THE EFFECT OF BEHAVIOURAL BIASES ON INVESTMENT DECISIONS BY REAL ESTATE DEVELOPERS IN NAIROBI, KENYA

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A RESEARCH PROJECT SUBMITTED FOR PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF A MASTER OF SCIENCE DEGREE IN FINANCE, FACULTY OF BUSINESS AND MANAGEMENT SCIENCES, UNIVERSITY OF NAIROBI

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DECLARATION

I do declare that this project is my own original work and has never been presented in any academic institution for any academic purpose.

Sign…… Date……..

18/11/2022

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D63/5632/2017

This research project has been submitted with my approval as a University of Nairobi supervisor.

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I appreciate my supervisor, Dr. Herrick Ondigo, for his assistance and guidance. I also thank my colleagues and lecturers in the finance department of university of Nairobi for their assistance. Thanks to my family and friends for their support.

DEDICATION

I dedicate this project to my family who have been instrumental in encouraging me throughout the journey.

LIST OF ABBREVIATIONS

NSE Nairobi Securities Exchange

SPSS Statistical Package for Social Sciences

ETC Et Cetera

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ABSTRACT

Although the behavioral biases are expected to produce negative effects on investment decisions, they do not necessarily translate to a negative effect of investments. It is therefore crucial for real estate investors have awareness of any behavioral biases they may be prone to, and how they could affect their investments. This research seeks to add to the existing knowledge on behavioral biases focusing on real estate developers in Nairobi. Specifically, the study sought to determine the effect of over confidence, conservatism, regret aversion and over optimism on real estate developer's decisions in Nairobi. There was a mixed research design. Population was the total of all 112 investors in Nairobi's real estate market. Forty real estate developers were chosen by stratified random sampling, and 200 respondents were purposefully chosen. Questionnaires that had both open and close-ended questions was used as the data collection instrument. Data reliability was tested using a Cronbach test. Validity was tested using internal consistency test. Analysis of the data was done using SPSS software. The statistical techniques employed included multiple regression analysis and descriptive statistics. From the regression analysis, the study found that overconfidence had a positive and significant regression coefficient. This leads to the conclusion that overconfidence has a significant positive effect on real estate decisions among developers. The study also found that conservatism had a significant negative regression coefficient with real estate decisions. Hence, this study concludes that conservatism has a negative effect on real estate decisions of developers in Nairobi County. The findings also showed that regret aversion had a positive and significant regression coefficient with real estate decisions by the developers. Hence, this study concludes that regret aversion has a positive and significant effect on real estate decisions in Nairobi County. Over optimism showed a positive but insignificant regression coefficient with real estate decisions. Hence, the study concludes that over optimism has no effect on real estate decisions among developers in Nairobi County. The study recommends that real estate developers in Nairobi increase their level of investment confidence; adopt the current ideas in the real estate market; research on the best investments for future profits and take advantage of them; and have considerable optimist in their real estate decisions.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Real estate industry is a key investment driving forces in Kenya as noted by Bioreri (2015). The study however noted that the situation in Kenya has not been appealing, as the industry has not remained as strong as it was expected. A study by Barasa (2010) established that the industry was not so attractive and this was blamed on threat of new entrants and high bargaining powers of buyers. These two researches indicates that there is a problem in the real industry in Kenya which needs to be addressed by looking at the factors that affect investment in the industry in Kenya. This study will focus on behavioral biases and determine how they affect the industry. It is expected that every investment decision (real estate included), is made after some considerations which are affected by investor behavioral traits. Success and failure of such investments are thus tied to a match between expectations as per the investor behavioral biases and the actual outcomes of investments. This research will thus unearth the behavioral biases, which determine investments in the real estate business.

This study considered several relevant theories in an attempt to link behavioral biases to real estate developer's decisions in Nairobi. The theories are, the Behavioral Investment Theory by Henriques (2003), the Theory of Planned behaviour by Ajzen (1991), Maslowian Portfolio Theory of Maslow (1958) and the Kalecki's Theory of Investment of Kalecki as quoted by Sebastiani (2016). The Behavioral Investment Theory is relevant due to its consideration on personal perceptions of cost and benefits in investment decision making. This is ties to behavioral biases as perceptions are guided by behavioral traits. The Theory of Planned Behaviour brings out a clear indication of behavioral biasness as the human mind tends to become fixated to certain past experiences which forms basis of expectation from certain occasions. The theory partly explains how and why some behavioral biases like overconfidence and the gamblers fallacy exist and how they affect real estate developer's decisions through fixation of the mind. Whereas Maslowian Portfolio Theory creates a relationship between investment decisions and hierarchy of needs, the Kalecki's Theory of Investment shows the relationship between risk involved in an investment and its return. Both risk taking and needs ranking are affected by behaviour traits making them subjects of behavioral biases.

Several studies have been done on the subject matter but have not been conclusive. This is because the field of behaviour and psychology is very diverse and keeps changing with times.

These biases exist from the notion that not all individuals act rationally. A study by Kabra et al (2010) established that both age and gender affected tolerance to investment risks. Ranganathan (2006) did another study on factors affecting investments. The researcher observed that, factors like funding qualities, and investor related services had an influence on investment decision making process. Kannadhasan (2015) established that there was a lot of variety on which behavioral biases affected which investor, but he noted that in totality behavioral factors affected investment decisions. In Kiambu, Njenga and Kagiri (2018) established that, real estate investors were affected by overconfidence, gamblers' fallacy, herding effects and regret aversion in pricing of real estate investments. A more recent study in Nairobi and focusing on other behavioral biases is therefore very necessary to complement the work of these other researchers and confirm if real estate investors are still suffering from behavioral biases.

1.1.1 Behavioral Biases

Behavioral biases in psychology are deviations that in uncertain situations, which means that they are tendencies that humans make systematic errors in circumstances with an influence by cognitive factors in play rather than evidence available. Conscious or unconscious behavioral biases have a significant impact on investment behavior. Assumptions made are that decisions are made from an objective judgment that a particular action would result in the expected maximum utility, hence the need for unbiased perception. Among the behavioral biases that influence investment behavior is overconfidence, optimism/ pessimism, gamblers fallacy, confirmation bias, endowment and herding effects.

Overconfidence leads to an unsupported belief in one's abilities as a result of past successes according to Banerji et al. (2020). It was found to lead to more transactions but lower yields (Odean, 1998). Optimism is a positive attitude, which can then turn into a bias if people underestimate the chances that a bad thing may happen (Shepperd et al., 2002). It becomes a bias when it does not grow to pragmatism. Loss aversion is another bias that has been blamed for endowment effect, which make people, give higher values to their property than the ideal value. According to Kahneman et al. (1991), this effect gives investors the impression that giving up something they own is equivalent to suffering a loss. Confirmation bias is another prejudice that causes people to favor information that supports their preconceived views, which can result in overconfidence according to Park et al. (2010), and gamblers fallacy which makes people relate

random events as non-random (Rakesh, 2013). Leibenstein (1993) also noted that people might tend to make particular decisions because others are doing so. This is the herding effect, which is also a bias.

As behavioral biases are psychological in nature Pandey and Jessica (2018), suggested the use of psychometric test-graded response model approach to measure them. Depaoli, Tiemensma and Felt (2018) established that, these models provide more in depth information on item content in surveys. This study will employ such models and will use a Likert scale of 10 to measure the occurrence of the behavioral biases in decision making within real estate investors in Nairobi.

1.1.2 Real Estate Developers

Chen (2020) defines real estate as land and anything permanently attached on it. Investment in real estate is therefore any investment in land and anything permanently attached to the land, whether natural or artificial. According to Businessdictionary.com (n.d), investing in real estate involves purchasing of a property with the intention of generating income from it. The generation can be through reselling or collection of rental income. Due to the option of reselling, it then follows that improvements to real estates to boost their value is part of real estate investing.

According to Behavioral Investment Theory, benefits from either resale or rent income from property is considered before committing the investment. The consideration can be affected by past experiences which may cause an overconfidence or gamblers' fallacy as suggested by the Theory of Planned Behaviour. As investors commit to real investment, herding effects may also affect uninformed investors who invest not because of their knowledge of facts in real estate developers but rather due to the bandwagon effect. Maslowian Portfolio Theory suggests that some investments may also not be for purposes of income, but as a response to an investor hierarchy of needs. All these theories that can advise on real estate developers, suggests that behavioral biases can play a significant role in real estate developers decision making. The biggest challenge is that different investors would suffer from different behavioral biases making it very difficult to corner the biases.

