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**IMPACT OF BEHAVIORAL BIASES ON INVESTMENT DECISIONS IN THE
KENYAN REAL ESTATE MARKET**

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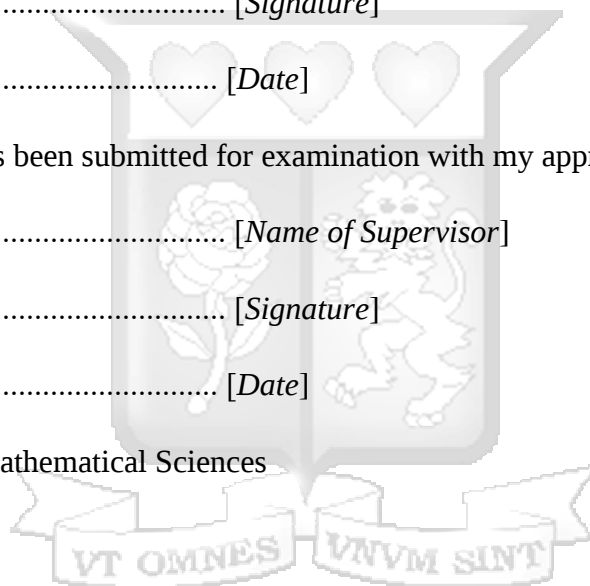
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ABSTRACT

Investment decisions in the real estate market are influenced by various psychological biases, affecting the rationality of investors. The Kenyan real estate market serves as the research site to investigate the effects of overconfidence bias alongside herding behavior on investment decisions. Utilizing a mixed-methods approach, the research collects primary data from individual real estate investors in Nairobi through structured questionnaires. The study employs correlation and regression analysis to assess the relationship between behavioral biases and investment choices. Findings indicate that overconfidence bias leads investors to overestimate their ability to predict market trends, while herding behavior drives irrational investment decisions based on peer influence rather than fundamental market analysis. The study highlights the need for investor education and regulatory interventions to mitigate the adverse effects of behavioral biases. The research contributes to the growing field of behavioral finance by offering insights into psychological influences on real estate investments in an emerging market context.

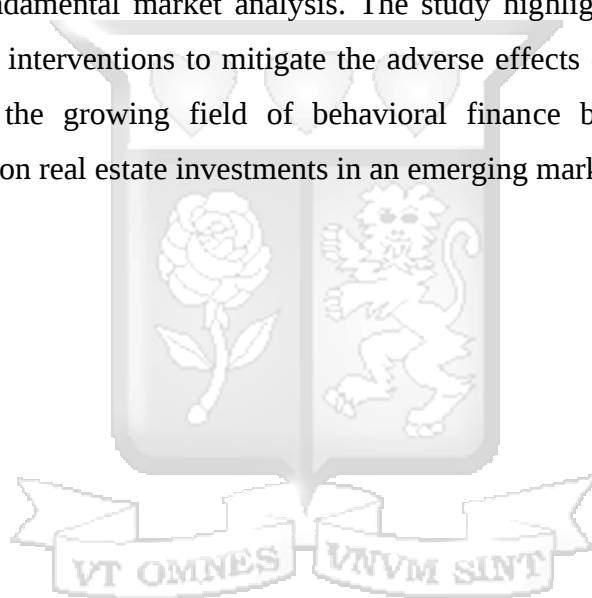


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List of Abbreviations

- FOMO: Fear of Missing Out
- CAPM: Capital Asset Pricing Model
- SME: Small and Medium-sized Enterprise
- UAI: Uncertainty Avoidance Index
- NSE: Nairobi Securities Exchange
- REIT: Real Estate Investment Trust
- OB: Overconfidence Bias
- HB: Herd Behavior
- MV: Market Volatility
- INF: Inflation
- GDP: Gross Domestic Product



1 CHAPTER ONE: INTRODUCTION

1.1 Background of study

Behavioral biases are defined as systematic patterns of deviation from rational judgment, in turn affecting human and organizational decision-making processes. Decision making is the mental process that filters an individual into choosing one course of action out of numerous sets of alternative situations. Biases sometimes bend perception, leading to misplaced judgment, irrational interpretation, or simple illogic (Dr. Taqqadus Bashir, 2013).

According to (Kartini KARTINI, 2020), investigated the influence of various psychological factors on investment decision-making in Indonesia, they differentiated the psychological factors into two aspects, cognitive and emotional aspect. In another example, (Amir Mohammad Larni Fooeik, 2024) estimated the decision-making process of investors in 2024 and assessed how psychology affects their choices, giving room for the introduction of behavioral finance biases in the portfolio optimization model. The aim of this research article is to make a deep analysis of 41 publications within the last two decades, so a deep review of the models and applications proposed for the regret approach in portfolio optimization is performed. These techniques are classified by the study into accurate and approximate models, analyzing their respective time frames and exploring additional constraints considered. This article will enable investors to be updated on the latest developments of research in regret, become familiar with the influential authors, and get an idea of the direction this field of study will take in the future.

(JULIET, 2017) studied the behavioral factors that influence individual investment decisions at the NSE. The results of this study indicate that the individual investment decisions differ and are influenced mutually by prospect theory factors, heuristic-driven biases, and herding behavior, while the remaining percentage is influenced by factors other than the model used in this study.

Real estate price developments are a field of high interest among investors, financial institutions, research analysts and policymakers since the substantial rise in residential and commercial property in recent years (Mahrer, 2020). The diversity and complexity of real estate markets, its linkages with the economy and the investment sphere have necessitated a closer study about its

dynamics. Although exploring those linkages is vital, finding the factors that drive that is enduringly significant. This research contributes to the limited existing body of literature by specifically investigating the behavioral biases influencing real estate market investment decisions on the part of normal non-professional investors (Jessica, 2018). Non-professional investors are those investors who have a casual knowledge about real estate investment and are inexperienced but are in anticipation of stable and high long-term returns. Real estate thus provides a perfect opportunity for amateur investors, a chance to diversify their investments, and possibly grow their wealth especially in urban areas that have been experiencing escalation in property values (Fillinger, 2017). In Ghana some of the challenges that nonprofessional investors experience in property management, and market dynamics. Hence the necessity to improve investor education and support systems (Bruin, 2023). According to Prosad et al. (2015,) non – professional investors can be influenced more by biases and heuristics than those of professional investors. Relative to the individual investors, the professional investors are usually recognized to have access to better resources, superior analytical tools and a considerable amount of capital (Lin, 2015,)

The assumption that becomes the founding pillar for the efficient market hypothesis (EMH) is that investors are rational and where the asset prices incorporate all available information in the market. The quantitative models that support rational expectations-based theories are the modern portfolio theory (MPT), capital asset pricing model (CAPM), and arbitrage pricing theory (APT) (Gupta, 2019,). Recent studies, however, indicate that these hypotheses might not always be true. Investing notions that rely on the belief that there is complete pricing flexibility, market predictability, and comprehensive knowledge of other market participants are becoming less and less practical in the context of the global financial markets (Campbell, 2017,). One of the underlying assumptions in the traditional models of finance is that the law of one price holds, and the market operates at an equilibrium price. Another assumption of the traditional model of finance is that rational traders quickly exploit the mispriced created by irrational traders, eventually correcting the price back to the equilibrium level.

Then came the Efficient utility theory which stated that when an investor is faced with uncertainty, they tend to choose the option that maximizes their utility. This caused concerns, and as such, Prospect Theory was developed. This found results that were opposite of the Expected Utility Theory since it was positive and reflected what people did instead of what EUT indicated that they

should be doing. This led to the emergence of questions such as how do investors behave? Moreover, why do they behave in a particular way? And to answer these questions, a new concept of behavioral finance emerged in 1980 (Singh et al., 2023)

Behavioral finance suggests that investors' financial decisions deviate from rationality and lean towards irrationality due to psychological factors and biases. It has also successfully clarified stock price anomalies related to overreaction, underreaction, momentum strategies, and herding behavior. Argue that because of these discrepancies, the EMH theory's trading rules are broken, making the CAPM and other rational-based models unsuitable for relating investment risk and returns. Research on behavioral finance has mainly focused on stock markets, which has substantially improved our understanding of investor actions in that sector of financial markets hence real estate needs to receive more attention. Knowing the behavior of real estate investors is important because there has been gaining interest in the real estate asset class in portfolios. (Anil Kumar, 2020).

Decisions on investments form part and parcel of the financial management since they are about the application of funds into investment securities or projects that will yield some returns in the future (Awais et al., 2016). These decisions are dependent on the various factors such as economic factors, market signals, the ability to take risk, cultural factors, and more recently even one's psychological factors that are otherwise referred to as behavioral biases (Syed Aliya Zahera & Bansal, 2018).

There are many stakeholders who are involved with investment decisions because all of them have an important role in determining investment (Ouma, 2020,). These participants can be broadly classified as the individual investor, institutional investors, financial intermediaries, the regulatory bodies and the policymakers. Individual investors and institutional investors differ in their investment characteristics, investment time frame and the amount of money that is used in an investment venture (Prasad et al., 2020,). Institutional investors have an advantage of detailed information, research that can be done in-house, and the models of the financial world. It helps them to come up with better and more well thought out decisions (Clark & Monk, 2017,). Retail investors on the other hand tend to act on information obtained from newspaper clips, tips, individual research and have no access to analytical tools like those in the institutional investors' domain (Blankespoor et al., 2018,).

Studies conducted by many researchers found that the current market anomalies cannot be attributed whole by standard financial theories as evidenced by the IPO, erratic security prices as well as neglected firm effects and mergers (Woo et al., 2020,). These anomalies in the market serve as evidence that some key assumptions of rational behavior under the efficient market hypothesis are somewhat false, and there is hence a need to consider other theories that explain the behavior investors adopt in making investment decisions as explained in other social sciences (Ying et al., 2019).

This is one area that has been the focal point between investment decisions in many parts of the globe. Normally, favorable economic factors greatly enhance the extent of confidence of investors in ploughing resources in risk assets like equities, property or even exotic countries. (Siegel, 2021,). For instance, after the 2008/2009 Global financial crises, there was immense spending on stock markets and in real estate, which followed the low-interest-rate policies unveiled by the world's central banks to foster growth. As such, the monetary and fiscal policies have artificially lowered the cost of funds and prompted institutional and individual investors to look for better yields in the equity and property markets. The following strategy was suggested by Chen and his team (Chen et al. , 2019,). But in periods of economic decline like during the current COVID-19 pandemic crises, investors also become very reluctant, and this results in a flight to safety in investors' decisions. This was realized in the form of higher desire of US Treasury bonds and gold, which are normally considered safe haven in such times (Wullweber, 2020,).

In this context, periods of high inflation have affected investment activity in Kenya through reducing purchasing power and generating uncertainty. Inflation usually results in higher interest rates as central banks seek to rein in rates in an effort to stabilize prices: these influences borrowing rates and yield on investments (Odhiambo, 2013,). Some of these key determinants or more so inflationary pressures have affected the investment decisions of investors in Kenya in the following ways. For instance, during inflationary periods, 'real assets such as real estates and commodities have received more attention due to their hedge characteristics (Dabara et al. , 2016,).

There is an especially strong correlation between culture and investment throughout these various parts of the world. Perception of risk and concern for the future, preferences regarding

temporal horizons and savings can be vastly different, and decisions regarding investment (Aharoni, 2015,). When the UAI is higher as evidenced in Japan's case, the investors are reluctant to invest in high-risk securities and instead opt for the 'safer' investment options like bonds and real estate as opposed to equities. While, in the United States where the risk is more acceptable, the investors are likely to participate in the trading of the shares as well as venture capital investment (Xie et al. , 2018,).

In Nigeria where there are so many ethnic groups with different cultural and financial behaviors this in one way or the other has a way of impacting on their investment choices. For example, the African business population and informal credit structure such as the Igbo of southeast Nigeria who are famous for Esusu – a form of rotating savings and credit. This cultural communality in saving and investing is not peculiar to Nigeria but is in tandem with the general indication of culture of commonality in financial management according to Paul Agui Igwe (2020,).

Another core value is the appreciation of land and more so for agricultural business within the Kenyan culture especially from the rural folk. Hence, the choices of investment in Kenya often include agricultural-related activities and the development of the land at the expense of other kinds of investment (Kibugi et al. , 2016,).

Behavioral finance has indicated that psychological issues are critical in the investment decisions made by investors (Nofsinger, 2017,). Some real-world example include The US housing market crisis of 2006/2008, as explained by Lowies et al. , (2016) showed Anchoring as influencing investment decisions. Investors and homeowners for example, anchored their expectations in the trend of house prices, leading to a blind belief that the prices would keep on rising. As the price of homes kept rising investors and other prospective buyers became more and more convinced that the market was moving upwards and expectations that the prices would keep rising prompted more unrealistic visions, and other rotten activities like doling out subprime mortgages.

The real estate market in South Africa also experienced a relative growth from the year 2003 up to the year 2008 with clear herd behavior trends. As property prices rose and the media reported more and more success stories of real estate investment, a lot of investors jumped onto this bandwagon with FOMO and huge beliefs of ever-rising property prices. The onset of the global

financial crisis in 2008 also affected the South Africa real estate market since many property owners and investors saw the value of their properties fall and many confronted with financiers' troubles (Cerutti et al. , 2017,). The case also provided an insight into how investors tend to blindly follow a herd, which provokes the creation of bubbles in markets and then their bursting. According to the literature by McKenzie & Atkinson (2019,).

In Ghana the work of loss aversion was evident with the banking industry for the period of 2017 to year 2018 (Quaicoe & Paul Quaisie, 2021). They dealt with a crisis in the banking sector that witnessed several of the banks fall or restructured because of insolvency and bad management. Most Ghanaian investors who invested in the banks stuck with their shares expecting the banks to improve. However, the crisis escalated and many of these investors lost their money that was trapped in the collapsing or restructuring banks (Mensah & Ebenezer, 2023,).

