Columns 1 – 8 represent the frequency of political risk factors, and columns 9 – 16 represent the politics of the same environmental risk factors.

Table 4. 15: Prevalence & severity of political risk factors

Political Risk Factors	VR	R	S	F	VF	%MS	Chi sq	P-v	NS	LS	MS	S	VS	%MS	Chi sq	P-v
Corruption or bribery	12	41	42	68	161	80.0%	202.6	.000	2	8	43	55	216	89.4%	472.3	.000
	3.7%	12.7%	13%	21%	49.7%				0.6%	2.5%	13.3%	17%	66.7%			
Changes in zoning laws and other government rules, controls and regulations	28	91	107	74	24	58.4%	85.9	.000	14	48	87	128	47	69.0%	118.3	.000
	8.6%	28.1%	33%	22.8%	7.4%				4.3%	14.8%	26.9%	39.5%	14.5%			
Delayed in dispute resolution	20	23	58	110	113	76.8%	126.0	.000	8	19	60	75	162	82.4%	229.9	.000
	6.2%	7.1%	17.9%	34%	34.9%				2.5%	5.9%	18.5%	23.1%	50%			
Political/civil disturbance	47	115	113	39	10	50.8%	136.2	.000	6	29	54	158	77	76.8%	211.3	.000
	14.5%	35.5%	34.9%	12%	3.1%				1.9%	9%	16.7%	48.8%	23.8%			

Note: Frequency scale: 1= Very rare (VR) 2 = Rare (R) 3 = Sometimes(S) 4 = Frequently (F) 5 = Very frequently (VF)

Severity scale: 1 = Not severe (NS) 2 = Less severe (LS) 3 = moderately severe (MS) 4 = Severe (S) 5 = Very severe (VS)

%MS: Percentage mean score Chi sq = ***

Source: Author, 2019

Similar order is maintained in risk index analysis as is reported in table 4:16 where corruption or bribery (M = 0.738, SD = 0.293) delay in dispute resolution (M = 0.670, SD = 0.303) were ranked the riskiest political/legal risk factors in that order.

However, the order reverses with the political/civil disturbance (M = 0.394, SD = 0.192) attaining the least position after changes in physical planning and other government laws, controls and regulations (M = 0.420, SD = 0.210). Kenya continues to perform dismally in the global corruption perception index consistently attaining a score of less than 30 out of the possible 100 (Transparency International, Kenya, 2019). The real estate sector has not escaped from the vise, making it not only the most prevalent but also the most severe in terms of its consequences. High prevalence of corrupt practices is linked to bureaucratic procedures and lack of adequate real estate entrepreneurial investment information that leads to unfavourable outcomes. Electioneering cycle in Kenya every five years comes with uncertainty and market disturbances that have had a negative impact on the performance of real estate entrepreneurial investments, a likely explanation for the strong severity ranking as a political risk factor in the sector.

However, with many land laws being amended, repealed and/or consolidated, and new land administration and management regime being introduced in the country, many real estate entrepreneurs appreciate the riskiness of this factor. The new constitution of 2010, established a legal framework for the administration and management of land in Kenya and set out land legislative obligation in parliament. Enacted laws to this end include The Land Act 2012, The Land Registration Act 2012, The National Land Commission Act 2012 and others. Secondly, government institutions (such as NEMA, NCA and NBI) mandated to manage land as a resource and to oversee their developments are in recent times under heavy public and government scrutiny on delivery.

Table 4.16: Risk index –Political/Legal risk

Political risk factors (indictors)	Mean	SD	Rank
Corruption or bribery	0.738	0.293	1
Changes in zoning laws and other government rules, controls and regulations	0.42	0.21	3
Delay in dispute Resolution	0.67	0.303	2
Political/civil disturbance	0.394	0.192	4

Source: Author, 2019

4.4.8 Prevalence and severity of operational risk factors

Low occupancy rate and uptake after completion was the highest-ranked operational risk in prevalence and closely followed by a reduction in expected income from the commercial real estate entrepreneurial investments. When the respondents were asked to rate the risk factors on the severity, the ranking was interchanged with the fall of expected income topping the list. Expected income is a function of occupancy rate or sold out units. Failure to attract adequate clientele to take up available units or spaces in developed entrepreneurial investments more often than not leads to lower incomes which eventually affect the mortgage repayment and/or financial performance of the investment. A possible explanation of the above interchange will, therefore, be that an entrepreneur will be 'more' worried over the shortfall if and when the discrepancy negates his or her financial obligations or repayments. A summary of the prevalence and severity of operational risk factors are provided in Table 4.17. Columns 1 – 8 represent the frequency of political risk factors, and columns 9 – 16 represent the politics of the same environmental risk factors.

Table 4.17: Prevalence and severity of operational risk factors

Operational Factors	VR	R	S	F	VF	%MS	Chi sq	P-v	NS	LS	MS	S	VS	%MS	Chi sq	P-v
Decline in value of real estate property	109	113	58	44	0	42.2%	45.8	.000	30	60	71	101	62	66.4%	39.9	.000
	33.6%	34.9%	17.9%	13.6%	0%				9.3%	18.5%	21.9%	31.2%	19.1%			
Incompetence of property management	22	86	159	57	0	55.4%	125	.000	24	25	115	103	57	68.8%	112.5	.000
firm/team	6.8%	26.5%	49.1%	17.6%	0%				7.4%	7.7%	35.5%	31.8%	17.6%			
Extended vacancies/sold out after	4	23	71	146	80	77.0%	189	.000	8	35	37	86	158	81.6%	216.4	.000
completion	1.2%	7.1%	21.9%	45.1%	24.7%				2.5%	10.8%	11.4%	26.5%	48.8%			
Fall short of expected income from the	6	32	62	143	81	76.2%	168.5	.000	10	23	48	85	158	82.0%	218.0	.000
project	1.9%	9.9%	19.1%	44.1%	25%				3.1%	7.1%	14.8%	26.2%	48.8%			
Unexpected termination of the project	0	32	90	189	13	71.2%	231.7	.000	20	19	74	140	71	73.8%	152.5	.000
	0%	9.9%	27.8%	58.3%	4%				6.2%	5.9%	22.8%	43.2%	21.9%			
Pilferage – stealing by the employees	20	72	120	98	14	60.8%	135.6	.000	20	95	93	84	32	60.8%	79.6	.000
	6.2%	22.2%	37%	30.2%	4.3%				6.2%	29.3%	28.7%	25.9%	9.9%			

Note: Frequency scale: 1= Very rare (VR) 2 = Rare (R) 3 = Sometimes(S) 4 = Frequently (F) 5 = Very frequently (VF)

Severity scale: 1 = Not severe(NS) 2 = Less severe (LS) 3 = moderately severe (MS) 4 = Severe (S) 5 = Very severe (VS)

%MS: Percentage mean score Chi sq = ***

Source: Author, 2019

With most real estate entrepreneurial investments operating on a contractual framework, any termination of such contracts negatively either compromises property management or interferes with the expected cash flows of the investment. Over the years, continued appreciation in the value of real estate entrepreneurial investments largely driven by land prices strongly supports a lower ranking of decline in property value as a potential operation risk in the sector. Unlike in the other categories where prevalence and severity order was generally maintained after computation of the risk indices, the order largely differed in the operational risk category. Extended vacancies (voids) and low uptake after completion was said to be the riskiest post-construction risk factor with a mean score of 0.652 and a standard deviation of 0.264. This is closely followed by a related indicator of deficiency of expected income (rental or sale) from the entrepreneurial investment having a mean score of 0.579 and a standard deviation of 0.239, as shown in table 4.18. These findings are in agreement with the Cytonn's Kenya real estate sector retail report of 2018 on vacancy rates in retail properties. According to the report, there has been an oversupply of 2.0 million square feet, 0.3 million, 0.2 million square feet and 0.1 million square feet of rental mall space in Nairobi, Eldoret, Kisumu, and Nakuru respectively (Cytonn, 2018). Similar observations are evident in other real estate themes such as office, residential and mixed-use developments (MUD).

Table 4.18: Risk index – operational risk

Operational risk factors (indicators)	Mean	SD	Rank
Decline in value of real estate entrepreneurial investment	0.291	0.194	6
Incompetence of management firm/team	0.396	0.195	5
Extended vacancies/sold out after completion	0.652	0.264	1
Fall short of expected income from the project	0.579	0.239	2
Unexpected termination of the contract	0.44	0.197	4
Pilferage - stealing by the employees	0.508	0.235	3

Source: Author, 2019

4.4.9 Summary of criticality of risk factors

A total of 26 risk factors from 6 risk categories obtained from the literature review were subject of this study. From the descriptive analysis, the most critical risk factor was picked from each risk category and presented in table 4.19.

Table 4.19: Summary of criticality of risk factors per risk category

Risk category	Most critical risk factor
Technical risk	Inadequate site investigation
Financial risk	Delay payments to construction team
Market risk	Improper market feasibility study
Environmental risk	Incomplete environmental analysis
Political/legal risk	Corruption and bribery
Operational management risk	Extended vacancies/low uptake after completion

Source: Author, 2019

As previously stated, risk prioritisation helps when it comes to deciding the appropriate risk mitigation action as well as in the optimum allocation of resources given the limited availability. Picking on the six risk factors does not necessarily mean that the others are less important, but it is a pointer that these factors play a key role in the ultimate

performance of commercial real estate entrepreneurial investments in Kenya. There should, therefore, be some deliberate efforts in finding the root cause of these risk factors and improving or developing ways of mitigating them.

4.5 Risk management

Risk management as a process is designed to remove or reduce the negative effect of the risks that threatened the achievement of the investments' objectives through the deployment of varied strategies. Entrepreneurs laid varied emphasis on their use of different strategies in managing different type of risks, as seen in this section.

4.5.1 Technical risk management

In managing technical risk, firm in the real estate sector employed several strategies with varying levels. Undertaking due diligence on land acquisition documents was the highest-ranked strategy in the management of technical risk with a mean percentage score of 80%. On the other hand, maintaining records of repairs and maintenance activities was rated the least utilised strategy in the management of technical risk among the real estate players surveyed in the study as shown in Table 4.20

Table 4.20: Technical risk management

Technical risk management strategy	1	2	3	4	5	% Mean	Chi Sq	p-v
The company undertakes comprehensive site investigation procedure	5 (1.5%)	57 (17.6%)	6 (1.9%)	190 (58.6%)	66 (20.4%)	76%	344.9	.000
The company ensures that there is always adequate supply of construction materials	0 (0%)	35 (10.8%)	22 (6.8%)	206 (63.6%)	61 (18.8%)	78%	250.4	.000
The company usually obtains copies of all land acquisition/ownership documents and due diligence items	0 (0%)	36 (11.1%)	25 (7.7%)	166 (51.2%)	97 (29.9%)	80%	148.0	.000
The company obtains the necessary building approvals on time	0 (0%)	58 (17.9%)	14 (4.3%)	153 (47.2%)	99 (30.6%)	78%	125.7	.000
The company sets time limit in every phase within which to accept changes in the plan and specification by the client	0 (0%)	76 (23.5%)	5 (1.5%)	152 (46.9%)	91 (28.1%)	76%	136.0	.000
The company hires competent management team	0 (0%)	45 (13.9%)	10 (3.1%)	218 (67.3%)	51 (15.7%)	77%	312.6	.000
The company maintains a maintenance, repair land renovation record and funds	8 (2.5%)	114 (35.2%)	13 (4%)	142 (43.8%)	47 (14.5%)	67%	225.4	.000

*1 = strongly agree, 2 = agree, 3 = neutral, 4 = disagree, 5 = strongly disagree Chi sq = ****

Source: Author, 2019

The choice of technical risk management approaches adopted in the real estate sectors is strongly aligned to dominant risk exposure factors, as seen in Table 4.7. A strong emphasis on the need to ensure accurate and complete documentation, due diligence and obtaining all building approvals as a priority aligns to counter the potential risk of delay in design approvals and to overcome risks associated with the land acquisition or ownership. There is a strong indication that efficient material management strategies have yielded the desired supply and greatly reduced material supply risks. However, viewed differently, with the availability of raw materials strategy ranked second, it could be that so many efforts are being deployed to manage a risk that is least in criticality and therefore assuming a misallocation of the limited resources. The current findings lend support to the existence of a significant positive relationship between technical risk management strategies and risk exposure of technical risk factors of real estate projects, as seen in the works of Osipova (2008), Weigenlmann (2012), Mwangi and Kwasira (2016), Njogu et al. (2015), among others.

4.5.2 Financial risk management

Managing exposure to financial risk often revolves around minimising the adverse effects of insolvency during the development process and more specifically, during the implementation phase and managing effect of variations in interest rates and input prices. The type and extent to which selected financial risk management strategies have been deployed in the real estate sector in Kenya are as summarised in Table 4.21.

Table 4.21: Financial risk management

Financial Risk Management Strategy	1	2	3	4	5	% Mean	Chi sq	p-v
The company confirms and establishes the credit worthiness of the client	4 (1.2%)	110 (34%)	13 (4%)	149 (46%)	48 14.8%)	67.8%	243.7	.000
The company has a consistency way of payment follow-up with the client	0 (0%)	83 (25.6%)	1 (0.3%)	173 (53.4%)	67 (20.7%)	73.8%	185.9	.000
All finances are borrowed at a fixed rate	15 (4.6%)	185 (57.1%)	23 (7.1%)	84 (25.9%)	17 (5.2%)	54.0%	329.1	.000
The company prepares and maintains financial reports on specific phases of property life cycle	6 (1.9%)	63 (19.4%)	0 (0%)	203 (62.7%)	52 (16%)	74.4%	267.6	.000

*1 = strongly agree, 2 = agree, 3 = neutral, 4 = disagree, 5 = strongly disagree Chi sq = ***

Source: Author, 2019

Strategies adopted in managing financial risk raked relatively lower as compared to those employed in technical risk management. Real estate participants prepared and maintained financial reports on specific phases of the entrepreneurial investment life cycle as the most preferred financial risk management strategy achieving a 74.4% while

securing needed finance using fixed-rate credit facilities was considered as the least frequently used financial risk management strategy scoring a mean score of 54%.

A strong alignment between financial risk exposure in Table 4.9 and the corresponding strategies adopted in Table 4.21 points to better management of financial risk in the sector. With a delay in payments as the most significant risk factor, the majority of the real estate players have adopted stringent creditworthiness assessment and persistent follow-up for payments as the preferred strategies. Close cost monitoring and reporting at every phase of the entrepreneurial investment is directly targeted towards minimising cost overruns. Due to low risk associated with interest rates fluctuation and inflation, borrowing at fixed rate remains low in the sector. The strong alignment of the adopted strategies agrees with the findings of Njogu et al. (2015) indicating a strong correlation between cash flow management strategies and risk and Ondara, et al. (2018) linking the strong performance of construction firms with effective financial risk management strategies.

4.5.3 Market risk management strategy

With the real estate market sector in Kenya, closely moving towards full saturation, aggressive marketing is a necessity rather than a choice. Two marketing strategies were examined; the use of feasibility studies prior to initiation of the real estate entrepreneurial investment and whether commercial real estate actors undertake comprehensive market demand and supply survey at the post-construction stage.

Table 4.22: Market risk management strategies

Marketing risk management strategy	1	2	3	4	5	% Mean	Chi sq	p-v
Feasibility studies prior to initiation of the project	8 (2.47%)	69 (21.3%)	47 (14.51%)	149 (45.99%)	51 (15.74%)	70.2%	167.3	.000
Comprehensive market demand and supply survey at post-construction stage	8 (2.47%)	37 (11.42%)	55 (16.98%)	148 (45.68%)	76 (23.46%)	75.2%	171.9	.000

1 = strongly agree, 2 = agree, 3 = neutral, 4 = disagree, 5 = strongly disagree Chi sq = ***

Source: Author, 2019

Commercial real estate actors prefer post-construction marketing as opposed to pre-implementation feasibility studies, as shown in Table 4.22. This is a close induction of a demand-driven market. However, as advocated by Mukhtar (2017), a comprehensive market analysis/feasibility study before initiating real estate investments is more effective than a post-construction one. The relative less utilisation of feasibility studies prior to initiation of the entrepreneurial investment as a management strategy could explain the reason why about 55% (Table 4.28) of the entrepreneurs found that it took unexpectedly long to have all units let out or sold.