There are different ways of measuring investments in the real estate sector. One can use the value of investments committed, the number of investments done, the growth in property management firms, the number of approvals done by the relevant regulators and even the

estimated contribution to the gross domestic product in the country. According to Pinkasovitch (2020), net operating income can also be a good measure of determining the performance of a real estate developers'. Jeri (2017) suggested more ways of measuring the investments by looking at their capitalization rates, gross operating incomes, cash yield, loan-to-value ratio and gross rent multiplier among others. This study will use the average rent per square feet for every selected sample investor to determine the real estate developers in Nairobi.

1.1.3 Behavioral Biases and Real Estate Developers Decisions

Review of existing researches on investments and behavioral biases shows that behavioral biases do exist. What remains in dispute is whether such biases affect investments and in which way. Nyamute, Lishenga and Oloko (2015) established that, the biases affect investment portfolios in different ways some positively while others negatively. This point to the fact that behavioral biases needs to be studies in isolation from each other, and their effects on investments (real estate) be established.

Overconfidence was found to affect investments negatively by Nyamute, Lishenga and Oloko (2015), while overconfidence, herding effects and gamblers' fallacy were found to affect pricing of property and thus property investments by Njenga and Kagiri (2018). Athur (2014) found that while loss aversion, self-attribution, regret aversion, and over optimism had little effects on investment decisions, representativeness, illusion of control bias, herd instincts, dissonance bias, and hindsight bias did. It is imperative that every aspect, including behavioral biases, be analyzed and their impact on the market identified because the real estate business is quite dynamic with new entrants appearing every other time. This would prevent the market from experiencing too much irrational decisions as investors would be aware of potential bi9ases and learn to avoid them from affecting their investment decisions.

From the previous literature reviewed, it is expected that some biases will have a positive impact while others will have a negative impact. Each factor would be a variable and would be analysed separately to determine the actual effect. Significance would also be established to determine those biases whose influences is statistically significant and which ones are not.

1.1.4 Nairobi

Nairobi is the capital city of the republic of Kenya which was founded by the colonial government in the year 1899 and which has been the key player of the development of the nation. The city being the largest town within the nation and ranked second in the whole of East Africa has been the major economic giant town of Kenya. The city, that hosts multinational real estate investors and which is currently accommodating over 20 real estate firms, has seen a great growth in the industry of real estate developers based on the fact that many Kenyans are developing interest to own homes and real properties within the metropolitan of Nairobi and its environment (Oundo, 2011). The industrialization which is taking place around the Nairobi town has been a critical boost to the growth of real estate business to accommodate both commercial and residential needs of the urban population.

As the city thrives to meet the vision 2030 objective for the growth of the nation, better infrastructure and recreational facilities have continued to be build and which continues to encourage the more investments within the metropolitan while at the same time offering growth opportunity for the existing venture in the business (Owuor&Mbatia, 2008). With the growth of real estate business in Nairobi, it has been expected that the town will continue to experience new entrants in the business. Therefore, the trend of investment patterns and the consumption of real estate services within the town becomes an area of key interest.

1.2 Research Problem

Real estate is a good investment opportunity, which can facilitate creation of employment opportunities, contribute to gross domestic product and also generate revenue for local governments among other benefits. Success of real estate investors should therefore be a concern to everyone. However, some investors while using financing vehiclesmay make errors. In frequent, this results in significant losses (Aduda, 2012). Some of the mistakes are based on, assumption that the real estate market is efficient such that prices and data are based on new and accurate information. However, the real estate market investment in Kenya is often driven by irrational decisions through regret aversion, overconfidence, and representativeness. What worries more is that theories developed on the issue of behavioral biases in decision making have

not helped investors become more conscious of their biases. Some have continued to make irrational decisions to the detriment of their real estate investments.

Psychologists and behavioral finance researchers have identified these biases. Nyamute, Herding and disposition effect have a positive impact on investments, however overconfidence has a negative impact, according to Lishenga and Oloko (2015). This shows that even if they are biases, they do not always have an adverse impact on investments. Real estate investors should therefore be conscious of any behavioral biases they may be predisposed to and how these biases may effect their investments. This research sought to add to the existing knowledge on behavioral biases focusing on real estate investors in Nairobi as it sought to support the critical industry.

Researches have been done on real estate developers and behavioral biases but there exists a research gap. This is because the participating investors keep on changing meaning the behavioral biases that the industry may be prone to keeps also changing. Crane and Hartzell (2010) established that disposition, which is a behavioral bias, was very prevalent in real estate trusts and affected the value of shareholders. Related studies on investments in mutual funds established that other factors considered by investors are like the funding qualities and investor related services. This shows the diversity in the factors that affect investment decisions and more so in the real estate sector. Kabra et al. (2010) researched on risk tolerance and established that, factors like age and gender affected risk tolerance. This shows that gender and age are other factors that can affect real estate investment decisions in addition to behavioral biases and funding opportunities. These studies have not exploited the area of real estate investment and how it is affected by behavioral biases and thus leaves a gap that can be exploited to provide a better coverage of real estate developer's decisions.

In Kenya, a research by Onsomu (2014) established that overconfidence had an insignificant effect on investor decisions. This finding were contradicted by the findings by Nyamute, Lishenga and Oloko (2015). They established that overconfidence had a negative effect on performance of portfolio investments. These contradictions in previous researches leaves a researchable gap as this study seeks to understand the current situation as it pertains some behavioral biases and real estate developers decisions. Failing to explore this gap would mean interested parties and particularly investors would not be able to gauge the effect of some of these behavioral biases on their investment decisions. Such inefficiencies would leave them

exposed to adverse effects on their real estate developers. Therefore, the purpose of this study was to provide a response to the question: What impact do behavioral biases have on Nairobi real estate developers' investment decisions?

1.3 Research Objective

1.3.1 General Objective

The objective of this study is to determine the effect of behavioral biases on real estate developer's decisions in Nairobi.

1.3.2 Specific Objectives

i. To determine the effect of over confidence on real estate developer's decisions in Nairobi
ii. To determine the effect of conservatism on real estate developer's decisions in Nairobi
iii. To determine the effect of regret aversion on real estate developer's decisions in Nairobi
iv. To determine the effect of over optimism on real estate developer's decisions in Nairobi

1.4 Value of the Study

This study seeks to contribute to the literature in existence and will contribute positively to the policies, practice as well as in theory. In theory, it will contribute by informing real estate interested parties like researchers, real estate management, finance and investment students and also lecturers on the influence of behavioral biases on real estate investment in Nairobi. Future researchers can also refer to the study in their studies as the study will be very informing. By complimenting other researches done on real estate developers, the study will help in exploring the area further which is good for all stakeholders.

In policy, the study will facilitate formulation of better policies to direct the real estate industry in Nairobi and all other areas with similar conditions like Nairobi. Policies to be better informed will be like for urban planning, financing of real estate investments, brokerage activities in the industry as well as approvals of constructions. Policies will help in identifying the driving force behind a certain intended real estate investment and then interested parties can make better decisions to do with accepting to finance, approving of constructions.

In practice, the study will inform players in real estate investments on better practices to ensure sound real estate industry. Matters like pricing, property use, interests in the real estate and brokerage practice will be informed and therefore will put into account an investor behavioral bias in their execution. Individual investors will also be made aware of possible biases that may influence their investment decision making hence enabling them to evade such influences. Graham, Harvey and Huang (2009) noted that investors should be able to suppress their emotions and focus on long term results. Financing practice will also put into account the behavioral trait of the investor and gauge how that can affect the real estate being financed,

which can consequently affect the financier interests. Better practice will translate into a good industry with a capacity of growth.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

In this section, the study shall consider the past literature that has been done in respect of the behavioral bias and investment decisions by scholars. The section will factor in the theoretical review of theories in connection with either variable of the study, other determinants of investment decisions, a description of the literature review, research gap, an empirical review, and a conceptual framework.

2.2 Theoretical Review

In this section of the study, some key theories focused of which were in favor of one of the study variables. In order to achieve the research objective, some theories shall be considered relevant for the study and were focused under this section. These theories included the behavioral investment theory, the theory of planned behavior, Maslowian portfolio theory and Kalecki's theory of investment.