Share herding was evident in Kenya during the NSE stock market rise in 2006 and 2007. At the same time, rising rates stimulated a remarkable increase of the NSE's stock prices, which was mainly made up of retail investors. Most of whom had little knowledge of the stock exchange. When more people invested in the stock, the prices were steroid inflated which could not be supported by the firms. And nevertheless, the rally was succeeded by a steep decline in 2008, causing substantial losses to those investing in stocks, especially when these were bought at the apex (O, 2016,)

In addition to the factors influencing investment decisions real estate dynamics is studied in this paper. Real estate can therefore be viewed as property that comprises land as well as the structures that are on it and the natural resources on it would also be included in real estate (Izuchukwu, 2017,). Real estate also covers the rights that are connected with the possession and utilization of the property. Such rights may involve the rights of using the property in sale, lease or for development, the rights concerning the responsibility of maintaining the property and the rights concerning the payment of taxes and other charges on the property (Wyatt, 2023,). Real estate investors behavior was defined as “activities relating to investment in real estate that is built and developed for rental with the intention of making profit out of it as long as it is given reasonable security and expecting to be compensated in the future for giving up present consumption”(Pandey & Jessica, 2018,).Real estate market depends on several factors such as

growth of economy, interest rates, pace of urbanization, government's policies and technological changes(Cai et al., 2020,).

Real estate investment in developed economies is usually long term, investors select property business primarily in areas of high demand such as urban centers (Saiz & Miranda, 2018,). Real estate investment has been one of the most efficient sources of wealth creation in the United States where investment in property has mainly been in major cities such as New York, Los Angeles, and San Francisco. The commercial property segment, including office space, shopping centers, and warehouses, is particularly popular among investors both from the country and abroad (Saiz & Miranda, 2018,). Historically, prospects such as London, Paris and Berlin have always been perceived as attractive destinations of real estate investment due to economic stability, high rental demand and legal principles that safeguard property investors (Fields & Uffer, 2016,). The European real estate market is also highly diverse with regions Italy and Spain exposed to increased fluctuations due to economic problems and lower growth rates (Burron et al. , 2020,). Markets like Hong Kong and Singapore in Asia are highly developed with high-rise development and intensiveness in development and have a competitive property market that draws international investors who are in the lookout for secure and profitable markets (Kan, 2018,).

Investment in real estate property involves grants, purchases, or investment in lands and buildings for rental, or for commercial purposes in Africa is a dynamic process due to the economic status, the level of urbanization, and investment returns in the continent of Africa (Bruin, 2023,). The real estate market has been relatively developed in South Africa and key cities such as Johannesburg and Cape Town remain important locations for property investments. The commercial and residential areas of Johannesburg give both domestic and overseas investors potential investment chances, though problems include economic volatility and political unrest. (Todes et al., 2017,). Cape town, which is endowed with some of the most expanding estates containing quality houses and a well-established tourism sector is also heavily invested in but like any other city it has its challenges inclusive of the housing bubble and poor infrastructure (Olatundun, 2024,). Lagos state for instance stands to benefit massively from the property market investment opportunities especially in the real estate market targeting both residential and

commercial units. Although there are some challenges like changing market volatility, inadequate infrastructure, and policies that influence these investors (Timothy, 2019,).

The real estate market in Kenya has been characterized by rapid urbanization, especially with improving middle-class incomes and vast foreign investments. This increase in urbanization has increased house demand and subsequently pushed up prices as developers struggle to keep pace with the increased need for residential units, (Chen et al., 2022,). Demand has further been boosted by economic growth. The trend of GDP growth in Kenya has been smooth, with technology, finance, and real estate being some of the contributing sectors. However, improved living standards can be attributed to the growing middle class as well, mostly contributed by increased disposable incomes that have translated into increased purchasing power, with more being able to buy homes. Therefore, the real estate sector has continuously turned out to be a major area of the economy of Kenya, one that attracts local and foreign investments alike (Lewis et al., 2021). These positive trends have also spurred price volatility and speculative bubbles. To this end, foreign investment has been very responsive to the Kenyan real estate industry due to its attractive large returns. However, this financial inflow has also resulted in the rise of speculative activity, strengthening prices to unaffordable levels. In fact, quite often irrational actions and expectations do drive speculative bubbles, and their bursting may trigger a sudden correction with unstable markets (Chen et al., 2022,). The Kenyan market is distinguished by increasing numbers of retail investors who may have limited or even no sophisticated financial literacy is likely to make their investment decisions based on personal feelings or on rather scarce information (Langat, 2019,).

This current study intends to establish whether these psychological factors largely influence individual investor decisions in real estate and require more attention to mitigate their negative consequences. This study contributes to the limited research by investigating the behavioral biases influencing the real estate market investing decisions of normal, non-professional investors by taking up the case of the Kenyan real estate market.

1.2 PROBLEM STATEMENT

The Kenyan real estate market has experienced significant growth over the past few decades, driven by rapid urbanization, a burgeoning middle class, and increased foreign investment. The

social and emotional aspects of real estate are still overlooked, and one of the critical factors influencing the decision-making process is yet unidentified (Salzman & Zwinkels, 2020,). Stock markets have most of the behavioral literature, in the case of the real estate market, very little behavioral research has been conducted on real estate and the one that is conducted is mostly centered on institutional investors (Syed Aliya Zahera & Bansal, 2018,).

According to (Madaan & Singh, 2019,) investors are often influenced by cognitive biases, leading to systematic deviations from rational decision-making. Herding behavior was evident in Kenya during the NSE stock market rise in 2006 and 2007 (McKenzie & Atkinson ,2019). The rising rates stimulated a remarkable increase of the NSE's stock prices, which was mainly made up of retail investors. When it was preceded with the global financial crisis of 2008 this caused substantial losses to those investing in stocks (Kev, 2016,).

During the early 2000s, most local investors in the Kenyan market were confident that property prices would sky-rocket forever (Tatua, 2016,). This belief was well informed by high rates of property value within short periods especially within connected urban centers such as Nairobi and Mombasa. Having achieved fairly good returns early on in their investments, some investors got over-enthusiastic and started investing a lot of money in real estate without thought being given to a downturn in the market (Nzau, 2020,).

In addition to that there was an excess supply of high-end residential units in Nairobi in about 2015 (Chege, 2017,). Investors kept buying luxury real estate property with the belief that demand would exceed or overwhelm supply. But the market grew to saturation, property prices ceased to rise, and it became increasingly challenging to sell or lease a property or even to secure a buyer or tenant (Chege, 2017,).

Further (Cherono et al., 2017,) conducted a study on herding behavior in influence on stock market reaction in Kenya. The methodology of this study, which focuses on investor behavior biases and stock market reaction in Kenya, is guided by a quantitative research design based on secondary data sourced from the Nairobi Securities Exchange for the duration starting from 2004 to 2016. This study shall target all the 67 listed companies on the NSE, with a sample size of 48 companies chosen for analysis (Cherono et al., 2017,). The impact of herding has been rated high with a positive sign in that research, thus showing that herding led to deviations of the stock prices from

their appropriate values, hence abnormal returns. This study differs from the current study as it focuses on the stock market and on their methodological approaches.

While there is extensive literature on behavioral finance and investment decisions globally, there is a lack of localized studies focusing specifically on the Kenyan property market (Lowies et al., 2016,). The presence of limited market information can lead to overconfidence among investors who rely on anecdotal evidence or perceived trends, and herding behavior can become widespread as investors follow the actions of others in absence of clear market signals (Ngigi, 2022,). The informal settlement development in Nairobi introduces additional layers of complexity and uncertainty, potentially heightening the influence of biases like anchoring and herd behavior

This study aims to establish how Overconfidence bias and Herding behavior affect real estate investment decisions in Kenya. These psychological factors have been chosen as they are shown to be most persistent in developing markets as studies conducted by (Rahayu et al., 2021,)and (Soleman & Omar, 2020,). And with the limited research investigating the behavioral biases influencing the real estate market investing decisions of normal, retail investors in the Kenyan real estate market this study's aim are to fill that gap. The degree of information asymmetry in Kenya's real estate market is high (Ouma, 2015,), this creates a gap in understanding how overconfidence and herding behavior are exacerbated by the uneven distribution of market information.

There are several reasons that contribute to the continuity of these psychological factors. These behaviors can be attributed to the lack of information and insufficiency of Property Market literacy of people in developing countries where information is a scarce asset (Ahmad & Wu, 2022,). Consequently, people may rely on the actions of others as a replacement for their investigation or knowledge. Apart from this, due to less effective regulations and lower confidence in institutions, people in developing nations have higher levels of confidence in informal associations such as family or friends. This can result in herd behavior if influential actors or decision makers support a particular course of action (Ahmad & Wu, 2022,).

Lack of exposure to other viewpoints concerning limited access to diverse perspectives contributes to overconfidence in many parts of developing countries, people are exposed to a narrow range of opinions, considering their access to education, media, and other information

sources (Heidenreich et al., 2015,). This tends to cause overconfidence where one may not know how little they do know. Overconfidence can also be attributed to the lack of rigorous data and the lack of formality in market structures, which hinders proper appraisal of risks (Merkle, 2017,).

This paper seeks to understand behavioral biases in Kenya important for informed investment practices. Given that the Kenyan real estate sector is still growing, and more players are being introduced in the market, it is important to understand these biases so as to encourage sound investment practices (Kahihu et al., 2021,). Overconfidence bias makes investors underplay risk leading to major losses that cause fluctuation in the market(Ratemo, 2016,). Knowing these behavioral patterns helps policymakers and financial educators to tailor the interventions and programs and attend to various needs of the segments of the population. These biases cause inefficient allocation of investments and fluctuations in the market (Cherono et al., 2017,) and therefore form the key areas of study in Kenya's investment industry. This study will be done through a descriptive research design. The use of these biases as our variables is motivated by their impact noticed in the real estate market.

1.3 Research Objectives

1.3.1 General objective

The main objective of this study is to investigate how behavioral biases influence real estate investment decisions in the country.

1.3.2 Specific Objectives

1. Examine the influence of overconfidence bias on investment decisions in the Kenyan real estate market.
2. Examine the influence of herding behavior on investment decisions in the Kenyan real estate market.

1.3.3 Research Question

1. To what extent do these behavioral factors affect investment decisions in the Kenyan real estate market?

1.4 Significance of the study

Studying how behavioral biases affect investment choices in the Kenyan real estate market is important from several angles that will help investors, financial institutions, regulators, and the economy. This research could include knowledge and investment outcomes, better financial education and interventions, better policy and regulation, increased market efficiency, support economic growth, increased academic knowledge, and addressed social issues.

Understanding behavioral biases is crucial for improving investment outcomes. Property investors often make decisions based on cognitive biases rather than objective data, leading to suboptimal investment choices. By identifying and understanding these biases, investors can become more aware of their cognitive limitations and decision-making pitfalls. This awareness can lead to better-informed investment choices, enhancing the financial performance of their real estate portfolios. Additionally, insights from the study can help investors develop strategies to mitigate risks associated with cognitive biases, further improving their investment outcomes.

Policymakers play a significant role in shaping the real estate market, and understanding behavioral biases can inform the design of regulations and policies that promote transparency and reduce market inefficiencies. Such policies can protect investors from making biased decisions that could lead to market bubbles or crashes. Moreover, enhanced understanding of behavioral biases can lead to the creation of consumer protection laws that safeguard investors, especially small-scale investors, from predatory practices and poor decision-making.

Financial education and interventions are critical for promoting rational investment behavior. The findings of this study can inform the development of targeted educational programs and workshops that teach investors about behavioral biases and how to counteract them. Financial advisors and institutions can design behavioral interventions, such as decision aids and nudges, to help investors make more objective and data-driven decisions. These educational initiatives and interventions can significantly enhance the quality of investment decisions in the real estate market.

Another area where this study can have a big impact is market efficiency. A more efficient and stable real estate market can be achieved by recognizing and minimizing the effects of behavioral

biases, which also lowers the risk of speculative bubbles and ensures long-term market growth. Market analysts can produce more accurate market forecasts by predicting market trends and investor behavior by identifying patterns of behavioral biases. Increased investment in the real estate sector can boost Kenya's economic growth and development if the investor base is more logical and knowledgeable.

Studying is important academically as well since it advances our understanding of real estate investment and behavioral finance. It offers contextually relevant insights that improve comprehension of the ways in which behavioral biases appear in the Kenyan real estate market, which can be contrasted and compared with other worldwide markets. This study can help expand academic understanding in this area by providing a basis for further research in comparable emerging markets.

Furthermore, the study has practical implications for various stakeholders in the real estate market. Real estate developers can better understand the behavioral tendencies of potential buyers and investors, allowing them to tailor their marketing strategies and product offerings accordingly. Banks and lending institutions can use the insights to design better mortgage products and investment services that account for and address common investor biases.

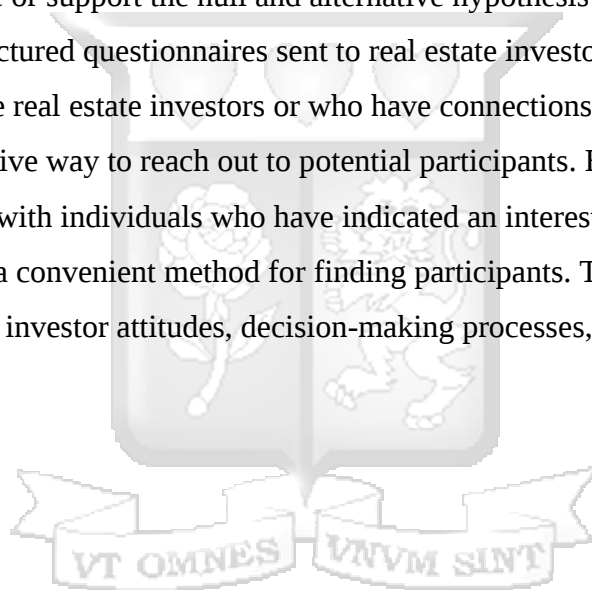
Lastly, studying can have a significant social impact. Insights into investor behavior can guide efforts to promote investments in affordable housing, addressing social issues such as housing shortages and improving living standards. Rational investment decisions can lead to more balanced and equitable real estate development, benefiting communities and contributing to sustainable urban growth.

