

**THE EFFECT OF BEHAVIORAL BIAS AND FRAME DEPENDENCE ON REAL
ESTATE PRICES IN NAIROBI COUNTY**

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DECLARATION

This research project is my original work and has not been submitted in any other University for any academic award.

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DEDICATION

I dedicate this project to my father Mr. Philip Ndiritu and my mother Jane Wanjiku who gave me support during the entire time I was working on this project. I sincerely appreciate your support.

TABLE OF CONTENTS

DECLARATION	ii
ACKNOWLEDGEMENTS	iii
DEDICATION	iv
LIST OF ABBREVIATIONS	viii
LIST OF TABLES	ix
LIST OF FIGURES	x
ABSTRACT	xi
CHAPTER ONE	1
INTRODUCTION	1
1.1 Background to the Study	1
1.1.1 Behavioral Bias	2
1.1.2 Frame Dependence.....	3
1.1.3 Real Estate Prices.....	5
1.1.4 Effect of Behavioral Bias & Frame Dependence on Real Estate Prices.....	6
1.1.5 Real Estate Market in Nairobi County.....	6
1.2 Research Problem.....	8
1.3 Objective of the Study.....	10
1.4 Value of the Study.....	10
CHAPTER TWO	11
LITERATURE REVIEW	11
2.1 Introduction	11
2.2 Theoretical Review	11
2.2.1 Cascade Theory.....	11
2.2.2 Prospect Theory.....	12
2.2.3 Efficient Markets Hypothesis	14
2.3 Determinants of Real Estate Prices	15
2.3.1 Introduction.....	15
2.3.2 Mortgage Rates and Interest Rates	15
2.3.3 Leverage.....	17
2.4 Empirical Review.....	17

2.4.1	International Evidence	17
2.4.2	Local Evidence	20
2.5	Summary of the Literature Review	21
CHAPTER THREE	.....	22
RESEARCH METHODOLOGY	.....	22
3.1	Introduction	22
3.2	Research Design.....	22
3.3	Population.....	22
3.4	Sample.....	23
3.5	Data Collection.....	23
3.6	Data Analysis	23
3.6.1	Analytical Model	24
3.6.2	Operationalizing the Variables	24
3.6.3	Test of Significance.....	24
CHAPTER FOUR	.....	25
DATA ANALYSIS, RESULTS AND INTERPRETATION	.....	25
4.1	Introduction	25
4.2	Response Rate	25
4.3	Descriptive Statistics	25
4.4.1	Correlation Analysis.....	33
4.4.2	Regression Analysis.....	34
4.4.3	Analysis of Variance	36
4.5	Interpretation of the Findings.....	37
CHAPTER FIVE	.....	39
SUMMARY, CONCLUSION AND RECOMMENDATIONS	.....	39
5.1	Introduction	39
5.2	Summary	39
5.3	Conclusions	40
5.4	Recommendations for Policy and Practice.....	41
5.5	Limitations of the Study.....	42
5.6	Suggestion for Further Research.....	43

REFERENCES	44
APPENDICES	52
Appendix I: List of Property and Real Estate Companies in Kenya as at 19th July 2015.....	52
Appendix II: Questionnaire.....	55

LIST OF ABBREVIATIONS

CBK	- Central Bank of Kenya
EMH	- Efficient Market Hypothesis
GDP	- Gross Domestic Product
MPT	- Modern Portfolio Theory
NSE	- Nairobi Securities Exchange
REM	- Real Estate Market
SPSS	- Statistical Packages for Social Sciences
USA	- United States of America

LIST OF TABLES

Table 4.1: Effect of Behavioral Factor on Real Estate Prices.....	33
Table 4.2: Model Fitting Information.....	34
Table 4.3: Pseudo R- Square.....	35
Table 4.4: Parameter Estimates.....	35

LIST OF FIGURES

Figure 4.1 Category of Property Investment.....	26
Figure 4.2: Investment period.....	28
Figure 4.3: Financing Source for Real Estate Investment.....	29
Figure 4.4: Main Motivation for Investment in Real Estate.....	30
Figure 4.5: Period which Clients Hold Investment.....	31
Figure 4.6: Carrying out Valuation of Property to be invested.....	32

ABSTRACT

Extreme volatility has plagued financial markets worldwide since the 2008 Global Crisis. Investor sentiment has been one of the key determinants of market movements. In this context, studying the role played by frame dependence and behavioral bias in shaping up investment decisions and real estate prizes seemed important. Behavioral Finance is an evolving field that studies how psychological factors affect decision making under uncertainty. This project sought to find the influence of certain identified behavioral finance concepts (or biases), namely, emotional time line, herd instinct, mental accounting, loss aversion, behavioral portfolios and the shadow of the past on the effect of real estate prizes in Nairobi County. The study used survey questionnaire to collect data targeting real estate agents within Nairobi region the data analysis was done using descriptive statistics, in which mean, mode, standard deviations, and variances were used. The logistic regression was used to determine statistical relationship between the variables, SPSS application was used for the analysis. The study found out that frame dependence and behavioral bias plays a role in influencing investment decisions of the real estate investor. From the biases investigated Herd instinct and the Shadow of the past have had the most profound positive correlation with real estate prizes. Herd instinct could estimate 3.889 of the real estate prize while the Shadow of the past to an extent of 3.628. Mental accounting, Narrow Framing and Behavioral Portfolios had an effect on the real estate prizes but it was not significant. The study recommends that the real estate investors need to do an analysis of all the investment factors carefully using both traditional finance and behavioral biases before making an investment decision. The investors should also strive to interpret the market and economic indicators since they influence the performance targets of the real estate market.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Investors can seriously harm their wealth by allowing the behavioral biases to affect their decision making. As a result of inherent biases built in our brains and bodies, human beings make suboptimal decisions (Gordon, 2011). According to behavioral finance an investor is assumed to be normal. Many researchers in the field of behavioral finance conducted research and suggested that investors do not always behave rationally when making investment decisions (Ayopo and Adekunle, 2012).

The main areas that were researched were behavioral bias and frame dependence. Behavioral bias is categorized in two main areas: emotional time line and heard instincts. Emotional time line describes how people make decision, which is defined by a time line that begins with hope or fear and ends with pride or regret. Heard instincts describe how people make decision with regard to how other people make same decision

The other concept is frame dependence, which is categorized in five areas: prospect theory, mental accounting, Narrow framing, behavioral portfolios and the shadow of the past. Prospect theory describes how people frame and value decisions involving uncertainty. It shows how people look at choices with regard to potential gain or losses (Prosad, 2014).

Mental accounting describes how people, put money in different mental accounts and treat a shilling in one account differently from another account (Thaler, 1999). Narrow framing talks of how investors look at investments separately rather than the whole portfolio (Shefrin, 2000).

Behavioral portfolios show how people have irrational portfolios. It shows how psychological tendencies prod investors to build their portfolios in a pyramid of assets. The shadow of the past talks of how past experiences, influence future decisions.

This research was based on: information cascade theory, prospect theory and efficient market hypothesis. Information cascade theory was developed by Bikhchandani, Hirshleifer, and Welch (1992). It talks of how people follow the behavior of the preceding individual without regard to their own information. Prospect theory was developed by Kahneman and Tversky (1979); it describes how people look at choices in terms of potential gains or losses. Efficient market hypothesis was developed by Fama (1969), the theory talks of ideal market where prices should provide signals for accurate resource allocation.

Real estate prices have skyrocketed in Kenya and the study wants to check if these have been due to behavioral aspects or the appreciation of the real value. This study will therefore contribute to the knowledge of behavioral finance with regard to real estate in the Kenyan context.

1.1.1 Behavioral Bias

Behavioral bias can be categorized into two. One is emotional time line and the other herd instincts and overreaction. Behavioral biases, abstractly, are defined in the same way as systematic errors are, in judgment (Chen, Kim, Nafsinger and Rui 2007). According to psychologist Lola Lopes (2002) investors experience a variety of emotions, positive and negative. The emotions experienced by a person with respect to investment may be expressed along an emotional time line which begins by decision and ends by the goal.

When making the decision, if one is driven by fear this will lead to anxiety and the outcome will be regret. On the other side hope leads to anticipation and later pride. Hope and fear have a bearing on how investors evaluate alternatives. Fear induces investors to look at the downside of things, whereas hope causes them to look at the upside.

There is a natural desire on the part of human beings to be part of a group so people tend to herd together. Herding in financial markets can be defined as mutual imitation leading to a convergence of action (Hirshleifer and Teoh, 2003). Moving with the herd, however, magnifies the psychological biases. It induces one to decide on the “feel” of the herd rather than on rigorous independent analysis. This tendency is accentuated in the case of decisions involving high uncertainty. Investors apply to “herd behavior” because they are concerned of what others think of their investment decisions (Scharfstein and Stein, 1990).