2.2.1 Behavioral Investment Theory

The theory of behavioral investment can be traced from the work of Henriques (2003) in his study of the tree of knowledge systems. The theory which is based on the third division of the tree of knowledge of the life and mind assumes that the behavior of individuals when it comes to investments is highly influenced by the experience obtained from their past. According to Henriques (2011), the extent of the sacrifice one will make in regards to time and investment efforts is highly influenced by the perceived cost and benefits attributed to the kind of investments. In decision making, one will tend to weigh the cost implications of one decision and the associated benefits which are to be obtained from each course of action before settling in one course of action.

From the notion of La Cerra (2003) where they concept of rationalism in investment was equated to the feeding habit of the Crow when it raises whelks and fall them on under rocks to break their shell. In a similar manner, individual will have to weigh the cost and benefit associated with an investment before deciding to invest, the Crow prefers to consume more energy flying higher to falling the whelks at low height and do it several times. However, other Brown and Brown (2006)

where of the opinion that the decision making was subject to the social bonds which evolved over time deviating from the traditional norm of the behavioral investment theory.

The theory has been considered relevant for the current study due to its ability to focus on the investment decision making for individuals and which translates to institutional investments. As the investment decisions become a critical determinant of the level of success of real estate business, the behaviour of investors in taking chances becomes very crucial for the industry (Henriques, 2011). Therefore, the theory shall be considered relevant for the investment decision which is the in depended variable of the study.

2.2.2 The Theory of Planned Behavior

The theory was advance by Ajzen (1991), which argues that the human behaviour was a function of the human expectations that are formed by way of past experience with certain circumstance or a situation. The human mind will tend to be fixated at a specific thing which forms the basis of what they expect from an occasion and hence influence the decisions one will make. According to Godin and Kok (1996) the perception and attitude an individual makes in regard to their social interactions to a great extend explains the intentions and variation in actions. Therefore, from a general point of view, the behaviour of individuals tends to be planned because it mostly relies on the past conditions that control the mind of an individual on the expected results.

From the study of Madden, Ellen, and Ajzen (1992) the theory of the planned behavior was backed by empirical evidence that the behaviour of most living things was a derived action that was based on the reasoned actions. This implied that one could predict the course of action another person will take based on the fact that they had a basic idea of the past experience or one could shape the actions to be taken by another person as they possess the control of their behaviour assuming the concept of rationale exist.

The advancement of other modern theories to explain the behaviour of human beings in the psychology have left the reality of the intention to action to be doubted looking into conscience that governs the actions of people. The fact that people will tend to have principles guiding them which they could not even explain their origin become an insight for critique of the theory (Ogden, 2003). The theory has been selected for the current study due to its prediction of the human behaviour in decision making and which tend to be based on past experience and which may end up forming biasness.

2.2.3 Maslowian Portfolio Theory

The theory has been coined and named after the great work of Maslow (1958) who invented the hierarchy of needs concept. From the Maslow initial thought, the Maslowian portfolio theory argues that the investors decision for investing in one or another investment will be highly guided by the kind of motivation that make them thing of investing (De Brouwer, 2009). Just as the Maslows hierarchy of need thought of the gradual progression in the needs of an individual, the theory perceives that the investors investment needs will take a similar pattern and hence the investments will tend to differ based on the size and level of investment to be taken.

From the proposition of De Brouwer (2016) the theory has been viewed to be a multidisciplinary theory as it was based on the real life goals. The fact that one's life goals are varied and may be diverse at the same time, one will not be willing to forego any of these objectives and therefore, will end up making a number of decisions that optimize the personal goals in form of an investment portfolio. However, the opinion of Chen (2016) seems to have had a different view of the investment based on the economic concept of marginal benefit and marginal cost. While individuals may have life goal, rational of the marginal cost and marginal benefit was the key driver of the real investment decisions as needs and wants differs. The theory has been adopted for the current study due to its ability to explain the nature of investment decisions that an individual or firm may take.

2.2.4 Kalecki's Theory of Investment

The theory of Kalecki on investment can be traced back from his great work Kalecki general theory of 1933 as quoted by Sebastiani (2016). The theory was based on the principle of the level of risk that is associated with investment. The theory argued that the level of risk was directly related to the amount of investment and returns. As per Sebastiani (2016), as the amount of investment increased, the risk associated with that investment also becomes greater. The incentive that will make one sacrifice much of his resources to invest in any venture could only be the expected returns from the investment taken.

According to Gomulka, Ostaszewski and Davies (1990) it is on the basis of the theory that individuals will tend to invest on the innovative ideas that seem to be promising better returns to them. The study noted that there was a tendency of less reaction of the investors on the changes associated with profitability on innovation. From their point of view, investors may be reluctant

to take innovative ideas maybe because of the fact that none innovative firms still find themselves surviving in the market or the fact that there may be limited innovative ideas that exist in the market (Gomulka, Ostaszewski& Davies, 1990).

However, the theory established that investment in innovation was to some extent quite important if the problem of unemployment was to be solved in any country. While the theory is seen to have laid a good foundation for the development of the Keynesian theory, there has been seen some critiques of the models argue that the work of Kalecki seems to be quite incomplete when compared to the work of Kaynes. The theory has been preferred in the current study due to its ability to consider the level of investment and the key determinant of the investment decision making linking the two variables of the current study.

2.3 Determinants of Real Estate Developers Behaviour

Under this section the study shall review other empirical variables that have been theorized to have an impact on investment levels and patterns among the real estate business. In order to achieve the research objectives, some of the factors that have been considered relevant in the determination of the investment behaviour and which will be reviewed in the current study shall include conservatism, over optimism, regret aversion and overconfidence.

2.3.1 Conservatism

The concept of conservatism has been a common phenomenon in the business modeling and especially when it comes to the risk appetite in investment decisions. Conservative investors will tend to hold to their traditional ways of investment and won't be willing to take chances with new ideas in the market. As a result, these investors will tend to invest in what has already been tested and proven success in the market. Rahim (2019) attempted to investigate the correlation between conservatism bias and investment decisions, according to empirical research on the topic, he found that there was a positive correlation. Based on the Pakistani stock market which is characterized by high level of fluctuations, the study established that conservatism gave the investors the time to concentrate and focus on the future.

Chen, Chen and Cheng (2014) in their investigation in relation to the conservatism in the ownership of firms, it was established that the firms that tend to be cautious with admitting new members to their operations could be to some extend be doing better and especially when they were family owned and managed business. In the current study, the variable shall be measured

using a likert scale from the primary data based on what extentthe respondents agree or disagree with the conservatism and its influence on the investment decision a similar approach to the one adopted by Rahim (2019) when studying the same variable in Pakistani.

2.3.2 Over Optimism

The concept of over optimism has been coined from the expectations that individuals have on a specific investment action. While it has been an attitude that is installed in the minds of human beings since their childhood to have hope, at times in the real investment world, people tend to over exaggerate the hopes. This positive attitude should sooner or later turn into pragmatism since if it does not, then it will become a bias. A majority of the population is affected by this bias, which usually lead people outweigh the possibilities that a bad thing will happen to them (Shepperd et al., 2002) but which at times may be a false expectation.

The study by Abildgren, Hansen and Kuchler (2018) in their investigation of the impact of over optimism on the pricing of houses established that this attribute had to the over or under pricing of the houses by an approximation of around 15-20% which was a deviation from what the real market condition growth was. In the current study, the variable in the current study shall be measured using the likert scale on the degree of the agreeability with the influence of over optimism to the investment decisions of real estate businesses.

2.3.3 Regret aversion

As noted by Pompian (2012) that the regret aversion was the character that comes to the investors who want to have the right outcome in every investment chance that comes their way. From the point of his study, regret aversion will assume that they ought to have known which investments will give future profits and take advantage of them before the results occur while on the other hand they must have known the investments that shall make losses and either avoid them before investing or withdraw them if they had already invested in them before the adverse occurrence actualizes. However, the future has been uncertain and occurrences may take place by chances making it hard for a single investor to predict with accuracy the future expectations of any business activity (Pompain, 2012).