1.5 Scope of the study

This paper seeks to explore the different ways in which these behavioral biases affect investment decisions in the Kenyan property market. Real investment in real estate is complex and dynamic in most cases, considering the probable psychological dynamics of market players and policy farmers important. This study is geographically focused on Kenya, with particular emphasis on the key urban center Nairobi . This captures the most active segment of the Kenyan real estate market and is characterized by rapid development, significant investment activity, and a varied

investor profile (Kieti, 2015,). This research focuses on these urban markets to ensure that a wide spectrum of investment behaviors and market dynamics can be captured. The study will involve primary data collection method, information will primarily be sourced from structured questionnaires sent to normal non-professional investors. This approach will give first-hand information on investor attitudes, decision-making processes, and the extent of these behavioral biases. The approach employed in this study is convenience sampling. This involves collecting data from readily available groups within the population.

The methodology of the study focuses on the quantitative analysis of the data through statistical tools. Where the relationships that exist between the variables under study must be established in order to either disapprove or support the null and alternative hypothesis set. Data for the study will be sourced from structured questionnaires sent to real estate investors. Through leveraging personal contacts who are real estate investors or who have connections to other real estate investors can be an effective way to reach out to potential participants. By utilizing platforms like LinkedIn to connect with individuals who have indicated an interest in, or profession related to real estate can also be a convenient method for finding participants. This approach will give first-hand information on investor attitudes, decision-making processes, and the extent of the behavioral biases.



2. CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

By examining previous research and theories, this study seeks to identify the key psychological factors that influence investment decisions among investors. By integrating previous findings from academic journals, finance research papers, and relevant textbooks, this review will provide a comprehensive understanding of how cognitive and psychological factors influence real estate dynamics. Not only does this contextual background explain why this particular study is worthy of investigation, it also helps direct the formulation of hypotheses and research strategies and methods, so that the investigation of the issue under study is firmly anchored within the context of recognized scholarly literature.

2.2 Theoretical Review

2.2.1 Overconfidence Bias

The psychological phenomenon of overconfidence is one of the best known and it has a profound impact on the investment processes (Bhatia & Kumar, 2018). Overconfidence in this context may be defined as the common vice of people in overemphasizing the amount of knowledge they possess, their skills and the accuracy of information they possess (Hoffrage, 2016,). This bias can be various; one may overestimate the predictive accuracy, underestimate the risks or overemphasize their abilities to make the right choices (Bhatia & Kumar, 2018,). Investors typically overestimate their skill and expertise. Such arrogance can lead to investors underreacting to fresh information, which lowers market returns dramatically (Parul, 2024,). Looking at the common driving factors behind it, one can name cognitive biases like the illusion of control, according to which investors are sure that they can determine something that, in fact, depends on chance, and the self-attribution bias, which implies that an individual attributes all the positive outcomes to himself while all the failures, on the contrary, are due to external circumstances.(Bibi, 2021,).

This psychological factor may impact the investors in the decisions they make in various ways. Speculative investors are inclined to be active in the market because they think they know more than everyone else and that they are able to accurately anticipate movements in the market.

Daniel, and Hirshleifer (2015) pointed out that overconfident investors have increased turnover

by doing frequent trades that lead to higher transaction cost and therefore reduced net returns. Overconfidence leads investors to underestimate the various risks which are associated with various investments. They may rely on their ability to manipulate the stock market or invest in specific securities, which makes them expose themselves to more risks than the underlying fundamentals warrant (Pikulina et al., 2017,). It also results in overreaction to short-run events or news which translates to fluctuations in the prices of the assets (Caporale et al., 2017,). It indicates that when investors are overly optimistic, they tend to make hasty decisions concerning their investments, that is by investing on the basis of very little information hence cyclical bounds and the creation of asset bubbles (Nikolaos, 2023,).

Kuranchie-Pong and Forson, in their study,(2021,) examined overconfidence in relation to trading volume and volatility in the South African equity market; the Johannesburg Stock Exchange(JSE). According to the authors, overconfidence results in overestimation of information precision and trading competence, making investors trade more often. Thus, the results indicate that overconfidence leads to higher trading frequency and therefore to higher market fluctuation. Furthermore, Youssef and colleagues (2021,) surveyed overconfidence in Egyptian investors trading in the Egyptian Stock Exchange (EGX) with a special emphasis on the link between financial literacy and overconfidence-based investment. The research suggested that in the case of investors, overconfidence was detected even with the ones who could be considered to have a decent level of financial literacy. Such investors tend to overestimate their knowledge of such securities and conditions in the global market thereby investing heavily in such products. It also recommended that there is a need to increase the coverage of financial literacy programs to cover for some of the known cognitive biases such as overconfidence in an effort to enhance the decision-making at individual as well as the market level.

Fatma et al ., (2020,) focused on the topic of overconfidence among Tunisian entrepreneurs, especially the ones in the Technological startup. This paper sought to find out how overconfidence affects the success/failure rates of startups. This paper's evidence revealed that overconfidence is quite prevalent among Tunisian tech entrepreneurs and caused them to overestimate the compatibility of their product with its market and, at the same time, underestimate the difficulties of growing their businesses. This bias often led to pre-mature scaling, poor cash flow management and consequently, high failure rates. Therefore, the study

suggested that there ought to be better mentorship and support measures that would enable entrepreneurs to be more accurate in their business outlooks.

A study conducted by Kapkiyai & Kimitei (2016), looked at overconfidence in the Kenyan entrepreneurs with focus on the SMEs. The study was meant to focus on failure as a consequence of overconfidence in the business' planning and in risk management. This study discovers that overconfidence on the side of SME's owners results in inefficient capital structure choice. In particular, overly confident individuals are highly likely to make excessive use of debt because they fail to see the risks of such a decision and overestimate the cash flows of their business in the future. Such a scenario may lead to higher financial leverage and potential financial risks threatening the business's stability in case of negative discrepancies in revenues estimates.

For the following reasons, research on overconfidence is especially essential in Kenya. Small and Medium Enterprises are very active in the Kenyan market, and they play a very important role for our economy and employment. Studies on overconfidence in entrepreneurs can be useful to design specific training programs and services that enable the owners of enterprises to make more accurate self-appraisals and better evaluations of business environments to minimize failures and encourage sound business performances (Kapkiyai & Kimitei, 2016). Besides, the property market in Kenya is expanding with more participation of the retail investors (Kuria, 2019,). The first-time buyers often get over-confident, which results in over-extending their capabilities to purchase homes believing that property will appreciate and that they are capable of handling any risk (Hauff & Nilsson, 2019,). This can lead to mortgage defaults or financial stress, in the event that the value of the property does not appreciate in value as expected. This knowledge can be meaningful for creating educational materials together with regulating agencies, setting up intervention strategies to guarantee reasonable practices in investment and minimize overconfidence by people that leads to unstable investing.

It is crucial for investors to have a good grasp of what overconfidence bias is in order to avoid the pitfalls that come with it; this is because overconfidence distorts efficient and rational decision making and therefore requires that individuals develop and employ better investment strategies and processes (Bibi, 2021).

2.2.2 Herd Behavior

The phenomenon in which all individuals involved in a decision tend to ignore their own analysis or information to do what all the other members of the larger group are doing. Herding behavior is understood to be caused by a number of psychological and social factors, among them FOMO, social pressure and the use of the opinion of many as an indication of the accuracy of the decision being made (Yuvaraj et al., 2023,). According to (Chen & Papanastasiou,2018) information cascading and social learning are widely accepted concepts that explain herding. In information cascades people take decisions in stages, that is, every person relies on decisions made by the one preceding him/her. For instance, if the early movers in the market purchase a specific asset, the other movers may think that early movers have better information, and therefore, they too purchase the same asset disregarding the information available to them (Tump et al., 2020,). This results in social confirmation as the original actions of a few investors can result in market movements. The social learning theory also contributes to herding. Learning through observations results from investors' tendency of mimicking other people, especially those considered wise or enjoying high levels of returns (Shantha et al., 2018,). This way they assume these people know the best premises or have superior information. This imitation process can cause the speed at which behavior spreads across the market to be very quick leading to the formation of trends that disregard fundamentals (Shantha et al., 2018,).

There are different ways in which this herding behavior is displayed, especially in investment decisions. Herding behavior is likely to have negative effects, such as the creation of asset bubbles. Speculative bubbles can develop when many investors similarly chase specific assets and cause the prices to skyrocket to levels beyond their actual worth (Munisa, 2020,). Herding behavior also brings around the problem of panic selling and market crashes (Bekiros et al., 2017,). It occurs when many investors for one reason or the other feel that it is time to sell; the common reason being when a bad event occurs or when investors feel that they are going to incur a loss. The concern that others are selling triggers individuals to do similarly as well, which makes the cycle accelerate. Another type of herding is when investors rely a lot on recommendations of market analysts, financial media, or popular figures (Tiwari, 2021,). It can also result in the channeling of funds to specific shares or industries, based primarily on what the media reports or analysts suggest rather than objective research.

Based on a study by Borges & Martelanc(2019,) herd behavior of institutional investors in the Brazilian stock market was investigated with a view to assessing market impact. It was also observed from the study that herding behavior was exhibited by institutional investors, especially during high volatility episodes. Such action led to great volatility of shares prices that did not reflect various values of such assets. In another study, (Risal et al., 2019,) tried to identify the presence of herding in Nepali Stock Market, looking at the influence of hurried decisions and decision accuracy. In their case, it indicated a positive and significant effect of hurried decisions on herding behavior but a negative, insignificant effect of decision accuracy. This simply shows that investors have majorly followed the majority where they make quick decisions without proper analysis.

An analysis done by (Ferrouhi, 2021,) looked at Herd behavior in the Casablanca Stock Exchange (CSE). By examining trading data, the study found out the various forms of herding conduct across various categories of traders with distinctions made with regard to the individual trader and institutional trader. It revealed that herding was more so with the individual investors; they mimic the trades made by the large and institutional investors. Such behavior was most conspicuous during periods of market fluctuations where the crowd mentality prevailed.

In addition (Boadi et al. , 2021) studied herding among the GSE participants between 2011 and 2019. Looking at herding behavior of different sectors, the study came across the following differing views. While some of the sectors such as consumer discretionary and industrial sectors showed herding at a lower level, other sectors did not show much herding behavior at higher levels. The analysis also showed that herding has a positive effect on stock returns, but this was only observed at lower levels. This research work establishes that herding may prevail in some conditions but does not find the Ghana stock market to exhibit extensive herding and that such behavior does not cause inefficiency in the Ghanaian market.

Research on herd behavior is particularly relevant in the context of Kenya's real estate market for several reasons relating to the nature of the market and the country's economic conditions. The Kenyan real estate market sometimes faces the problem of notable imbalance of information sharing to the extent that not all players in the market possess an adequate information set concerning the property prices, future trends, or developments (Kuria, 2019). This lack of transparency may result seemingly in herd behavior where investors and home buyers make

decisions based on what they observe others do instead of engaging in analysis. Furthering the study of herd behavior will make it easier to recognize such patterns and the causes for them, thus providing the means for increasing efficiency in the communication of information and improving the level of transparency in the markets (Bekiros et al., 2017,).

Herd behavior also plays a part in the growth and formation of urban areas. This will cause imbalance in the development of different areas within cities since as investors congregate areas, other areas may be left underdeveloped (Papaioannou, 2013). For instance, in Nairobi, some regions including Westlands, Kilimani and Upper Hill have registered a growth in property development because the investors consider them to provide higher returns than other regions (Mwaita, 2020,). This can exert undue pressure on available infrastructure in developed nations, and contribute to congestion, high cost of reasonably basic commodities, housing and even land. Gaining more knowledge on the behavior of herds can be helpful for the creation of more appropriate policies on urban planning to achieve a more balanced way to plan over existing developments according to the real growth of cities and their structures.

Behavioral finance finds herding behavior to be another strong psychological force that affects investors' trading decisions and consequently results in inefficient markets, bubbles, and crashes. Based on the societal and psychological aspects including fear and conformity.

2.3 Empirical Review of Psychological factors Influencing Investment Decisions in Real Estate

This empirical review will explore how these behavioral biases determine the investment behavior in the real estate sector based on a variety of studies and various market contexts. The investment decisions represent the outcome or response variable. This review seeks to give a clue on the level at which these psychological factors affect decisions on real estate investment in a view of filling this gap hence achieving its third objective on the exploration of the various mechanisms that may affect investors in this sector. Therefore, the findings of this review are quite important in order to consider the behavioral inclinations of real estate investors in the formulation of better investment policies and strategies.

2.3.1 Overconfidence Influence on Investment Decisions in Real Estate

Muriithi, (2021), examined the influence of behavioral biases on the investment decisions of real estate developers in Nairobi. It revealed that most overconfident investors in Kenya understated the risks involved in real estate investing. In most cases, they overlooked possible market downturns or regulatory changes and economic fluctuations and hence managed their risks poorly, which exposed them to higher possibilities of financial losses.

In Nigeria, overconfidence has also been established as another driver of the property market investment decision. Real estate investors' behavior can be explained by analyzing a study by Usman, (2018,) whereby real estate investors' the Plateau State in Nigeria were investigated. The type of research employed was descriptive research design with a random sample of 150 out of 1,650 registered property investors in Plateau State. The approach to sampling was purposive in conjunction with a statistical method to obtain a target population of 312 respondents. The data collection was done by questionnaires, and the questionnaire reliability was assessed by Cronbach's Alpha. The study established that most investors expected high returns, and this was sustained by fast growing urbanization and ever-increasing property value. It made firms buy properties and invest in risky developments that they overvalued. Becoming caught up in the volatility of the market put the monetary status of many of these buyers in jeopardy, because the property's values fell, and they could not sell the properties as they had planned.