1.1.2 Frame Dependence

The term frame dependence means that the way people behave depends on the way that their decision problems are framed, (Shefrin, 2000). The essence of frame independence was put vividly by Miller as follows: “If you transfer a dollar from your right pocket to your left pocket, you are no wealthier”. Frame independent investors pay attention to changes in their total wealth because it is this that eventually determines how much they can spend on goods and services while frame dependent investors look at the nominal value.

Frame dependence stems from a mix of cognitive and emotional factors. The cognitive aspects relate to how people organize information mentally, in particular how they code outcomes into gains and losses. The emotional aspects pertain to how people feel as they register information.

These forms of frame dependence can be categorized into: loss aversion, mental accounting, narrow framing, behavioral portfolios and the shadow of the past.

Loss aversion was conceived by Kahneman and Tversky (1979) and later resulted in Daniel Kahneman being awarded the Nobel Prize for Economics. It talks of how people value gains and losses in an S shaped utility function. This means that people feel more pain in loss as compared to the pleasure in a similar gain. Mental Accounting was coined by Thaler and defined by Thaler (1999) as the “set of cognitive operations used by individuals and households to organize, evaluate, and keep track of financial activities.”

While investors understand the principle of diversification, they don't form portfolios in the manner suggested by portfolio theory developed by Markowitz, (1980). According to Hersh Shefrin and Meir Statman, (2000) the psychological tendencies of investors prod them to build their portfolios as a pyramid of assets having a proportion in options, property, stocks, bonds, residential cash etc.

Ideally, investors should pay attention to changes in their total wealth (comprising of real estate, stocks, bonds, endeavor, future income, and other assets) over their investment horizon because it is this that determines how much they can spend on goods and services, which is what ultimately matters to them. In reality, however, investors engage in “narrow framing” they focus on changes in wealth that are narrowly defined, both in a cross-sectional as well as a temporal sense, Guiso (2008). The shadow of the past says that people seem to consider a past outcome as a factor in evaluating a current risky decision.

1.1.3 Real Estate Prices

In the current context, real estate prices are not regulated by any authority. Real estate investments and prices are good measures for reflecting expected real estate demand, and serve as good predictors of economic growth (Knight Frank, 2011). The “real estate” market and industry is considered to include land and improvements, their selling and rental prices, the economic rent of land and returns on buildings and other improvements, and the construction industry.

Although real estate values are influenced by the supply and demand for properties in a given locale and the replacement cost of developing new properties, the income approach is the most common valuation technique for investors. The income approach provided by appraisers of commercial properties and by underwriters and investors of real estate-backed investments is very similar to the discounted cash flow analysis conducted on equity and bond investments (Jennergren, 2011).

The valuation starts by forecasting property income, which takes the form of anticipated lease payments or, in the case of hotels, anticipated hotel occupancy multiplied by the average cost per room. Then, by taking all property-level costs, including the financing cost, the analyst arrives at the net operating income (NOI), or cash flow remaining after all operating expenses.

By subtracting all capital costs, as well as any investment capital to maintain or repair the property and other non-property-specific expenses from NOI, the result is the net cash flow (NCF). Because properties don’t usually retain cash or have a stated dividend policy, NCF equals cash available to investors and is the same as cash from dividends, which is used for valuing equity or fixed-income investments. By capitalizing dividends or by discounting the cash flow

stream (including any residual value) for a given investment period, the property value is determined (Dean, 2014).

1.1.4 Effect of Behavioral Bias & Frame Dependence on Real Estate Prices

Asset bubbles are inflated by overconfidence and herding behavior. These bubbles are then kept alive exactly by the arbitrageurs expected to bring price close to fundamental (or equilibrium value) and exacerbated by the existing institutional setting which is unable to control and address conflicts of interest (Constantinescu, 2010). Experiments conducted by Fehr et al. indicate that positive and negative inflation shocks have asymmetric effects on the price development with negative shock not leading so readily to price adjustment as positive shock.

Interestingly, a similar effect was observed in the property valuation literature by Harvard (1999) where appraisers were observed to adjust prices upwards more readily than downward when given proof of improper estimation. Case and Shiller (1989) have conducted surveys of recent buyers, showing that buyers in booming markets have greater expected house price appreciation than buyers in a control market. Buyers in the booming market indicate that they treat the purchase of a home more as an investment, and discuss housing market changes more frequently. By contrast, buyers in the control market spend less time discussing the housing market, and place more weight on the consumption value of a home, as opposed to its investment value.

1.1.5 Real Estate Market in Nairobi County

Values in Kenya's residential property market continue to rise, amidst robust economic growth and a sharp increase in the population of middle-class. Residential property values in Kenya have skyrocketed a stunning 357% from the year 2000 to Q3 in the year 2014 according to Hass

Consult. During the year 2014 to end-Q3 2014, the Hass Composite Property Sales Index, a measure of asking sales prices of residential properties, rose by 4.7%, a sharp improvement from increases of 0.05% in Q2 2014, 1.7% in Q1 2014, and 0.3% in Q4 2013, based on a report released by Hass Consult Limited. Quarter-on-quarter, residential property prices increased 3.1% in Q3 2014. The Hass index is based on 4,000 to 6,000 properties tracked across Kenya, which are collected from multiple estate agencies and all publicly available house sales, including in property magazines, property websites and the national media.

The real estate prices in Nairobi County can be clearly seen to have been on the increase. This increase in prices has been higher as compared to other major cities, where their economies are much stronger. According to Statman, Fisher & Anginer, (2008) many people make investment decisions emotionally. Feelings, fantasy, mood and sentiments have been observed to affect investment decisions. The real estate market has gained much interest in recent years, and it's most likely that herding has caused speculation and generally an increase on property prices.

The average value of a property in the country surged to KES25.6 million (US\$283,000) in September 2014, from KES7.1 million (US\$78,482) in December 2000, according to Hass Consult. The average price for a 1-3 bedroom residential property is currently KES11.8 million (US\$130,435). On the other hand, the average price for a 4-6 bedroom residential property is KES36.5 million (US\$403,463) according to Hass Consult Limited.

According to Mayer and Sinai, (2007) there has been considerable debate in recent years regarding the role of behavioral factors in determining housing prices. The question of whether psychology matters in the housing market has been settled long ago: the answer is yes. Rather,

economists are now debating in what ways psychology impacts market behavior and how large an effect this impact has on housing prices.

One example of a clear behavioral bubble in housing is the sharp boom-bust in the Vancouver housing market during the early 1980s. In the 18 months between January 1980 and July 1981, real house prices grew 87 percent. In the subsequent 18 months, real prices fell by nearly 44 percent, plateauing at a level only 6 percent above where prices were three years earlier before the boom began. While news and rumors about Britain's returning Hong Kong to China may have swayed sentiment in the Vancouver market, where many wealthy Hong Kong residents own second homes, it is very difficult to use fundamental factors in explaining the sudden boom-bust pattern witnessed in the early 1980s (Mayer & Sinai, 2007)

1.2 Research Problem

The study aimed at identifying the impact of behavioral bias and frame dependence on the real estate prices. Behavioral bias is defined as a pattern of variation in judgment that occurs in particular situations, which may sometimes lead to perceptual alteration, inaccurate judgment, illogical interpretation, or what is largely called irrationality, (Rasheed, Raftar, Fatima and Maqsood, 2013). There is evidence to show repeated patterns of irrationality in the way humans arrive at decisions and choices when faced with uncertainty. (Subash,2012). Nofsinger (2001) says that the assumptions of rationality and unbiasedness of people have been drubbed by psychologists for a long time.

Real estate has had immense interest globally. This may be due to the unique characteristic of the industry. Housing has unique characteristics because it can be viewed as both an investment and

a consumption good, (Stepanyan, Poghosyan and Bibolov, 2010). Researchers have had a lot of interest in behavioral finance and real estate. A study by Luong, Ha (2011) on the behavioral factors influencing individual investor's decision in Vietnam, found that behavioral factors affect investor's decision. The study recommend for further research to confirm the findings. A research by Muthama, (2012) on effects of investor psychology on real estate market prices in Nairobi concludes that investor psychology actually affects real estate decision. A recent study by Choka, (2012) on the effects of investor sentiment on real estate investment, concludes that investor sentiments influence investor's decision on real estate.