From the point of view of Reb (2008), the character of regret averse could be the cause of delayed decision making, as the investors will take longer to make decisions on the course of

action based on the fear of making wrong decisions. According to Pompain (2012), the character was thought to have a as investors could even prefer investing in low return stable markets to investing in high return but highly volatile ventures and which at times ends up giving the best yield. The variable in the current study shall be measured using a Likert scale based on the level the respondents agreed to the fact that regret aversion bias influenced the decision making on investments in real estate businesses.

2.3.4 Overconfidence

Overconfidence has been perceived as the level at which individuals tend to believe that things that they know what the future results will yield in respect of a transaction. Over confidence Bias is an unfounded, illogical belief in one's skills or judgment. It is a personal belief that their opinion is superior, with excess confidence in themselves, always as a result of success in the past (Banerji et al., 2020). From the study, it was found that overconfident investors transacted more than the less positive ones, even though the transactions resulted in lower yields (Odean, 1998). This tendency of over confidence makes the investors even do more transactions that at some extend may be viewed as gambling whose results in the future returns are based on probability which is a game of chances.

According to the findings of Cheng (2007), it was established that the aspect of overconfidence affected the performance of investments in a negative and significant manner. This could be attributed to the excess disposition of finances which makes them to be exposed to unmanageable investments and which in severe cases could lead to the collapse of investments. In the current study, the variable shall be measured by use of likert scale on the extent of the respondents believe that over confidence among investors affected the investment decisions of the real estate firms within the state.

2.4 Empirical Literature Review

There has been numerous research conducted so far on the impact of behavioral bias on various organizations' investment decision-making both locally and globally. A study was conducted by Crane and Hartzell (2010) to determine the consequences of biases in corporations. To assess the presence of the biases, they used real estate investment trusts. From the data, they found strong evidence of disposition affecting the real estate investment trusts management. It entails hanging on to poor performing investments for a long time and selling the winning positions too soon.

The effect was higher in smaller firms. They found out that it affects the shareholders (Crane &Hartzell, 2010).

Hood et al. (2014) scrutinized the opinions of socially accountable investors investment decisions in the United States from a sample selected from a national vast discount brokerage from 1991 to 1996. It was concluded that personal values and Social characteristics influenced the stock owned by individual investors. Hoffman et al (2011), revealed how investor's behavior adjusts and the impression for the period of the 2007 to 2009 financial crisis basing on client records and data from surveys undertaken monthly. The study finding was that investors perceiving risk highly had extra incomings compared to investors with a lower risk level.

Popovicetet al. (2012) ascertains that making the decision from analytical mend the usage of information but suppresses the quality of content on investments. They found through a quantitative survey-based analysis of the connections between analytical decision-making, culture, information quality, maturity, and use of information in decision-making that decision-making was a crucial component of a successful business intelligence system. They found out that the quality of information content is essential for the substantial use of the information even though the influence of the information contact superiority is non-significant.

Ranganathan (2006) studied the financial behaviors' influence on the access and conceptual cognizance of individual investors concerning a mutual fund. With results from 100 respondents in Mumbai analyzed using multinomial logistic regression and Factor analysis, it determined that the Factors associated with funding sponsor qualities, investor-related services, and funding qualities had an enormous influence on the decision-making process.

Kabra et al. (2010) assessed the factors influencing tolerance on the risk involved in investment and the process of making the decisions relating the age and gender. One hundred ninety-six investors working in the private sector and India's government were interviewed in the study. They established that investor's age, together with gender, affected their capacity to take risks.

Parashar (2010) studied the influence of personalities on the choice of investment of one hundred personal levels employing Cluster analysis, factor analysis, Kruskal Wallis test, and correspondence analysis, which deduced that, demographic and personality type affects investor behavior.

Kannadhasan (2015) study aimed at the significance of behavioral biases in the investment decision. The author accurately assessed the heuristic decision process, the prospect theory, and

their implications. The study established that entirely investors do not encounter similar adversity when making investment decisions, but behavioral factors in totality affect investor decisions. According to Mounika (2017) study on the significance of behavioral finance in stock, decisions determined that most investors do not always react within behavioral and rational biases, which has cognitive effects on investor decision-making.

A study conducted in Kenya on behavioral biases and their impact on investor decisions found no significant effect of overconfidence bias. The conclusion of the study revealed no significant relationship among the biases: availability bias, Confirmation bias, Representativeness bias, overconfidence bias, and Disposition effect, and gender. Disposition effect, Availability bias, Confirmation bias, and Representativeness bias were found to be the important ones affecting investors (Onsomu, 2014).

In their study, Nyamute, Lishenga and Oloko (2015) sought to establish the relation between investor's behaviour and the performance of market portfolio in the NSE. The study which adopted a multiple regression approach to analyze a sample of 385 investors, established that herding and disposition affected investments in a positive direction but overconfidence had a negative impact. The study concluded that the impact of biases on the performance of investments was to be taken on a case to case basis as some of the biases have negative impact while others were positively related. The study findings contradicted those of Onsomu (2014) which had established that the biases were insignificantly affecting investments. This research seeks to add to the existing knowledge on behavioral biases focusing on real estate investors in Nairobi as it seeks to support the critical industry.

In a 2012 study, Aduda tried to determine whether unit trust performance in Kenya was superior to that of the market portfolio. The study, which covered the years 2010 and 2011, used a descriptive research approach and found that the two investment vehicles were distinct from one another. With the year 2011 where the market conditions favored the unit trust and was unfavorable to the stock market. As the study concluded that there was no sure way in investments and it was a matter of chances as the future was uncertain exposing investors in either vehicle in great risk of incurring losses. The study however just noted the behaviour of decisions of investors in the market but did not point out what might have triggered the behaviour as the current study shall.

Athur (2014), deliberated on behavioral biases that affect individual investors' decisions in Kenya. It based the conclusion on primary data acquired from thirty investors. The snowball sampling technique resolved that an impression of control, dissonance, cognitive, hindsight and herd instinct biases had a significant contribution, correlating to individual investment decisions. While over-optimism, loss aversion, regret aversion, and self-attribution bias did not considerably relate to an individual's choice. Odhiambo and Ondigo (2018) explored the herd behavior, representativeness, anchoring, and overconfidence, reflecting real investment decisions in Nairobi County. The study revealed that 53.71% utilized the institutions in evaluating the evaluation decisions. It further showed a correlation between the three behaviors.

Njenga and Kagiri (2018) conducted research on the influence of behavioral bias on real estate in Kenya (a case study of real estate in Kiambu County), focusing on the behavioral finance theories on the impact of real estate pricing. The study found that factors influencing market pricing included overconfidence, herding effects, gamblers' fallacy, and regret aversion. It was proven that the four biases correlate and touch the real estate prices in Kenya, confirming that it cuts across all gender, marital status, age, and education levels. The study demonstrated that the herding effect did not have an impact on the prices in Kenya. Regret aversion and gambler effects were found to affect the prices. The study recommended investors analyses the investment factor with care utilizing the business knowledge. It also concluded that investors should interpret the market and economic indicators of the various industries in the country because they affect the real estate investments (Njenga&Kagiri, 2018)

2.5 Conceptual framework

The conceptual frameworks shall sum up the existing relationship between the variables of the study in a diagrammatic representation. From the literature above, behavioral biases like conservatism, over optimism, overconfidence and regret aversion have been found to affect real estate developers in some way. The effects have been established by the works of Rahim (2019, Abildgren, Hansen and Kuchler (2018), and Pompain (2012) among other researchers. The study shall look at the elements of behavioral bias as the independent variables and how they impact on the investment decision making process for the real estate businesses within Nairobi.