4.5.4 Environmental risk management

Despite most environmental risk factors being relatively unpredictable, enterprises in the real estate sector must put in place a risk management strategy to minimise the likelihood of negative impacts. Table 4.23 shows how real estate entrepreneurs applied risk management strategies to manage environmental risk.

Table 4.23: Environmental risk management

Environment risk management strategies	1	2	3	4	5	% Mean	Chi Sq	p-v
The company undertakes a comprehensive environmental impact assessment audit for all projects	4 (1.2%)	79 (24.4%)	0 (0%)	144 (44.4%)	97 (29.9%)	75.4%	231.1	.000
The company exclude weather conditions which are worse than the normal from the bid price and time	0 (0%)	53 (16.4%)	21 (6.5%)	196 (60.5%)	54 (16.7%)	75.4%	170.9	.000
The company schedule construction activities that can be impacted by bad weather elements outside their respective condition	14 (4.3%)	67 (20.7%)	1 (0.3%)	200 (61.7%)	42 (13%)	71.6%	272.1	.000

*1 = strongly agree, 2 = agree, 3 = neutral, 4 = disagree, 5 = strongly disagree Chi sq = ****

Source: Author, 2019

As shown in Table 4.23, the undertaking of comprehensive environmental impact assessment and the exclusion of extreme weather conditions during biding stood out as the two most preferred environmental risk management strategies among real estate actors. Scheduling construction activities outside expected extreme weather conditions were equally strongly considered as a strategy for managing associated environmental risks in the sector.

The strong consideration of environmental risk management strategies in the real estate sector in Kenya sits well with the recommendations of Ardeshir, Ahmadi, Bayat & Ahmadi (2018) calling for proactive intervention in the management of environmental risk in urban area construction projects. Ardeshir et al. (2018) advocate for adoption of an environmental management plan in all projects setting out a clear framework for responding to environmental risks but also as a tool for managing the impact of the projects on the environment.

4.5.5 Political/legal risk management

A greater proportion of political risks arise from inadequate or inconsistent legislative processes leading to the enactment of laws and policies that are punitive to the real estate sector. While much of the political and legal risks are beyond the control of real estate entrepreneurs, the adoption of strategies that will minimise their impact on the outcomes is necessary. Table 4.24 summarises strategies used by the entrepreneurs in handling political/legal risk.

Table 4.24: Political/legal risk management

Political/legal risk management strategies	1	2	3	4	5	% Mean	Chi Sq	p-v
The company maintains a political risk insurance for each investment	26 (8%)	9 (2.8%)	13 (4%)	95 (29.3%)	181 (55.9%)	84.6%	353.9	.000
The company has a reliable dispute settlement system	4 (1.2%)	63 (19.4%)	2 (0.6%)	141 (43.5%)	114 (35.2%)	78.6%	240.5	.000
Focused and detailed random supervision on a targeted area where corruption has potential to occur	8 (2.5%)	143 (44.1%)	13 (4%)	112 (34.6%)	48 (14.8%)	63.8%	190.9	.000
The company regularly reviews different property tax payments and tax abatements.	0 (0%)	159 (49.1%)	18 (5.6%)	131 (40.4%)	16 (4.9%)	61%	177.3	.000

*1 = strongly agree, 2 = agree, 3 = neutral, 4 = disagree, 5 = strongly disagree Chi sq = ****

Source: Author, 2019

Political risk insurance stood out as the most preferred strategy by a majority of real estate investors in managing political risk. This was followed by putting in place a reliable dispute settlement and through random supervision in target areas where the likelihood of corrupt practices is high. Regular review of tax payment and abatement process was the least popular political risk management strategy, a likely indicator of less focus by real estate player in exploiting tax system in managing political/legal risk.

The purchase of political risk insurance was evident with the majority of the real estate players given its relatively high severity despite its low probability of occurrence. This can be attributed to an electioneering cycle in Kenya that comes after every five years

and on several occasions accompanied by political violence or disturbance. This agrees with the findings of (Isik et al., 2010), noting that where political instability and disturbance are likely, insurance cover would strongly be the preferred option. Despite corruption and bribery risk ranking high in the prevalence, the adoption of random supervision of areas perceived to be open to corrupt practices remains relatively weak, a factor that could be exposing real estate entrepreneurial investment to more risks.

4.5.6 Operational risk management

Operational risk management is intended to minimise on any expose that is likely to slow or halt the execution of a real estate entrepreneurial investment or inhibit the ability of the entrepreneurial investment to attain full usability. The commonly used risk management strategies identified by the real estate sectors are as presented in Table 4.25.

Table 4.25: Operational risk management

Operational risk management strategies	1	2	3	4	5	% Mean	Chi Sq	p-v
The company periodically undertakes solvency assessment of existing tenants	4 (1.2%)	123 (38%)	26 (8%)	97 (29.9%)	74 (22.8%)	67%	149.8	.000
The company consistently maintains a lease maturity evaluation	1 (0.3%)	93 (28.7%)	12 (3.7%)	130 (40.1%)	88 (27.2%)	73.2%	191.9	.000
The company hires competent property management teams	0 (0%)	46 (14.2%)	8 (2.5%)	209 (64.5%)	61 (18.8%)	77.6%	288.0	.000
The company has a training programme for its employees on property management]	8 (2.5%)	172 (53.1%)	16 (4.9%)	97 (29.9%)	31 (9.6%)	58.2%	297	.000
The company has a security plan to detect and prevent criminal activities such as vandalism and theft	9 (2.8%)	62 (19.1%)	6 (1.9%)	192 (59.3%)	55 (17%)	73.8%	352.7	.000

*1 = strongly agree, 2 = agree, 3 = neutral, 4 = disagree, 5 = strongly disagree Chi sq = ****

Source: Author, 2019

To manage operational risks, majority of the respondents noted that engagement of a competent real estate management team was the most commonly used strategy scoring a percentage means score of 77.6% while most of the entrepreneurs did not utilise training of their employees on risk management programmes as an operational risk management strategy scoring the least mean score of 58.2%.

Real estate entrepreneurs ensure that the investments under their care operate smoothly, maintain their appearance, and either preserve or increase in value. A well-managed real estate entrepreneurial investment will, therefore, guarantee the functional property soundness and enable it to achieve the expected income yield. To achieve this, most entrepreneurs of commercial real estate opt for subcontracting management services to competent service providers. This move explains the reason of them not being keen to train their very own. Although subcontracting may have its challenges such as cash remittance, it, however, helps the entrepreneur to transfer risk associated with operation management to a third party. It also remains a better option due to high employee turnover after attaining their training.

4.6 Risk management procedures

Handling risk in the real estate sector projects involves a procedure that arises from the overall risk management strategy adopted. The frequency to which the respondents employed such strategies was as shown in Table 4.26.

Table 4.26: Risk management procedures

Risk management procedure	1	2	3	4	5	% Mean	Chi sq	p-v
Risk identification	51 (15.74%)	91 (28.09%)	102 (31.48%)	55 (16.98%)	25 (7.72%)	58.2%	85.6	.000
Risk assessment/ analysis	12 (3.7%)	73 (22.53%)	106 (32.72%)	91 (28.09%)	42 (12.96%)	54.6%	60.8	.000
Risk response	22 (6.79%)	53 (16.36%)	95 (29.32%)	110 (33.95%)	44 (13.58%)	64.8%	88.9	.000
Risk control	33 (10.19%)	40 (12.35%)	108 (33.33%)	99 (30.56%)	44 (13.58%)	66.2%	82.7	.000
Risk monitoring	77 (23.77%)	54 (16.67%)	78 (24.07%)	70 (21.6%)	45 (13.89%)	65%	78.6	.000
Risk Management Plan	51 (15.74%)	91 (28.09%)	102 (31.48%)	55 (16.98%)	25 (7.72%)	57%	13.2	.000

1. Never 2. Occasionally 3. Frequently 4. Very frequently 5. Always *Chi sq = ****

Source: Author, 2019

As seen in Table 4.26, the deployment of most of the risk procedures was relatively low. Risk control, risk monitoring and risk response were the three most frequently used risk management procedures. On occasional bases, risk identification and risk assessment were employed by the real estate actors in the management of possible risks in their commercial real estate entrepreneurial investments.

Risk assessment and analysis were notably the least ranked procedures adopted by the real estate actor despite being the most preferred given their potential to greatly reduce the efforts required in subsequent risk management procedures. Risks identified and assessed are risks halfway managed, and failure to integrate them at an early stage lead

to fire fighting rather than a proactive approach. With operational risk increasing in both frequency and severity among enterprises in all productive sectors including real estate investment portfolios, proactive approaches should take precedence (Cummins, Lewis, & Wei, 2004). With the real estate sector in Kenya remaining relatively undeveloped, response to risk exposure is equally expensive and can be addressed adequately when prevention rather than control and correction is given priority. The same situation is common to other African countries as postulated by Kalunga and Kuotcha (2010) who found that most real estate entrepreneurs in Malawi have a low implementation of the various required steps in the project risk management process. In Ghana, for instance, Boadua, Fianko and Chileshe (2015) observed a limited level of adoption of formal risk management strategies among construction-oriented firms, with low levels of procedural documentation.

4.7 Approach to dealing with real estate entrepreneurial investment risks

While structured risk management models exist to guide the risk management process, the managerial approach towards the actual risk management varies from one firm to another. The key approaches cited by respondents are as shown in table 4.27.

Table 4.27: Approach to dealing with real estate entrepreneurial investment risk

Approach	Frequency	Per cent
By experience	95	29.3
By Judgment	113	34.9
By intuition	23	7.1
By risk management procedures	93	28.7
Total	**324**	**100.0**

Source: Author, 2019

Over one third (34.9%) of the respondents indicated that they use judgement as a way of dealing with real estate entrepreneurial investment risks. Close to another one third (29.3%) indicated they were dealing with management of risk of their entrepreneurial investments using their own experience. Those using risk management procedures accounted for 28.7% of the respondents, with the remaining 7.1% basing their decisions on intuition.

These findings were in agreement with numerous studies that have reported a strong bias towards qualitative approaches in handling real estate risks. For instance, Oladokun, Adelakun & Ashimolowo (2016) found 77% of real estate entrepreneurs in Nigeria used intuition, judgment or experience in their risk analysis. Rehman, Iqbal & Shakil (2017), when examining the real estate development industry in Europe, found that 69.9% approached risk primarily from a subjective and intuitive manner. Halman, Gehner, Halman & de Jonge (2006), reports that nearly all Dutch real estate entrepreneurs used intuition and experience as a tool of risk analysis.

4.8 Risk management model

Effective risk management calls for a structured framework or model to guide the execution of activities set for implementation. A majority of the firms (85.8%), as seen in Figure 4.1 did not have a risk management model in place, an indication that their risk management process was both informal and unstructured system.

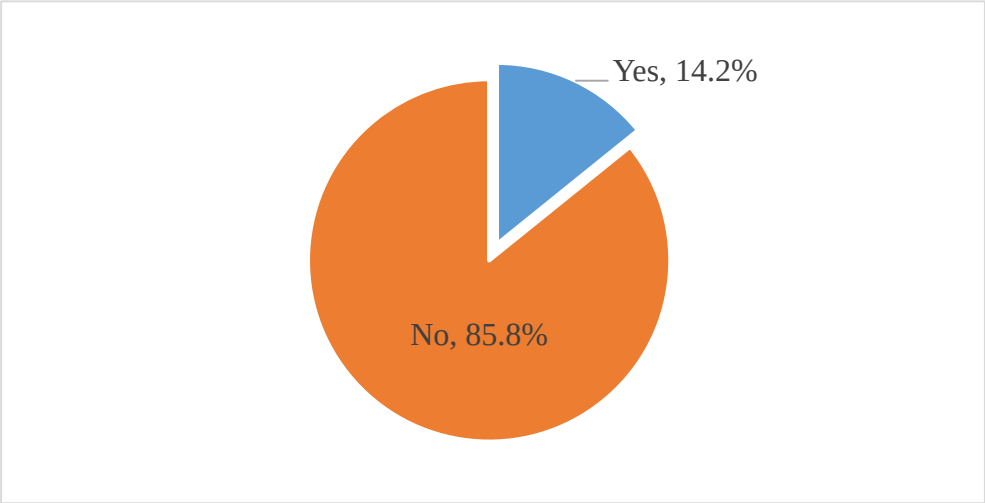

Figure 4.1: Risk management modelling

Source: Author, 2019

Risk modelling is widely perceived as a complex and technical with most entrepreneurs opting for their own expertise and insight and where necessary, incorporate simple risk modelling (Angius et al., 2011). While risks measurement broadly is anchored on uncertainty and chance and hence best handled through judgment and intuition, the need for a structured predictive model cannot be ignored (Tularam, & Attilli, 2012).

4.9 Staff knowledge of risk management

Most of the respondents noted that their staffs' knowledge on risk management was low (61.8%) while about one third (27.7%) indicated that they had average knowledge of risk management in the context of commercial real estate entrepreneurial investments. A small proportion (10.2%) ranked their knowledge of risk management in the sector as good. Talet (2017) assert that a great pool of knowledge is not only an asset to the enterprise but also creates a platform on where new ideas are natured and shared for better outcomes. A good level of knowledge among the employees will be foundational to property risk management. However, several staff members with low

knowledge on risk management is an early indication of poor risk management of commercial real estate entrepreneurial investments in Kenya. The findings are shown in figure 4.2

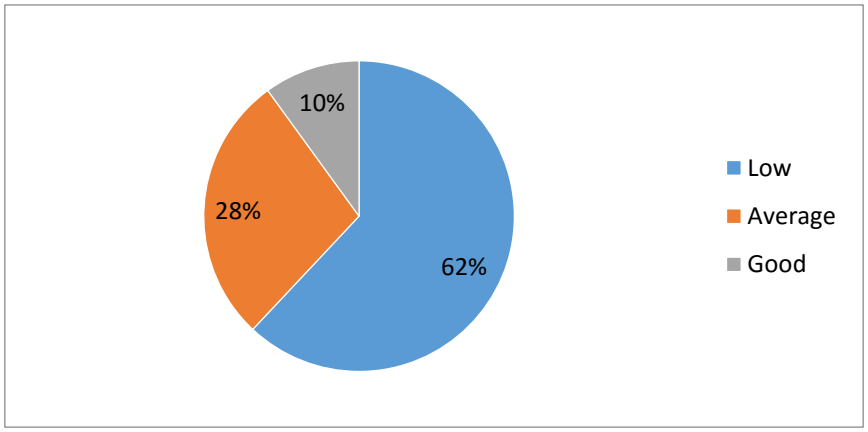

Figure 4.2: Staff knowledge on real estate entrepreneurial investment risks

Source: Author, 2019

4.10 Performance of real estate entrepreneurial investments

According to Mbugua, Harris and Holt (1999), performance indicators specify the measurable evidence necessary to prove that a planned effort has achieved the desired result. To assess the performance of commercial real estate entrepreneurial investments, ten statements seeking to obtained respondents' views on how their commercial real estate investments were performing were used. The statements were drawn from the performance indicators, namely; time, cost, client satisfaction and financial return. The summary of their responses was as indicated in Table 4.28.