Miregi, Obere (2014) studied the effects of market fundamental variables on property prices in Kenya with a case study of Nairobi. The study was seeking to dispel the fear of the prevailing high real estate prices, using VAR model. Property prices were used as the dependent variable while stock prices, interest rate, building cost and inflation as the independent variables. On the basis of the overall objective whether market fundamental variables have effect on the property prices in Kenya, the study reveals a pricing trend that is not fundamentally supported, at least by the variables investigated.

From various studies done, as shown above it is clear that the aspects of behavioral finance studied in relation to investor's decision making were found to have an effect. However behavioral bias and frame dependence effect of real estate prices has not been done, and this research is intended to fill this gap. Furthermore the study by Miregi, Obere (2014) of the effect of market fundamentals on real estate prices in Kenya showed no effect of fundamentals on the

real estate prices. The researcher recommended a study on other factors that can explain the high real estate prices, Miregi, Obere (2014). This study was also intended to fill this gap.

This Study intended to address the research question:

-What is the effect of behavioral bias and frame dependence on real estate prices in Nairobi County?

1.3 Objective of the Study

To investigate the effect of behavioral bias and frame dependence on real estate prices in Nairobi County.

1.4 Value of the Study

The main importance of the study is to contribute on the knowledge of behavioral finance. The study will also give a new way of doing things, given on the outcome of the research. In the Kenyan context, prices of real estate have been on the increase and the study will identify whether their real value has increased or it's an effect of behavior bias and frame dependence. Therefore the study will give key information to particularly investors on how they make decisions and caution them in future to make well informed decisions. There has been research work on the stock exchange on the effect of various behavioral biases, and this study will build on this knowledge. The study is also intended to identify if we actually are in a boom or a bubble, and hence caution our economy just in case we are in a bubble.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter looks at the main theories guiding this research. The determinants of real estate prices are also analyzed. The chapter also looks at various literatures that have been done in relation to behavioral finance, and more so behavioral biases, frame dependence and real estate prices. The chapter ends with a summary of the literature review.

2.2 Theoretical Review

The main theories that guided this research were information cascade, prospect theory and efficient market hypothesis.

2.2.1 Cascade Theory

An informational cascade, the main building block of cascade theory, was developed by economists (Bikhchandani, Hirshleifer and Welch, 1992). Cascade theory reconciles herd behavior with the rational-choice approach in the social sciences: it is often rational for an individual to rely on information conveyed by others. The reason is that gathering information is costly, even if only in terms of time. Individuals will (formally or informally) buy information only up to the point where it yields no more net additional benefits than simply using the information conveyed by the behavior or opinions of others. Informational cascades occur when everybody relies on such “public” information (Lemieux, 2003). An informational cascade occurs when it is optimal for an individual, having observed the actions of those ahead of him, to

follow the behavior of the preceding individual without regard to his own information, (Bikchandani et al, 1992).

Essentially, their theory says that large trends or fads begin when individuals ignore their private information but take cues from the actions of others. The theory implies that people will normally follow others in making a certain decision, in this case investing in real estate. If new information arrives investors will normally follow it together. Bikchandani et al. wrote, “If even a little new information arrives, suggesting that a different course of action is optimal, or if people even suspect that underlying circumstances have changed (whether or not they really have), the social equilibrium may radically shift”.

This observation appears very apt for financial markets which are constantly bombarded by new information. In such markets information cascades lead investors to overreact to both good and bad news. This is how a stock market bubbles and in the opposite direction a stock market crash gets started. Eventually, however, the market corrects itself, but it also reminds us that the market is often wrong. The Kenyan real estate market could be in this kind of a scenario.

2.2.2 Prospect Theory

The prospect theory describes how people frame and value a decision involving uncertainty. According to the prospect theory, people look at choices in terms of potential gains or losses in relation to a specific reference point, which is often the purchase price. The theory was originally conceived by Kahneman and Tversky (1979) and later resulted in Daniel Kahneman being awarded the Nobel Prize for Economics.

The theory distinguishes two phases in the choice process: the early phase of framing (or editing) and the subsequent phase of evaluation. Tversky and Kahneman, by developing the Prospect

Theory, showed how people manage risk and uncertainty. In essence, the theory explains the apparent irregularity in human behavior when assessing risk under uncertainty. It says that human beings are not consistently risk-averse; rather they are risk-averse in gains but risk-takers in losses. People place much more weight on the outcomes that are perceived more certain than that are considered mere probable, a feature known as the “certainty effect”. (Kahneman and Tversky, 1979).

People’s choices are also affected by the ‘Framing effect’. Framing refers to the way in which the same problem is worded in different ways and presented to decision makers and the effect deals with how framing can influence the decisions in a way that the classical axioms of rational choice do not hold. It was also demonstrated systematic reversals of preference when the same problem was presented in different ways (Tversky and Kahneman, 1981). We can therefore say that people will not necessary do their independent analysis but will most likely be influenced, by how investment options are presented.

The value maximization function in the Prospect Theory is different from that in Modern Portfolio Theory. In the modern portfolio theory, the wealth maximization is based on the final wealth position whereas the prospect theory takes gains and losses into account. This is on the ground that people may make different choices in situations with identical final wealth levels. An important aspect of the framing process is that people tend to perceive outcomes as gains and losses, rather than as final states of wealth. Gains and losses are defined relative to some neutral reference point and changes are measured against it in relative terms, rather than in absolute terms (Kahneman and Tversky, 1979).

2.2.3 Efficient Markets Hypothesis

Modern finance is built upon the Efficient Markets Hypothesis (EMH) by Fama (1970). EMH is the notion that securities' prices already reflect all available information. The EMH argues that competition between investors seeking abnormal profits drives prices to their "correct" value, so that any arbitrage opportunities disappear as soon as they arise. Behavioral finance assumes that, in some circumstances, financial markets are informationally inefficient (Ritter, 2003).

A market is said to be efficient with respect to some information if that information is not useful in making investors to earn excess positive return (Jordan & Miller, 2008). The market is not efficient if some investors have access to insider information leading to insider trading and their ability to earn excess positive returns than other investors. Statman (1999) stated that market efficiency is at the center of the battle of standard finance versus behavioral finance versus investment professionals.

He argues that the term "market efficiency" has two meanings. One meaning is that investor's cannot systematically beat the market and Statman concurs with this. The other meaning is that security prices are rational implying that they reflect only "fundamental" or "utilitarian" characteristics, such as risk, but not "psychological" or "value-expressive" characteristics, such as sentiment. Statman strongly disagrees with this second meaning. However from the EMH theory, Fama did not include psychological bias in his theory and these are therefore not reflected on the market.

According to EMH, it is very difficult for investors to consistently beat the market (earn positive excess return) over a long period of time. The excess return is the difference between the earnings of a particular investment and the earnings of other investments with similar risk. A

positive excess return means that an investment has out-performed other investments of the same risk (Jordan & Miller, 2008). Odean (1999) states that excessive trading in retail brokerage accounts could result from either investors' overconfidence or from the influence from brokers wishing to generate commissions. Excessive institutional trading could also result from overconfidence or from agency relationships. He cites a study by Dow and Gorton (1997) which shows that money managers, who would otherwise not trade, do so for the mere reason of signaling to their employers that they are earning their fees and are not "simply doing nothing".

2.3 Determinants of Real Estate Prices

This section explores the determinants of real estate prices and begins by an explanation with reference to Behavioral Finance. The section further explores the determinants of real estate. The determinants discussed are: interest rates, mortgage rates and leverage.

2.3.1 Introduction

Existing literature shows that the house price index can be explained empirically by underlying fundamentals such as the GDP, the interest rate, the unemployment rate or the population growth rate (Zilibolti, 2012). However the empirical methods can be very different. With reference to behavioral finance, the following two determinants are discussed.

2.3.2 Mortgage Rates and Interest Rates

Many people incorrectly assume that the only deciding factor in real estate valuation is the mortgage rate. However, mortgage rates are only one interest-related factor influencing property values. Because interest rates also affect capital flows, the supply and demand for capital and

investors' required rates of return on investment, interest rates will drive property prices in a variety of ways.

The importance of real estate as an asset class cannot be overstated. Its total value in the US at the end of 2011 was about \$25 trillion, of which more than \$16 trillion was in residential properties. By comparison, at the end of the same year, the capitalization of the US stock market was in the neighborhood of \$18 trillion. Moreover, recent history suggests that fluctuations in real estate prices, whether in bubble or burst mode, have the potential to buoy up or wreak havoc on the financial sector and the rest of the economy.