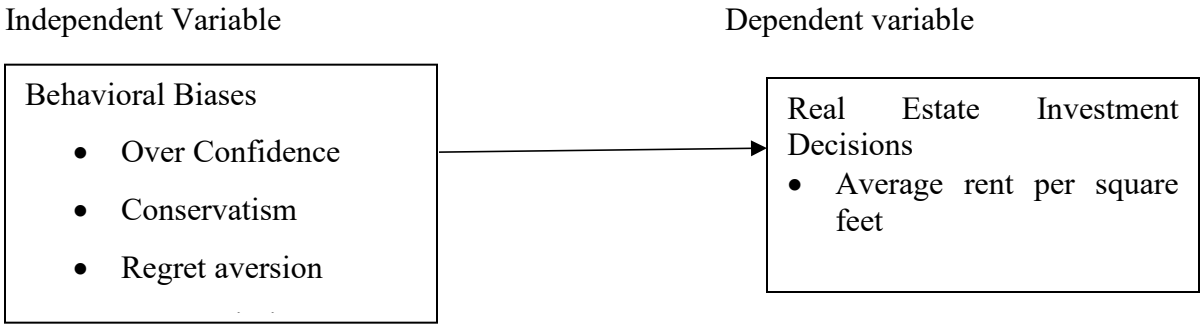

Figure 2.1: The Conceptual Model

2.6 Summary of Literature Review

Some researchers have attempted to establish the relationship that exists between the behavioral bias and the real estate development decisions. As per Crane and Hartzell (2010), they established that the behavioral bias was affecting investment decision in a significant manner. However, the study did not narrow down to factor the direction to which each element of the behavioral bias was affecting investment. Ranganathan (2006) established that among the factors that influenced investment decisions were sponsor qualities, investor-related services, and funding qualities. However, the study seems to have partially considered the behavioral bias as a factor influencing the investment decisions.

From the research findings, Onsomu (2014) investigated on the biasness that had influence on the decision of individual investors in Kenya establishing availability bias, Confirmation bias, Representativeness bias, Overconfidence bias, and Disposition effect, and gender as the main biases that affected investments. The study by Aduda (2012) found that the risk in the market and uncertainty was a key factor influencing the decision process of investor shifting the thinking from ends to means. However, the study of Athur (2014) made an in depth analysis of the same biases establishing over-optimism, loss aversion, regret aversion, and self-attribution bias as not influential on individual investors' decision making. It is on the basis of the fact that there are so many behavioral biases that need to be studied and also the fact that difference exist from the evidence in the research finding in regard to the relation existingbetween the two variables, that the current study shall seek to investigate the relationship between the behavioral bias and investment decisions of real estate developers in Kenya.

CHAPTER THREE:
RESEARCH METHODOLOGY

3.1 Introduction

In this section, a discussion is made on the methodology, which were adopted aiming to achieve the research objectives. The research design will be discussed together with the target population of study, sampling methods adopted and the data collection methods. Data analysis and interpretation will also be discussed in this section to help build credibility for the study.

3.2 Research design

A research design enables the researcher achieve the research objectives. In light of the objectives of this research, a mixed research design was used. Johnson, Onwuegbuzie, and Turner (2007) defined a mixed research design as a design where the research employs elements of both qualitative design and quantitative design. It was observed by Schoonenboom and Johnson (2017) that, a mixed research design is aimed at strengthening and also expanding a study's conclusion and consequently enhance its contribution to literature. The two combined methods are intended to complement each other and help in exploring the subject matter completely.

3.3 Study population and sample

A population is the aggregate of all elements sharing a common characteristic (Mugenda & Mugenda, 2003). The population for this study is an aggregate of all investors in the real estate sector in Nairobi. The list of all real estate investors in Nairobi is available from the department of urban planning from the Nairobi metropolitan. Currently, there are 112 real estate developers in Nairobi.

3.4 Sample and Sampling Design

Since it would have been costly and consume time to study the whole population, considering the fact that it may not yield superior results, sampling was done where few developers, based on the population size, were selected for study. Sampling was done using Stratified random sampling to identify specific respondents. A sample of 40 real estate developers was used for the study to ensure adequate analysis to meet the study objectives. Five employees in the real estate developers were involved in each firm. This gave a total of 200 respondents who were issued

with a questionnaire. Stratification was based on geographic concentration within the county to ensure coverage of all areas which ensured coverage of different income level developers. According to Murphy (2020), the sample obtained is a better representative of the population as all subgroups (strata) are taken into account. The sampling was preferred because it can save on time and make it possible to concentrate on few elements where in depth content analysis can be done to meet the study objectives.

3.5 Data Collection

Both quantitative and qualitative data were gathered. It was gathered through the use of a questionnaire, which was created to gather any pertinent information that could aid in identifying real estate developers' investment behavior and how it linked to behavioral biases. Questionnaires that had both open and close-ended questions were used as the data collection instrument. They had three main sections of personal information, behavioral factors that influence decisions, and investment performance. Likert scales were used as the rating scales to evaluate the extent it agreed with the behavioral factor impact on investment decisions.

The behavioral biases that had an influence on investor decision-making were divided into four groups: the heuristic, herding effect, prospect, and market, each of which had specific behavioral variables. The questionnaire was pretested with a certain number of real estate developers for testing of their appropriateness and sufficiency before being finalized to be utilized for the survey. They were then delivered directly to the developers to be completed for analysis.

3.6 Data Validity

Data collected was first subjected to a validity test to ensure that it was fit for analysis and drawing of conclusions. Gomm (2008) noted that, the conclusions of a research are evaluated on the basis of the validity and reliability of the data used. Data reliability was tested using a combination of Cronbach test while data validity was tested by discussing it with some management in the development firms and my project supervisor. Internal consistency test. Data, which is found to be unreliable was discarded and was not be used in the study. This was aimed at ensuring that analysed data was fit to inform observations and conclusions of the study.

3.7 Data analysis

Data analysis is the process involving cleaning, transformation, and modelling of data with the intent of discovering underlying information useful for decision making (Guru99.com, n.d). Data

collected was first cleaned summarized and then analyzed to extract the information needed to determine the behavioral biases that affect investments in real estate developers in Nairobi. Microsoft excel application was used to summarize the data before SPSS software was used to analyse it further through regression of the quantitative data. Content analysis was also done on the qualitative data to facilitate a deeper understanding which complemented the regression results.

The statistical techniques employed included multiple regression analysis and descriptive statistics. Regression analysis was used to identify how the discussed factors influence investment decisions from the measures tested, presenting the correlation indices amidst behavioral factors and investment decisions.

3.6.1 Analytical Equation

The regression equation below was used for analysis of the quantitative data

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where;

Y - Real estate developer's decision as measured by the amount of rent per square feet

X_1 - Overconfidence level as measured by the overconfidence Likert scale score

X_2 - Over optimism level as measured by the over optimism Likert scale score

X_3 - Conservatism level as measured by the conservatism Likert scale score

X_4 - Regret aversion level as measured by the regret aversion Likert scale score

3.6.2 Test for significance

Test for significance, according to Moore, Notz, and Flinger (2013), is a formal process used to compare observed data with a claim (hypothesis) whose veracity is being evaluated. Test for significance helps in either supporting or rejecting the hypothesis tested. P-values were used to measure the significance level in both the predictor variables and the model. A 95% confidence interval was used in this study to interpret the significance levels.

CHAPTER FOUR

DATA ANALYSIS, INTERPRETATION AND DISCUSSION

4.1 Introduction

The interpretation and presentation of the field data are covered in this chapter. The chapter provides background data about the respondents and analysis conclusions based on the study's goals. The interpretation and presentation of the field data are covered in this chapter. The chapter provides background data about the respondents and analysis conclusions based on the study's goals. From the 200 questionnaires issued to the respondents, only 146 were duly filled and returned. This gave a response rate of 73% which was excellent given that it was above 70% (Mugenda & Mugenda, 2012).

4.2 Demographic Information

Table 4.1: Age of the respondents

	Frequency	Percent
Below 35 years	31	21.2
36-45 years	35	24.0
46-55 years	27	18.5
56-65 years	40	27.4
66 years and above	13	8.9
Total	146	100.0

The study determined ought to deterine the age of the respondents and based on the results, 27.4% were aged between 56-65 years. however, 24% were aged between 36-45 years, 21.2% were aged below 35 years, 18.5% ages ranged between 46-55 years and 8.9% were aged above 66 years. This means majority of employees of real estate developers in Nairobi County are aged above 35 years.

Table 4.2: Gender of the respondents

	Frequency	Percent
Male	80	54.8
Female	66	45.2
Total	146	100.0

The researcher tried to determine the respondents' gender. According to the results, the majority of respondents (54.8%) identified as male. However, 45.2% indicated their gender as female. This demonstrates that the vast majority of employees in real estate developers in Nairobi are male.