Table 4. 28: Performance of commercial real estate entrepreneurial investments

Performance	1	2	3	4	5	%Mean	Chi Sq	p-v
Our company always executes projects within the scheduled time	1 (0.3%)	77 (23.8%)	2 (0.6%)	210 (64.8%)	34 (10.5%)	72.2%	465.9	.000
Our company always executes projects within budgeted estimates	0 (0%)	75 (23.1%)	5 (1.5%)	218 (67.3%)	26 (8%)	72%	340.8	.000
Our company hardly receives negative feedback from our clients on functionality performance of the property	4 (1.2%)	43 (13.3%)	21 (6.5%)	139 (42.9%)	117 (36.1%)	79.8%	221.0	.000
The number of disputes between the company and the client on the objectives of the projects are very few	4 (1.2%)	32 (9.9%)	1 (0.3%)	161 (49.7%)	126 (38.9%)	83%	337.1	.000
We generate new clients in our company on a regular basis	8 (2.5%)	58 (17.9%)	6 (1.9%)	200 (61.7%)	52 (16%)	74.2%	388.4	.000
A good percentage of our projects meet customer expectations (quality)	0 (0%)	36 (11.1%)	1 (0.3%)	185 (57.1%)	102 (31.5%)	81.8%	242.9	.000
We rarely have tax suits, unpaid tax claims or other government litigations against our investments	4 (1.2%)	65 (20.1%)	1 (0.3%)	159 (49.1%)	95 (29.3%)	77%	270.8	.000
Our company always executes projects to the level of satisfaction of our client	0 (0%)	46 (14.2%)	5 (1.5%)	199 (61.4%)	74 (22.8%)	78.6%	258.9	.000
It takes unexpectedly long to have all units let out	40 (12.3%)	143 (44.1%)	16 (4.9%)	110 (34%)	15 (4.6%)	54.8%	210.4	.000
The average return on investment of our properties is mostly above 7%	30 (9.1%)	70 (21.3%)	19 (5.8%)	140 (42.7%)	65 (19.8%)	68.6%	138.7	.000

*1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree Chi sq = ****

Source: Author, 2019

From the descriptive analysis, most of the entrepreneurs effectively manage their relationship with their clients and satisfy them by way of minimising possible disputes with the clients, meeting customers' quality expectation and being compliant to government institutions on behalf of the client. As a result, a good number of respondents (74.2%) generated new clients on a regular basis. The entrepreneurs were moderately doing well in performance based on a financial indicator, where 62.5% of the respondents have their investments yielding a return to investment of over 7%. This finding was confirmed and supported by a relatively high computed ROI of 10.2 % (Table 4.47, Appendix 5). According to Cytonn (2019), the required rate of return varies depending on the property theme with the good rental yield for residential being 5.0% to 7.0% and commercial real estate (office, retail and industrial) being 9.0% to 12.0%.

Over 70% of the respondents indicated that they execute their projects within the scheduled time and within the budgeted estimates. These findings contradict Auma (2014) who posited that more than 70% of construction projects in Kenya experience time overrun of the magnitude of over 50%, while 50% of the projects experience excess cost budget of a magnitude of more than 20%. When the same question was asked differently (see Table 4.40, Appendix 5), it was evidenced that only 53.3% of the respondents completed their projects a time within or less than the scheduled time of completion. Indeed, the majority of the respondents (35.2%) delayed completion by between 5 – 20% of the completion time. On account of cost, it was similarly noted that only 40.1% reported to have at an average completed their projects within the

budget allocation with the majority once again (50.3%), having a cost overrun of 5 – 20% of the budgeted cost.

The current findings are, however, an indication of strong performance and reflect the growth that continues to be witnessed in the sector despite the myriad of challenges surrounding it. In 2016 and 2017, the sector contributed 8.8% and 7.4% to the countries' gross domestic product, suppressing traditional sector such as Agriculture and manufacturing (KNBS, 2017). In 2018, it performed more than other investment portfolios such as Treasury bill and bonds (Cytonn, 2018). Broadly, the findings also point good client management practices. This is evident through the high rating on their ability to minimise disputes, deliver client satisfaction and strong positive feedback from clients.

4.11 Factor analysis

Finding the true factors that measure both independent and independent variables in the study was achieved through factor analysis. Factor Analysis is an exploratory tool that seeks to assess whether items used in a measurement tool adequately explain the true variable construct (Field 2005). True and unbiased estimates for hypothesis testing can only be generated from suitable indicators or factors. Not all items in a data collection tool contribute equally to the measurement of the underlying construct. Factor analyses are performed by examining the pattern of correlations (or covariance) between the observed measures. Measures that are highly correlated (either positively or negatively) are likely influenced by the same factors, while those that are relatively uncorrelated are likely influenced by different factors. The primary objective of factor analysis is to determine the number of common factors influencing a set of measures and strength of

the relationship between each factor and each observed measure (Thontten, & Omorin, 2014).

Through confirmatory factor analysis, only factors that significantly loaded on the underlying measurable construct of each variable were used in the determination of the variable composite index or score. The study used principal component Analysis as a factor analysis tool with Kaiser-Meyer-Olkin Measure of Sampling Adequacy score of 0.5 as the minimum cut off point, and Minimum Eigenvalue of 1 in determining the number of components to extract. Varimax rotation was used to facilitate clear identification of item loading on each component with a cut off value of 0.5.

4.11.1 Technical risk management

The sampling adequacy for the scale was found to be adequate (KMO = 0.826, χ^2 = 1166, $p < 0.05$) with only one component extracted with a factor loading ranging from 0.843 to 0.675and having a cumulative variance of 58.089%. The entire seven items were, therefore retained in the computation of technical risk management score.

Table 4. 29: Technical risk management factors analysis results

Technical risk management items	Component
	1
1. The company undertakes a comprehensive site investigation procedure	.809
2. The company ensures that there is always an adequate supply of construction materials	.717
3. The company usually obtains copies of all land acquisition/ownership documents and due diligence items	.675
4. The company obtains the necessary building approvals on time	.843
5. The company sets a time limit in every phase within which to accept changes in the plan and specification by the client	.815
6. The company hires a competent management team	.779
7. The company maintains a maintenance, repair land renovation record and funds	.678

(KMO = 0.826, Chi -Square = 1166, p <0.05, df = 21)

Extraction Method: Principal Component Analysis.

Source: Author, 2019

4.11.2 Financial risk management

Four items intended for measuring financial management risks adequately met the sampling adequacy requirement (KMO = 0.541, Chi-Square = 290.75, p <0.05, df = 6) loading on two components with 77.6% of total variances explained.

Table 4.30: Financial risk management factor analysis results

Financial risk management items	Component	
	1	2
1. The company confirms and establishes the credit-worthiness of the client	.453	**.767**
2. The company has a consistent way of payment follow-up with the client	**.835**	.240
3. All needed finance is borrowed at a fixed rate	-.077	**.915**
4. The company prepares and maintains financial reports on specific phases of the entrepreneurial investment life cycle	**.843**	-.036

(KMO = 0.541, Chi -Square = 290.75, p <0.05, df = 6)

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalisation.

a. Rotation converged in 3 iterations.

Source: Author, 2019

The second item: The Company has a consistent way of payment follow-up with the client and the fourth item: The Company prepares and maintains financial reports on specific phases of the real estate entrepreneurial investment life cycle, loaded on the first component. The two items are closely associated with post-contract signing assessment and are intended to monitor the continued ability of the client to meet their financial obligations and were labelled post contract financial risk. The other two items; the company confirms and establishes the creditworthiness of the client and all neede finance is borrowed at a fixed rate, loaded on the second component that was renamed pre-contract financial risk factors. With all the four items maintaining a loading factor of greater than 0.5, they were retained in the computation of financial risk management Score.

4.11.3 Environmental risk management

The environmental risk management scale with three items adequately met the sample adequacy requirement for factor analysis with Kaiser-Meyer-Olkin Measure of Sampling Adequacy score of 0.642 ($\chi^2 = 305.95$, $p < 0.05$, $df = 3$). The three items cumulatively explained 67.98% of the total variations and loaded on one component only that was labelled environmental risk management.

Table 4.31: Environmental risk management factor analysis results

Environmental risk management items	Component
	1
. The company undertakes a comprehensive environmental impact assessment audit for all projects	.834
. The company excludes weather conditions which are worse than the normal from the bid price and time	.768
. The company schedule construction activities that can be impacted by bad weather elements outside their respective condition	.898

(KMO = 0.642 (χ^2 = 305.95, p < 0.05, df = 3)

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Source: Author, 2019

With the three items satisfying the minimum factor score of 0.5, they were all retained in the determination of the environmental risk management score.

4.11.4 Political/legal risk management

The third independent variable to be examined was related to political/legal risk management. The scale had four items returning a Kaiser-Meyer-Olkin Measure of Sampling Adequacy score of 0.504 (χ2 = 269.16, p < 0.05, df = 6) that was considered adequate.

Table 4.32: Political/legal risk management factor analysis results

Political/legal risk management items	Component	
	1	2
1. The company maintains political risk insurance for each entrepreneurial investment (such as against riots and civil unrest)	**.932**	-.089
2. The company has a reliable dispute settlement system	**.860**	.294
3. The company officials carry out focused and detailed supervisory activities at random or on a targeted area where corruption has the potential to occur	-.043	**.895**
4. The company regularly reviews different property tax payments and tax abatements.	.206	**.826**

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalisation.
a. Rotation converged in 3 iterations.
Source: Author, 2019

The four items cumulatively explained 80.75% of the total variation in the scale and loaded two components. The first two items: 'The company maintains political risk insurance for each entrepreneurial investment (such as against riots and civil unrest)' and 'the company has a reliable dispute settlement system' loaded on component one and was labelled third party risks. The other two items; 'the company officials carry out focused and detailed supervisory activities at random or on a targeted area where corruption has potential to occur' and 'The company regularly reviews different property tax payments and tax abatements' loaded on the second component labelled corruption and Tax risks. With all items factor loading score exceeding 0.5, they were retained in the computation of the political/legal risk management score.

4.11.5 Operational risk management

Five items intended for measuring operational risk management met the sampling adequacy requirement (KMO = 0.739, Chi-Square = 574.044, $p < 0.05$, df = 10) loading

on two components explaining a total of 75.47% of total variances of the scale variations.

Table 4.33: Operation risk management factor analysis results

Operational risk management scale items	Component	
	1	**2**
1. The company periodically undertakes solvency assessment of existing tenants	**.552**	**.615**
2. The company consistently maintains a lease maturity evaluation	**.834**	.351
3. The company hires competent management teams	**.887**	-.038
4. The company has a training programme for its employees on real estate management	.466	**.699**
5. The company has a security plan to detect and prevent criminal activities such as vandalism and theft	-.067	**.880**

(KMO = 0.739, χ^2 = 574.044.23, $p < 0.05$, df = 10)

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalisation.

a. Rotation converged in 3 iterations.

Source: Author, 2019

All the five items loaded on two components with the first item' The Company periodically undertakes solvency assessment of existing tenants' loading on both. The second 'The company consistently maintains a lease maturity evaluation" and the third item 'The company hires competent management teams' loaded on the first component that was labelled tenancy related risk. The other two items; 'The company has a training programme for its employees on real estate management' and 'The company has a security plan to detect and prevent criminal activities such as vandalism and theft' loaded on the second component that was employee-related risks. With all the items

factor score exceeding the cut- off score of 0.5, they were all retained as operating risk indicators.

4.11.6 Risk management procedure

The last scale assessed for item validity was the risk management procedure. The overall Kaiser-Meyer-Olkin Measure of Sampling Adequacy score was found to be 0.869 ($\chi^2 = 2174.32$, $p < 0.05$, $df = 15$) with the six items cumulatively explaining 81.3% of the total scale variation. As seen in Table 4.34, all the six items had factor loading greater than 0.5 and loaded on one component, a confirmation that they all were measuring the same construct and was labelled Risk Management procedure. Consequently, all six items were retained for analysis.

Table 4.34: Risk management procedure factor analysis results

Risk Management procedure scale items	Component
	1
1. Risk identification	.921
2. Risk assessment/analysis	.917
3. Risk response	.867
4. Risk control	.907
5. Risk monitoring	.916
6. Keep or maintain a risk management plan	.880

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Source: Author, 2019

4.11.7 Performance scale

Table 4.35: Performance scale

Performance scale items	Component	
	1	**2**
1. Our company always executes projects within the scheduled time	**.792**	.305
2. Our company always executes projects within budgeted estimates	**.904**	.217
3. Our company hardly receives negative feedback from our clients on functionality performance of the investment	.271	**.649**
4. The number of disputes between the company and the client on the objectives of the projects are very few	.323	**.799**
5. We generate new clients in our company on a regular basis	**.610**	.428
6. Projects Meets expectations	.140	**.721**
7. We rarely have tax suits, unpaid tax claims or other government litigations against our investments	**.629**	.069
8. Investment Meets Customer Satisfaction	.359	.472
9. It takes unexpectedly long to have all units sold/ let out	.002	**-.669**
10. The average return on investment of our properties is always above 7%	**.867**	.147

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalisation.

Source: Author, 2019

The performance scale representing the dependent variable was also examined for validity. With nine items, the scales' sample adequacy test returned a KMO score of 0.789 ($\chi^2 = 1175.52$, $p < 0.05$, $df = 36$) that was found to be adequate for factor analysis. The nine items explained 57.89% of the total variations loading on two components.

As seen in Table 4.35, five items measuring the ability of the company to execute their projects within the scheduled time, within budget, ability to generate clients on a regular basis, minimal tax and government litigations against company properties and ability to have an average return on investment loaded on the first component that was labelled cost, time and related financial performance. Four other items namely; 'Our company always executes projects within the scheduled time',' Our company always executes projects within budgeted estimates', 'Projects Meets expectations' and 'It takes unexpectedly long to have all units let out' loaded on the second component that was labelled client satisfaction performance. The negative value of item 'it takes unexpectedly long to have all units sold/let out' is an indication of the inverse relationship of the scale item, where if it takes longer, it depicts poor performance. One item 'investment Meets Customer Satisfaction" did not load on any of the two components and was subsequently dropped for the computation of the scale score.

4.12 Inferential analysis

To estimate how well the management of different risk elements predicted the performance of commercial real estate entrepreneurial investments, multiple linear regression analysis was used. Multiple regression techniques is a statistical procedure that estimates the relationship between a single dependent variable and several independent predictor variables (Creswell, 2012). The choice of a multiple regression model was based on the need to determine how well the management of the risk elements predict the performance of the commercial real estate entrepreneurial investments and to reveal their relative contribution.

4.13 Test of linear regression assumptions

As a parametric estimation technique, a number of assumptions must be met for the resulting parameter estimates to be unbiased and efficient. Four assumptions, namely; normality of residuals, homoscedasticity, multi-collinearity, and linearity of variables were tested, and their results are discussed in the following subsections.

4.13.1 Normality of residuals

The presence of normally distributed residuals in a regression model not only enhance the quality of hypothesis test results but also greatly strengthen the validity of the t-test and F test statistic and the associated P values. A normal probability plot of residuals with points that fall close to the diagonal reference line closely indicates non-violation of the normality assumption.

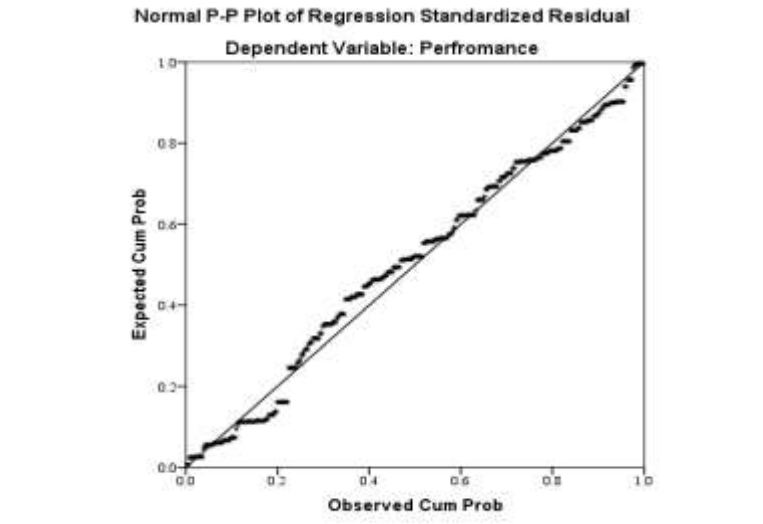

Figure 4.3: P-P Plot

Source: Author, 2019

4.13.2 Test of homoscedasticity

Heteroscedastic or homogeneity of variance is a phenomenon identified with the presence of non-constant variance in the error term as a result of the presence of outliers or extreme values. Homoscedasticity describes a situation in which the error term in the relationship between the independent variables and the dependent variable is the same across all values of the independent variables. Heteroscedasticity (the violation of homoscedasticity) is present when the size of the error term differs across values of an independent variable. The impact of violating the assumption of homoscedasticity is a matter of degree, increasing as heteroscedasticity increases.