Some of that impact is due to leverage and the fact that real estate is the easiest asset to borrow against, especially from a household's perspective. Indeed, in 2011, about \$12 trillion of outstanding mortgage debt had been issued against the value of residential real estate. But the connection between real estate and the macro economy is not a bubbles-only phenomenon. Case, Quigley, and Shiller (2005) show that variations in real estate prices have had a significant effect on aggregate consumption in the US, in fact more significant than the stock market, even before the recent volatility in the residential market. Reinhart and Rogoff (2009) document this to be the case more universally across a number of countries and over longer time periods. From an economic perspective, understanding what drives real estate values is no less important than understands the pricing dynamics of other asset classes, such as stocks, bonds, commodities, and currencies.

2.3.3 Leverage

Following the recent real estate crisis, two research areas have generated considerable interest. First; there has been renewed attention on the role of leverage on house price dynamics. Theoretical work by Stein (1995), McDonald (1999), Spiegel (2001), and Ortalo-Magné and Rady (2006) and the empirical findings of Linneman and Wachter (1989), Genesove and Mayer (1997), and Lamont and Stein (1999), Brown (2000), Aoki, Proudman, and Vlieghe (2004), and Favilukis, Ludvigson, and Van Nieuwerburgh (2011) suggest that leveraged properties are more sensitive to economic shocks. The main amplifying channel in those papers is due to the fact that a household's ability to borrow is directly tied to asset values. While not all of the papers we discuss in that section contain direct evidence of real estate predictability, they all suggest that leverage is an important determinant of house price dynamics.

2.4 Empirical Review

This chapter gives an analysis of both international evidence and national evidence on the effect of real estate prices by behavioral factors.

2.4.1 International Evidence

Studies by Luong, (2011) in Vietnam on behavioral factors influencing individual investors' decision making and performance revealed an effect of behavioral finance. The research concluded by giving five behavioral factors that impact the investment decisions of individual investors at the Ho Chi Minh Stock Exchange namely: Herding, Market Prospect, Overconfidence, gamble's fallacy, and Anchoring-ability bias. The herding factor includes four behavioral variables: following the decisions of the other investors (buying and selling; choice of

trading stocks; volume of trading stocks; speed of herding). The market factor consists of three variables: price changes, market information, and past trends of stocks.

Study by Mayer and Genesove (2001) from downtown Boston in the 1990s show that loss aversion determines seller behavior in the housing market. They established that condominium owners subject to nominal losses 1) set higher asking prices of 25-35 percent of the difference between the property's expected selling price and their original purchase price; 2) attain higher selling prices of 3-18 percent of that difference; and 3) exhibit a much lower sale hazard than other sellers. They further point out that list price results were twice as large for owner-occupants as investors, but hold for both. Their findings are consistent with prospect theory and help explain the positive price-volume correlation in real estate markets behavior in the Boston market.

They added that those who bought at the peak listed their homes for sale at 25% to 35% higher than fair market value in hopes of avoiding regret aversion. This behavior caused their homes to remain on the market much longer than sellers who purchased more recently and had more realistic asking prices. Rational behavior can also be deviated from when a person's private information is confirmed by an independent, objective external market source. Wang, Zhao, Chan, and Chau (2000) 30 demonstrate that developers become over-confident and that their over-confidence leads to over-building. These actions are found to cause excessive volatility in the real estate sector and even affect real estate cycles.

Seiler et al (2012) examined the degree of mental accounting and false reference points in the property markets when moving from holding a real estate investment in isolation versus holding the asset as part of a mixed-asset portfolio their results demonstrate that mental accounting is

prevalent amongst investors in the real estate market. Seller and Seilcr (2010) in their study of mental accounting and false reference points revealed that mental accounting is commonplace and investors focus on breaking point as a reference point. Other authors who have used mental accounting to explain the role of behavioral factors in property price dynamics include Case and Shiller (1989, & 2004) and Shiller (2007). They all conclude that investors form expectations about growth in property price and use that expectation as a basis for the asking price clearly disregarding market forces.

Bokhari and Geltner (2010) in their paper on loss aversion and anchoring in commercial real estate market data based on all U.S. sales of commercial property greater than \$5,000,000 from January 2001 through December 2009 found that loss aversion plays a significant role in the endeavor of investors in commercial real estate they also find that more experienced investors, and larger more sophisticated investment institutions, exhibit at least as much loss aversion endeavor as less experienced or smaller firms.

A research hypothesis that the existence of speculative price bubbles in the real estate market is impossible when not accompanied by behavioral factors was put forward by Brezezicka and Winsniewski (2014) in a study of the price bubble in the real estate market by behavioral factors. In conclusion the assumed considerations indicated that the housing price bubble could not exist in the real estate market (REM) if its formation was not accompanied by behavioral aspects, Brzezicka and Winsniewski (2014). The study was conducted based on the global crisis environment using the findings of behavioral science.

2.4.2 Local Evidence

In Kenya, studies have been done on property pricing determinants Marete (2011) found out that the key determinants of real estate property prices in Kiambu Municipality in Kenya were location of a real estate property and estate agents influence on the prices. The study concluded that prices in the real estate market are dictated by a different set of forces unlike other markets where price are determined by forces of demand and supply. According to Makena (2012) in her study of determinants of residential real estate prices in Nairobi she suggests that the level of money in supply and information gave a better predictor of the real estate market on real estate prices.

Using databases of more than 680,000 retail investor transactions at the Nairobi Securities Exchange between 2005 – 2007, Riaga (2008) study shows that trades are systematically correlated and individuals buy (or sell) in concert with noise trader models collectively the findings of his study support a role for investor sentiment in the formation of stock returns. K'Otieno (2012) in a study of investor psychology on investment decision making at Nairobi Securities Exchange established that although investors tend to put clear the objectives of their investment to steer investment decisions to ensure that they get returns from their investments, psychological processes also influence the kind of an investment an individual would want to engage in. In a study that was examining the effect of financial information on investment in shares for Kenyan retail investors, applying the behavioral finance theory. The traditional Efficient Market Hypothesis was deficient to explain investor behaviors in the capital markets Aroni, 2014.

2.5 Summary of the Literature Review

From the literature review it can be seen that behavioral factors have been identified to influence real estate decisions and prices. A study by Muthama, (2012) on the effects of investor psychology on real estate market prices in Nairobi Kenya revealed an effect of psychology on real estate prices. From the findings of the study, it is recommended that psychological factors be taken into consideration when setting prices of real estate properties. Apart from considering only the fundamentals, real estate property dealers should endeavor to find out the perceptions of prospective clients and the particular psychological factors that are likely to strongly influence the clients' decisions to buy and/or sell their properties.

The study further concludes that Psychological influences make real estate investors to at times make decisions that contradict rationality. This study backed with the notion that behavioral aspects actually influence real estate prices, will establish the effect this has on real estate prices. This study will therefore help the economy by identifying if the real estate market is in a bubble or just a boom. The study will therefore recommend measures to mitigate the effects of a market crash.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the research design that was used in this study, the population of the study, sampling design (sample size and sampling technique), data collection methods, data analysis tools and techniques, and finally data validity and reliability.

3.2 Research Design

The study used a descriptive research design. A descriptive study is concerned with finding out who, what, where, when, or how much (Cooper & Schindler, 2006). This research is descriptive because it is concerned with discussing behavioral biases and frame dependence and their influence on real estate prices. Primary source of data was used in this research.

3.3 Population

According to Mugenda and Mugenda (2003), a population refers to a complete set of individuals, cases or objects with some common observable characteristics, which differentiate it from other populations. The target population of this study is real estate agents in Kenya. While identifying the population, the study used an online source (<http://softkenya.com/property>) which had an updated data of the agents. The source had data including but not limited to: physical and postal addresses, office telephone contacts and emails which was necessary for questionnaire distribution. The source had 78 real estate agents. (<http://softkenya.com/property>)

3.4 Sample

A sample is a sub-set of a particular population. Sampling design encompasses sampling technique and sample size. The study used simple random sampling technique. This is considered appropriate because the population of the study was considered highly homogeneous. According to Mugenda & Mugenda (2003) a sample size of between 10 and 30 % is a good representation of the target population and hence the 30% was adequate for analysis. The sample of this study was therefore 24 which was 30% of the total population of 78.

3.5 Data Collection

Data collection methods refer to the instruments used to gather the required data from respondents. In this research, data was collected using structured questionnaires to facilitate ease of analysis. The questionnaires were administered to respondents by the researcher. The questionnaires were divided in terms of the variables being tested. Therefore each variable had a question that had a rating on the effect of that variable. These ratings were used to quantify the effect of that variable.

3.6 Data Analysis

The data collected for the study was analyzed using a logistic regression model. SPSS (Statistical Packages for Social Sciences) was used to aid in analysis of the data, and was presented by use of tables and charts. Frequencies and percentages were used to display results of findings.