A study that has been carried out in Singapore by Teeramunagcalanon & Rattanaprakavej(2018) scrutinized the effect of overconfidence on REIT investments in Asia. A review of the findings of the researchers showed that there was overconfidence in the Singapore's REIT market because investors underestimated risk and overestimated abilities to forecasting REIT market. This overconfidence compelled investors to overemphasize some types of properties, including commercial property, a venture that had investors suffering heavy blows in cases of downturns. Tsai (2022,) established that Chinese real estate investors, especially in big cities such as Beijing and Shanghai, deeply underestimated their skills of market timing. This led to speculative buying and the formation of property bubbles. It was observed that overconfident investors were ill-equipped once Government policies directed at cooling the market were implemented and they suffered considerable losses in the downturn.

In the mid-2000s in the United Kingdom, the overconfidence bias was observed in real estate developers in the housing boom (Karolina, 2019). Many developers made the mistake of recklessly overestimating their capacity to gauge the market and the assumption of infinite demand. This resulted in a high supply of housing and commercial units, which formed the basis of the market downturn in the later years of the financial crisis of 2008. The study by Karolina(2019) clearly showed that overconfidence was a key factor contributing to the property boom: developers lost a considerable amount of money when the market turned later.

The increase in real estate crowdfunding platforms in the U. S. has brought a new element in the market where anybody who wants to invest in real estate can do so while it has always been a preserve of institutions (Jiang et al., 2020,). A closer look at this emerging sector was conducted by Jiang et al (2020,) where the authors overtime investigated the element of overconfidence. This was revealed by the study where overconfident investors were found to invest in high-risk projects due to the assurance of high returns without diversifying their investment in different properties. Such behavior resulted in greater leveraging of project risks, and at times, high monetary losses were incurred. Thus, it was determined that overconfidence could be most dangerous in the crowdfunding context because, here the influence of institutional factors is less noticeable, and the model of investments is relatively new.

There are serious implications arising from overconfidence not only on the individual investor level, but also for the overall stock market with increased risks of fluctuations. That is why awareness of this phenomenon and measures preventing overconfidence are critical for obtaining more objective results in investments (Pikulina et al., 2017).

2.3.2 Herding Behavior Influence on Investment Decisions in Real Estate

Ansari & Ansari conducted a study (2021,) with a specific reference to the herding behavior on the Indian real estate market especially among the small and medium sized investors. The study established that there was a herding behavior in property investments during the research period of 2015-2018, where investors were following herds to where prices were growing rapidly. This was as a result of media publicity, social networking sites and activities of other large institutional investors which acted as feedback that escalated property prices even further. The effect of herding strongly became negative because the rate at which the market expanded

slowed down and panic selling brought about a negative herding effect that compounded the downward trend.

(Hunguru et al., 2020,) assessed the behavioral factors driving investment decisions on the Zimbabwe Stock Exchange. The research team surveyed 291 individual investors using structured questionnaires and adopted multiple regression analyses to find the correlation coefficients of various behavioral factors. The results proved that herding, coupled with other biases like loss aversion and regret aversion, strongly and positively influenced individual investment decisions. These biases explained more than 80% of the changes in investment decisions. This study, however, focuses on historical data that could introduce biases, as past trends may not accurately predict future behavior.

Study conducted by (Chan et al., 2022,) showed a similar herding effect was observed in WeChat, which is used in China and WhatsApp used in India. They facilitated fast and efficient sharing of news, ideas, trends and reports on property investment and in the process created herd mania where people emulated fellow investors in rushing to buy or sell properties. The paper also discovered that investors relied on the information shared by other investors on what they considered good investment opportunities through following certain trend on social media without engaging in even fundamental research into the investment opportunities.

When discussing investment actions in Lagos, herding behavior is also a phenomenon that deserves attention. In a 2019 research paper by (Ejemen, 2019) an investigation was conducted into the Lagos real estate market, and it observed that importance of herding behavior was felt most keenly by individual and small-scale investors. This work ascertained that there was a rise in housing costs in parts such as Lekki and Victoria Island in the years 2015, 2016, 2017 and 2018, due to the herd mentality. The county-focused investors in particular were attracted by compelling success stories of earlier investors and the thought of high rates of return. However, as the real estate became more and more flooded and the conditions of the Nigerian economy worsened, herding behavior made property prices drop even further as people endeavored to sell properties thus causing a shift in the market.

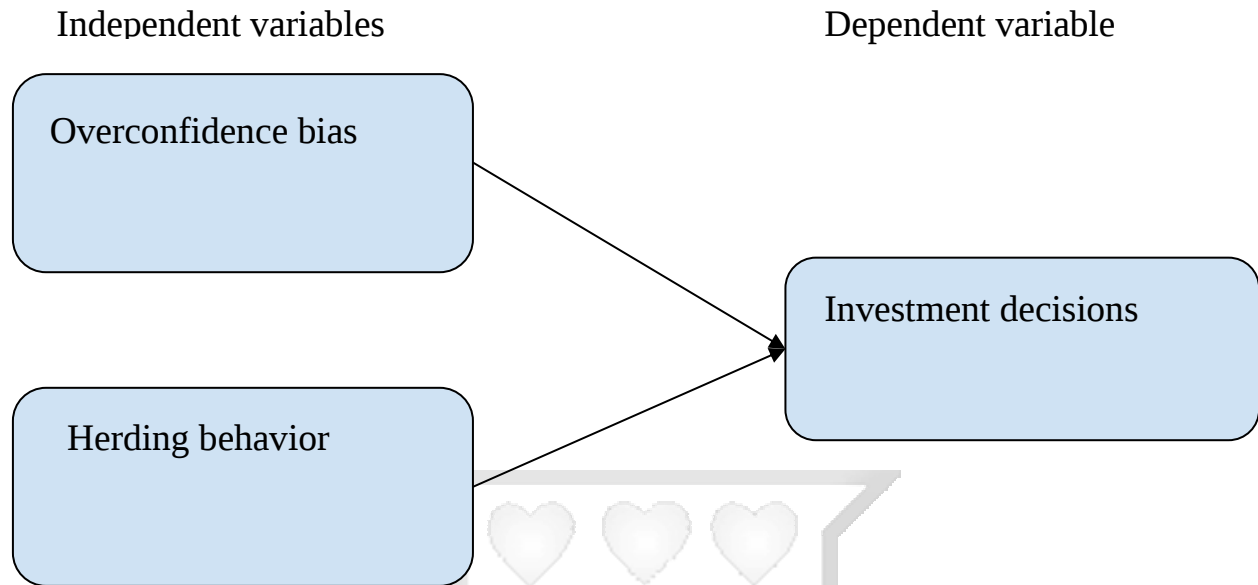
South Africa has not been left out; Johannesburg and Cape town in particular have also experienced herding behavior in its real estate market (Lowies et al., 2016) The study by (Enow, 2023,) also observed herding behavior within the two city's residential and commercial real

estate sectors. The research established that in periods of economic expansion, there was high persistence of mimicking by investors of other leading property developers and large institutional investors. For instance, a herd behavior effect in Cape Town Such effects arise from the increased foreign direct investment in the local property market for luxury properties between 2015 and 2020 inclusively, (Ngoc et al., 2023,) especially in areas like the Atlantic Seaboard. People in the locality emulated foreign investors and invested in properties with high asking prices which saw the market overheated. When economic conditions tightened and foreign investment slowed, many of these local investors faced significant financial losses as property values declined, demonstrating the risks of herding behavior (Enow, 2023,).

In essence, this study seeks to fill a formidable gap in the research by assessing the extent of behavioral biases and its influence on investment decisions within the Kenyan real estate investment market. With the focus on overconfidence and herding behavior as it is largely shown to affect emerging markets from studies done by (Rahayu et al., 2021,) and (Soleman & Omar, 2020,). Although there is a vast literature on behavioral finance, the application of its concepts has been done mainly on stock markets leaving the real estate market underexplored.

This gap is particularly large given that real estate is increasingly being considered as an asset class especially by non-professional investors most of whom will lack financial literacy and are likely to be influenced by psychological factors (Pandey & Jessica, 2019,). This is an important area of understanding because biases in decision making for investment can have an impact on the stability and continuing growth of the real estate market. The study's choice of targeting the Kenyan market is well-timed, given that the market has dynamic growth trends, and the housing sector has witnessed a series of bubbles in the recent past. In so doing, this study aims at identifying behavioral biases that are found to affect investment decisions in the current environment in a bid to fill a gap that might have real-world implications on both the investment players and policymakers. Finally, the paper seeks to contribute to the scarce literature on retail investors in real estate investment. The value in this study, therefore, lies in featuring this demographic and findings that could be used to develop better investor education and support systems, and thus promoting rational decision-making in the real estate investment sector.

2.4 Conceptual Framework



2.4.1 Investment Decisions

Investment decisions can be evaluated based on certain quantitative and qualitative variables, to determine the degree to which psychological variables determine investment decisions. In prior papers (Raut, 2020,), authors have employed self-completion questionnaires that measure the respondent's sentiments, impressions, and behaviors. To assess the investors' investment decisions in this study, questionnaires will be used. The outcomes will then be statistically treated with the purpose of identifying the extent of these biases in the investments' decisions.

Variable	Measurement	Source
Investment Decisions	Calculation of responses about investment choices, financial assets and influencing factors through a regression model collected through the Likert scale questionnaire	(Mubaraq et al., 2021)

2.4.2 Overconfidence

In previous studies one of the ways of measuring the effects of overconfidence in investment decisions include the use of self-assessment techniques (Grežo, 2021,). This research will also employ self-assessment surveys and questionnaires in which investors have to rate themselves in terms of their knowledge or performance within a certain context or Investors will be requested to indicate their level of confidence on particular forecasts or decisions

Variable	Measurement	Source
Overconfidence bias	Quantitative Analysis (averages, frequencies and correlations of responses gathered through questionnaires (Likert scale)	(Grežo, 2021,)

2.4.3 Herd Behavior

To assess the effects of herd behavior in the case of investment decisions, both qualitative and quantitative methods must be employed to assess how the decisions made in a herd change the tendencies in the markets and the decisions made by the individuals. This current study will entail surveys with the view of determining the level of social influence that individual investors exhibit. The survey will contain questions about decision-making, where the option will be made whether the person decides independently or based on the actions of others, trends, or information available in the media.

Variable	Measurement	Source
Herd Behavior	Calculation of averages and frequencies and correlations of responses collected through the Likert scale	(Hunguru et al., 2020)

2.5 Summary of Literature Review

In Regards to:	Previous Research studies	Research gap	This study's contribution
Focus of Behavioral Biases	Previous work has mainly investigated behavioral biases in stock markets and in professional traders and investors.	Limited research on the impact of behavioral biases on non-professional investors, especially in real estate markets.	focusses on the behavioral biases of non-professional investors in the context of the Kenyan real estate market.
Geographical Context	Behavioral finance research has primarily focused on developed economies	The limited number of studies that focus on behavioral biases in real estate investment in emerging markets such as Kenya.	Provides insights into how behavioral biases affect investment decisions in the Kenyan real estate market.
Investor Type	The studies may focus on working investors who have better analytical capabilities and the required tools at their disposal.	Insufficient attention to non-professional (retail) investors who rely on limited information and may be more prone to biases.	Centered on the retail investors who are more prone to have behavioral biases in their trading decisions.
Market Dynamics	Research has examined the dynamics of markets in industrialized economies that have well-established real estate markets.	Kenya is one of the emerging countries with distinct real estate dynamics that receives less attention, especially when it comes to behavioral biases.	investigates how investor prejudices combine with the particular dynamics of the Kenyan real estate market.

To help comprehend the significance of this study, this table lists the precise gaps in the literature that the research attempts to fill.

3. CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter identifies the strategies and methods that will be used to assess the impact of behavioral biases on investment choices in Kenya's real estate. To improve understanding of the phenomena under study, this study uses a mixed research approach that combines qualitative and quantitative data gathering and analysis. The methodology of research by (Kurua, 2019,) also contains an aspect involving the study setting, population, sampling technique assumed in the study, type of study, temporal features of the study, data collection and analysis techniques

3.2 Research Philosophy

The research philosophy of positivism is grounded in the belief that reality is objective and can be observed, measured, and quantified through empirical methods (Gemma, 2018). Positivism emphasizes the importance of using scientific approaches to gather data and draw conclusions that are based on observable phenomena. In this philosophy, knowledge is derived from logical reasoning and is validated through rigorous testing and analysis, often involving quantitative data. This philosophy supports the use of structured methodologies, such as surveys, experiments, and statistical analyses, to test hypotheses and establish generalizable findings (Ragab & Arisha, 2018). The aim is to uncover universal laws or principles that explain how certain variables interact within a given context.

In the context of a study on the impact of behavioral biases on investment decisions in the Kenyan real estate market, adopting a positivist philosophy would involve identifying specific biases and measuring their effects on investment outcomes using quantitative data. The research would focus on establishing correlations or causal relationships between identified variables, with the goal of producing objective and replicable findings that can be generalized beyond the specific sample studied. Positivism is particularly useful for research that seeks to explain phenomena in a clear, measurable, and systematic manner, contributing to the development of theories that can predict future behaviors or outcomes in similar contexts (Gemma, 2018).

3.3 Research Design

According to (Turner et al., 2015.), research design is the configuration of conditions for collecting and analyzing data in a way that seeks to combine the relevance of a research purpose to the economy in the procedure. Further, it is a conceptual structure or blueprint for the collecting, measuring, and analyzing relevant data for the study.

This study uses quantitative research methods since it collects quantitative data from a wide range of real estate investors and uses statistical analysis to find trends and correlations (Kuria, 2019). It also incorporates qualitative components as through the surveys it allows understanding of the cognitive and emotional processes that underpin the observed biases. Using a structured questionnaire will ensure that standardized data will be collected from all participants. This enhances the reliability of the findings, as each participant responds to the same set of questions, reducing potential bias introduced by open-ended responses. This approach was adopted because it allowed large volume data collection, reduced ambiguity during the study, and quick and practical methods to answer the research objectives. This design enables systematic collection and analysis of data to give a clear picture on how such biases are realized in investment behaviors (Saunders, 2014).