A residual versus Predicted values plot with a funnel shape is an indication of heteroscedastic data. As seen in Figure 4.4, the scatter points of predicted versus Residuals spreads evenly across the plot area, an indication of homoscedasticity.

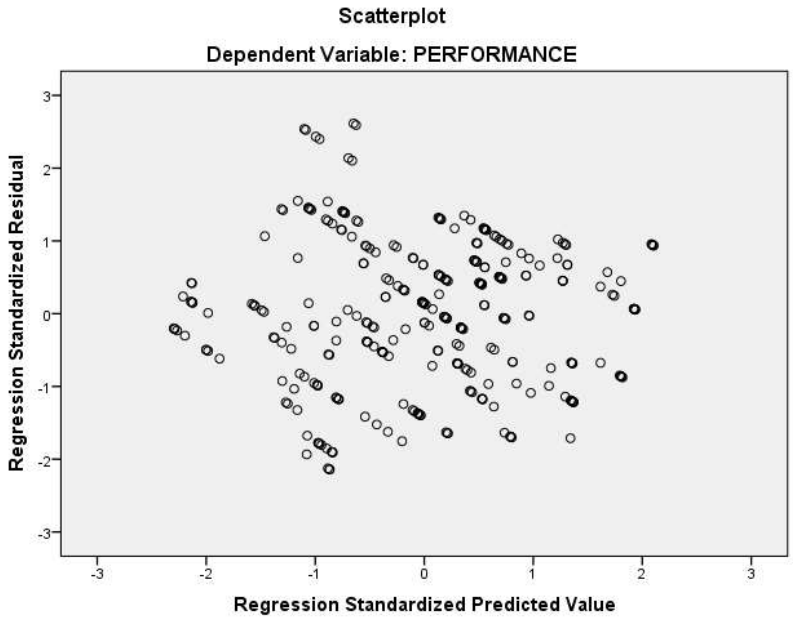

Figure 4.4: Predicted versus residual values plot

Source: Author, 2019

4.13.3 Test of multi-collinearity

The data was tested for multi-collinearity using the Variance Inflation Factor (VIF), where the threshold for acceptance was set at VIF (βi) ≤ 10 (Kutner, Nachtsheim, & Neter, 2004).

Multi-collinearity also called collinearity denotes a phenomenon where one independent variable can be linearly predicted by another independent variable with a substantial degree of accuracy. The presence of multicollinearity has two key shortcomings; first, it makes it difficult to clearly identify the true relationship between the each independent and the dependent variable and secondly, in the presence of highly correlated independent variables, the standard errors are overestimated, the confidence intervals are wider leading to less precise parameter estimates. A commonly accepted test of multi-collinearity is through Variance Inflation Factors (VIF). VIF factors of less than 10 are widely accepted as an indication of limited correlation between the independent variables, and the insignificant influence of the parameter estimates accuracy. The VIF of all the seven independent variables were found to be less than 4, an indication that the model was not in violation of the multi-collinearity assumption (Table 4.36). On the side of correlation, large correlation coefficients in the correlation matrix of predictor variables indicate multi-collinearity. If there is a multi-collinearity between any two predictor variables, then the correlation coefficient between these two variables will be near to unity. The evident of limited multi-collinearity is further evidence in Table 4.36.

Table 4. 36: Multi-collinearity test results

	Collinearity Statistics	
	Tolerance	VIF
Technical Risk	.622	1.607
Financial Risk	.407	2.459
Market Risk	.473	2.114
Environment Risk	.533	1.878
Political Risk	.512	1.955
Operation risk	.252	3.967
Risk management procedure	.852	1.174

Source: Author, 2019

4.13.4 Correlation analysis

Through correlation analysis, the study sought to establish not only the strength and direction of the association between the management of the risk categories but also with the performance of commercial real estate entrepreneurial investments. The results are as summarised in Table 4.37.

Table 4.37: Correlation analysis results

ITEM	TRMGT	FRMGT	MRMGT	PRMGT	ORMGT	ERMGT	RISK_MP	PERF
TRMGT	1							
FRMGT	.588**	1						
MRMGT	.479**	.343**	1					
PRMGT	.622**	.589**	.333**	1				
ORMGT	.625**	.544**	.425**	.644**	1			
ERMGT	.631**	.443**	.220**	.647**	.391**	1		
RISK_MP	.341**	.448**	.115*	.261**	.352**	.353**	1	
PERF	.563**	.618**	.333**	.490**	.497**	.476**	.485**	1

Where: TRMGT is Technical risk management, FRMGT is financial risk management, MRMGT is Market risk management, ERMGT is Environmental risk management, PRMGT is Political/legal risk management, ORMGT is Operational risk management, RMP is Risk management procedures, and PERF is performance

Source: Author, 2019

All six risk factors were found to significantly correlate positively with each other. Efforts in managing political/legal and environmental risks have the highest positive correlation, whereas the correlation between market risk and financial management is the weakest. The use of a risk management procedure was found to have a strong correlation with financial risk management effort while its association with market risk management is the weakest. The association between the six risk factors and performance of commercial real estate entrepreneurial investments is notably significantly positive. Financial risk management was found to bear the strongest correlation with commercial real estate entrepreneurial investment performance while market risk management had the weakest association with the real estate performance.

The existence of an all positive correlation between the different risks in the real estate sector can be explained from two perspectives. First, the different risk associated with real estate projects tends to be systematic, inseparable and non-diversifiable (Sdino, Rosaco, & Magoni, 2018). Consequently, the levels of exposure of one type of risk will tend to be the same across all other similar projects. Secondly, the Holistic approach to risk management is real estate is of necessity rather than a choice (Zhao et al., 2015). Focusing on only one or a few risks is counterproductive since, overlooking on others, can lead to the failure of the whole operation or project.

4.13.5 Linearity of variable

Under the linearity assumption, there should be a linear and additive relationship between the dependent and the independent variable. A linear relationship exists when a change in the dependent variable due to one-unit change in the independent variable is constant, regardless of the value of the independent variable. The additive principle suggests that the effect of each independent variable on the dependent variable is truly independent of other variables in the model. Standard multiple regression can only accurately estimate the relationship between independent and dependent variables if the relationships are linear in nature. If the relationship between independent variables and the dependent variable is not linear, the results of the regression analysis will under-estimate the true relationship. The scatterplot in Figure 4.5 shows that there is no violation, and therefore, this assumption has been met.

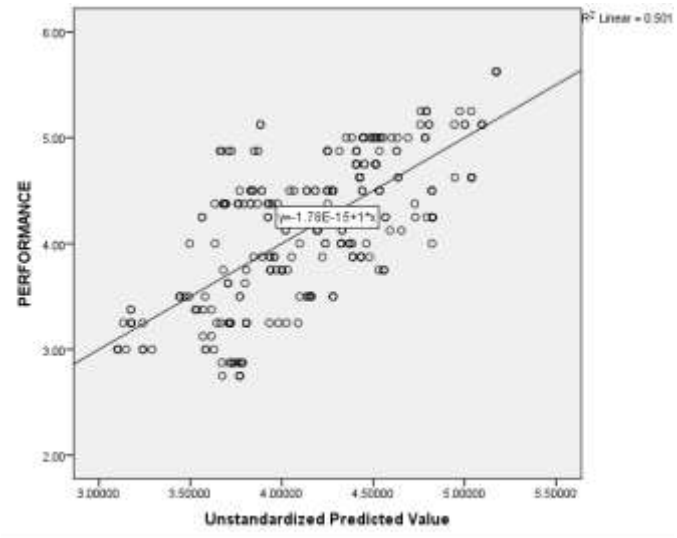

Figure 4.5: Linearity test

4.14 Hypotheses testing

With the data meeting all prerequisite Ordinary Least Square (OLS) assumptions, data were fitted with a multiple regression model. Data fitted with OLS comes with two key benefits, especially when used in hypothesis testing. First, its parameter estimates correspond strongly to maximum likelihood estimates that are not only consistent but also strongly asymptotic normal, a desired characteristic for accurate hypothesis testing. Secondly, as set out in the Gauss- Markov theorem, OLS regression line yields the Best Linear Unbiased Estimator of the true parameter coefficients.

To run the multiple regression model, the mean score of each risk management element as the independent variable and the mean score of the commercial real estate entrepreneurial investment were used. As seen in Table 4.38 the summary model, R Square (R^2) of 0.468 was an indication that the six risk management elements significantly explained 46.8% of the total variances in the performance of commercial real estate entrepreneurial investments. With the analysis of variance in the model

yielding an F value of 46.40 and p-Value of less than 0.05 (See Table 4.39) the six risk management elements were therefore significantly explaining the variations in the performance of commercial real estate entrepreneurial investments.

Table 4.38: Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.684	.468	.458	.49191

a. Predictors: (Constant), ERMGT, MRMGT, FRMGT, ORMGT, PRMGT, TRMGT

Table 4.39: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	67.366	6	11.228	46.400	.000[b]
	Residual	76.706	317	.242		
	Total	144.072	323			

a. Dependent Variable: PERFORMANCE

b. Predictors: (Constant), ERMGT, MRMGT, FRMGT, ORMGT, PRMGT, TRMGT

Table 4.40: Coefficients

Model	Unstandardized Coefficients		Standardised Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.626	.164		9.904	.000
TRMGT	.121	.060	.138	2.034	.043
FRMGT	.349	.049	.394	7.175	.000
MRMGT	.033	.032	.051	1.504	.293
PRMGT	.045	.059	.051	-.759	.448
ORMGT	.112	.050	.137	2.261	.024
ERMGT	.142	.047	.183	3.041	.003

a. Dependent Variable: PERFORMANCE

Source: Author, 2019

To arrive at a definitive conclusion on the effect of management of individual risk category, six hypotheses outlined in section 1.6 in chapter one were assessed based on the multiple linear regression model results are presented in Tables 4.38, 4.39 and 4.40. The results of each of the six hypotheses are presented in the following subsections. To improve on an in-depth understanding of the relationship between the variables, four regression models are later generated where the independent variables were regressed with individual performance indicators. The models are denoted as model 1 - 4, labelled ROI, client satisfaction, time and cost, as shown in Table 4.44 and Appendix 5.

The decision as to whether technical risk management affects the performance of commercial real estate entrepreneurial investments involved testing the following null hypothesis at 0.05 levels of significance.

$H_0$1: Management of technical risk does not have a statistically significant effect on the performance of commercial real estate entrepreneurial investments.

With initial descriptive results showing a technical risk index score of 0.5721 and a correlation coefficient of 0.563, a significant positive effect between technical risk management and performance of commercial real estate entrepreneurial investments was expected. The results in Table 4.38 confirm this proposition. A technical risk management coefficient ($\beta = 0.121$) is an indication that a unit increase in technical risk management score leads to a 12.1% improvement in the performance of commercial real estate entrepreneurial investments. The null hypothesis that technical risk management does not have a statistically significant effect on the performance of commercial real estate entrepreneurial investments is rejected leading to a conclusion that technical risk management significantly influences the performance of commercial real estate entrepreneurial investments in Kenya.

This finding confirms the noticeable contribution that technical risk management has on the performance of real estate entrepreneurial investments as reported by a number of scholars. For instance, Amoety and Danquah (2018) in assessing risk in Ghanaian real estate found the technical risk to be among the real estate risks with the highest severity levels while Srivivas (2015) in his study conducted among real estate actors in India found that construction risk (technical risk) had the highest impact on the performance of real estate entrepreneurial investments. Karim et al. (2012) further affirmed the significance of managing technical risk when they found that key elements that are technical; raw material availability, workmanship and insufficient technology,

among others, were greatly influencing the performance of Malaysian real estate properties.

Two fundamental issues arise when the management of technical risk stands out as an influential factor in the performance of entrepreneurial investments in the real estate sector. First, pre-projects implementation requirements that included site investigation, building plans approval and acquisition of all the necessary land documentation, majority of which are intended to establish an environment for the implementation phase, have a direct influence on the ultimate performance of the real estate entrepreneurial investment. Secondly, having the right team, with the required competencies and experience to plan and implement real estate investments, significantly increases the chances of better performance of the commercial real estate entrepreneurial investments.

When the role of technical risk management was sought on individual performance indicators, the findings revealed that it was significant only to the time and failed to be significant to ROI, satisfaction and cost. A possible explanation is that the strategies deployed by the entrepreneurs in managing technical risk are skewed towards meeting clients' satisfaction in terms of scheduled time realisation and not so much on other performance indicators. This could be a possible explanation of about 60% of the respondents experiencing a cost overrun of 5%, many real estate entrepreneurial investments missing the quality test leading to building collapse and a low percentage of uptake/ occupation on failing to match the customer desire (Tables 4.44 and 4.45, Appendix 5).

The second hypothesis tested was the relationship between financial risk and performance of commercial real estate entrepreneurial investments in Kenya. With a correlation coefficient of 0.618 between financial risk management and the performance of real estate entrepreneurial investments, the significant influence was expected. To confirm, this preposition, the following hypothesis was tested;

$H_0$2: Management of financial/economic risk does not have a statistically significant effect on the performance of commercial real estate entrepreneurial investments.

Based on the regression model results, a unit increase in financial risk management score led to a 34.9% increase in real estate entrepreneurial investment performance holding all other factors constant. With the findings in Table 4.40, the null hypothesis was consequently rejected, implying that financial risk management significantly affects the performance of commercial real estate entrepreneurial investments in Kenya. A number of studies support this current finding. For instance, in Ghana, Chileshe and Yirenkyi-Fianko (2014) found that financial/economic risk was the composite risk factor influencing the performance of the projects. In Nigeria, Odeyinka, Aladapo and Dada (2000) in their study on likelihood and impact of risks at pre and post contract stages found that the major risk factor encountered at pre-contract stage is design risk while at the post-contract stage was financial and political risks.

The systematic nature of financial risk in terms of both interest rates and inflations risk exposure affecting all projects means that a small change in the fundamental economic activity or changes in policy will more than likely influence the cost, financing and

pricing components of real estate entrepreneurial investments. The stability experience to a large extent in the financial sector in Kenya, with the introduction of interest rates cap and better control of inflationary pressure, has led the real estate sector to experience better returns fuelling significant growth in the number of players entering the market.

On individual performance indicators, financial risk management had a significant positive relationship with performance of real estate entrepreneurial investments based on the three indicators (client satisfaction, time and cost) when considered separately but not so with a return on investment (Table 4.44, Appendix 5). The healthiness of a real estate entrepreneurial investment can be viewed from two perspectives, namely; structural wellbeing and economic/functional wellbeing. Structural wellbeing will be concerned with its structural soundness while economic/functional wellbeing will be concerned with its ability to generate intended income. With a not significant relationship with ROI, it is suggestive to say that deployment of financial risk management strategies will most likely lead to structural wellbeing of commercial real estate entrepreneurship investments rather than economic wellbeing.

Considering that the majority of real estate investments are often sold in the market driven by forces of supply and demand, prudent management of market risk should translate into better performance of real estate entrepreneurial investments. To arrive a definitive conclusion, the following hypothesis was tested;

$H_0$3: Management of market risk does not have a statistically significant effect on the performance of commercial real estate entrepreneurial investments

With a correlation coefficient of 0.333, a positive and significant parameter estimate was expected. However, as seen in Table 4.40, a market risk management coefficient 0.033was arrived at, an indication that an increase in market risk management by one unit led to a 3.3% increase in performance of commercial real estate entrepreneurial investments in Kenya. With a coefficient's t-test *p*-values of greater than 0.05, the null hypothesis failed to be rejected leading to the conclusion that market risk management does not significantly affect the performance of commercial real estate entrepreneurial investments in Kenya.