3.6.1 Analytical Model

An appropriate real estate investment model is adopted from Levitt and Syverson (2008).

A model can be developed showing that real estate market prices depend on behavioral bias and frame dependence as follows:

$$M_{pre} = \alpha ET + \beta HI + \zeta LA + \chi MA + \delta NF + \varepsilon BP + \varphi SH + k$$

3.6.2 Operationalizing the Variables

The variables used in the model are explained as follows: M_{pre} represents real estate market prices; ET, HI, LA, MA, NF, BP and SH correspond to Emotional time line, Herd instinct, Loss Aversion, Mental Accounting, Narrow Framing, Behavioral portfolios and the shadow of the past. $\alpha, \beta, \zeta, \chi, \delta, \varepsilon$ and φ are the coefficients of the various behavioral and frame dependence factors which were determined in terms of the relative degree to which they influence real estate prices; k is a constant which was introduced into the model to hold constant all other factors that determine real estate market prices.

3.6.3 Test of Significance

The chi- square test was used in this research. It is most often used when comparing statistical models that have been fitted to a data set, in order to identify the model that best fits the population from which the data are sampled.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND INTERPRETATION

4.1 Introduction

This chapter presents data on the findings of this research. Collected data are presented in the form of tables and figures to facilitate comparisons using SPSS . The figures are in the form of charts/graphs. Explanations are also given on the contents of tables and figures.

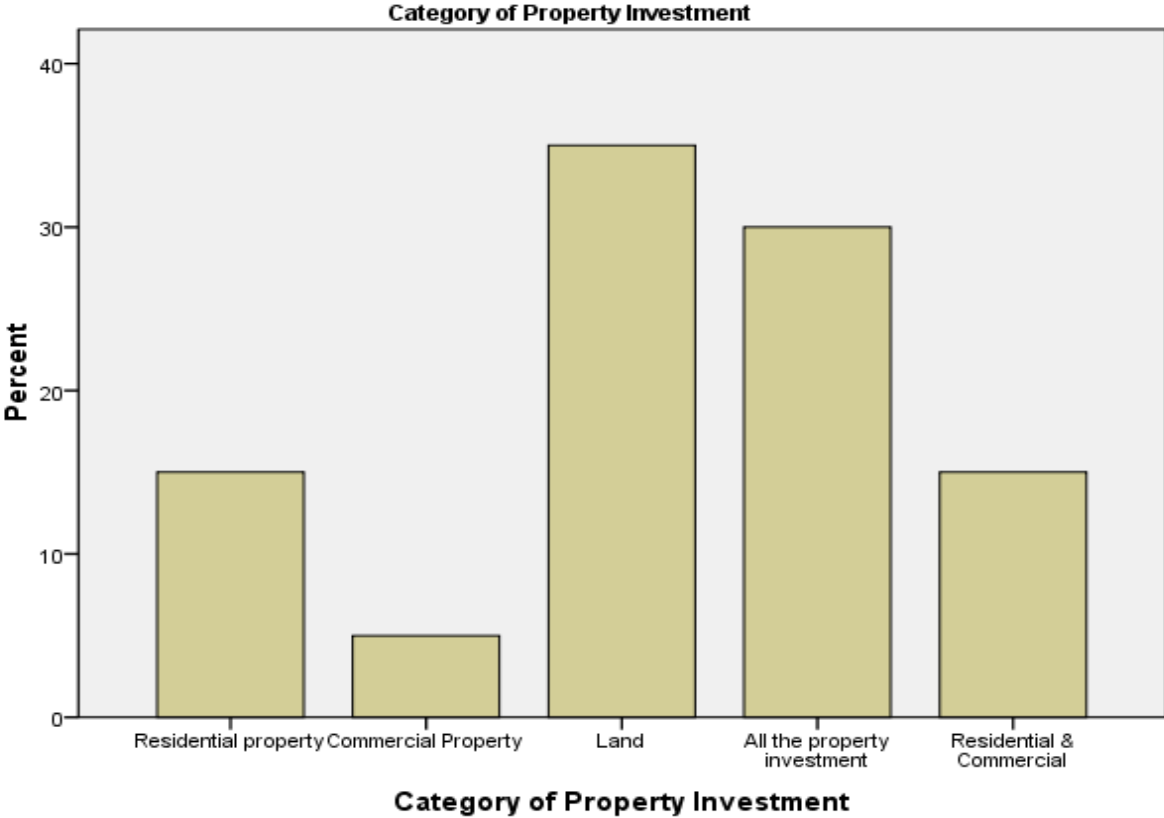
4.2 Response Rate

The population of the study was real estate agents in Nairobi County. A sample of 24 was selected through simple random sampling. Out of these 20 responses were received representing a response rate of 83.33 %. It is data obtained from these respondents that is analyzed and presented.

4.3 Descriptive Statistics

Descriptive Statistics (mode, median, mean, variance, standard deviation) are used to describe respondents' personal and general information with regard to real estate investment. Descriptive statistics are also used to describe the influence level of behavioral variables on the real estate prizes.

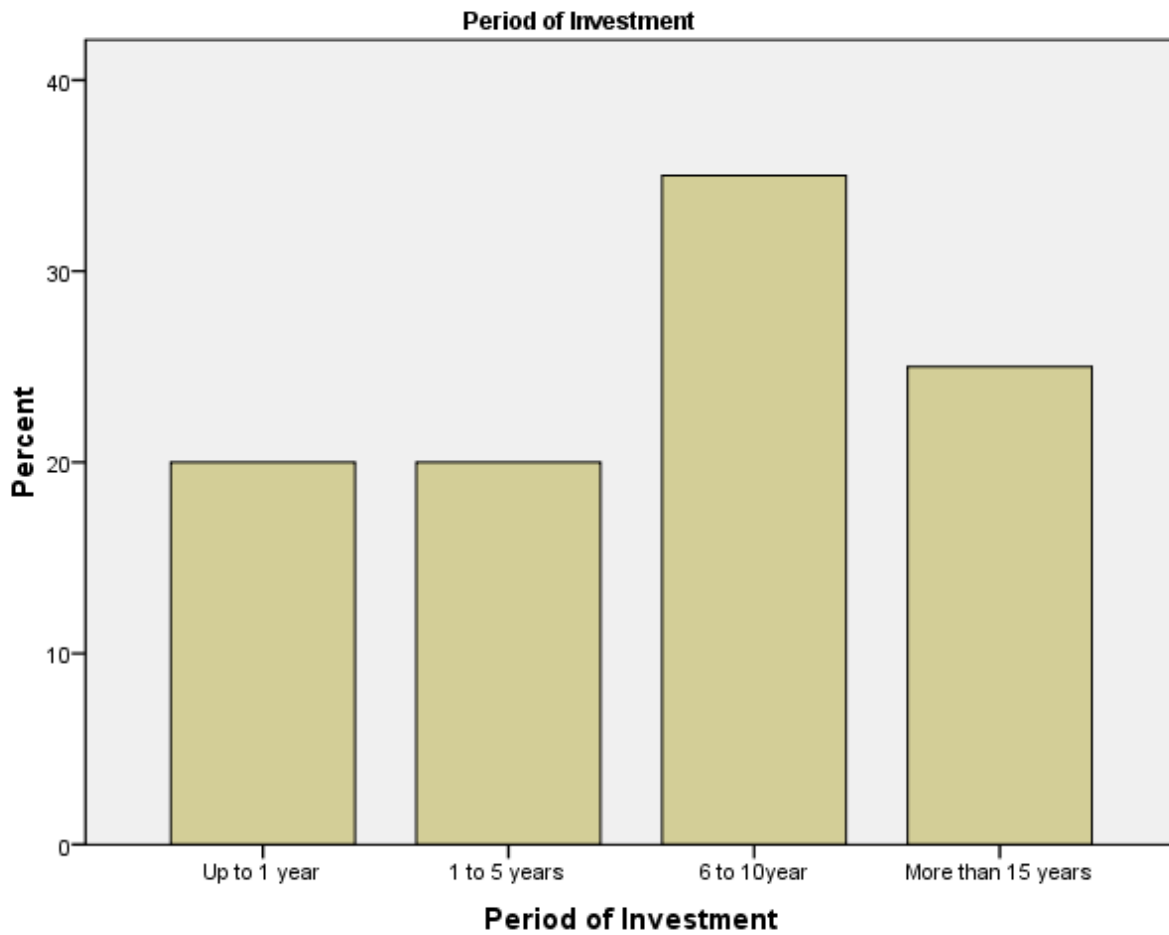
Figure 4.1 Category of Property Investment



Source: Research Findings

The respondents were requested to indicate the type of property they owned. According to the findings in table 4.1, 15% indicated residential property, 5% indicated commercial property, 35% indicated land, 30% indicated all the property while 15% indicated residential and commercial. From these findings we can deduce that majority of the property owned by respondents was land.