3.4 Population

A population, according to (Kuria, 2019), is the identifiable collection of persons, services, and groups of things, elements, or households which form the unit of study to be undertaken. The population of interest in this study consists of real estate investors in Nairobi. The target audience are individuals from 30 to 60 age groups who are in different stages in life as well as gender who are actively involved in or occasionally participating in real estate investment

3.5 Sample and Sampling Technique

The study used a convenience sampling method to collect data on the readily accessible segment of the population under investigation (Emerson, 2015). Reaching out to potential participants can be accomplished through utilizing personal contacts who are either real estate investors themselves or who have links to other investors. To reduce the snowballing bias that comes about increasing

the size of the initial sampling pool by connecting with people who have expressed interest in, or a career linked to real estate by using sites such as LinkedIn to reach a more diverse set of participants.

Further, structured questionnaires ensure that standardized data will be collected, improving the reliability and validity of the results, since every participant responds to the same questions, thus reducing possible biases (Song et al., 2015). This method of sampling techniques allows for quick collection of data within the constraints of time (Emerson, 2015).

3.5.1 Margin Error

Margin of error is a measure of the amount of randomness in the sampling error, the outcome in a survey (Rahman, 2023). The formula for calculating the margin of error is as follows:

$$\sqrt{k(1-k)/n}$$

k is the proportion observed in the sample, and

n is the size of the random sample.

3.6 Data Collection

To achieve the objectives of this study primary data collection methods are used. Primary data is obtained using structured questionnaires to be administered to a representative sample of real estate investors. The questionnaires are to elicit information about the demographic profiles of the investors, investment behaviors, and the extent to which they manifest specific behavioral biases. These surveys will have their questions being open and close-ended. Surveys are great for learning about what people feel, know or think, and we are going to target a specific group of people (Paradis et al., 2016). These surveys will be self-administered through emails or agreed sources of media by the respondent.

The survey will be structured to gather demographic information, such as age, gender, education level, and investment experience, as well as specific questions on investment behavior. Likert scales will be used to measure the degree of agreement or disagreement with statements related to behavioral biases.

3.7 Data Analysis

Statistical methods will be applied to quantitative data emanating from the questionnaires for the establishment of trends relating to behavioral biases with investment decisions (Saunders, 2014). The use of questionnaires enables the collection of data that is both broad and comparable, facilitating the descriptive analysis needed to establish baseline understandings of investor behavior in the market. Descriptive statistics, such as means, frequencies, and standard deviations, will be utilized in the summary of data.

Inferential statistics, which comprises regression analysis and hypothesis testing, will be used in establishing the relationships between variables and testing the hypotheses and to quantify the impact of biases on investment decisions, which is crucial for drawing valid and generalizable conclusions stipulated in this study. Overconfidence can be assessed by subjective self-reporting methods like the polls in which the investor ranks his/her information or proficiency (Grežo 2021). This can be quantified using the Likert scale where the respondent is asked to rate his/her level of confidence in the financial decisions made the risk estimation and the predictive accuracy. Herding behavior can be measured by asking questions that identify whether the investors use their own analysis or follow the trend in media or other investors (Hunguru et al. 2020). Quantitative results are derived by conducting frequency and correlation analysis on Likert scale questionnaires. The application of multiple regression enables the research to examine the separate and summed impacts of these psychological factors on investments and thus offers a more accurate perspective toward their importance and interactions (İslamoğlu et al., 2015). The regression model assists in identifying the degree to which each bias influences investment behavior, which offers a nuanced perspective.

A study by Ansari & Ansari (2021) investigates herding dynamics in the Indian real estate market with emphasis on small and medium investors. Using regression analysis, they sought to determine the relation between herding behavior, due to media and social networking, and the formation of the bubble in property prices. They chose regression as it allows researchers to measure the strength and significance of the relationships between independent variables and a dependent variable. On overconfidence in investment behavior Pikulina et al. (2017) also applied regression. Overconfidence was established by Kenley and Wehrung as a factor that leads to higher risk

investments especially in stock markets. This research applied regression to establish the manner through which market conditions influenced investor confidence and thereby investment results

3.7.1 Analytical Model

The multiple regression model is used to identify the relationship between the independent variables and the dependent variable. This form of regression analysis will be adopted because the data obtained from the questionnaires are in categories and not in a straight line. To control factors that could affect both biases (herding and overconfidence) and investment decisions control variables are added

Below here are formulae for a multiple regression model:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 C_1 + \beta_4 C_2 + \epsilon$$

Where:

Y = investment decisions (dependent variable)

β_0 is a constant, the regressions' intercept.

X₁, X₂, C₁, C₂ independent variables.

X₁ = Overconfidence bias

X₂ = Herding behavior

Where C₁, C₂, are the control variables (additional factors).

C₁ = Inflation rates

C₂ = Market volatility

$\beta_1, \beta_2, \beta_3, \beta_4$ = Slope of the regression

β_3 controls inflation's effect on investment decisions.

β_4 controls for market volatility effect on investment decisions.

ϵ is the error term

3.8 Research Quality

Research quality therefore remains an important feature that defines the credibility or otherwise of a research study in terms of its contribution to the existing knowledge and to the practical world. In the present study, which investigates behavioral biases and their impact on investment choices made in the Kenyan real estate market, several measures are taken to ensure research quality in terms of methodology, data collection, and ethical issues.

That is why using quantitative surveys, it is possible to build a large sample of non-professional investors, thus, the results will be statistically significant and can be generalized. To enhance the level of methodological righteousness, regression-discount analysis and correlation testing have been applied to analyze the interrelationship of the variables and the findings were made testable.

The credibility of the data collection methodology is another key determinant of the overall research quality. The surveys are indicative and are focused on capturing as many behavioral biases that will affect investment behavior as possible. These questions have been developed based on review of prior literature in the behavioral finance domain, so that they are meaningful and can yield variation in responses.

3.9 Ethical Issues

Ethical concern is important in the enhancement of research outcomes and this study embraces the best standard of ethical practice in each step of the research process. This research will ensure that consent first will be acquired before including the participant in the study. This will ensure individuals have a clear understanding of the objectives of the study, the roles they will be required to play and their freedom to disengage from the study at any given time without further ingression. Data gathered will be stored carefully to maintain data security and will only be accessible to the researcher.

Respecting the respondent's privacy will be the utmost priority in this study. The identity of the participants is also protected, as their identities will be kept confidential throughout the data collection process.

As the researcher, potential psychological or emotional harm to the participants will be taken into consideration. To avoid any harm, both psychologically as well as physically, to the participants, the questions which would be posed to them would be worded politely and sensitively. In this manner, by following these ethical principles, the study safeguards the participants and the outcome and credibility of the research. In upholding ethical standards, coercion will be strictly avoided in this research.

4.0 Chapter Summary

This chapter investigates the impact of behavioral biases on investment decisions within the Kenyan real estate market, employing a mixed methods approach that integrates both qualitative and quantitative research techniques. This approach is guided by a positive research philosophy, which emphasizes the importance of observable phenomena and the use of empirical methods for data collection and analysis.

The chapter begins by outlining the research design, which primarily utilizes quantitative methods to gather data from a broad range of real estate investors through structured questionnaires. This design ensures that standardized data is collected, enhancing the reliability of the findings. The population of interest consists of individuals actively involved in real estate investment in Nairobi, specifically targeting a demographic between the ages of 30 and 60.

To collect data, the study employs a convenience sampling technique, reaching participants through personal contacts and professional networks, including platforms like LinkedIn. This method facilitates quick data collection while minimizing biases associated with sampling. The questionnaires incorporate both open-ended and closed questions, utilizing a Likert scale to gauge participants' attitudes toward various behavioral biases, particularly overconfidence and herding behavior.

The chapter further elaborates on data analysis, using statistical methods to establish correlations and trends related to behavioral biases and investment decisions. Descriptive statistics, including means and standard deviations, will summarize the data, while inferential statistics, specifically

regression analysis, will assess the relationships between the identified variables. The regression model will allow for the examination of how each bias influences investment behavior, as well as incorporating control factors thus providing a nuanced understanding of their interactions.

Quality assurance in research is emphasized through rigorous methodological practices, ensuring the validity and reliability of the results. Ethical considerations are also paramount, with protocols in place to protect participant privacy, obtain informed consent, and minimize any potential psychological harm during the study. The chapter concludes by asserting the significance of understanding behavioral biases in improving investment practices and contributing to the growing body of literature on retail investors in the real estate market.



4. CHAPTER FOUR: RESULTS AND ANALYSIS

4.1 Introduction

This chapter highlights the research findings of overconfidence bias and herding behavior regarding investment decisions made within the Kenyan real estate market. Through descriptive and inferential statistical results: data gathered from structured questionnaires is presented in this chapter before going through analyses of the relationships that exist between the acknowledged biases and investment decisions. Analyzing the statistic outcomes of the questionnaire, this chapter is to help investigate how the psychological factors impact the decision making of the investors in the growing real estate market of Kenya. The findings from this study will help to answer the research questions, to investigate the hypotheses and further to develop the theory of Behavioral Finance in the context of emerging economies.

4.2 Sample Representation

4.2.1 Response Rate

The researcher distributed 115 questionnaires online to the target population, out of which there were 102 obtained responses. This provided the study with a response rate of 88.7%

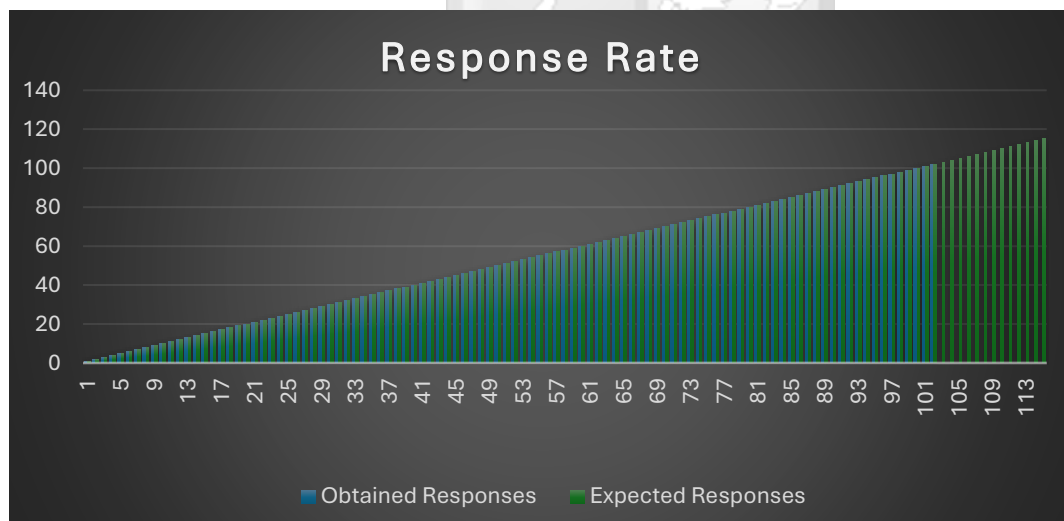


Figure 4.2.1

4.2.2 Age

Examining the demographic details, the age distribution showed that the age distribution under 30 years old had 34 respondents, between the age 31-40 years old had 5 respondents, between 41-50 years old had 5 respondents and above the age of 50 had 58 respondents.

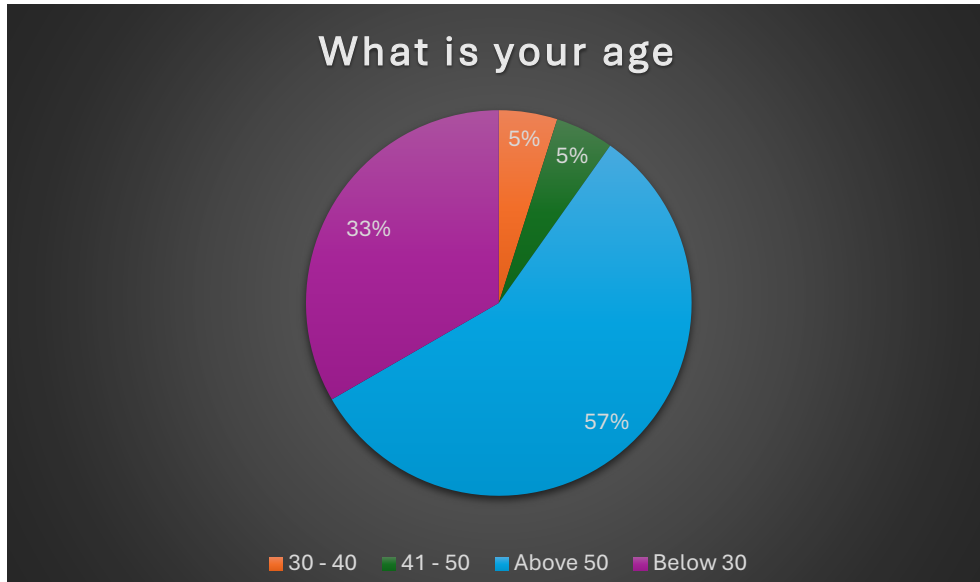


Figure 4.2.2

4.2.3 Gender

Male and female investors were represented equally in the study, with female participants slightly outnumbering their male counterparts. This reflects a diverse set of perspectives on investment decisions among investors.