The failure of management of marketing risk to significantly influence the performance of real estate entrepreneurial investments despite a significant risk management score can be attributed to two reasons. First, the demand for real estate entrepreneurial investments in Kenya has consistently outstripped supply, rendering all marketing risk factors relatively ineffective in influencing the performance of the investments. Secondly, the growth in the middle class with strong spending culture has fuelled the diversification of demand for different class and type of real estate investments, limiting the possibility of a market glut (Vuluku & Gachanja, 2014). The management of market risk also failed to significantly influence performance based on all individual performance indicators (Table 4.44, Appendix 5). Of concern, however, is its failure to significantly influence performance based on ROI indicator, bearing in mind that management of market risk is about enhancing the saleability of the entrepreneurial investment or space therein by identifying potential and suitable clients, in a bid to earn

the highest yield in the market. However, with the factor analysis generated model, market risk management was found to be significant on performance component 2 – labelled client satisfaction. This is an indication of the existence of some positive influence, although not significant enough. (See Table 4.46, Appendix 5).

The effect of environmental risk management on the performance of commercial real estate entrepreneurial investments was also determined through testing the following hypothesis;

$H_0$4: Management of environmental risk does not have a statistically significant effect on the performance of commercial real estate entrepreneurial investments.

As shown in Table 4.40, the estimated environmental risk management coefficient of 0.142 indicates that a unit increase in environmental risk management score led to a 14.2% improvement in the performance of real estate entrepreneurial investments. With the test coefficient *p*-value of less than 0.05, the null hypothesis was rejected, leading to a conclusion that management of environmental risk significantly affects the performance of real estate entrepreneurial investments in Kenya.

The relationship between environmental risk and performance of real estate entrepreneurial investments remains indeterminate and contextual empirically. Those who have reported a positive influence includes Jaber (2014), and Amuatey and Danquah (2018) suggest that adherence to stringent environmental laws and associate compliance and non-compliance costs bear a strong influence on tenancy and price. At the implementation phase, change in climate condition was found to have the greatest

impact on the projects. The findings of Wang et al. (2004), Tilipi, and Ilyasu (2014) evaluating the performance of real estate properties found that environmental risk had an insignificant impact on the success of real estate properties.

In Kenya where extreme weather conditions are rare, and incidences of serious environmental hazards are relatively unheard of, demand for the clear environment, adherence to environmental requirements prior, during and after construction, can be the main justification. This will imply that environmentally friendly and compliant real estate entrepreneurial investments would attract better prices and occupancy. When environmental risk management was regressed on individual performance indicators, it was found to significantly influence performance using all the indicators save for client satisfaction.

The fifth hypothesis sought to assess the effects of political/legal risk management on the performance of commercial real estate entrepreneurial investments in Kenya. The specific proposition about the relationship was that;

$H_0$5: Management of political/legal risks does not have a statistically significant effect on the performance of commercial real estate entrepreneurial investment.

As seen in Table 4.40, political/legal risk management has a positive coefficient of 0.045indicating that a unit increase in political management score led to 4.5% increase in performance of commercial real estate entrepreneurial investments in Kenya. The resulting t-test p-value was greater than 0.05; consequently, the null hypothesis failed

to be rejected. This led the study to conclude that political/legal risk does not affect the performance of real estate entrepreneurial investments in Kenya.

The intention of any legal framework is often to protect the interest of all parties and create a conducive environment that is void of risks and loses. The real estate sector in Kenya is relatively well protected through numerous sets of laws and regulations that oversee transactions and project implementation. The political environment in Kenya has remained relatively stable and investor-friendly. The relative stability experienced in the political/legal fronts justified the minimal influence of political/legal risk management on the performance of real estate entrepreneurial investments in Kenya. A curious observation that requires further investigation is that when the relationship was further sought using individual indicators rather than the combined indicator, each indicator save for client's satisfaction posted a significant relationship suggesting that Political/legal risk management affects the performance of real estate entrepreneurial investments in Kenya.

Operating risk is closely linked to both tenancy and managerial issues. The owners, through their managing agents, expect to obtain optimum rents for the real estate entrepreneurial investment based on competitive pricing, taking into consideration market rates, comparative advantages and disadvantages of the premises. To arrive at a definitive conclusion, the following hypothesis was tested;

$H_0$6: Management of operational risk does not have a statistically significant effect on the performance of commercial real estate entrepreneurial investments.

With a significant correlation coefficient, a significant positive regression coefficient of operational risk management and performance was expected. As seen in Table 4.40, the estimated regression coefficient indicates that a unit increase in operational risk management score leads to an11.2% improvement in the performance of commercial real estate entrepreneurial investments in Kenya *Ceteris Paribus*. With a coefficient's t-test *p*-values of less than 0.05, the null hypothesis was rejected, leading to the conclusion that operational risk management significantly affects the performance of commercial real estate entrepreneurial investments in Kenya.

The current finding is in agreement with findings in the literature, for instance, Mutunga (2012) in his study of the choice of the property management approach for commercial high-rise buildings in Nairobi found that the expertise, knowledge, strategy to control cost, reduced employee turnover and customer satisfaction were critical in achieving expected returns. Gitonga (2016) noted that the main impediment to better returns from real estate entrepreneurial investments includes late rent payment, poor marketing and financial constraints, destruction of property by tenants, tribalism, negative attitude toward management firms, insecurity and high operating costs, bulk of which are operational risk drivers. Consequently, if they are well managed, high return on investment will be realised.

When viewed from individual performance indicators point of view, the findings reveal that a change in operational risk management effort positively influences the performance of real estate entrepreneurial investments on the count of client satisfaction and time, but with no added improvement on ROI and cost. (Table 4.44, Appendix 5) Close to similar findings were obtained when the factor analysis generated variables were regressed on the split performance indicators. Management of tenancy related operational risk had a positive influence on the time and cost (performance component 1) as well as clients' satisfaction (performance component 2). Unexpectedly though, employee-related operational risk was not significant to the split performance components (see Table 4.46, Appendix 5).

Apart from the study focusing on the risk components that bear a direct influence on the performance of commercial real estate entrepreneurial investments, it also envisaged investigating the moderating effect of the adoption of risk management procedure by the real estate entrepreneurs on the performance of real estate entrepreneurial investments. To perform this task, the following hypothesis was tested;

$H_0$7: The adoption of systematic risk management procedure does not have a statistically significant moderating effect on the performance of commercial real estate entrepreneurial investments.

Table 4.41: Model summary

Model	R	R square	Adjusted R square	Standard error of estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.684[a]	.468	.458	.49191	.468	46.400	6	317	.000
2	.708[b]	.501	.490	.47683	.034	21.373	1	316	.000

a. Predictors: (Constant), CERMG, CMRMG, CFRMG, ORMGT, CPRMG, CTRMG

b. Predictors: (Constant), CERMG, CMRMG, CFRMG, ORMGT, CPRMG, CTRMG, CRISK_MP

Table 4.42: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	67.366	6	11.228	46.400	.000[b]
	Residual	76.706	317	.242		
	Total	144.072	323			
2	Regression	72.225	7	10.318	45.381	.000[c]
	Residual	71.847	316	.227		
	Total	144.072	323			

a. Dependent Variable: PERFORMANCE

b. Predictors: (Constant), CERMG, CMRMG, CFRMG, ORMGT, CPRMG, CTRMG

c. Predictors: (Constant), CERMG, CMRMG, CFRMG, ORMGT, CPRMG, CTRMG, CRISK_MP

Table 4.43: Coefficients

Model		Unstandardized Coefficients B	Std. Error	Standardised Coefficients Beta	t	Sig.
1	(Constant)	3.790	.176		21.537	.000
	ORMGT	.112	.050	.137	2.261	.024
	CTRMG	.121	.060	.138	2.034	.043
	CFRMG	.349	.049	.394	7.175	.000
	CMRMG	.033	.032	.051	1.054	.293
	CPRMG	.045	.059	.051	.759	.448
	CERMG	.142	.047	.183	3.041	.003
2	(Constant)	3.947	.174		22.694	.000
	ORMGT	.068	.049	.082	1.374	.170
	CTRMG	.122	.058	.139	2.117	.035
	CFRMG	.276	.050	.312	5.558	.000
	CMRMG	.046	.031	.070	1.502	.134
	CPRMG	.008	.059	.009	.139	.890
	CERMG	.094	.047	.120	2.014	.045
	CRISK_MP	.141	.030	.216	4.623	.000

a. Dependent Variable: PERFORMANCE

Source: Author, 2019

As shown in Tables 4.41 and 4.42 before the interaction, the predictor variables accounted for 46.8% of the total variance in the performance of commercial real estate entrepreneurial investments. With the introduction of the moderator variable, the interaction between risk management and performance of commercial real estate entrepreneurial investments accounted for an additional significant 3.4% of the variance resulting in a total variance of 50.1%. Having $F(7, 316) = 45.381$, $p < 0.05$, the null hypothesis was rejected leading to a conclusion that the adoption of systematic risk

management procedure has a significant moderating effect on the performance of commercial real estate entrepreneurial investments in Kenya.

Looking at the coefficients (Table 4.43), adoption of systematic risk management procedure has a significant moderating effect between technical risk management (TRM), financial risk management (FRM) and environmental risk management (ERM) and performance of commercial real estate entrepreneurial investments. This is to say, technical risk management, financial risk management and environmental risk management affect performance, but the strength of their relationship depends on whether the real estate entrepreneur adopts the risk management procedure or not. The interaction, however, weakened the effect of operational risk management on the performance to the extent of making the relationship not significant.

The current findings are in agreement with scholars in literature who have found that risk management significantly moderated the relationship between real estate planning and other management activities and success in the real estate businesses (Urbański, Haque,& Oino, 2019; Adeleke et al., 2015)

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary of the key findings in line with the objectives of the study, followed by the conclusion, policy recommendation based on the key findings and suggestions for further research.

5.2 Summary of major findings

The aim of this study was to examine risk management and its effect on the performance of commercial real estate entrepreneurial investments in Kenya. The study was limited to the effect associated with; technical, political, market, financial, operational and risk management procedures on the performance of the commercial real estate entrepreneurial investments.

The development of commercial real estate entrepreneurial investments is generally considered in three major phases, namely; acquisition, implementation and post-implementation. Real estate entrepreneurs considered the implementation phase to have the highest occurrence of risks with 58% against 40.4% and 9% of those who considered acquisition and post-implementation phases to bear the highest risk occurrence respectively. This is expected given that this phase comprises of key development subcategories such as planning/designing, financing and construction. During this phase, the dream idea of the entrepreneur is converted into a workable document, whose approval is sought, contracts signed and financing matters agreed upon. Each aspect is a potential source of risk factors. Of interest is the high number

of real estate entrepreneurs who considered the acquisition phase to bear moderate occurrence of risks (51.9%). Incidentally, the number of those who considered moderate occurrence and highest occurrence of risks cumulatively in acquisition phase was higher than those who accounted for the implementation phases at 92.3% and 90.1% respectively (Table 4.5). These findings are significant to every real estate entrepreneur pointing to the understanding that an articulated and well-executed acquisition phase will lead to good performance.

Besides the state of risks in the development phases, the study sought to find the criticality of key risk categories. The technical risk was notably the most critical risk category affecting the performance of commercial real estate entrepreneurial investments in Kenya with an accumulated percentage mean score of 77.4% of the respondents citing it as critical, very critical and most critical risk category. Financial and environmental categories were cited as the second and third most risky categories. With the largest number of respondents being under the category of contractors (37%), whose activities generally resonate around technical risk category, it will be important for the entrepreneurs in this sector to take a keen interest when engaging or vetting construction teams for better performance.

5.2.1 Technical risk management and performance

The first objective of this study sought to determine the effect of technical risk management on the performance of commercial real estate entrepreneurial investments. This was first achieved by undertaking an in-depth analysis of technical risk. The findings reveal that delays in design approvals and late changes to the original

design were the most frequent sources of technical risk while the availability of material ranked as the least frequent. Inadequate site survey, delays in approvals and incompetent team were the most severe technical risk factors when they occur, while risk associated with lack of or unreliable material supplies was the least severe.

Upon computing the Risk Index Significance (RIS) for the technical risk category (Table 4.8), inadequate site investigation was the most dominant technical risk factor with a mean score of 0.676 followed by a delay in obtaining design approval (0.668) and late changes of design by the real estate entrepreneurs (0.634). With the technical risk category cited as the most crucial risk category, the entrepreneurs need to be pro-active when dealing with these risk sources. Site investigation entails several items such as physical characteristics of the site, acquisition process, its development capability in regard to the intended development vis-a-vis the market. It's prudent, therefore, for the realtors to be thorough in the site investigation, seek early design /documents approval and when need be, make changes early enough not to affect the performance of the investment.

To mitigate and manage technical risk, commercial real estate entrepreneurs have placed greater emphasis on compliance with the required documentation and obtaining all the necessary approvals in all phases of the real estate entrepreneurial investment. Due diligence is key in achieving performance for these investments. Many real estate entrepreneurs in recent times have been losing substantial amounts of money in this sector as a result of "irregularly/illegally" acquired land for

development courtesy of lack or poor due diligence. It's, therefore evident that the entrepreneurs have resorted moving forward to utilise this strategy. Needed, therefore, is a comprehensive real estate due diligence checklist prepared by the real estate entrepreneurs comprising of site information, legal searches, surveys, site services, planning and design, among other relevant key items. Overall, technical risk management has a significant positive effect on the performance of commercial real estate entrepreneurial investments in Kenya.

5.2.2 Financial risk management and performance

The second objective of this study was to investigate the effect of financial/economic risk management on the performance of commercial real estate entrepreneurial investments in Kenya. The occurrence of financial risk factors, especially due to changes in interest rates and inflation is relatively low. Cost overruns were, however, identified as the most prevalent source of financial risk in the sector. Delays in construction team payments, challenges in servicing debt and construction overruns were also of notable severity. The entrepreneurs, however, cited that the most dominant financial risk affecting performance is delayed payments to construction teams and inability by the real estate entrepreneurs to service their debt posting a Risk Index Significant of 0.679 and 0.648 (Table 4.11) respectively. This is a case of lack of financial solvency. This is in agreement with Anton et al. (2011) who posited that the lack of financial solvency from any of the parties (entrepreneurs and construction team) is one of the greatest risks to consider in real estate development. They further argued that construction teams normally minimise their profit margins to maximise their chances of winning projects, which

is a major risk during the construction period. Financial effects of these risks are quite clear: lower productivity, poor performance and increase in the cost of the investment (Mills, 2001).

These findings are in harmony with the risk management strategies being adopted by the entrepreneurs where top on their list is the preparation of financial reports at all phases of the real estate entrepreneurial investment and follow up on clients' payments which is directed at improving on their financial solvency. On hypothesis testing, financial risk management was found to positively affect the performance of commercial real estate entrepreneurial investments.

5.2.3 Market risk management and performance

The third objective of this study was to evaluate the effect of market risk management on the performance of commercial real estate entrepreneurial investments in Kenya. Both the frequency and the severity of the risk factors associated with market risk of commercial real estate investments are high attaining a Risk Index Significance score of 0.755 and 0.622, respectively (Table 4.13). In essence, a good understanding of what kind of product the market requires is a prerequisite for good performance in the real estate sector. Market niches are fluid. For instance, a particular market segment could rapidly be growing and existing housing stock could barely keep up with the demand. In no time, with the introduction of government policy or regulation, a substantial number of units are either unoccupied or not sold out. This has been the case, for instance, with many real estate entrepreneurs who responded to the growth of university campuses to

lease them as administration/tuition blocks or hostels for their students. To manage this market oscillation that leads to poor performance, one needs to understand what the market wants, how to provide for it at a price that they can afford, and at an amount that the entrepreneur can make a profit on. This may take the form of having something as simple as a quick check with a local realtor to see if there is a demand for the type of product to be developed; or something quite complex that considers market area, economic trends, supply and demand indicators, market conditions, and feasibility factors.