Table 4.3: Highest Level of Education

	Frequency	Percent
secondary	19	13.0
certificate	16	11.0
diploma	27	18.5
degree	51	34.9
post graduate	33	22.6
Total	146	100.0

Results showed that 34.9% of the respondents had their highest educating level as a degree. In addition, 11% indicated certificate, 18.5% indicated diploma, 13% indicated secondary while 22.6% indicated post graduate degree. From the research, it's clear that the respondent were well educated thus could respond to research subject and respond appropriately.

Table 4.4: Period of Employment

	Frequency	Percent
Less than 10 years	24	16.4
10-20 years	47	32.2
21-30 years	37	25.3
31-40 years	29	19.9
More than 40 years	9	6.2
Total	146	100.0

The study determined the respondents' length of employment in the real estate sector. According to the results, 32.2% of the respondents had been employed for 10 to 20 years. In contrast, 25.3% had worked for between 21 and 30 years, and 19.9% had worked for between 31 and 40 years. However, 6.2% had worked for more than 40 years, compared to 16.4% who had worked for fewer than 10. This shows that the majority of respondents have studied the influence of behavioral bias on real estate investing decisions for more than 30 years.

4.3 Past investment decision making experience

Table 4.5: Period Worked In The Real Estate Industry

	Frequency	Percent
1 to 5 years	29	14.5
5-10 years	24	12.0
10-15 years	90	45.0
above 15 years	57	28.5
Total	200	100.0

The study found that 14.5% of respondents had been in the real estate industry for between one and five years, 12% had been in it for between five and ten years, and 45.0% of respondents had been in it for between ten and fifteen years. Of the respondents, 28.5% had been in it for over fifteen years. This suggests that the bulk of the population has been engaged in the real estate industry for a sizable amount of time and can therefore supply information requested based on their extensive experience.

Table 4.6: Pre-Development Stage

	Frequency	Percent
Property Search, Analysis & Vetting	66	45.2
Financing Decision making	37	25.3
Feasibility Analysis	43	29.5
Total	146	100.0

When asked about their involvement in the pre-development stage of real estate, 45.2% of respondents said they were involved in property search, analysis & vetting. However, 29.5%

were involved in feasibility analysis while 25.3% indicated financing decision making. This shows that the real estate developers undertake property search, analysis & vetting; feasibility analysis; and financing decision making in the pre- development stage of real estate.

Tble 4.7: Development Stage

	Frequency	Percent
Regulatory Compliance	26	17.8
Development Monitoring	31	21.2
Feasibility Analysis	89	61.0
Total	146	100.0

On the role played in the development stage of real estate, 61% of the respondents indicated that they were involved in feasibility analysis. However, 21.2% were involved in development monitoring while 17.8% were involved in regulatory compliance. This shows that the real estate developers undertake feasibility analysis as the main role in the development stage of real estate.

Table 4.8: Construction Stage

	Frequency	Percent
Construction Monitoring	79	54.1
Financing Decisions	47	32.2
Regulatory compliance	20	13.7
Total	146	100.0

The respondents were asked to indicate the role they played in the construction stage of real estate. Outcomes showed that54.1% of the respondents indicated that they were involved in construction monitoring. Nevertheless, 21.2% were involved in financing decisions while 13.7% were involved in regulatory compliance. This shows that the real estate developers have a key role in construction monitoring in the construction stage of real estate.

Table 4.9: Post-Development Stage

	Frequency	Percent
Decision making on leasing or selling	91	62.3
Asset management	55	37.7
Total	146	100.0

The respondents were asked to indicate the role they played in the post-development stage of real estate. The outcomes showed that 62.3% of the respondents indicated that they played the role of decision making on leasing or selling while 37.7% played the role of asset management. This

shows that decision making on leasing or selling and asset management are the key roles that developers play in the post-development stage of real estate.

Table 4.10: Performance of the industry over the five last year

	Frequency	Percent
Excellent	25	17.1
Good	89	61.0
Indifferent	12	8.2
Poor	14	9.6
Very poor	6	4.1
Total	146	100.0

On industry performance, 61% of the respondents said that the performance of the real estate industry was good while 17.1% said the performance was excellent. However, 8.2% said it was indifferent, 9.6% said it was poor while 4.1% said it was very poor. This means that the performance of real estate is good. This indicates that the performance of real estate industry in Nairobi County is poor.

Table 4.11: How Perception on The Past Performance Affect Current Decision Making

	Frequency	Percent
Positively	116	79.5
Negatively	18	12.3
No influence	12	8.2
Total	146	100.0

From the research, 79.5% of the respondent said the perception on the past performance affected their current decision positively. However, 12.3% said it affected them negatively while 8.2% said it has no influence. This means that perception on past experience affects real estate development investment decisions.

4.4 Real Estate Developer's Decisions

Table 4.12: Rental Income Per Meter

	N	Minimum	Maximum	Mean	Std. Deviation
Rent Income per square meter	146	30.00	175.00	83.2466	40.42337

From the data on the rent rate per square meter, the findings showed that the mean rental income per square meter was 83.25 shillings. It ranges between 30 and 175 shillings per square meter among the real estate developers in Nairobi County.

Table 4.13: Tools and Methods For Real Estate Development Decisions

	N	Minimum	Maximum	Mean	Std. Deviation
Bench-marking	146	1.00	5.00	3.8288	.79965
Property Specifics	146	1.00	4.00	3.5000	.74510
Quantitative Risk Models	146	1.00	4.00	2.5822	.76795
General Experience (Intuitive)	146	1.00	4.00	3.5411	.81475
Practical Techniques (DCF, IRR, NPV, e.t.c)	146	1.00	4.00	1.8836	.79229

The extent to which the following tools and approaches were employed by the respondents' companies to decide on real estate development was requested. The results demonstrated that the developers had extensively embraced benchmarking, as indicated by the mean of 3.8288. They also adopted property specifics, as indicated by a mean of 3.5000, and general Experience (Intuitive), as indicated by a mean of 3.5411. However, as indicated by a mean of 2.5822, they utilized quantitative risk models to a moderate extent. However, they used practical techniques (DCF, IRR, NPV, e.t.c) to a little extent as shown by the mean of 1.8836. This indicates that the real estate developers in Nairobi county adopt various tools in making their real estate investment decisions.

4.5 Behavioral Biases and Real Estate Developer's Decisions

Table 4.14: Behavioral Biases

	N	Minimum	Maximum	Mean	Std. Deviation
I do often consider my knowledge and skills more important in deciding on the kind of investment to undertake.	146	2.00	5.00	3.5411	.91822
I do believe that my knowledge and skills help me to perform better than other investor in the industry	146	1.00	5.00	3.5548	.99676
I do believe that the real estate developers' business shall be the best investment in the next five years.	146	1.00	5.00	3.6918	1.10525
I have made most of my investments in real estate's based on the future expectation for growth.	146	2.00	5.00	4.2123	.51473
I do take quite a long time before making any investment decision in real estates.	146	1.00	4.00	2.2808	1.09383
I trust that I have always got the best returns from the investments that have made in the past.	146	1.00	5.00	4.0753	.58822
I prefer investing in stable	146	1.00	5.00	3.7397	.80563

investments that have obtained market share in the past					
I do prefer getting the best investment returns always through proper analysis of my investment.	146	2.00	5.00	3.6301	.88679

The goal of the study was to gauge the degree of consensus on claims regarding the influence of particular behavioral biases on real estate developer decisions. The respondents agreed that they had made the majority of their investments based on the future expectation for growth as shown by mean of 4.2123. They further agreed that they trusted that they had always got the best returns from the investments that had made in the past as shown by mean of 4.0753; they preferred investing in stable investments that had obtained market share in the past as shown by mean of 3.7397; and that they believed that the real estate's developers business would be the best investment in the next five years as shown by mean of 3.6918. The respondents further agreed that they did prefer getting the best investment returns always through proper analysis of their investments as shown by mean of 3.6301; they did believe that their knowledge and skills helped them to perform better than other investors in the industry as shown by mean of 3.5548; and that they did often consider their knowledge and skills more important in deciding on the kind of investment to undertake as shown by mean of 3.5411. The respondents, however, disagreed that they did take quite a long time before making any investment decision in real estates as shown by mean of 2.2808. The statements had standard deviation below 2 indicating that the responses didn't differ much from the mean.

4.6 Regression Analysis

The researcher sought to establish the effect of behavioral biases on real estate developer's decisions. The effect was established through regression analysis.