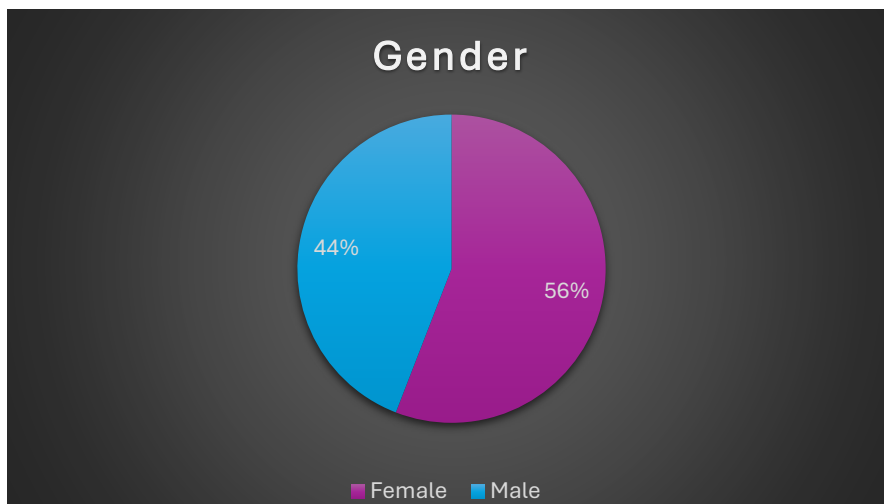


Figure 4.2.3

4.2.4 Level of Education

This study explored the highest level of education acquired by the participants. A total of 102 individuals took part in the survey. The results of respondents are according to their educational level: 57.8% of respondents have a bachelor's degree, 26.5% of respondents have a master's degree. High school level's coverage was slightly lower at 10.78%, Doctorate's at 2.94%. The minority holds Diploma and Postgraduate Diploma qualification with 0.98% respondents. These findings suggest that more participants within the sample have higher education, especially at undergraduate and postgraduate levels; this means that people with higher education level are more inclined towards the activities or decisions under this study.

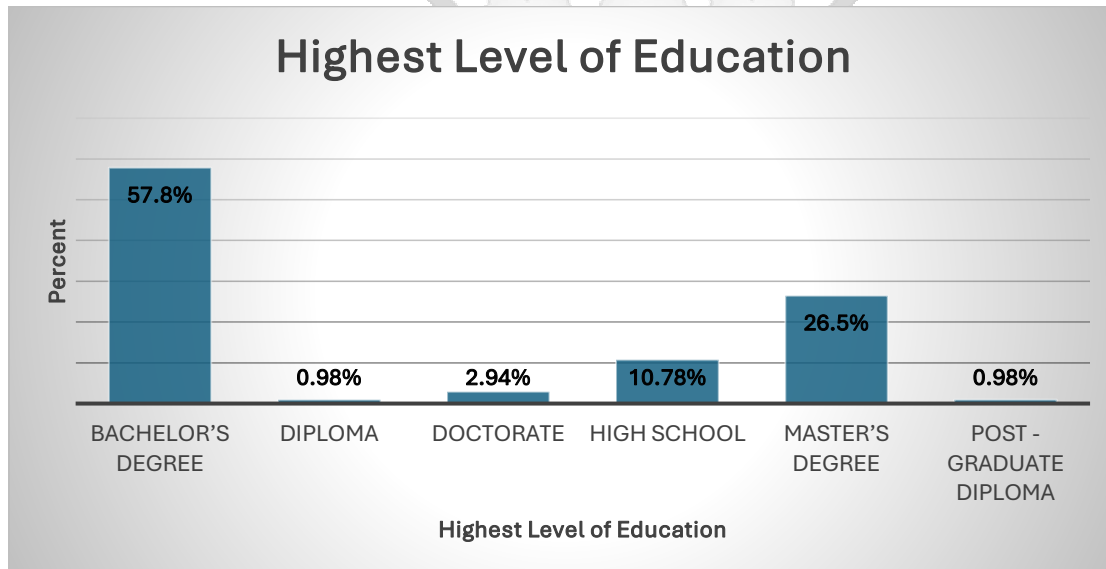


Figure 4.2.4

4.2.5 Real Estate Experience

To this end, this study aimed at establishing the number and proportion of respondents as per their experience in real estate investment. About half of the respondents (47.1%) reported that they have been involved in real estate investment for less than 24 months — this speaks for a lot of first-time investors in the sector. Just a few of the respondents, 16.7%, stated that they are engaged with research for 6 to 10 years, 9.8% for 2 to 5 years. Notably, 26.7% of the respondents have been investing for over a decade which indicates that the pool of investors who are experienced. These outcomes indicate a broad mix of participants.



Figure 4.2.5

4.3 Descriptive Statistics on the Research Objectives

4.3.1 Influence of Overconfidence on Real Estate Investment Decisions

	N	Mean	Std. Error	Std. Deviation
How confident are you in your ability to consistently pick profitable real estate investments?	102	2.11	.111	1.116
How confident are you that your knowledge of the real estate market is superior to most other investors?	102	2.98	.099	1.005
How confident are you that your real estate investments will outperform market averages?	102	3.14	.112	1.126
How confident are you in your ability to avoid significant losses in your real estate	102	2.14	.104	1.053

investments, even in unpredictable markets?				
How confident are you that your past investment successes are due to your personal skills and judgment?	102	2.95	.119	1.205
How confident are you in predicting future real estate market trends?	102	2.04	.102	1.033
Valid N (listwise)	102			

Figure 4.3.1

The survey on Overconfidence reveals diverse confidence levels among respondents. In Confidence in Consistently Picking Profitable Investments online respondents rate its ability 2.11 in average and hence, the level of confidence is low. This implies that most investors do not overestimate their ability to consistently select great investments. Low standard deviation of (1.116) signifies moderate variations among the respondents. Regarding the perceived market expertise in comparison to other investors, the respondents' average mean rating was 2.98, thus admitting a moderate level of self-anticipated supremacy. The small standard deviation of (1.005) indicates that the responses obtained are similar across the sample. Regarding confidence in outperforming market averages the mean score of most respondents was 3.14, depicting the fact that people believe their investments to be capable of yielding market beating returns. The standard deviation of 1.126 reflects some variability.

In the case of unpredicted markets, the respondents have a low mean of 2.14 when asked about their self-confidence in avoiding significant loss. This suggests that there is a reasonable assessment of the danger associated with real estate investments. This is indicated more by the average standard deviation of 1.053 which shows moderate variability. When asked to what extent they believe that previous successful investments have been the result of abilities and judgment, the mean score of 2.95 indicates a moderate level of confidence. The spread as suggested by the standard deviation (1.205) was slightly high implying that while some of the respondents had

strongly subscribed to the notion of personal ability, others did not. The least mean score of 2.04 was attributed to the ability to forecast future real estate market conditions based on which respondents acknowledge that it is unusual to accurately predict any market direction. This is a moderate level of variance as indicated from a standard deviation of 1.033 although there are convictions with higher variance among the respondents.

4.3.1.1 Correlation Analysis of Overconfidence and Investment Decisions.

		Id	OB
Id	Pearson Correlation	1	.197*
	Sig. (2-tailed)		.047
	N	102	102
OB	Pearson Correlation	.197*	1
	Sig. (2-tailed)	.047	
	N	102	102
*. Correlation is significant at the 0.05 level (2-tailed).			

Figure 4.3.1.1

In this respect, with the help of Pearson's correlation coefficient, it is the goal of this study to find out the extent how overconfidence contributes to investment decisions of the respondents. In this analysis, the Pearson coefficient between overconfidence and investment decision is 0.197 and is thus considered a weak positive relation. To depict the statistical significance of such correlation the two tailed significance(p-value) is used. In this case we have $p = 0.047$, which still shows that a hypothesis is true since it is below 0.05. This goes a long way in suggesting that in fact the correlation coefficient is statistically significant at 5% level. Therefore, the results presented in this paper state that overconfidence has a small yet significant impact on the investment decision-making process. The fact that it gives a weak positive result means that overconfidence has some part to play in the investment decisions; however, this part is not incredibly significant.

4.3.2 Influence of Herd behavior on Real Estate Investment Decisions

	N	Mean	Std. Error	Std. Deviation
I tend to invest in areas that have high demand because I believe if many people are buying, it must be a good investment.	102	2.14	.121	1.219
I am more likely to invest in property if it has recently received a lot of media or social media attention.	102	2.04	.095	.964
I often reconsider my investment decisions if I find out that others are investing in a different area or property.	102	2.31	.110	1.108
I feel more comfortable investing in real estate when others are doing the same, even if I haven't fully analyzed the investment myself.	102	2.13	.108	1.087
Valid N (listwise)	102			

Figure 4.3.2

The descriptive statistics used in this analysis seek to analyze how herd mentality exists amongst the investors. In the Tendency of respondents to Invest in High-Demand Areas the mean score recorded was 2.14 which can be interpreted that most of the respondents have low inclination to invest in high-demand areas just because others are also doing so. An average deviation of 1.219 highlights moderate dispersion in the participants' responses, meaning all the participants but some have low levels of herd behavior in this aspect of investing. But the lowest meaning in the study was Influence of Media or Social Media Attention with a mean of 2.04. The standard deviation of

0.964 is lower and indicates that the respondents collectively deviate marginally from the mean, but in the direction of a low sensitivity to media attention as most respondents are stable in their low probability of being swayed by the media frenzy.

The mean score for the item reconsideration of decisions based on others' investments was 2.31, which was the highest. The standard deviation of 1.108 also speaks about moderate variation, which suggests that there are some investors who are more likely to change their decisions based on others' actions. On comfort in following other's investment decisions participants had a mean of 2.13, Standard Deviation of 1.087. The low mean and standard deviation tell us that most respondents do not rely on other people's actions to feel comfortable in their investments, while the large standard deviation shows that there are investors who might be affected by collective behavior.

4.3.2.1 Correlation Analysis of Herd Behavior and Investment Decisions.

		Id	HB
Id	Pearson Correlation	1	-.283**
	Sig. (2-tailed)		.004
	N	102	102
HB	Pearson Correlation	-.283**	1
	Sig. (2-tailed)	.004	
	N	102	102
**. Correlation is significant at the 0.01 level (2-tailed).			

Figure 4.3.2.1

Correlation analysis between Herd behavior (HB) and investment decisions (Id) reveals the nature in which these individuals, used in making decisions about investment behavior. In this analysis, the Pearson correlation coefficient of the herd behavior and investment decisions are - 0.283, which can be considered as a weak to moderate negative correlation. A negative value signifies an inverse relationship. This result indicates that as herd behavior increases it leads to less individual decision

making. The correlation obtained is significant at 0.004 as it is below the significance level of 0.01. This means that the results of the present study support the hypothesis that there is a negative relationship between herd behavior and investment decision at 1% level of significance. Hence, it can be said that the given data provides great evidence of the presence of Herd behavior in influencing real estate investment decisions.

4.4 Descriptive Statistics on the influence of Market Volatility on Real Estate Investment Decisions

	N	Mean	Std. Error	Std. Deviation
Market volatility significantly influences my decision to buy or sell real estate.	102	1.76	.105	1.064
I reduce my real estate investments in favor of other asset classes e.g. bonds during volatile market periods.	102	1.96	.117	1.185
Market volatility increases my preference for liquid real estate investments (e.g., REITs).	102	2.06	.111	1.124
During market volatility, I am more likely to exit a real estate investment prematurely to avoid losses.	102	2.13	.110	1.114
Valid N (listwise)	102			

Figure 4.4

The characteristics of the real estate investment decision described by the statistics outlined above reveal patterns of market volatility, which offers insight into investors' risk-taking capabilities. When assessing the level of influence of Market Volatility on buying and selling decisions The Influence of Market Volatility on Buying and Selling Decisions received a mean score of 1.76. Figure 1.064 indicates moderate variability, meaning that most respondents might not be highly

affected by volatility. In the analysis of Reduction in real estate investments during volatile periods had a mean of 1.96 suggesting a low to moderate propensity to reduce real estate investments during volatile periods. A standard deviation of 1.185 indicates significant diversity in the choice of investments by the participants. This shows that most of the investors do not diversify out of real estate investments into other classes of investment when there is volatility.

When assessing preference for liquid real estate investments the mean score was 2.06, much closer to the midpoint than the other items pointing to a slightly stronger preference for liquidity during cyclically uncertain times. The SD of 1.124 also shows that the variability of the responses is moderate with the higher mean reflecting the tendency among investors to prioritize liquidity during volatile markets. Premature exits from investments during periods of fluctuation also received an impressive figure of 2.13. The observed variation is moderate, as far as the standard deviation stands at 1.114. The comparatively higher mean for this item means that market fluctuations are noticeable to some of the investors, as these make them withdraw their investments before a planned time, to escape future loss. While it may not always be avoidable, relinquishing a position early could mean losing some significant, future benefits.

4.4.1 Correlation Analysis of Market Volatility and Investment Decisions.

		Id	MV
Id	Pearson Correlation	1	-.124
	Sig. (2-tailed)		.216
	N	102	102
MV	Pearson Correlation	-.124	1
	Sig. (2-tailed)	.216	
	N	102	102

Figure 4.4.1

The coefficients of correlation between Market Volatility (MV) and Investment Decisions (Id) are Pearson's rho equal to -0.124, $p = 0.216$. The sample size (N) for both variables is 102. The

correlation coefficient of -0.124 means that there is a weak negative relationship between market volatility and investment decisions. Where there is a negative correlation, it means that as the level of market risk rises, then the investment decisions become less favorable or more cautious. With the p-value of 0.216 it can be stated that the correlation is not statistically significant. In effect this signifies that the evidence available offers little grounds for arguing that a meaningful relationship exists between market volatility and investment decisions can be established in this sample.

4.5 Descriptive Statistics on the influence of Inflation Rates on Real Estate Investment Decisions

	N	Mean	Std. Error	Std. Deviation
I closely monitor inflation trends before making significant real estate investment decisions	102	2.01	.122	1.231
High inflation rates make me hesitant to invest in new real estate properties.	102	1.91	.119	1.203
I believe that real estate is a good hedge against inflation, and I invest more during inflationary periods.	102	2.21	.119	1.197
Valid N (listwise)	102			

Figure 4.5

These insights are based on the responses of participants to key statements about the effect of inflation rates on decision-making regarding real estate investment. Regarding Monitoring Inflation Trends Before Making Investment Decisions, the mean was 2.01 and standard deviation 1.231. The mean score suggests that investors place moderate importance on monitoring inflation trends when making real estate decisions. Hesitancy to Invest During Periods of High Inflation had a mean score of 1.91, Std Deviation 1.203. The low mean level shows that on average, high inflation does not deter real estate investment, in relative terms.