Consequently, most commercial real estate actors that responded have embraced market survey as a risk management tool as is evident in table 4.22 with percentage mean scores of 75.2% and 70.2% for entrepreneurs that undertake demand and supply survey at the post construction phase and those who carry out a feasibility study before initiation of the real estate entrepreneurial investment respectively. With a high percentage mean score of over 70% for the entrepreneurs embracing either form of a survey as a risk management strategy, management of market risk was poised to affect the performance. However, further analysis into its effect on the performance of commercial real estate entrepreneurial investment yielded contrary findings from what was anticipated. In that, the management of market risk did not significantly affect the performance of commercial real estate entrepreneurial investments in Kenya. Given the great expectation accorded to the importance of feasibility studies and market surveys, and the huge amount of funds allocated to this exercise, more studies need to be undertaken by other scholars to iron out or confirm this inconsistency. It should further be investigated whether

more emphasis should be accorded to feasibility studies prior to initiation rather than market surveys, as is the case with current real estate entrepreneurs.

5.2.4 Environmental risk management and performance

The fourth objective of the study sought to assess the effect of environmental risk management on the performance of commercial real estate entrepreneurial investment in Kenya. Incomplete environmental analysis and unpredictable weather patterns were the two most frequent and severe sources of environmental risk in commercial real estate sector in Kenya with a Risk Index Significance of 0.613 and 0.554 respectively (Table 4.14). On managing the environmental risks, the entrepreneurs' compliance with Environmental impact assessment requirements, exclusion of extreme weather conditions during bidding and contract pricing and scheduling phases of real estate entrepreneurial investment in line with favourable weather conditions are the most widely used environmental risk management strategies. With the development of commercial real estate impact on the environment throughout its life cycle, and related environmental issues increasingly becoming not only a government but general public concern, adherence to regulations set by the state organs is key. In line with these findings, the regression analysis revealed that the management of environmental risk has a significant effect on the performance of commercial real estate entrepreneurial investment in Kenya.

5.2.5 Political/Legal risk management and performance

Political/legal risk category was ranked least among the risk categories reviewed in the study. Risk factors in this category were divided into two sets; politically generated and legal or regulatory generated. The corruption or bribery-related risks and delays in dispute resolution were identified as the two main sources of political/legal risk having a Risk Index Significance of 0.738 and 0.670, respectively. Corruption/bribery risk not only undermines the delivery of services but also leads to poor quality construction in terms of substandard use of building materials, poor workmanship and misappropriation of funds. Several factors are cited to be responsible for litigations in the real estate sector; the undefined scope of work, lack of familiarity with other team members, insufficient funding and firms prone to litigious behaviour. There is a general agreement that the best approach to litigation is to avoid it whenever possible. Having it (litigation) cited a the second most risky political/legal risk factor, there is need for the real estate actors avoid allowing issues that arise on their entrepreneurial investments to the point of claims and disputes.

To counter exposure to these risks, the entrepreneurs adopted several risk management strategies. Political risk insurance that would take care of damage or losses brought about by political disturbances and other related cases as well as establishing a dispute resolution procedure were the most preferred management approaches by the respondents. Despite political risks emerging as a key source of risk in the sector, its management does not significantly affect the performance of commercial real estate entrepreneurial investments in Kenya. This can be viewed

through two perspectives. One, political disturbances, though severe when they do occur, their frequency is relatively low in Kenya while on the other hand, the case of corruption/bribery is such an entrenched culture in Kenya that managing it effectively is such a touting order. The unpredictability of changes in government policies and regulations affecting real estate sector could also be a possible explanation that led to failing to reject the hypothesis.

5.2.6 Operational risk management and performance

The sixth objective of the study sought to analyse the effect of operational risk management on the performance of commercial real estate entrepreneurial investments in Kenya. The operational risk was ranked fourth most critical risk category in the commercial real estate sector (Table 4.5). Extended vacancies and falling short of expected income were identified as the two most frequent and prevalent source of operational risks. To counter operational risks, the sector players consider the hiring of competent real estate managers, consistent evaluation of lease maturities and deterring potential criminal activities from being the most prevalent strategies used. Training of employees on real estate management had the least percentage mean score of 58.2% (Table 4.25) suggesting that real estate entrepreneurs were not keen on training their own employees rather opted to outsource management services. A competent manager will not only be able to vet credible tenants, let it out/sale within the shortest reasonable time, but be able to avoid or minimise voids with the lapses of leases. The management of operational risk was found to significantly affect the performance of commercial real estate entrepreneurial investments in Kenya.

5.2.7 Interaction of adoption of systematic risk management procedure and performance

The last objective of the study was to assess the moderating effect of the adoption of a systematic risk management procedure on the performance of commercial real estate entrepreneurial investments. Management of risks can be viewed in two broad aspects; qualitative and quantitative. Risk management procedures generally enable entrepreneurs to manage the risks quantitatively. In this case, therefore, if risks are not quantitatively managed, then they are qualitatively managed. Over 70% of the respondents indicated they use qualitative approaches; experience, judgment and intuition, to managed risks in their investments (Table 4.27). This confirms the relative low deployment of all risk management procedures, as shown in Table 4.26. On account of interaction, despite this low procedure adoption, regression analysis indicated that risk management procedure has a moderating effect on the performance. The strength of the relationship between the management of various risks and performance of the entrepreneurial investment depended on whether the real estate entrepreneur was adopting the risk management procedure in a systematic way or not. Those entrepreneurs who adopted the procedures had the management of respective risks yield higher performance.

5.3 Conclusions

The aim of this study was to examine risk management and its effect on the performance of commercial real estate entrepreneurial investments in Kenya. The prevalence and impact of twenty-six risk factors grouped into six risk categories;

technical, environmental, financial, market, political/legal and operational were examined together with the management strategies adopted to mitigate these risks. This led to the investigation of the effect of managing these risks on the performance of commercial real estate entrepreneurial investments. The effects of managing the risks on performance were varied.

Findings from this study show that technical risk is the most critical. Despite this position, commercial real estate actors were found not to have fully employed their efforts on the management of this risk with technical risk management ranking second after environmental risk management (Table 4.48, Appendix 5). A possible reason for the entrepreneurs not fully embracing technical risk management strategies could be on the technical aspect. Whereas most of the risk factors in this category would require some professionally acquired risk management skills, the same is lacking amongst the real estate entrepreneurs where the majority relay on judgment, experience and intuitions. It is nevertheless a good indication of the significance attached to technical risk exposure in the commercial real estate sector. Results of the regression analysis indicating that technical risk management was significantly influencing the performance of commercial real estate entrepreneurial investments was a strong pointer to the need for compliance on technical requirements related to documentation, approvals, site investigations and quality of the management team which is answerable to the entrepreneur.

Finance risk was ranked second in criticality after technical risk. However, efforts employed in managing financial risk ranked second lowest (Table 4.48, Appendix

5), an indication of a potentially reactive approach to financial risk in the sector. Nevertheless, the effort employed in managing financial risks was significantly affecting the performance of commercial real estate entrepreneurial investments in Kenya.

The market risk was ranked the fifth most critical risk in commercial real estate entrepreneurial investments in Kenya. However, actors in this sector attach relatively high importance on its management strategies, where it was rated the third most utilised risk management strategy. This led to the conclusion that market risk was an emerging risk component in the sector. This is an indication of a sector that is at the brink of market saturation, making market risk a reality and marketing risk management slowly becoming a priority. However, failure of market risk management effort to significantly influence performance is an indication of existing market demand trends that may not warrant proactive risk management, a case that was found to contradict the norm.

The environmental risk was the third-ranked source of risks in the commercial real estate sector in Kenya. To the contrary, environmental risk received the greatest level of management effort compared to all the other risk categories. This is a clear indication of the high premium the entrepreneurs in this sector are attaching to the need for risk management strategies that will proactively negate environmental risk factors. Management of environmental risk is becoming an emerging concern among real estate entrepreneurs, and especially with the worrying trend of losing their investments through demolitions or otherwise by state organs such as NEMA

and NCA. The effect of environmental risk management on the performance of commercial real estate entrepreneurial investments was found to be significant. This led to the conclusion that environmental risk management affects its performance.

Political/legal risk was ranked as the least source of risks that affect commercial real estate entrepreneurial investments in Kenya. The effort in managing political risk was relatively low, a likely indicator of perceived low risk associated with political and legal activities in the real estate sector. This was a result of a high tendency of passing on the political risk to a third party in the form of an insurance cover, and the likely desperation associated with dealing with corruption. The failure of political risk management coefficient to attain statistical significance led to the conclusion that management of political risk was not influencing the performance of commercial real estate entrepreneurial investments in Kenya. This was attributed to challenges associated with the political cycles in the country, widely spread and entrenched level of corruption and the unpredictability in the change of government policies and regulations.

The operational risk was found to be relatively low in severity compared to technical, financial and environmental risks in the commercial real estate sector in Kenya. The level of management effort in mitigating sources of operational risk was also low. Management of operation risk coefficient attained a statistical significance which leads to the conclusion that operational risk management affects the performance of commercial real estate entrepreneurial investments in Kenya.

This conclusion was expected. With many entrepreneurial investments currently faced with voids and uptake challenges associated with high competition as a result of an oversaturated market phenomenal tendency, operational risk management is crucial to the performance of this sector. With good operational risk management strategies, the entrepreneur is capable to competitively obtain a market niche as well as improve clients' satisfaction as an antidote for differed uptakes and protracted voids.

A significant moderating relationship between the adoption of systematic risk management procedure and performance of commercial real estate entrepreneurial investments was evident. This was an indication that the use of systematic risk management approaches leads to better performance in commercial real estate entrepreneurial investments in Kenya. Risk identification, as well as risk assessment and analysis, remain the least risk management procedures used by the entrepreneurs. As previously mentioned, risk identified, assessed and analysed is risk halfway managed. With the two key risk management procedures poorly adhered to it's an indication of poor adoption of risk management procedures among commercial real estate entrepreneurs in Kenya. This is further underscored by a few entrepreneurs having developed and using a risk management plan and a high preference of those using experience, judgement and intuitions approach in dealing with real estate entrepreneurial investment risks. Despite it being accorded the least effort in the management of entrepreneurial investment risks by the entrepreneurs, those efforts, however, significantly affected the performance, leading to the conclusion that adoption of risk management procedures by real

estate entrepreneurs significantly affects the performance of commercial real estate entrepreneurial investments in Kenya. This is a signal to real estate entrepreneur, Government and other stakeholders that any additional efforts towards the realisation of adoption of risk management procedures by the real estate entrepreneurs, will result in great performance improvement.

5.4 Recommendations

The findings of this study bring out three major observations; one that the management of risks in commercial real estate entrepreneurial investments in Kenya is poorly done where most of the entrepreneurs revert to the use of judgement and gained experience in managing their risks. Secondly, the study reveals that there is a significant association between the management of most of these risks and the performance of the properties, and thirdly, adoption of systematic risk procedure in managing risks moderates the relationship between the management of these risk and performance of the investments. These findings have both policy and managerial implication for the commercial real estate sector in Kenya, leading to the following recommendations.

1. The study reveals that inadequate site investigation and incomplete or poor environmental analysis are critical in the performance of commercial real estate entrepreneurial investments. There is need, therefore, for the concern authorities to make sure there is thorough site investigation by concern entrepreneurs and full compliance of environmental requirements before any entrepreneurial investment commences. Corruption and bribery that is

occasioned by bureaucratic and protracted procedures when obtaining approvals were also found to be critical in the performance of commercial real estate entrepreneurial investments. In this regard, the government-aided by real estate entrepreneurs should further scrutinise all approvals that an entrepreneur require together with responsible approving institutions with a view to determine the viability in the long run of the number of approvals as well as the number of institutions mandated to issue these approvals. There is need also to find the possibility of establishing a one-stop shop in every County to reduce on multiple institutions during this process.

2. Based on the current findings, risk management is predominantly experience and judgmental based. These approaches are not only limited in scope but also in risk mitigation efficacy. The study found that, despite its significance, adoption of risk management procedure is the least risk management strategy among the respondents. A policy to promote systematic risk management will be a strong foundation to build risk management approaches that address the unique risks in the commercial real estate sector. To further inculcate the need for risk management procedure amongst real estate entrepreneurs, the government should as a prerequisite have real estate entrepreneurs submit a comprehensive risk management plan for their proposed investments before any approval is done. This may require the introduction of an annual risk management compliance certificate from every commercial real estate entrepreneur

3. With more than 60% of the staff in the sector having low knowledge of risk management, bridging the skill and knowledge gap is critical for better risk management outcomes for the sector. This responsibility should be shared between the government and the entrepreneurs. The government should create forums or curriculum where risk management practice and concepts are trained. The professional bodies in the real estate sector and learning institutions could be engaged in rolling out these programmes. On the other hand, having trained personnel in risk management matters is of great importance. Whereas, the result findings indicate that most real estate entrepreneurs prefer outsourcing management services to train their own staff, empowering staff has multiple effect and entrepreneurs should, therefore, be encouraged to take advantage once the management forums are established.

4. Despite market feasibility study being a critical factor in determining the performance of commercial real estate entrepreneurial investments, the study found that very few respondents engaged it as a mitigating factor. This leads to most of the real estate entrepreneurs tending to grope in the dark when investing in this sector, without any basic knowledge of what the market is offering. Lack of market knowledge has resulted in many entrepreneurs failing to earn their much-awaited income due to low occupancy rates or uptake. Accurate and reliable data is necessary when undertaking any survey in the real estate sector. This data is either scarce or lacking in the Kenyan market.

The government should, therefore, avail information on the real estate entrepreneurial investment market or help make it easily accessible to enable real estate entrepreneurs to make informed decisions. The information should be able to capture demand and supply trends of different property segments. Property details are key to any real estate entrepreneur and the on-going land digitalisation by the National Land Commission is a landmark step towards this actualisation. Gathering and provision of information could be achieved by the use of the available government research institutions, partnering with private sector undertaking research in this sector, or empowering universities and other learning institutions to help collect these needed data. These data should be released bi-annually, giving national and county projections.

5.5 Suggestions for further research

The experience gained from this study opens up a number of research fronts that are worth consideration.

This study has looked into the effects of managing different types of risks in commercial real estate entrepreneurial investments where twenty-three risk factors grouped into six risk categories were considered. These findings explained just over 50% of the total variation in the performance of commercial real estate entrepreneurial investments. Future research should focus on additional risk factors in a bid to capture the effects of managing the other risk factors.

In the current study, management of market risk was found not to significantly affect the performance of commercial real estate entrepreneurial investment contrary to the general expectation. With a high percentage of completed commercial entrepreneurial investments experiencing high unoccupied rates and low uptakes, especially as a result of possible oversupply in some market segments, there is need for future research to come up with findings that either supports these findings or otherwise.

Finally, the personality of an entrepreneur is key to the growth and performance of his/her enterprise. Given the many risks faced by real estate entrepreneurial investments, success could be dependent on the extent to which the entrepreneur will be willing to take up the risk and how to respond to the risk. A study needs to be undertaken to ascertain the possible moderating effect of risk propensity amongst real estate entrepreneurs in the management of risks in the real estate sector

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APPENDICES

APPENDIX 1: CONSENT LETTER

Dear sir/madam;
Re: Research questionnaire

I am a student at Kabarak University and currently enrolled for Doctor of Philosophy in Business Administration (Entrepreneurship) degree. I am currently carrying out research on "**Risk Management and Its Effects on Performance of Commercial Real Estate Entrepreneurial Investments in Kenya",** as part requirement for the fulfilment of the award of the same.

I hereby, humbly submit my study questionnaire for your reaction and response based on the study objectives which is strictly to be used for academic purpose as per the study requirement.

Your participation in this study is voluntary. You may decide to leave the study at any time by not submitting your responses or you may decline to answer any question(s) you prefer not to answer (e.g., by leaving them blank, or by skipping the question)

The study will benefit the real estate entrepreneurs, the government, other real estate stakeholders and academic community in various ways which include and not limited to identification of entrepreneurial risks affecting the real estate investments, their criticality that will enable prioritisation, choice of mitigating strategies and optimal allocation of the scarce resources in the management of risks. The resultant is improved performance of real estate entrepreneurial investments.