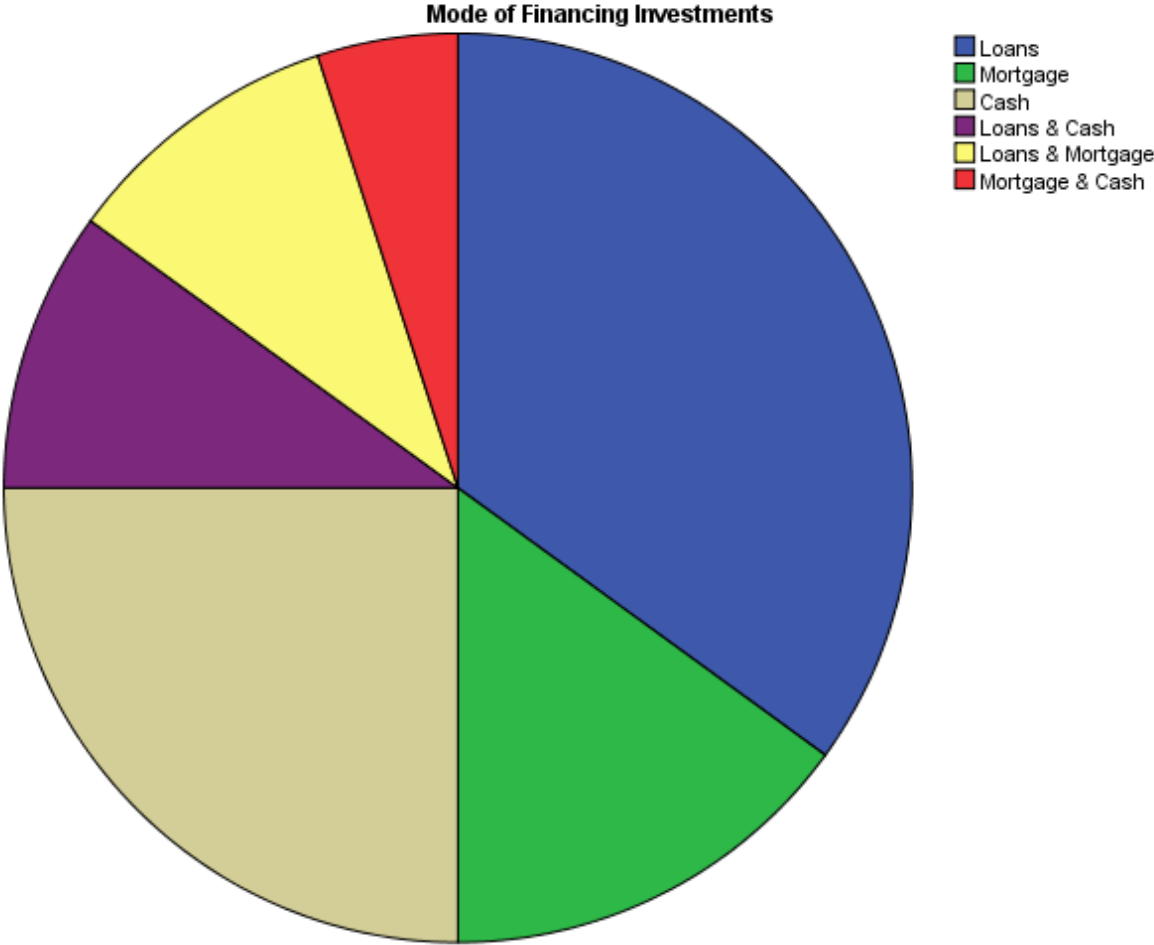
Figure 4.2: Investment Period



Source: Research Findings

The respondents were requested to indicate the length of investment in real sector, according to the findings 20% respondents indicated upto 1 year, another 20% indicated 1-5 years, 35% indicated 6 to 10 years, and 25% indicated more than 15 years.

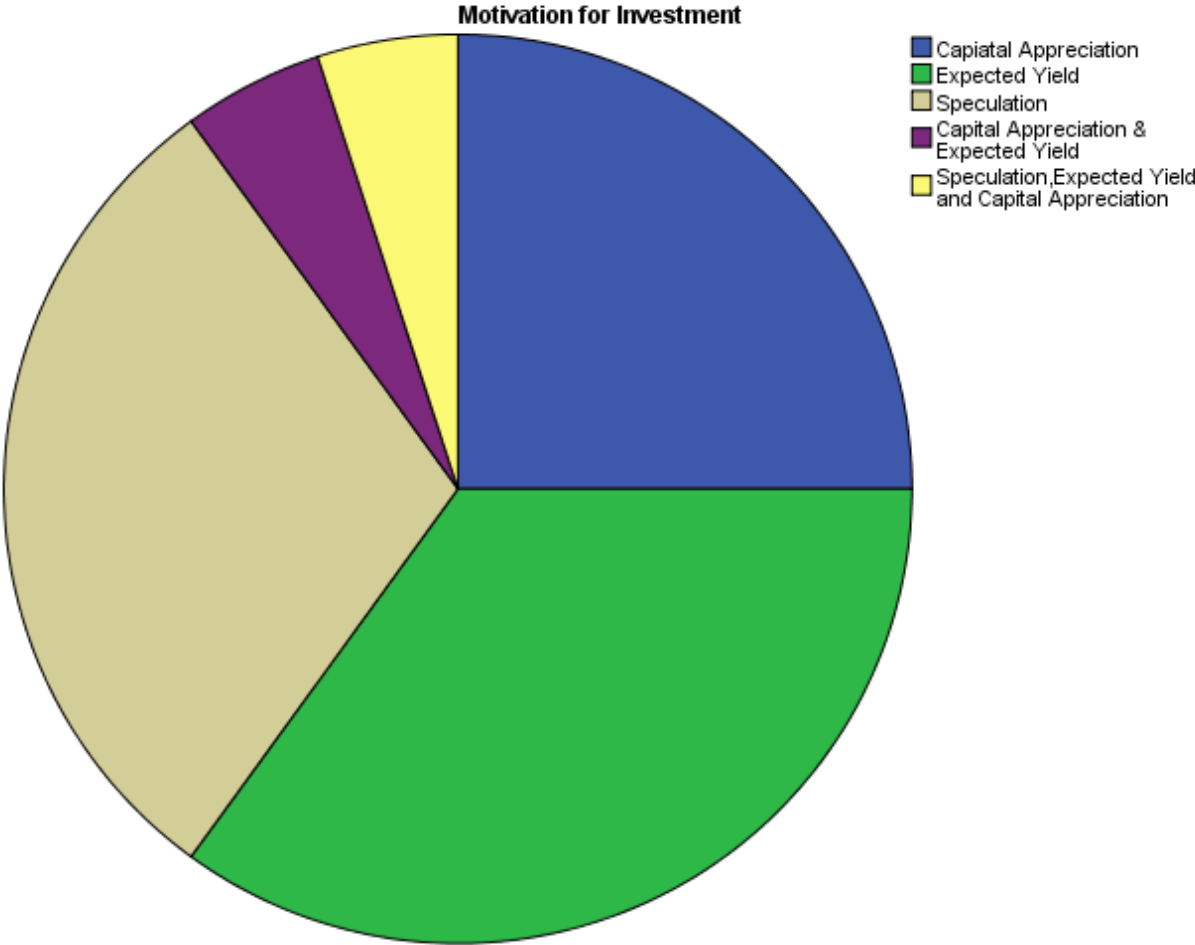
Figure 4.3: Financing Source for Real Estate Investment



Source: Research Findings

The respondents were requested to indicate how they financed their investments. According to the findings the 35% indicated they financed through loans, 15% through mortgage, 25% through cash, 10% through loans and cash, another 10% through loans and mortgage and 5% through mortgage and cash.