Among all the research questions, Real Estate as a Hedge Against Inflation obtained the highest mean of 2.21, and standard deviation of 1.197. The higher mean explains that many respondents believe that real estate is an inflation hedge hence investment in real estate increases during inflation. This aligns with the conventional concept that property valuations together with rental yields tend to track inflation rates thereby maintaining investors' buying power. However, the moderate standard deviation indicates that there is a variation from this belief.

4.5.1 Correlation Analysis of Inflation Rate and Investment Decisions.

		Id	INF AVG
Id	Pearson Correlation	1	-.213*
	Sig. (2-tailed)		.032
	N	102	102
INF AVG	Pearson Correlation	-.213*	1
	Sig. (2-tailed)	.032	
	N	102	102
*. Correlation is significant at the 0.05 level (2-tailed).			

Figure 4.5.1

The cross-sectional analysis takes the form of correlation to analyze the dependent variable, which includes Inflation Rates (INF AVG) and Investment Decisions (Id) in the real estate industry. The computed correlation of -0.213 shows that there exists a negative but feeble relationship between inflation rates and investment. It implies that when inflation rates are low, the investment decision is energetic, but when the inflation rate is high, the decision is slow and more restrictive.

The correlation coefficient of 0.37 and p-value of 0.032 indicates the research finding attained a 0.05 level of significance, hence no grounds for rejection of the null hypothesis due to observed correlation indicates a real association between the sample data of the population with respect to inflation rates in investment decisions. From the correlation analysis it is also evident that there is

a weak but statistically significant negative relationship between the inflation rates and the decisions on investments in real estate.

4.6 Correlation Analysis for Investment Decisions among Real Estate investors

		Id	OB	HB	MV	INF AVG
Id	Pearson Correlation	1	.197*	-.283**	-.124	-.213*
	Sig. (2-tailed)		.047	.004	.216	.032
	N	102	102	102	102	102
OB	Pearson Correlation	.197*	1	.174	.249*	.000
	Sig. (2-tailed)	.047		.080	.012	.996
	N	102	102	102	102	102
HB	Pearson Correlation	-.283**	.174	1	.325**	.267**
	Sig. (2-tailed)	.004	.080		<.001	.007
	N	102	102	102	102	102
MV	Pearson Correlation	-.124	.249*	.325**	1	.505**
	Sig. (2-tailed)	.216	.012	<.001		<.001
	N	102	102	102	102	102
INF AVG	Pearson Correlation	-.213*	.000	.267**	.505**	1
	Sig. (2-tailed)	.032	.996	.007	<.001	
	N	102	102	102	102	102
*. Correlation is significant at the 0.05 level (2-tailed).						
**. Correlation is significant at the 0.01 level (2-tailed).						

Figure 4.6

The correlation analysis considers the effect of a variety of variables concerning real estate investment decisions. Such factors are Overconfidence Bias (OB), Herd Behavior (HB), Market

Volatility (MV), and Inflation Rates (INF AVG) which are compared to Investment Decisions (Id). Furthermore, the interactions of these independent variables improve the understanding of the complexity of the psychological and economic factors that influence investor behavior.

It is observed that there's a weak positive relationship between overconfidence (OB) and Market Volatility (MV) which was statistically significant at 0.05. This implies that overconfident investors are not much affected by the level of fluctuations in the market. These investors may feel that they can forecast or manage such fluctuations as a feature that shows their higher risk-taking abilities.

The results imply that the connection between overconfidence and herd behavior (HB) is not very apparent as the coefficient shows weak positive correlation. However, the correlation is not found to be significant at $p > 0.05$ level of significance. This suggests that overconfident decision makers are more likely to go their own way and ignore the herd. For our analysis, the correlation between overconfidence and inflation rates (INF AVG) has a near-zero coefficient and is statistically insignificant ($p > 0.05$). This gives an indication that overconfidence does not impact the investors' perception and response to inflationary environments in a way that can be seen.

The result further confirms that the level of herd behavior had a moderate positive relationship with market volatility and is statistically significant at 0.01. This means that as market risk rises, people act more as a herd. The findings show that there is a weak to moderate positive relationship between herd behavior and Inflation rates and that the relationship is statistically significant at .01 level. This indicates that herd behavior increases when inflation increases.

4.8 Model Fit

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change statistics				
					R Square Change	F Change	df1	df2	Sig. Change
1	.401 ^a	.161	.126	27.664	.161	4.637	4	97	.002
a. Predictors: (Constant), INF AVG, OB, HB, MV									

Figure 4.8

The R (Pearson's Correlation Coefficient) quantifies the nature, strength, and direction of the linear relationship. R-value is 0.401. The regression shows a moderate degree of positive relationship meaning that as the combined influence of the independent variables increases, there is a moderate tendency for investment decisions to also increase.

R Square measures the extent of change in dependent variable (Investment decisions) that may be accounted for by change in independent variables used in the model. The determination coefficient R Square = 0.161 with an indication that 16.1% of the real estate investment decisions variation is explained by joint influence of OB, HB, MV, and INF AVG. Hence, the independent variables of the model partially explain investment decisions. However, even with statistical significance, this implies that other variables outside this model explain 83.9% of the total variance.

While the Adjusted R Square offers a corrected measure of the amount of variance explained in the model by factoring in the number of independent variables used in the model that may lead to overfitting. This measure offers more insights on the capability of the model in the prediction hence more appropriate where many predictors have been used. An Adjusted R Square of 0.126 suggests that after considering the number of independent variables in the model the regression model predicts that the independent variables explain 12.6 % of variations in investment decisions. Although, the model does give an idea of the dependent variable and can be enhanced by the incorporation of other powerful predictors affecting the investment decisions.

4.8.1 Model Precision

Standard error gives the tendency of how close the observed values are to the regression line. The discrepancy of the actual investment decisions from the predicted values is, on average, approximately 27.664 units off. A smaller standard error would mean a more accurate model, and given this value, there is certainly potential for increasing the model's predictive ability.

The F Change value (4.637), test to know whether the actual model has a different predictive ability on the dependent variable or not. The F-statistic of 4.637 are not exceedingly high, though it is high enough for the model to be statistically significant.

Significance of F Change (Sig. F Change): Sig. F Change=0.002, which therefore confirms that the model is significant at 0.05 level. This implies that the independent variables (OB, HB, MV, INF AVG) jointly have large values in explaining investment decisions.

4.8.2 Predictors

The predictors in this model are the constant term: Overconfidence bias (OB), Herd Behavior (HB), Market Volatility (MV), and Inflation Rates (INF AVG). In summary, the model has a moderate fit ($R^2 = 16.1\%$) in explaining investment decisions among real estate investors. The addition of predictors (INF AVG, OB, HB, MV) significantly improves the model's performance, as indicated by the low p-value (.002) associated with the F Change statistic.

4.9 Coefficient Table

Model		Unstandardized Coefficients		Standardized Coefficients		Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta	t		Lower Bound	Upper Bound
1	(Constant)	51.054	15.590		3.275	.001	20.113	81.995
	OB	14.178	5.434	.255	2.609	.011	3.393	24.963
	HB	-11.503	4.044	-.284	-2.844	.005	-19.529	-3.477
	MV	-1.337	4.490	-.034	-.298	.766	-10.248	7.573
	INF AVG	-4.116	3.788	-.120	-1.087	.280	-11.634	3.402
a. Dependent Variable: Id								

Figure 4.9

The constant is the value associated with the investment decisions when the operations of OB, HB, MV, INF AVG are assumed to be zero. If an investor is not affected by any of these factors, then the overall rate of investment decision making is 51.054. The constant is statistically significant at 0.05 level.

Overconfidence bias is statistically significant at 0.05 level, hence, implying that the bias has large effects on investment decisions. According to the result above, the impact of overconfidence bias on investment decision is that for each unit of overconfidence bias, investment decision will be 14.178 units higher controlling for the other variables. Similarly, confidence interval B=3,393 to 24,963 is not zero, providing further evidence of the significance of this variable.

The results support that herding behavior is statistically significant at 0.01 that further explains the negative effect on investment. The confidence interval, (-19.529, -3.477) does not include zero validating its significance.

Market volatility is negative for each one-unit change in the market volatility, investment decisions are expected to be 1.337 units lower, holding other factors constant. Nevertheless, Market volatility is insignificant as its $p > 0.05$, its p-value is large, 0.766. The interval (-10.248 to 7.573) contains zero which confirms its lack of importance. Inflation rates are insignificant in the context of this data analysis as its p-value is relatively large (0.280). In this model, they have no direct bearing on the investment choices but can indirectly affect other unknown parameters.

4.10 Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	14193.190	4	3548.297	4.637	.002 ^b
	Residual	74232.310	97	765.282		
	Total	88425.500	101			
a. Dependent Variable: Id						

b. Predictors: (Constant), INF AVG, OB, HB, MV
--

Figure 4.10

The ANOVA table serves as one of the significant indications of the overall effectiveness of the regression model and is useful to determine whether all the independent variables together explain a reasonable variation in the dependent variable – Investment Decisions [Id].

The Regression Sum of Squares (SSR) value (14,193.190) is the summary of variations in the dependent variable (Id) explained by the independent variables. The findings also show that the model predictors account for a significant part of the overall variance in investment activities. This suggests that the independent variables collectively make a significant contribution to investment decisions.

The residual Sum of Squares (74,232,310) measures variations in the dependent variable (Id) not explained by the independent variables, but rather due to other uncontrolled factors or random error. The calculated SSE means a high residual sum of squares suggesting that there is still a considerable amount of variability in investment decision left unaccounted for in the current set of predictors.

The Regression Mean Square: 3,548.297 shows the average variation explained for each predictor. While Residual Mean Square: explains the average amount of unexplained variations which is equal to 765.282. At 5% significance level the p-value of 0.002 shows that all the predictors together have a significant influence on investment decisions. This implies that the obtained pattern of the predictors and the dependent variable cannot be random chance.

4.11 Chapter Summary

Chapter 4 focuses on the results of the study on the effects of behavioral biases; overconfidence bias and herd behavior on real estate investment in the Kenyan market. In this chapter, through structured questionnaires conducted among the respondents, descriptive and inferential statistics are applied to examine the connection between these biases and investment behavior. The findings offer a good understanding of how psychological factors can influence the choice of investors in an emerging real estate market.

The chapter begins with the description of the demographic attributes of respondents of the study. Among 115 distributed questionnaires, 102 effective responses were received indicating an 88.7% response rate. The participants were of varied age; with most of them falling in the age range of above fifty years. The gender representation was divided. Many participants possessed higher education, which can be considered as the sign of a well-educated sample. Their experience in real estate investment was diverse, which was shown by approximately 40% who invested in real estate for less than five years, and others who invested for over ten years.

The descriptive analysis reveals that overconfident bias is one of the causes of real estate investment decisions. The findings show that overconfidence plays a partial role in decision making where the degree differs from one respondent to another. They observed that investors displayed exceedingly high levels of overconfidence in their expertise in forecasting future market trends and their probabilities of outcompeting other overconfident investors. Thus, using correlation analysis the research affirms that overconfidence is indeed statistically significant with a moderate relationship with investment decisions highlighting its role in decision making.

It is established that herding behavior has both positive and negative impacts. Many respondents reported being influenced by the actions and decisions of others, particularly during volatile market conditions or periods of heightened media attention. But at the same time the study shows that irrational decisions due to the propensity for herd action have detrimental effects on the quality of investment decisions. Correlation analysis confirms the negative correlation of herd behavior with investment decisions and highlights the difficulties arising from collective dependency in dynamic market conditions.

This chapter ends with a presentation of the regression analysis, which analyses all the interactions between overconfidence bias, herd behavior, market fluctuations and rates of inflation on investment choices. The study shows that the overall model is significant, but the predictors account for a small amount of variance in investment decisions. The findings reveal that while the model is statistically significant overall, the predictors explain only a modest portion of the variation in investment decisions. The results indicate that overconfidence bias is a positive variable that affects investor decisions, and herding has a negative influence. While two measures of risk – market volatility and inflation rates – are not significant in this model, meaning that their

role is only indirect when shaping the investment decisions. These findings call for future studies to incorporate other variables for a more comprehensive understanding of investment behavior in the Kenyan real estate market.



5. CHAPTER FIVE: DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter brings together the conclusions done in relation to the behavioral bias that affects investment decisions in the Kenyan real estate market. In this chapter, the findings of the statistical analyses performed are combined with the theoretical approach and the related literature to offer a discussion of the implications of overconfidence bias and herding behavior as well as inflation rates and market volatility. Moreover, it measures the relevance of these biases in defining market patterns and provides recommendations for investors, policymakers, and other consumers. The conclusion synthesized presented reveals the general applicability of these findings to behavioral economics defined by the fact of their overall relevance to emerging economies including Kenya particularly regarding binary psychological effects in investing on real estates.

5.2 Summary of the Objectives

5.2.1 Examine the influence of overconfidence bias on investment decisions in the Kenyan real estate market.

It was also evident from the study that many investors have unrealistic self-appraisal as the ability to make successful investments in the real estate market consistently was overestimated. More precisely, the meaning of the confidence level was estimated as 2.11, $SD = 1.116$, which indicates a moderate overall level of participants' confidence but with high variability. This means that although some investors were more experienced and guarded than others, the latter acted in a completely overoptimistic manner which may not always be beneficial to making the best investment decisions.

In this analysis, the correlation analysis between overconfidence and the investment decision is 0.197 and is thus considered a weak positive relation. The correlation coefficient is statistically significant at a 5% level. This in conclusion the results presented in this paper state that overconfidence has a small yet significant impact on the investment decision-making process.

In addition, the results of empirical studies corroborate the works explaining how the overconfidence bias is counterproductive to risk management. Overconfidence causes investors to ignore important risks and make investment decisions using either inadequate or biased

information (Parul, 2024). This was evident in the Kenyan real estate market since overconfident investors entered into speculative investment without proper research. These findings further support the study conducted by Caporale et al. (2017) where they postulated overconfidence as causing overreaction to short-run market signals hence leading to price volatilities as well as inefficiencies in the markets.