Finally, there are no known nor anticipated risks associated with participation in this study and your involvement in the study will be anonymous. The data and the information is set without identifiers and hence guaranteeing anonymity. Subsequently, the findings may be shared publicly by way of publication. Nevertheless, any other information given will be treated with most confidentiality that it deserves.

Thank in advance

JAMES KARIUKI MBUGUA
Cell phone – 0725836673
Email address – jakambu01@gmail.com

APPENDIX 2: QUESTIONNAIRE

DEMOGRAPHIC

SECTION A

Please tick (□) the box that matches your answer to the questions and give the answers in the spaces provided as appropriate. The information you provide will be treated with utmost confidentiality

1) Gender

i. Male [ ] ii. Female [ ]

2) What is your age category (Tick appropriate range).

i. 30 years and below [ ] ii. 31 – 40 years [ ]

iii. 41 – 50 years [ ] iv. Over 50 years [ ]

3) Highest level of education attained

i. Diploma Level [ ] ii. Degree [ ]

iii. Postgraduate [ ] iv. Any other, kindly specify ……

4. Please indicate your professional qualification/job title

i) Project manager [ ] ii) Engineer [ ]

iii) Quantity surveyor [ ] iv) Architect [ ]

v) Valuer and managing agent [ ] v) Others [ ] (Please specify……..)

5. State the type of organisation you currently work for/operate as

i) Constructors [ ] ii) Real estate company/Agent [ ]

(iii) Built environment consultants [ ] (iv) Real estate developers [ ]

(v) Any others, kindly specify …….

6. Please indicate number of years of your working experience in the real estate industry.

i) 1 year or less [ ] ii) More than 1 year to 5 year [ ]

iii) More than 5 years to 10 years [ ] iv) More than 10 years to 15 years [ ]

v) More than 15 years [ ]

7. Number of executed and or managed projects in the last 5 years

(ii) 11-20 Projects [ ] (i) 10 Projects or less [ ]

(iv) 31- 40 Projects [ ] (iii) 21-30 Projects [ ]

(v) More than 40 projects [ ]

8. State the number of employees in the company ……

SECTION B: Perceived assessment of risk category

1. From your experience or perspective how would you rate the risk category: (least crutial = 1, and most crutial = 6)

i) Technical risk ☐

ii) Financial/economic risk ☐

iii) Market risk ☐

iv) Environmental risk ☐

v) Political/legal risk ☐

vi) Property Operations risk ☐

2. From your experience or perspective, which development phase of the commercial real estate entrepreneurial investment life cycle do you consider to have the highest risk occurrence? Indicate using the following where:

Least occurrence = 1 low occurrence = 2 highest occurrence = 3

i) Acquisition phase (idea, site selection & acquiring) [ ]

ii) Production phase (designing, approvals & construction) [ ]

iii) Post construction phase (letting/selling, management) [ ]

3. From your experience in commercial real estate entrepreneurial investments:

a) Which of the following risk factors have you encountered?

Please indicate your response using the following 5-point scale under **frequency in the table below where: -**

1 = rare 2 = occasional 3 = somewhat frequent

4 = frequent 5 = very frequent

b) How do you rate the severity of each risk factor that you have encountered?

Please indicate your answer using the following 5-point scale under **severity in the table below where**:

1 = not severe 2 = slightly severe 3 = moderately severe 4 = critical 5 = very severe

Risk factors	**Frequency (F) of risk encountered**					**Severity of (S) of risk encountered**				
Technical risk	1	2	3	4	5	1	2	3	4	5
1. Inadequate site investigation										
2. Uncertainty over the source and availability of materials										
3. Delay to obtain design approval in time										
4. Incompetence of the management team										
5. Late changes of design from client side										
6.Lack of consistency between bills of quantities, drawing and specifications										
Financial/economic risk										
7. Changes in interest rates										
8. Inflation and changes in prices										
9. Delay payments to construction team										
10. Inability of debt servicing										
11. Construction cost overrun										
Market risk										
12. Improper market feasibility studies										
13. Improper forecast about market demand and supply (Change in demand)										
Environmental risk										
14. Unpredictable weather condition on completion of the investment										
15. Incomplete environmental analysis										

16. Acts of God										
Political/legal risk										
17. Corruption or bribery										
18. Changes in zoning laws and other government rules, controls and regulations										
19. Delay in dispute resolution										
20. Political/civil disturbance										
Property operational risk										
21. Decline in value of real estate entrepreneurial investment										
22. Incompetence of management firm/team										
23. Extended vacancies/sold out after completion										
24. Fall short of expected income from the project										
25. Unexpected termination of the contract										
26. Pilferage – stealing by the employees										

SECTION C: Risk Management

1. To what extent do you agree with each of the following statements regarding risk management in your company/firm? Please indicate your answer using the following 5 – point scale where

1 = Strongly agree 2 = Agree 3 = Neutral 4 = Disagree 5 = Strongly disagree

	Technical risk management	**1**	**2**	**3**	**4**	**5**
1	The company undertakes comprehensive site investigation procedure					
2	The company ensures that there is always adequate supply of construction materials					

3	The company usually obtains copies of all land acquisition/ownership documents and due diligence items					
4	The company obtains the necessary building approvals on time					
5	The company sets time limit in every phase within which to accept changes in the plan and specification by the client					
6	The company hires competent management team					
7	The company maintains a maintenance, repair and renovation record and funds					
	Financial/economic risk management					
8	The company confirms and establishes the credit worthiness of the client					
9	The company has a consistency way of payment follow-up with the client					
10	All needed finances are borrowed at a fixed rate					
11	The company prepares and maintains financial reports on specific phases of entrepreneurial investment life cycle					
	Market risk management					
12	The company undertakes a comprehensive feasibility study prior to initiation of the project					
13	The company undertakes a comprehensive market demand and supply survey at post construction stage					
Environmental risk management						
14	The company undertakes a comprehensive environmental impact assessment audit for all projects					
15	The company excludes weather conditions which are worse than the normal from the bid price and time					
16	The company schedule construction activities that can be impacted by bad weather elements outside their respective condition					
Political/legal management						

17	The company maintains a political risk insurance for each entrepreneurial investment (such as against riots and civil unrest)					
18	The company has a reliable dispute settlement system					
19	The company officials carry out focused and detailed supervisory activities at random or on a targeted area where corruption has potential to occur					
20	The company regularly review different property tax payments and tax abatements.					
	Operational risk management					
21	The company periodically undertakes solvency assessment of existing tenants					
22	The company consistently maintains a lease maturity evaluation					
23	The company hires competent management teams					
24	The company has a training programme for its employees on real estate management					
25	The company has a security plan to detect and prevent criminal activities such as vandalism and theft					

2. Adoption of systematic risk procedure

In handling or dealing with risk in commercial real estate entrepreneurial investments, how often do you undertake the following risk management procedure? Please rate from 1 to 5: where 1 = Always 2 = very frequently 3 = frequently 4 = occasionally and 5 = never

Risk identification	1	2	3	4	5
Risk assessment/analysis					
Risk response					
Risk control					
Risk monitoring					

3. Please evaluate the following aspects of your risk management

Please select your response by putting a tick ( ) where appropriate

1=Strongly Disagree 2=Disagree 3=Neutral 4= Agree 5= Strongly Agree

		1	2	3	4	5
A	There is a consistent risk assessment methodology applied throughout the company					
B	Risk management process is repeated in each phase of the real estate entrepreneurial investment life cycle					
C	The company finds it difficult to identify main risks before, during & after construction					
D	The company finds it difficult to assess the likelihood of risk occurring					
E	The company find it difficult to respond to identified risks					
F	The company uses a systematic approach for the identification and response of real estate risks					
G	The company has an established risk management committee					
H	The company keeps and maintains an up to date risk management plan for all its real estate entrepreneurial investments					
I	The company keeps and maintains an up to date risk register for all its real estate entrepreneurial investments					

4. How do you deal with real estate entrepreneurial investment risks in your organisation?

i) By experience [ ] ii) Judgement [ ] iii) By intuition [ ]

iv) By risk management procedures [ ] v) others ……. ……please specify

5. Do you have any risk management model for your real estate entrepreneurial investments?

Yes [ ] No [ ]

6. How do you evaluate your company's staff knowledge of risk management?

i) Very bad [ ] ii) Fairly bad [ ] iii) Bad [ ]

iv) Fairly good [ ] v) Very good [ ]

7. Please indicate other factors that cause failure of commercial real estate entrepreneurial investments in Kenya…….

8. Please indicate any recommendations to improve on the performance of commercial real estate entrepreneurial investments in Kenya…….

SECTION D: Performance of commercial real estate entrepreneurial investment

I. Please tick appropriately in the table using the scale given below

1=Strongly Disagree 2=Disagree 3=Neutral 4= Agree 5= Strongly Agree

		1	2	3	4	5
1	Our company always executes projects within the scheduled time					
2	Our company always executes projects within budgeted estimates					
3	Our company hardly receives negative feedback from our clients on functionality performance of the entrepreneurial investment					
4	The number of disputes between the company and the client on the objectives of the projects are very few					
5	We generate new clients in our company on a regular basis					
6	Projects meet expectations					
7	We rarely have tax suits, unpaid tax claims or other government litigations against our real estate entrepreneurial investments					
8	Projects meet clients' satisfaction					
9	It takes unexpectedly long to have all units let out/sold					
10	The average return on investment of our properties is mostly above 7%					

II. The data below is intended to collect information regarding the financial performance of 3 (three) commercial real estate entrepreneurial investments under your management.

a) Average net annual income (Ksh) …….

b) Average estimated total value of the real estate entrepreneurial investments (Ksh) …

c) Occupation rate as a % of total available space (within 18 months after completion)

[ ] Less than 10%

[ ] Between 11 – 25%

[ ] Between 26 – 50%

[ ] Between 51 – 75%

[ ] Between 76 – 100%

d) Sold out units as a % of total available units (within 18 months after completion)

[ ] Less than 10%

[ ] Between 11 – 25%

[ ] Between 26 – 50%

[ ] Between 51 – 75%

[ ] Between 76 – 100%

III. In 3 (three) real estate commercial entrepreneurial investments that you are involved in, please indicate the average variance as per the expected completion time

[ ] Less than 80% of the planned duration

[ ] Between 81 – 95% of planned duration

[ ] On schedule

[ ] Delayed by 5 – 20%

[ ] Delayed by more than 20%

IV. In 3 (three) real estate commercial entrepreneurial investments that you are involved in, please indicate the average cost variance compared to the initial cost estimated/budgeted

[ ] Less than 80% of the budget
[ ] Between 81 – 95% of the budget
[ ] On budget
[ ] Surpassed by 5 – 20%
[ ] Surpassed by more than 20%

APPENDIX 3: KABARAK UNIVERSITY APPROVAL LETTER

INSTITUTE OF POST GRADUATE STUDIES

Private Bag - 20157
KABARAK, KENYA
E-mail: directorpostgraduate@kabarak.ac.ke

Tel: 0773265999
Fax: 254-51-343012
www.kabarak.ac.ke

22nd *August, 2018*

Ministry of Higher Education Science and Technology,
National Council for Science, Technology & Innovation,
P.O. Box 30623 – 00100,

Dear Sir/Madam,

RE: RESEARCH BY JAMES K. MBUGUA-GDB/M/1205/09/15

The above named is a student at Kabarak University taking PhD Degree in Business Administration (Entrepreneurship). He is carrying out research entitled **"Risks Management and Performance of Commercial Real Estate Properties in Kenya."**

The information obtained in the course of this research will be used for academic purposes only and will be treated with utmost confidentiality.

Please provide the necessary assistance.

Thank you.

Yours faithfully,

KABARAK UNIVERSITY
DIRECTOR
POST GRADUATE STUDIES
AUG 2018

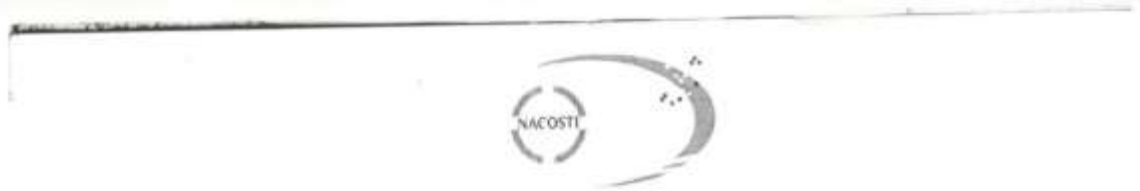
Dr. Betty Tikoko
DIRECTOR (POST GRADUATE STUDIES)

Kabarak University Moral Code

As members of Kabarak University family, we purpose at all times and in all places, to set apart in one's heart, Jesus as Lord. (I Peter 3:15)

Kabarak University is ISO 9001:2015 Certified

APPENDIX 4: NACOSTI APPROVAL LETTER



NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

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Fax: +254-20-318245,318249
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Off Waiyaki Way
P.O. Box 30623-00100
NAIROBI-KENYA

Ref. No. **NACOSTI/P/18/98456/25009**

Date: **9th October, 2018**

James Kariuki Mbugua
Kabarak University
Private Bag - 20157
KABARAK.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"Risk management and performance of commercial real estate properties in Kenya"*** I am pleased to inform you that you have been authorized to undertake research in **selected Counties** for the period ending **9th October, 2019.**

You are advised to report to **the County Commissioners and the County Directors of Education of the selected Counties** before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit **a copy** of the final research report to the Commission within **one year** of completion. The soft copy of the same should be submitted through the Online Research Information System.

BONIFACE WANYAMA
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioners
Selected Counties.

The County Directors of Education

APPENDIX 5: OUTPUT OF INFERENTIAL ANALYSIS

Table 4.44: Multiple regression estimation results cont.

	Model 1	Model 2	Model 3	Model 4
	ROI	Client Satisfaction	Time	Cost
Constant	0.148***	0.355***	0.338***	0.318***
	(5.298)	(13.36)	(7.317)	(7.081)
TRMGT	0.014	0.018	0.044**	0.021
	(1.394)	(1.869)	(2.605)	(1.310)
FRMGT	.009	0.033***	0.088***	0.081***
	(1.1048)	(4.173)	(6.460)	(6.048)
MRMGT	0.003	0.005	0.008	0.012
	(.636)	(1.029)	(0.943)	(1.336)
PRMGT	0.021*	0.016	0.055**	0.058***
	(2.140)	(1.699)	(3.319)	(3.591)
ORMGT	0.001	0.027***	0.030**	0.004
	(.081)	(3.351)	(2.135)	(0.302)
ERMGT	0.017*	0.012	0.072***	0.054***
	(2.113)	(1.619)	(5.431)	(4.230)
R^2	0.037	0.443	0.230	0.244
Adjusted R^2	0.019	0.432	0.215	0.230
F	2.021	41.93	15.78	17.05
P -Value	0.62	0.000	0.000	0.000

Where:

TRMGT is Technical risk management, FRMGT is financial risk management, MRMGT is Market risk management, ERMGT is Environmental risk management, PRMGT is Political/legal risk management, ORMGT is Operational risk management, RMP is Risk management procedures and PERF is performance

*,** and *** is significance at 1%, 5% and 10% respectively.

Source: Author, 2019

Table 4.45: Variance: occupancy, uptake, time and cost

Performance Indicator	**1**	**2**	**3**	**4**	**5**
Occupancy rate (18 months after completion)	4	24	52	114	130
	1.2%	7.4%	16%	35.2%	40.1%
Uptake rate (18 months after completion)	7	22	44	142	109
	2.2%	6.8%	13.6%	43.8%	33.6%
Completion time variance	2	74	97	114	37
	0.6%	22.8%	29.9%	35.2%	11.4%
Construction cost variance	2	52	76	163	31
	0.6%	16%	23.5%	50.3%	9.6%

Where: Occupancy rate and uptake: 1 = 10%, 2 = between 11 – 25%, 3 = between 26 - 50%, 4 = 51 -75%, 76 – 100%.