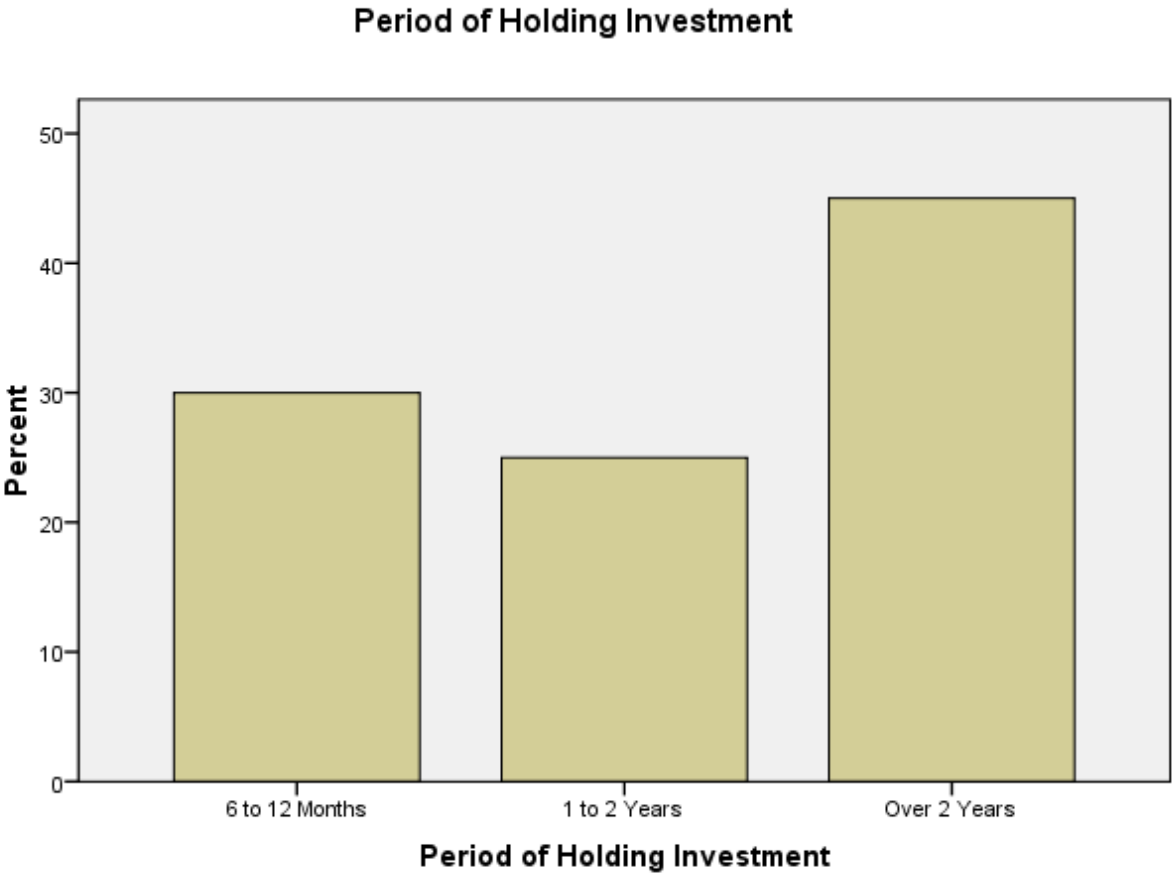
Figure 4.4: Main Motivation for Investment in Real Estate



Source: Research Findings

The respondents were requested to indicate their motivation for investing in real estate. According to the findings 25% indicated capital appreciation, 35% indicated expected yield, 30% indicated speculation, 5% indicated for both capital appreciation and expected yield while the other 5% indicated for all. From these findings we can deduce the respondents invested mainly for speculation.

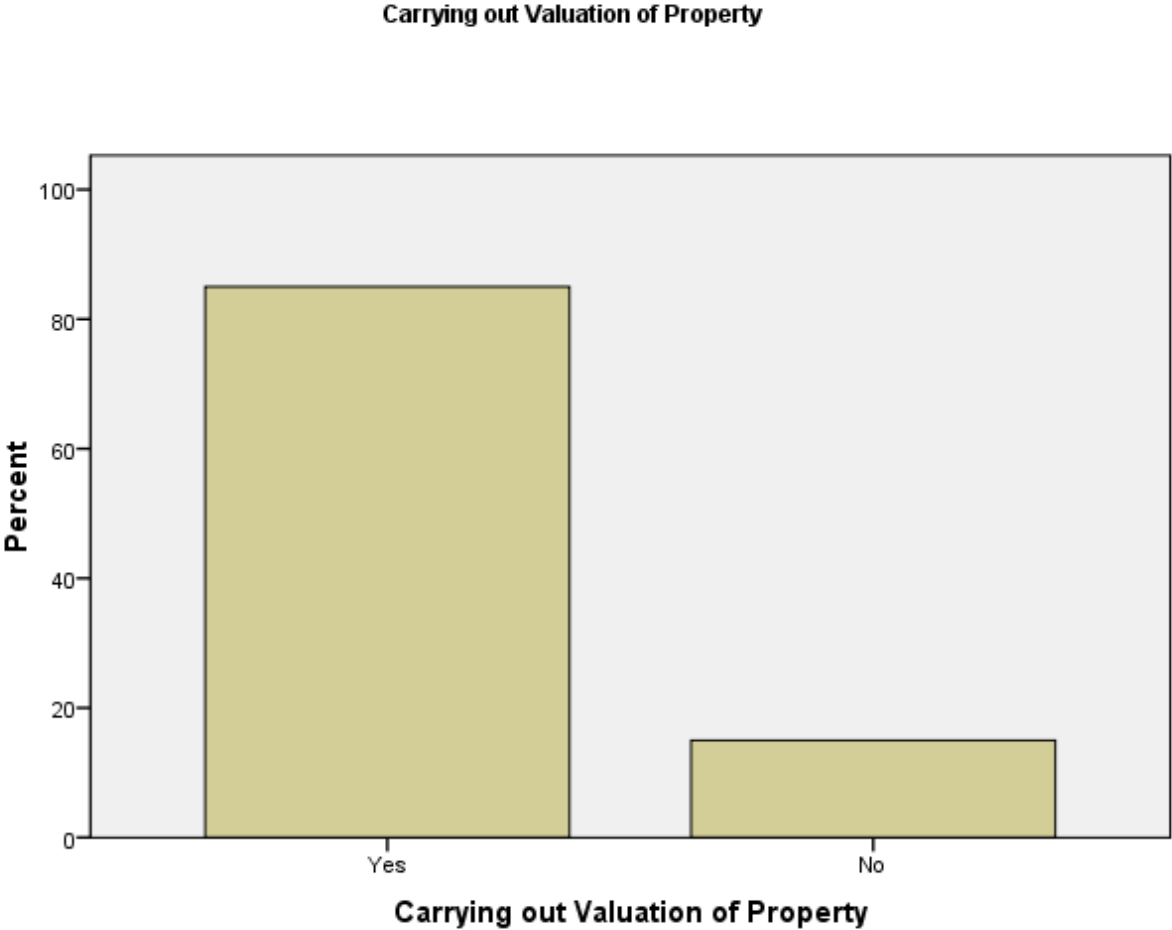
Figure 4.5: Period which Clients Hold Investment



Source: Research Findings

The respondents were requested to indicate the time which clients hold investments. According to the findings 30% indicated 6 to 12 months, 25% indicated 1 to 2 years while 45% indicated over 2 years. From these findings we can deduce that a majority of the investors in real estate hold their investment for more than 2 years.

Figure 4.6: Carrying out Valuation of Property to be Invested



Source: Research Findings

The respondents were requested to indicate whether they carry out valuation of property that they are offering to prospective clients. According to the findings 85% indicated that they carry out valuation while 15% did not. We can therefore deduce that most real estate agents carry out valuation of their products.

Table 4.1: Effect of Behavioral Factor on Real Estate Prices

Behavioral Factors	Mean	Std. Deviation
Emotional Time Line	3.0050	1.2344
Herd Instinct	2.4500	0.9989
Loss Aversion	4.3500	0.8127
Mental Accounting	3.3000	0.9787
Narrow Framing	3.0500	0.9445
Behavioral Portfolios	3.9000	0.7881
Shadow of the Past	2.4500	0.6863

Source: Research Findings

From the data collected it indicated that emotional time line had an effect on real estate prizes with a mean of 3.0050 and standard deviation of 1.2344. Herd instinct had a mean of 2.4500 and standard deviation of 0.9989. Loss aversion mean was 4.3500 and standard deviation of 0.8127. Mental accounting had a mean of 3.3000 and standard deviation of 0.9787. Narrow framing had a mean of 3.0500 and standard deviation of 0.9445. Behavioral portfolios had a mean of 3.9000 and standard deviation of 0.9445 while the shadow of the past had a mean of 2.4500 and a standard deviation of 0.6863.

4.4.1 Correlation Analysis

The main reason for using logits in this study is that when a linear model using probabilities does not fit the data properly, a linear model using logits does (DeMaris, 1992). For the real estate decision model, the dependent variable is the real estate prices.