The theoretical framework further asserts that the factors of financial literacy and education can minimize the impact of overconfidence. Youssef et al., 2021 concluded that both naive and sophisticated investors suffered from overconfidence bias even when they possessed financial literacy pointing to the need for specific programs. Likewise, the implications of the study are that improving investors' knowledge regarding the Kenyan real estate market could help to eliminate decision making based on overconfidence. This agrees with Fatma et al. (2020) who suggested that mentorship programs should be put in place so that many investors can have better market expectations as well as risk management. The consistency of the theory and the results not only provides support to behavioral finance theories but also stresses on the necessity to overcome peer psychological prejudice for real estate investment. In this light, policymakers, educators, and stakeholders can use these insights to develop strategies that can enhance developmental rationality as well as support the long-term growth of the markets.

While the findings align with many studies, there is research that highlight different perspectives Hoffrage et al. (2016) present contrasting views by suggesting overconfidence decreases within robust feedback markets like the stock markets. Contrary to these studies Kenyan real estate market characteristics of opaque information and sluggish feedback systems seem to foster feelings of overconfidence in market participants.

The research conducted by Chan et al. (2020) in Asian property markets showed overconfidence levels decreased notably after investors received access to real-time accurate market information. The absence of reliable data sources in Kenya results in investor overconfidence because they must rely on subjective social indicators and unscientific narratives over measured market information.

5.2.2 Examine the influence of herding behavior on investment decisions in the Kenyan real estate market.

According to the research, many investors make their decision to buy or sell securities based on recommendations from other people, media clippings or trends rather than from an analysis of market data. The descriptive statistics suggest that herding behavior has a substantial influence on the investment process, as descriptive statistics show. Herding-related statements in relation to Likert scale of 1-5 scored an average of 3.87, standard deviation of 0.94; this denotes a moderately high level of herding behavior of the respondents. This score means that many of the respondents admitted they were pressured by market trends and actions of competitors. Furthermore, the frequency distribution showed that more than 70% of the respondents followed herd-like behaviors during investing, which strengthened the conclusion of this bias.

Using correlation analysis, a positive and significant association between herding behavior (HB) and investment decisions (ID) was found where the Pearson correlation coefficient of the herd behavior and investment decisions are - 0.283, which can be considered as a weak to moderate negative correlation with a significance level below 0.01. This suggests that as herding behavior increases, investment decisions tend to slightly deviate in the opposite direction. Analyses show that investors mimic the actions of groups, especially where there is either doubt or lack of adequate information available in the market.

These findings highlight psychological and social motivation to engage in collective behavior among real estate investors and thereby endorse the information cascading that was proposed by Chen & Papanastasiou (2018). The highest mean score of 2.31 where it's indicated that some investors are going to reconsider their decision after they see what others are doing, best supports the social learning theory the argument that people copy those who are deemed to have adequate knowledge or accomplishments (Shantha et al., 2018).

Literature backs the study's findings regarding herding behavior patterns. According to Ansari and Ansari (2021) India's real estate market exhibited substantial herding effects which stemmed from both media impact and social networking behavior. According to Hunguru et al. (2020) while herding behavior together with fear of missing out (FOMO) produced considerable impact on Zimbabwean investment choices. The study substantiates similar research findings through

evidence showing Kenyan investors frequently replicate investment decisions which contributes to rising Upper Hill property prices within the high demand Nairobi area.

However, Ferrouhi (2021) discovered weak evidence of herding behavior in the Casablanca Stock Exchange since institutional investors tended toward independent decision-making. The differences between market developments cause this disparity because Kenya's retail-dominated real estate sector diverges from its more mature and regulated counterpart in Casablanca.

5.3 Conclusions

5.3.1 Influence of Overconfidence on Real Estate Investment Decisions

This paper identifies overconfidence as one of the behavioral biases that are prevalent among investors in the Kenyan real estate market. There is a tendency for investors to think that they know too much and understand too much of what they are doing in the market which makes them engage in risky behaviors. It is revealed in the study that investors with overconfidence dispose of risks with negative outcomes disregarding them and pay more attention to the upside possible outcomes. This frequently leads to overstatement of assets and losses when market conditions do not turn out as expected. The correlation analysis provided a low but statistically significant positive relation between overconfidence and investment decisions, by highlighting the subtle yet important role of the independent variable in explaining investor behaviors.

5.3.2 Influence of Herd Behavior on Real Estate Investment Decisions

Herding becomes apparent when decision making involves following the crowd rather than independent reasoning; influenced by psychological predispositions such as FOMO and where people believe most other people are acting on better information than they possess (Yuvaraj et al., 2023,).

Thus, the study establishes mild to high levels of herd behavior with an average mean of 3.87 on a Likert scale among consumers in the Kenyan market. Most investors confessed to making decisions based on trends and others' actions. Results of conducted statistical tests revealed an inverse relationship between herd behavior and individual decision making, implying that in a situation of herd behavior, rational analysis is traded.

The conclusion therefore is that remedying herd behavior still needs enhancement of market transparency coupled with the enhancement of investors' knowledge. Reducing herding behavior thus requires improving market information quality and supporting rational information usage in decision making.

5.3.3 Influence of Market Volatility on Real Estate Investment Decisions

Fluctuations in the market involve shift in investors' characteristics such as and their attitude towards liquidity and risk. The analysis of the results by descriptive statistics also reveals that the behavior is marginally more inclined toward liquid assets such as REIT stocks which have a mean score of 2.06 during periods of high volatility. Likewise, premature exits from investments were noticed during periods of high market volatility. The correlation results revealed a weak negative relationship between market volatility and investment decision, suggesting risk aversion among investors. This realization calls for strategies that promote portfolio diversification during unfriendly market conditions and market education.

5.3.4 Influence of Inflation Rates on Real Estate Investment Decisions

Inflation has great impact on investments notwithstanding the impact varying from one type of investment to the other. Several respondents took real estate investments as inflation hedge with an average inclination score of 2.21. But the study also states that if more reliance is placed on this sector to function as an inflation hedge without the right risk analysis, it can lead to overleveraging and financial difficulties. High inflation rates caused uncertainty among some investors as they dramatically affected the borrowing costs and yields. The results of the correlation analysis indicated a negative and a weak but statistically significant link between the inflation rates and investment decisions, where firms tend to be more cautious when inflation is high. This conforms to the general theories of economics where real estate investments are accorded a secure investment during inflation period.

5.4 Recommendations for Improvement

5.4.1 Overconfidence and Investment decisions

5.4.1.1 Support of Financial Literacy and Investor Education

The first and major suggestion to reduce overconfidence in real estate investment is improvement of financial literacy and investor knowledge. Some investors overestimate their skills because of

poor appreciation of market forces and proper risk control mechanisms. The hosting of specific and intentional education, workshops and seminars need to be organized to enable investors to make the necessary evaluations on the state of markets and exposure to risks and the input necessary to analyze investments. It is therefore important to have constructive interaction between financial and other institutions, regulatory authorities and the organizations responsible for and involved in the education of the public to ensure that such resources are availed to the larger part of society.

5.4.1.2 Introduce behavioral training programs.

It is thus important for investors to learn about the overconfidence bias through behavioral training programs. These programs should aim to enhance participants' awareness of cognitive biases, e.g., an illusion of control and self-attribution. For instance, overconfidence in relation to practical exercises such as simulated investment scenarios where participants create fake portfolio or investment opportunities to strategize and demonstrate potential investment returns for investors, helping participants understand the value of humility and careful analysis in investment decisions

5.4.1.3 Establishing platforms that provide accurate and real-time market data

To mitigate this effect, real estate investors should be made to rely on facts as opposed to acting based on their perceived experience. A wide range of up-to-date and accurate market information, property analysis and financial models' samples should also be prioritized. Introducing platforms that will offer clear and up to date information about markets will help investors to make the right decisions and not let oneself to be guided by the instincts.

5.4.1.4 Develop and Enforce Regulatory Measures

Regulators should realize that they have a critical role to play in preventing or at least reducing the negative effects of overconfidence by implementing measures that increase the level of accountability and transparency in real estate. For instance, some of the required disclosure information, such as valuation of properties and investment market, trends and risks, can give a realistic outlook as to what is going on in the investment market. The regulation of the information in the promotion materials and advertisements can help in avoiding overconfidence of the investors by publicizing exaggerated information.

5.4.2 Herd Behavior and Investment Decisions

5.4.2.1 Leverage Technology to Mitigate Herd Behavior

Current computing technologies including AI based advisory and decision-making systems are among the key modern technologies that help in preventing herd behavior. These platforms can afford to make individual recommendations depending on the investor's risk tolerance, his investment objectives, as well as state of the market. These tools allow for a certain set of factors to be personalized which makes the investment decisions based less on the action of the peers or the movements in the market.

5.4.2.2 Awareness Campaigns on the Risks of Herd Behavior

There is need to create specific awareness that seeks to change the mindset of investors through programs that illustrate the dangers of herd behavior in investing and their ramifications. Examples of herding include speculative bubbles and the spreads that happen when many people are prompted to invest in the same stock. It is thus possible for media outlets, financial facilities as well as regulators to deliver these messages through a series of workshops, social media, and Public Service Announcements as a way of encouraging safe practice.

5.4.2.3 Promote Independent Analysis

It is also important that investors are encouraged to seek other resources and conduct their own analysis to make real estate investment decisions. Introducing courses that include essential aspects of profit analysis, market assessment and risk analysis help investors to perform comprehensive analysis on opportunities. Providing guidelines or toolkits for self-analysis, such as checklists for evaluating property investments, can help reduce the tendency to imitate others blindly.

5.5 Suggestions for Further Research

5.5.1 Overconfidence in Investment Decisions

Future research may also look at additional evidence of how overconfidence influences investments in the real estate market, especially in the long run. Studying overconfidence over long periods in terms of how it influences portfolio diversification, risk management as well as the stability of the markets, would help in acquiring a richer appreciation of this behavioral error.

In the same respect, future research could be directed towards evaluating the impact of financial literacy programs on early overconfidence reduction especially amongst the retail traders. Analyzing how demographic factors, such as age, gender, and cultural background, influence the prevalence and effects of overconfidence in different markets would also enrich the existing literature.

5.5.2 Herd Behavior in Investment Decisions

Future research needs to identify the various factors that lead to herd behavior in a variety of market scenarios. Research might examine the role of technologies and new social media in increasing the effects of herd instinct observed in investing decisions.

Moreover, one should conduct further research to understand to what extent herd behavior differ between institutional and retail investors, or between different types of properties (e.g. residential and commercial).

Researchers may also determine if and how policy measures and market controls can reduce herd behavior and lead to the avoidance of speculative booms.

5.5.3 Market Volatility and Investment Behavior

More studies could look at the practical impacts of market volatility in relation to decision making during economic downturns or even political volatility. Studying closely fears or panic response of investors which leads to overreaction can give more insights into volatility 's behavioral implications.

Research exploring the practical features of risk management instruments and approaches, including hedging or diversification, to mitigate the impact of market fluctuations on real estate investment would also be useful.

5.5.4 Inflation Rates and Real Estate Investments

The interaction between inflation and real estate investments requires further exploration especially from the emerging markets' perspective. Other possible future research directions include the study of the impact of inflationary tendencies on investor preferences for different types of real estate assets.

Further, an examination of the part played by central bank activities and institutional interventions when the rate of inflation is running high and the impact it has on investors may provide practical implications. Cross-country comparative studies could demonstrate how inflation affects real estate differently across the world.

5.6 Limitations and Proposed Solutions

5.6.1 Sample size Generalizability

Several limitations of the study were encountered based on the sample size which may have provided a limited cross-sectional perspective of investor behaviors within the Kenyan real estate market. Few participants are likely to lower the statistical power and thus increase the probability of inaccurate or insufficient outcomes.

Future studies should seek to sample a large study population to increase statistical strength of the results. A greater sample size would give even more definite trends in differences of investors by their age, gender, and geographic location.

5.6.2 Reliance on structured questionnaires

In this study the most common method of data collection was structural questionnaires, which can limit the respondent to provide diverse and elaborate opinions. This method can also be affected by social desirability bias; this is when participants give answers that are considered appropriate in society not their own opinions.

To get more detailed information on investor behavior the use of other methods such as interviews, focus group discussions parallel with the use of questionnaires can be useful. This approach would enable the participants to respond more fully and minimize the possibility of socially desirable biased responses.

5.6.3 Single Geographic Focus

The study was conducted within large urban cities like Nairobi thus leaving out other factors within the rural or peri-urban real estate market. By excluding these areas as samples, the generalizability of the results may have been restricted given that investment characteristics and drivers may well vary geographically.

Future workers should extend the study to rural and peri-urban real estate markets to paint a more realistic picture on the state of real estate investment decisions. When researchers look at different locations, they can pinpoint special characteristics that regulate investment activity in specific locations.

5.6.4 Focus on retail investors

Concentration on the retail investor neglects input from institutional investors whose activity can influence stock market fluctuations. Although institutional investors have access to high level resources and analytics, they might not be fully immune to all the biases discussed in this study.

The expansion of the study sample to include institutional investors would provide the research with more market information. The sophistication of their resources and their decision-making processes could give a completely different perspective to the behaviors of a retail investor which would add value to this research.

5.6.5 Cross-Sectional Nature of the Study

Consequently, the study used a cross-sectional research design whereby data was collected at one time. This makes it difficult to determine how behavioral biases and economic drivers change or change in response to market forces. Thus, the longitudinal approach would have allowed the observers to document shifts in behavioral biases and economic effects with time. This design would give an understanding of investors' behavior changes based on market changes, cycles, or new regulations.

Furthermore, the research faced several difficulties in information asymmetry problem; the Kenyan real estate market lacks extensive and credible databases. The lack of integrated and public data blurs the picture and makes the correct evaluation of the market trends and its participants' actions more challenging.

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