Time variance: 1 = Less than 80% of planned duration, 2 = between 81% - 95%, 3 = on schedule, 4 = Delayed by 5-20%, 5 = Delayed more than 20%

Cost variance: 1 = less than 80% of the budget, 2 = between 80% - 95%, 3 = on budget, 4 = surpassed by 5-20%, 5 = surpassed by more than

Source: Author, 2019

Table 4.46: Factor analysis generated variables

	Model 1 Performance 1	Model 2 Performance 2
(Constant)	.084*	0.490***
	(-1.797)	(-13.547)
TRMGT	.141***	0.077**
	(3.415)	(2.386)
PSC-FRMGT	-0.018	0.052
	(-0.28)	(1.027)
PRC-FRMGT	.317***	0.0476
	(5.994)	(1.158)
ERMGT	-0.031	-0.003
	(-0.821)	(-0.011)
TP-PRMGT	.129***	-0.039
	(2.707)	(-1.053)
CT-PRMGT	-0.012	0.239***
	(-0.247)	(6.624)
T-ORMGT	.160***	-0.116***
	(3.074)	(-2.864)
E-ORMGT	0.063	0.049
	(1.41)	(1.423)
MRMGT	0.025	0.097***
	(0.654)	(3.325)
RISK_MGTP	.042***	0.0032
	(5.803)	(0.56)

Where:

Performance 1 = Cost, time and financial related

Performance 2 = Client satisfaction related

PSC – FRMGT – Post contract finance risk management

PRC – FRMGT – Pre contract finance risk management

TP – PRMGT – Third party political/legal risk management

CT – PRMGT – Corruption and tax political risk management

T – ORMGT – Tenancy operational risk management

E – ORMGT **–** Employee operational risk management

Source: Author, 2019

Table 4.47: Return on investment

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
ROI	324	.00	.75	.1016	.08419
Valid N (list wise)	324				

Source: Author, 2019

Table 4.48: Ranking of risk management strategies

Risk management	**N**	**% mean score**	**Rank**
Technical risk management	324	75.6%	2
Finance/economic management	324	67.6%	6
Market risk management	324	75.2%	3
Environmental risk management	324	79.4%	1
Political/legal risk management	324	72%	4
Operational risk management	324	70%	5
Risk management procedure	324	61.6%	7

Source: Author, 2019

APPENDIX 6: LIST OF RESPONDENTS

1. Center Star Co. Ltd
2. Bachew Engineering Works Ltd
3. Kenter Agencies Ltd
4. Hamza Contractors Limited
5. Earthmovers
6. Impresa Costruzioni Giuseppe Maltauro SPA
7. Cape Suppliers Limited
8. In-Store Radio Limited
9. Beacon water Resources
10. Infinite Construction & Eng Co. Ltd
11. Beadles Limited
12. Dynamic Works & Engineering Ltd
13. Happytech Electrical Contractors Ltd
14. Interiarch Limited
15. Aventure Ltd
16. Black and Blue Limited
17. Beaston Investment Ltd
18. Axpex Construction Co. Ltd
19. Eagle Creations Ltd
20. B & K Design Limited
21. Cabuild Engineering Ltd
22. Barletta Holdings Limited
23. Finerate Trading Agencies Ltd
24. Big Lapa Builders Ltd
25. Chajum Enterprises Ltd
26. Kenter Agencies Ltd
27. Harj Construction Co. ltd
28. Infinity Construction Company
29. Gap Fabricators Ltd
30. Blue EM Services Limited
31. Azimath Company Ltd
32. Dyshia Investment
33. Benma Technical Services Ltd
34. Intergral Construction Limited
35. Harcourt Properties
36. Blackheath Builders & Contractors
37. Damka Commercial Agencies
38. Beatmasita Limited
39. Blanco Enterprises
40. Aumpar Enterprises Limited
41. Dilbagh Singh Bros Ltd
42. Bashush General Construction
43. Bayan Construction Co. Ltd
44. Tysons Limited
45. Behiv Contractors Ltd
46. Cytonn Real Estate
47. Bizrate Enterprises Ltd
48. Innovative Contractors & Gen. Refurb.
49. Biba General Contractors & Supplies Limited
50. Gikondi Housing Enterprises Co Ltd
51. Africa Reit Limited
52. Bells Developers Ltd
53. Thiomi Ltd
54. Solomon Agencies
55. M. & K. Arcade Ltd
56. Jomas Property Management
57. Has Properties Ltd
58. Geocad Enterprises Ltd
59. Frank & Co. Properties
60. Athos Limited
61. Bethel Company Ltd
62. Quaver Logistics Limited
63. Assis Construction Co. Ltd
64. Movers Construction & Services
65. Palm Springs Construction Co. Ltd
66. Atlanta Agencies Ltd
67. Bembu Construction
68. Cadama Builders Ltd
69. Easy Properties Ltd
70. Bam Construction Ltd
71. Edge Construction Co. Ltd
72. Eastern Fort Construction Limited
73. Chalan Properties Ltd
74. Dynasty Commercial Services
75. Earthmark Engineering Ltd
76. Gambella Investment Ltd
77. Betkaps Construction Company
78. Fireside Communications Ltd
79. Easco Africa Ltd
80. Central Construction &Furniture Mart
81. Hanamal Construction Ltd
82. Gaston Kenya Ltd
83. Hapstaey Ltd
84. Intarock & Allied Construction Limited
85. J.K International Company
86. Imperial Pillars Limited
87. Besco Ltd
88. Kenmac General Suppliers Ltd
89. Harmonic Entreprises
90. Inforserve Networks Ltd
91. Gallit Design Builders
92. Beshmon Ltd
93. Candid Construction Limited
94. Hamoshi Logistics Co Ltd
95. Atwin Engineering & Construction Ltd
96. Carma Engineering & Construction

97. Baldon Construction & General Engineering Co. Ltd
98. Ceabud Eng. Services Ltd
99. First Precious Planners Co. Ltd
100. Harley Timber Eng. Services
101. Scion Real Estate Ltd
102. Asumbi Enterprises Ltd
103. Quest Group Limited
104. Nishani Management
105. Habitat Realtors International Ltd
106. Billstar Limited
107. Auto Star Agency Ltd
108. Centurion Engineers & Builder Ltd
109. East Africa Aquatech Drilling Ltd
110. Aumaco Enterprises Ltd
111. Bizcan Enterprises Ltd
112. Charwins Ltd
113. Landmark Holdings Ltd
114. Avamak Enterprises Ltd
115. Baash Investment Limited
116. Edcomm Systems
117. Fortune Commercial Agencies
118. Dofra Solutions
119. Capstone Care Management
120. Asriland Agencies
121. Bevmart Contractors
122. Blackwood Ltd
123. Ankam Commercial Agencies
124. Tulia Marketing Services Ltd
125. Hardrock Holdings & Investment Company Ltd
126. Unity Homes Ltd
127. Axis Real Estate Ltd
128. Canaan Properties Ltd
129. East Gate Apartments Limited
130. Billcom Solutions Ltd
131. Kenya Prime Properties Ltd
132. Vesture Heritage Property Group
133. Capitol Hill Realtors Ltd
134. Mora Hill Homesd
135. Bracon Ltd
136. United Housing Estate Ltd
137. Mafra East Africa Company Ltd
138. Pami Ltd
139. Lanet Ltd
140. Kenvasha Investment
141. Quillas Investment
142. Radlen Construction Solutions Ltd
143. Oasis Building & Civil Contractors
144. Machuke Enterprises Limited
145. Bellagio Construction Ltd
146. Lapaz Holdings Limited
147. Chaka Agencies
148. Suraya Property Group Ltd
149. Eagle Wings Building Constructions Ltd
150. Castle Fabritech Company Ltd
151. Panama General Merchants Ltd
152. Bananey Investment Co Ltd
154. Azingo Enterprises Limited
155. Finish Line Const Co Limited
156. Castan Enterprises Ltd
157. Gamm Engineering Works Ltd
158. Berose General Agencies Ltd
159. Axel Eng. & Manufacturing
160. Galole Construction Co. Ltd
161. Finken Holding Limited
162. Options Apartments Ltd
163. Johari Estates Ltd
164. Chriska Property Agencies
165. Eastwood Consulting Limited
166. Urban Properties Consultants & Developers Ltd
167. Benisa Ltd
168. Palace Projects Limited
169. Ebony Estates Limited
170. Benjerian Agencies Ltd
171. Legend Management Ltd
172. Mamuka Valuers (M) Ltd
173. Muigai Commercial Agencies Ltd.
174. Ounga Commercial Agencies
175. Crystal Valuers Limited
176. Ark Consultants Ltd
177. Land & Homes Group
178. Benro Construction Company
179. Crown Homes Management
180. HassConsult
181. Knight Frank Limited
182. Lloyd Masika Limited
183. Sohail Developments Ltd
184. Meton Construction Co. Ltd
185. Quick Track Enterprises
186. Raflo Services Ltd
187. Remta Co. Ltd
188. Hardlink Contractors Co. Ltd
189. Bensteck Construction Company
190. Rennie Enterprises
191. Ataro Building Construction
192. Atlantic Ventures
193. Benjam Star Agencies
194. Bubbles Engineering Co. Ltd
195. Kaxpar Technical Works Ltd
196. Atlantis Construction Ltd
197. Centex Construction Ltd
198. Flywheel Telecomms Ltd

199. Bimtech Engineers
200. Larsen & Tourbro Limited
201. Paradise Homes Property Ltd
202. Awliban General Suppliers Ltd
203. Midrift Gen Merchants Ltd
204. Buildex Engineering Ltd
205. Baykal Limited
206. Real Trust Enterprises & General Supplies
207. Beach Construction
208. Harads Consultants Limited
209. Kisumu Concrete Products Ltd
210. Index Construction Ltd
211. Attracting Supplies Limited
212. Benjim Enterprises
213. Panways Mart Enterprise Ltd
214. B.R. Systems Co.
215. Quintech Construction Ltd
216. Bejoy Africa
217. Kotema Building Construction
218. Lukste Builders & Constructors
219. Banisa Construction Company Ltd
220. Luma Construction Co. Ltd
221. Majimbo Contractors Co. Ltd
222. Balance Construction Co. Ltd
223. Peri-urban Property Consultants
224. Barare Building Contractors
225. Regent Management
226. Bern Group Ltd
227. Tropical Farm Management (Kenya) Ltd
228. Westwind Company Limited
229. Arlington Construction Ltd
230. Armo Construction Co. Ltd
231. Artin -Dad Construction Company Limited
232. Bradleys Ltd
233. Madirida Decorators & Renovators
234. Large Power Holdings Ltd
235. Brim Supplies & Services Ltd
236. Chagit Builders & Renovators Ltd
237. Dadcon Builders Consultants Limited
238. Oasis Den Construction Engineers Limited
239. Pammart Holdings Company Limited
240. Quality Construction Co. Ltd
241. Aura Outlets Ltd
242. Madina Investments Ltd
243. Bemoney Investment Ltd
244. Hansa Engineering Limited
245. Bi-Am Steel Products (K) Ltd
246. Inshaallah Ltd
247. Beacon Engineering Works Ltd
248. Mart Ltd
249. Beta Care International Ltd
250. Mover Goldlink Ltd
251. Danja Builders & civil Eng. Ltd
252. Atticon Limited
253. Best Deals Hardware &Contractors Limited
254. Dankam Holdings Ltd
255. Bewa Wholesalers Ltd
256. Beyond Infinity Ltd
257. David Njunge Mwaura Builder & Electrical Contractors
258. Global Premier Commodities Ltd
259. Bashash Construction Company
260. Greg Bell Investment Ltd
261. Halek Enterprise Ltd
262. Kajhan Quick Enterprises
263. Atlas Plumbers Builders
264. Bhanderi Fabrication &
265. Kenmark Investment Co. Ltd
266. Bugecon Contractors
267. Chimse Engineering & Contractors Co. Ltd
268. Ecotrac Co. Ltd
269. Bash Link Enterprises Ltd
270. Awinde Enterprises Ltd
271. Edsa Spring Company Ltd
272. Eldolaboret Co. Ltd
273. Kimberline Enterprises Limited
274. Hansun Consolidated Ltd
275. Banco Agencies Ltd
276. Landmark Concepts Co. Ltd
277. Ravine Logistics (K) Ltd
278. Banale General Contractors
279. Belelo Construction Company
280. Pambo Enterprises Ltd
281. Blaxton Construction Limited
282. Insight Logistics Limited
283. Betterline Company Limited
284. Macplan Eng. Services Ltd
285. Kenwatt Co. Ltd
286. Lantana Camara Bld.Contractors
287. Berlin Engineers Supplies & Contractors Ltd
288. Bright House Consultants Ltd
289. Aurola Services Ltd
290. Central Construction & Furniture
291. Beacon Logistics & Construction Ltd
292. Baton Venture Ltd
293. B.H.U Construction (K) Limited
294. Magic Gen Contractors Ltd
295. Oasis Shelter Systems
296. Lanm enterprises
297. Radius Africa
298. Bentha Enterprises Ltd

299. Landor & Associates Limited
300. Kenserve Online Services Ltd
301. CADG East Africa Ltd
302. Eastwood Construction
303. Babu Builders Ltd
304. Hamwe Roads & General Contractors Ltd
305. Calix Construction & General Enterprises Limited
306. Eadsons Constructions & Engineering
307. Dynamite Civil & Electrical Contractors
308. Hanan Construction Company Ltd
309. Firewall Africa
310. Belamo Enterprises
311. Apex Tools & Building Contractors Ltd
312. Kenwan Services Ltd
313. Betcan Trading Company Ltd
314. Infortrac Investment Ltd
315. J.N Investments Ltd
316. Bidaya Building & General Contractors Limited
317. Machiri Ltd
318. Pamafrend Technical Services Ltd
319. Lari Construction
320. Madibar Investments
321. Oasis Engineering Services
322. Panafric Builders
323. Quality & Style Ltd
324. Radiall Engineering Contractors
325. Barkipta Enterprises Ltd
326. Infinitum Construction Limited
327. Harin Builders Ltd
328. Langastar Enterprises
329. Intcon Africa
330. Harmony Enterprises Ltd
331. Big Sky Consortium Limited
332. Betech Contractors
333. J.M Richu & Sons Ltd
334. Benjamin Charo Contractors Ltd
335. Better World Services Ltd
336. Finware Africa Ltd
337. Bende Contractors Co. Ltd
338. Big Ideas Construction Ltd
339. Infinity Construction Company
340. Blooming Agencies Limited
341. Bamboo Construction & General
342. Cabro Works E.A Ltd
343. Galant Limited
344. Fine Wood Works Limited
345. Garihills Agencies Ltd
346. Beyond Twenty Thirty Limited
347. Indigo Contractors Limited
348. Hammer Engineering & Construction Ltd
349. Kenmas Contractors & Suppliers Ltd
350. Intel Projects Limited
351. Hanifar Limited
352. Game City Limited
353. Cactus Trading Co
354. Happiness Company Services ltd
355. Biatek Construction
356. Benny Building
357. Kenstar Contractors Ltd
358. Gantt Construction & Eng Works Ltd
359. Blast Contractors & General Supplies Ltd
360. Impressions Advertising Ltd
361. Catex Ventures Ltd
362. Cemsure International Const
363. Inside Out Contractors
364. Barletta Holdings Limited
365. Interiors Construction Enterprise
366. Hanif Construction Company Limited
367. Blackwood Construction & Engineering Ltd
368. Birdi Civil Engineering Limited
369. Harnies Enterprises
370. Interior & Decos
371. Bildex Enterprises Ltd
372. Causeway Engineering Ltd
373. Eastern Comtec
374. Barco Construction Co. Ltd
375. Harj Construction Co. ltd
376. Interfusions Company Ltd
377. Big Lapa Builders Limited
378. Benro Investments Ltd
379. Bleighton Works Ltd
380. Blue EM Services Limited
381. Harmattan Co Ltd
382. Barton Energy Ltd
383. VAAL Real Estate
384. TRB Developers Ltd