Table 4.15: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.754[a]	.569	.557	1.71981

a. Predictors: (Constant), over optimism, regret aversion, conservatism, over confidence

The correlation coefficient (R) for the model summary was 0.754. This demonstrates the high correlation between the predictor variables and the choices made by real estate developers. The model's coefficient of determination (R2) of 0.569 indicated that the predictor variables account for 56.9% of the decisions made by real estate developers adopted in the research (over confidence, conservatism, regret aversion and over optimism).

Table 4.16: Analysis f Variance

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.514	4	1.878	6.453	.000[b]
	Residual	41.041	141	.291		
	Total	48.555	145			

a. Dependent Variable: Investment Decisions

b. Predictors: (Constant), over optimism, regret aversion, conservatism, over confidence

The significance and fit of the model, F-statistics from the ANOVA were used. The significance level for the Anova was 0.000. Given that the value of significance (p-value) was less than 5%, it is clear that the model accurately described the data and produced findings that were suitable for drawing conclusions about the population parameters.

Table 4.17: Regression Coefficients

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	12.755	1.673		7.624	.000
	over confidence	.271	.101	.230	2.675	.008
	conservatism	-.570	.202	-.541	-2.828	.005
	regret aversion	.327	.125	.285	2.615	.010
	over optimism	.198	.248	.066	.798	.434

a. Dependent Variable: Investment Decisions

From the SPSS output, the regression equation

$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$

Was fitted into

$Y= 12.775 + 0.271X_1 - 0.570X_2 + 0.327X_3 + 0.198X_4$

From the fitted model, holding over confidence, conservatism, regret aversion and over optimism at a constant zero, the real estate decisions would stand at 12.755. The equation further shows that a unit increase in confidence among real estate developers, would increase real estate decisions by 0.270 with a significance of 0.008. This shows that confidence has a significant positive effect on real estate decisions among developers.

The equation showed that a unit increase in conservatism would reduce real estate decisions by 0.570 with a significant level of 0.008. This indicates that conservatism has a negative effect on real estate decisions of developers. Regret aversion showed a regression coefficient of 0.327 and a significance level of 0.005. This indicates that regret aversion has a positive and significant effect on real estate decisions by the developers. Over optimism showed a regression coefficient of 0.198 and a significance level of 0.434. This indicates that over optimism has an insignificant effect on real estate decisions by the developers.

4.7 Discussions

From the findings, a unit increase in confidence among real estate developers, would increase real estate decisions significantly. This shows that confidence had a significant positive effect on real estate decisions among real estate developers. Hence, where the developers are overconfident, their decisions based on the rent per square meter would increase. This shows that the real estate developers who are over confident find themselves making better real estate development decisions. They differed with the findings of Onsomu (2014) who found no significant relationship between overconfidence and real estate decisions. They also differed with those of Nyamute, Lishenga and Oloko (2015) who found that overconfidence had a negative impact on real estate decisions.

The findings also showed that increase in conservatism negatively affected real estate decisions. Hence, conservatism among real estate developers would reduce their real estate development decisions. This shows that conservatism has a negative effect on real estate decisions of developers. The findings concur with those of Chen, Chen and Cheng (2014) who found that developers should be cautious.

Regret aversion showed a positive and significant regression coefficient. This indicates that regret aversion had a positive and significant effect on real estate decisions by real estate

developers. The findings concurred with those of Njenga and Kagiri (2018) who noted that regret aversion had an effect on real estate decisions on the rental prices. The findings, however, differed with those of Pompain (2012) who found that regret aversion had a negative influence on the decision-making process.

Over optimism showed a positive but insignificant regression coefficient. This indicates that over optimism has a positive but insignificant effect on real estate decisions by the developers. This means that when the developers are overoptimistic their decisions are not affected significantly despite the positive effect. The findings concurred with those of Athur (2014) who found no significant effect of over-optimism on real estate development decisions. The findings differed with those of Abildgren, Hansen and Kuchler (2018) who found that overoptimism had a significant effect on real estate decisions.

CHAPTER FIVE
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents an overview of the results. This is based on the study's variables. The part also includes recommendations, limitations, findings, and areas that require more study. The purpose of the study, which informed this chapter, was to ascertain the impact of behavioural biases on real estate developer's decisions in Nairobi.

5.2 Summary of Findings

The study's aim was to find the effects of behavioural biases on real estate development decisions. Based on the results, the respondents agreed that they had made the majority of their real estate investments with the prospect of future growth. They further agreed that they trusted that they had always got the best returns from the investments that had made in the past; they did believe that the real estate developers' business would be the best investment in the next five years and that they preferred investing in stable investments that had obtained market share in the past. The respondents also agreed that they did prefer getting the best investment returns always through proper analysis of their investments; they did believe that they performed better than other in the industry thanks to their knowledge and skill, and they frequently gave those factors more weight when choosing the type of investment project to undertake.. The respondents, however, disagreed that they did take quite a long time before making any investment decision in real estates. This shows that there were behavioural biases that influenced real estate developer's decisions.

The model summary showed that the predictor variables had a strong relationship with real estate developer decisions. The findings also showed that 56.9% of the real estate developer decisions are explained by the predictor variables adopted in the research (over confidence, conservatism, regret aversion and over optimism). From the regression analysis, increase in confidence among real estate developers, would significantly increase real estate decisions. Increase in conservatism would reduce real estate decisions significantly. Regret aversion showed a positive significant regression coefficient. On the other hand, over optimism showed an insignificant regression coefficient.

5.3 Conclusion

The study found that investments in real estate were based on the future expectation for growth hoping for high returns from their investments. This shows that developers in Nairobi base their investment decisions on expected returns. Their decisions are also based on market stability as well as in depth analysis of investments. The study also concludes that real estate developers in Nairobi spend substantial time before they make any investment decisions in real estates.

The study discovered that overconfidence had a positive and significant regression coefficient through the use of regression analysis. This supports the finding that overconfidence significantly influences real estate developers' decisions in a favorable way. The research also discovered a substantial negative regression correlation between conservatism and real estate choices. Therefore, this study draws the conclusion that conservatism has a bad influence on real estate developers' choices in Nairobi County.

The outcomes showed that regret aversion had a positive and significant regression coefficient with real estate decisions by the developers. This showed that Hence, this study concludes that regret aversion has a positive and significant effect on real estate developer's decisions in Nairobi County. Over optimism showed a positive but insignificant regression coefficient with real estate decisions. Therefore, the study comes to the conclusion that over optimism has little bearing on the choices made by real estate developers. in Nairobi County.

5.4 Recommendations

From the regression analysis, the study concluded that overconfidence has a significant positive effect on real estate developer's decisions in Nairobi. This study recommends that real estate developers in Nairobi increase their level of investment confidence. This would enable them to make positive decisions that would enhance their real estate investment and performance in real estate. The increased confidence would also enable the real estate developers to benefit from the opportunities in the real estate which would increase their investment returns.

According to the study's findings, conservatism has a negative impact on the real estate choices made by developers in Nairobi County.. This shows that the conservatism among real estate developers within the city county reduces the level of investment decision among the developers. This study recommends that the real estate developers within Nairobi County need to adopt the current ideas in the real estate market and avoid the traditional and conservative ways in their

investment. This would enable them to take advantage of the modern real estate investment strategies for improved real estate development decisions. They need to leave the outdated ways of investment and marry them with the modern ways for improved investment decisions in real estate.

The study concluded that regret aversion influences real estate developer decisions in Nairobi County in a positive and significant manner.. This means that the avoidance of regrets when making decisions among real estate investors in Nairobi improves their real estate decisions. This shows the need for the real estate developers ought to have known which investments will give future profits and take advantage of them before the results occur. They also need to avoid loss making investments or withdraw before the adverse occurrence actualizes.

The study concluded that over optimism has no significant effect on real estate developer's decisions in Nairobi County. The study recommends that real estate developers consider other factors other than optimism when making their investment in real estate. The developers also need to have considerable optimist in their real estate decisions. This would enable them to experience a significant and positive decision-making process.

5.5 Limitations of the study

There were some limitations on this study. The respondents' unwillingness to provide the researcher the information needed was the first constraint. The respondents were persuaded and given assurances by the researcher that the data would only be utilized for academic purposes. The goal of the study was to ascertain how behavioral biases affected Nairobi real estate developer judgments. The research was therefore restricted to the factors included in the study. The survey was also restricted to the county of Nairobi's real estate developers. The investigation was likewise limited to the analysis's sample. This implies that results could vary depending on the sample size. Primary data were used to inform the study. The use of mixed or secondary data may produce inconsistent results. The measures of variables adopted in the research may also limit the research.

5.6 Area for Further Studies

This study was limited by the lack of willingness by the respondents to provide info sought by the researcher. This research recommends that other researchers undertake a similar study based on a sample whose consent is previously sought to avoid the lack of will during actual data collection. The research was limited to the variables adopted in the study. A similar study based

on other variables influencing real estate decision is recommended. The researcher also recommends a similar study using different measures of the variables adopted in the current research.

The study was also limited the real estate developers in Nairobi city county. Similar research should be done based on real estate developers in other counties other than Nairobi County. This would enable the comparison of results on effect of behavioural biases on real estate developer's decisions. The study was also limited to the sample used in the analysis. Hence, a similar study based on a larger sample is recommended. The study was based on primary data. The study recommends similar research utilizing mixed or secondary data for comparison of outcomes.

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APPENDICES

Appendix I: List of Real Estate Developers in Nairobi

1. Garden City Mall
2. AMG Realtors Limited
3. Kings Developers Ltd
4. Dinara Developers Ltd
5. Century City Property
6. Suraya Property Group
7. AMS Properties Ltd
8. Hayer One Group
9. Lettas Buy & Build
10. Peninsula Development Co LTD
11. Mass Developers & Investment Limited
12. Pan African Properties Kenya Ltd
13. Elegant Properties
14. Milestone Developers Limited
15. Belasi Developers Ltd
16. Hydro Developers ltd
17. Kingspride Properties Limited
18. Amber Properties Limited
19. Sultan Palace Development Ltd.
20. Longonot Gate Development Ltd
21. Developers Point Kenya
22. African Developers Group (ADG)
23. Geopams Field Developers
24. Greenpark
25. Highway Properties Limited
26. Saif Real Estate
27. Jade Homes Limited
28. Niessuh Management & Property developers llc
29. Savion Property Developers

30. Rosam Real Estates Ltd
31. Lifestyle Estate Holdings Ltd
32. Lifestyle Estate Holdings Ltd
33. Golden Oak Properties Developer
34. Springfield Park Estate
35. Wandemi Developers Ltd
36. Building in Kenya
37. Bonage Properties
38. Makaoplus Properties Limited
39. Park Office Suites Parklands
40. Ugbaad Developers ltd
41. Rama Homes Ltd
42. Noah Management Limited
43. Ideal property Developers Ltd
44. Mahiga Homes Ltd
45. Wandemi Developers Ltd
46. Lifestyle Signature
47. Sprinter Investments Ltd Offices
48. Optiven Limited
49. Ardhiworth (Real Estate) Limited
50. Zawadi Developers Ltd
51. Sere Developers Ltd
52. Osoit II Gardens
53. Njega Developers Ltd
54. Kings Developers
55. AAD Real Estate
56. Golden Oak Properties and Developers Limited
57. Kawa Developers
58. Nyumbani Concepts Ltd
59. TRV Towers
60. Sampesa Agency Limited

61. Wapak Developers
62. Chigwell Holdings Ltd
63. Ryden International
64. Saints Developers Ltd
65. Pentagon Valley Nairobi
66. Nation Developers Limited
67. Mwangaza Housing Developers
68. Best Link Developers Ltd
69. Vaal Real Estate
70. Dunhill Consulting Limited - Real Estate
71. Fusion Capital Limited
72. Gakuyo Real Estate Ltd
73. Villa Care Ltd
74. Scheme Developers Limited
75. Prc Kenya Ltd
76. Fedha Group
77. Dell Creek Developers Ltd
78. Azizi Realtors
79. Dinara Developers
80. Kabete PALM
81. Palace Apartments
82. Canaan Properties Ltd
83. Kabiru Developers Limited
84. Royal Property Developers Ltd
85. Lloyd Masika Ltd
86. Golden Ivy Investments Limited
87. Home Afrika Ltd
88. Azizi Realtors
89. Cretum Properties Ltd
90. Daykio Plantations Ltd
91. Urithi Housing Cooperative Society Limited

92. Crystal Valuers Ltd- Nairobi
93. Buy Rent Kenya
94. Denko Properties Ltd
95. Coral Property International Ltd.
96. Mkaazi Real Estate Limited
97. Urban Properties Consultants & Developers Ltd
98. Riverside Square
99. Affordable Houses Kenya
100. Ujenzi bora Investment Limited
101. Juhudi Trans and Estate Developers Limited
102. Spartan Developers Ltd
103. Kenya Property Developers Association
104. Mi Vida Homes
105. Canaan Developers Limited
106. Armajaro (k) ltd
107. Mawega company ltd
108. Capital Shelter Ltd
109. To Let Digital Agency
110. Steka Investment Company Ltd
111. Claycity Developers Limited
112. Franell Developers

Appendix II: Research Questionnaire

Research questionnaire

The responses you provide to this survey are purely scholarly work and shall not be used for any other purpose and shall remain confidential unless your consent is granted.

The objective of the study is to find out the impact of behavioral biases on investment decisions by real estate investments in Nairobi. Kindly feel free to participate.

Section one

Personal details

1. What is your age?…….
2. Gender : Male ☐ Female ☐
3. What is your highest level of education: ……
4. For how long have you been on employment

1 to 5 years ☐

5 to 10 years ☐

10 to 15 years ☐

Above 15 years ☐

Section Two

Past investment decision making experience

Under this section you will answer questions to further understand the role you play in realestate development. Tick Appropriately

5. How long have you worked in the real estate development?

1 to 5 years ☐

5 to 10 years ☐

10 to 15 years ☐

Above 15 years ☐

6. Which role do you play in the stages below?

Pre-development Stage ☐

Development Stage ☐

Post-development stage ☐

7. In the Pre- development stage of real estate what role do you play?

Property Search, Analysis & Vetting ☐

Financing Decision making ☐

Feasibility Analysis ☐

8. In the development stage of real estate what role do you play?

Regulatory Compliance ☐

Development Monitoring ☐

Feasibility Analysis ☐

9. In the Construction stage of real estate what role do you play?

Construction Monitoring ☐

Financing Decisions ☐

Regulatory compliance ☐

10. In the Post- development stage of real estate what role do you play?

Decision making on leasing or selling ☐

Asset management ☐

11. How can you comment the performance of the real estate developers over the last 5 years?

_____

12. How does your perception on the past performance affect your current decision-making on projects to undertake?

Positively ☐ Negatively ☐ No influence ☐

13. What is the average Rental Income Per Meter in your portfolio

14. To what extent do you use the following tools and methods to make real estate development decisions? **Rate how strongly you rely on the methods below with 5 meaning strongly rely and 1 you never rely on that particular method**

a)	Bench-marking	1 2 3 4 5
b)	Property Specifics	1 2 3 4 5
c)	Quantitative Risk Models	1 2 3 4 5
d)	General Experience (Intuitive)	1 2 3 4 5
e)	Practical Techniques (DCF, IRR, NPV, e.t.c)	1 2 3 4 5
f)		

Section three

Effects of specific behavioral biases on real estate developers' decisions

Under this section, rate how strongly you agree or disagree with the statement with one meaning strongly disagree and ten strongly agree (Tick the best rate)

15. I do take quite a long time before making any investment decision in real estates.

1	2	3	4	5	6	7	8	9	10

16. I prefer investing in stable investments that have obtained market share in the past

1	2	3	4	5	6	7	8	9	10

17. I do believe that the real estate developers' business shall be the best investment in the next five years.

1	2	3	4	5	6	7	8	9	10

18. I have made most of my investments in real estate's based on the future expectation for growth.

1	2	3	4	5	6	7	8	9	10

19. I do prefer getting the best investment returns always through proper analysis of my investment.

1	2	3	4	5	6	7	8	9	10

20. I trust that I have always got the best returns from the investments that have made in the past.

1	2	3	4	5	6	7	8	9	10

21. I do often consider my knowledge and skills more important in deciding on the kind of investment to undertake.

1	2	3	4	5	6	7	8	9	10

22. I do believe that my knowledge and skills help me to perform better than other investor in the industry.

1	2	3	4	5	6	7	8	9	10