Table 4.2: Model Fitting Information

Model	-2Log Likelihood	Chi-Square	df	Sig.
Intercept Only	111.512			
Final	94.153	17.359	7	.015

Source: Research Findings

The results from model fitting in the section provide results of ordinal logistic regression versus reduced model (intercept) with complimentary log-log link function. The presence of a relationship between the dependent variable and combination of independent variables is based on the statistical significance of the final model. From the table, the -2LL of the model with only intercept is 111.512 while the -2LL of the model with intercept and independent variables is 94.153. That is the difference (Chi-square statistics) is $111.512 - 94.153 = 17.359$ which is significant at 0.05 since $P=0.015 < 0.05$. We can conclude that there is the association between the dependent and independent variable(s) in complimentary Log-log link function.

Table 4.3 : Pseudo R- Square

Cox and Snell	.580
Nagelkerke	.582
MacFadden	.156

Source: Research Findings

In ordinal regression models, these measures were based on likelihood ratios rather than raw residuals. There are several measures intended to mimic the R-squared analysis, but none of them are an R-squared. The interpretation is not the same, but they can be interpreted as an approximate variance in the outcome. The three different methods were used to estimate the coefficient of determination. McFadden's r-squared (McFadden, 1974) is based on the log-likelihood kernels for the intercept-only model and the full estimated model. Cox and Snell's r-squared (Cox and Snell, 1989) is a generalization of the usual measure designed to apply when maximum likelihood estimation is used, as with ordinal regression. However, with categorical outcomes, it has a theoretical maximum value of less than 1.0. For this reason, Nagelkerke (Nagelkerke, 1991) proposed a modification that allows the index to take values in the full zero to-one range.

4.4.2 Regression Analysis

As the findings presented in 4.3 , behavioral factors have an effect on the real estate prices. The regression estimates of these behavioral factors on the real estate prizes are summarized in the following table:

Table 4.4: Parameter Estimates

Location	Estimate	Std. Error	Wald	Df	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Emotional Time Line	-2.018	.959	4.429	1	.035	-3.897	-.139
Herd Instinct	3.889	1.377	7.975	1	.005	1.190	6.588
Loss Aversion	-2.450	1.148	4.555	1	.033	-4.700	-.200
Mental Accounting	-1.558	.981	2.525	1	.112	-3.481	.364
Narrow Framing	-.979	.679	2.075	1	.150	-2.310	.353
Behavioral Portfolio	1.153	.868	1.765	1	.184	-.548	2.854
Shadow of the Past	3.628	1.439	6.356	1	.012	.808	6.449

Source: Research Findings

In the Parameter Estimates table we see the coefficients, their standard errors, the Wald test and associated p-values (Sig.), and the 95% confidence interval of the coefficients. All the value for real estate prices were statistically significant, this implies for example that a one unit increase in

herd instinct (going from 1 to 5), we expect a 3.889 increase in real estate prizes, given all of the other variables in the model are held constant. Test of parallel lines was designed to make judgment concerning the model adequacy. SPSS tests the proportional odds assumption that is commonly referred to as the test of parallel lines. The model null hypothesis states that the slope coefficients in the model are the same across the response categories. Since the significance P-Value=0.005 < 0.05 indicated that there was significant difference for the corresponding slope coefficients across the response categories for herd instinct, suggesting that the model assumption of parallel.

4.4.3 Analysis of Variance

Analysis of variance (ANCOVA) is a collection of statistical models used to analyze the differences among group means and their associated procedures. In its simplest form ANOVA provides a statistical test of whether or not the means of several groups are equal and therefore generalize the t- test to more than 2 groups.

Table 4.5 Analysis of Variance

MODEL		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	2.241	3	1.243	2.312	0.21
	Residual	7.772	74	2.315		
	Total	2.877	77			

Source: Research Findings

The significance value is 0.021 which is less than 0.05 thus the model is statistically significant in predicting how behavioral bias and frame dependence affect the real estate prizes. The F calculated at 5% level of significance was 2.312.

4.5 Interpretation of the Findings

From the correlation of variance we can interpret that there is an association between the dependent an Independent variable(s) in complementary Log-log Link function since the model is significant at 0.05. Emotional time line, Herd Instinct, Loss Aversion and the Shadow of the past when regressed at 95% confidence interval were all significant. These variables explain the dependent variable more than any variable and there change cause a change on the dependent variable, the dependent variable was also significant. On analysis of variance, the model was found to be statistically significant in interpreting the effect of behavioral factors on the real estate prices.

Behavioral factors are seen to have an effect on the real estate prizes. As it can been seen from the data analysis results the dependent variable is positively correlated to the independent variables. Of all independent variables Herd instinct and the Shadow of the past have had the

most profound positive correlation with real estate prizes. Herd instinct could estimate 3.889 of the real estate prize while the Shadow of the past to an extent of 3.628. Emotional time line and Loss Aversion has a negative effect on the real estate prizes. Mental accounting, Narrow Framing and Behavioral Portfolios has an effect on the real estate prizes but it is not significant.

These results are similar to Javed, Ali, Meer and Naseem (2013) who were testing heuristics interrupting investors rational decision making. The finding of this study showed that there is a significant relation and impact of overconfidence, illusion of control, confirmation biases and excessive optimism on investor decision making and there is a significant relation of status quo, loss aversion and mental accounting but having no impact on investor decision making.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summation of the findings of the study. From the data analysis in the previous chapter, the following conclusions and recommendations of the research were made based on the findings obtained and interpreted from the data collected.

5.2 Summary

In summary form, behavioral factors have been indeed established in this study, to play a major role in influencing real estate investors in their investment decisions, and consequently also influencing real estate prizes. The study targeted 24 respondents in collecting data with regard to the effect of investor sentiment on real estate investment decisions in Kenya. From the study, 20 out of the 24 sample respondents filled-in and returned the questionnaires making a response rate of 83%. According to Babbie (2002) any response of 50% and above is adequate for analysis thus 83% is even better. All the target respondents were real estate agents who have invested in real estate.

The objective of the study was to establish the effect of behavioral factors on real estate prizes in Kenya. Emotional time line had an effect on real estate prizes with a mean of 3.0050 and standard deviation of 1.2344. Herd instinct had a mean of 2.4500 and standard deviation of 0.9989. Loss aversion mean was 4.3500 and standard deviation of 0.8127. Mental accounting had a mean of 3.3000 and standard deviation of 0.9787. Narrow framing had a mean of 3.0500

and standard deviation of 0.9445. Behavioral portfolios had a mean of 3.9000 and standard deviation of 0.9445 while the shadow of the past had a mean of 2.4500 and a standard deviation of 0.6863.

K'Otieno (2012) in a study of investor psychology on investment decision making at Nairobi Securities Exchange established that although investors tend to put clear the objectives of their investment to steer investment decisions to ensure that they get returns from their investments, psychological processes also influence the kind of an investment an individual would want to engage in.

Seiler (2012) examined the degree of mental accounting and false reference points in the property markets when moving from holding a real estate investment in isolation versus holding the asset as part of a mixed-asset portfolio their results demonstrate that mental accounting is prevalent amongst investors in the real estate market. They all conclude that investors form expectations about growth in property price and use that expectation as a basis for the asking price clearly disregarding market forces.

5.3 Conclusions

The study findings conclude that behavioral factors are dependent upon herd instinct, emotional time line, loss aversion and the shadow of the past. From the findings, it can be concluded that investors in the Kenyan property market are influenced by behavioral factors. Herd instinct and the shadow of the past are the most dominant influencing behaviors. Thus these factors will fall into play and hence influence property prizes. This explains why properties would trade beyond the expert's valuation. Further, Kenyan property investors sometimes use predictive skills, have high expectations on property returns and uses property price as a reference point in trading.

It is worth noting that uncertainty will compel any decision maker to be influenced by behavioral factors rather than right information and this plays a crucial role in making investment decisions. In turn, this exposes investors in a situation whereby they find it difficult to disengage themselves from bad investment or cutting losses because they have put so much trust on gut feelings. There is need for the investor to place more liability on facts and figures as opposed to behavioral factors.

5.4 Recommendations for Policy and Practice

The study therefore recommends that the real estate investors need to do an analysis the investment factors carefully using the reasonable traditional finance knowledge before making an investment decision. The investors should also be able to interpret the market and economic indicators since they influence the performance prospects of the property in the market. They should also evaluate all the variables in the environment instead of considering only behavioral factors.

From the findings of this study, it is recommended that behavioral factors be taken into consideration when evaluating real estate prizes. Apart from considering only the fundamentals, real estate property investors should make an effort to find out the perceptions of prospective investments and the particular psychological factors that are likely to strongly influence their decisions to buy and/or sell their properties.

The regulatory authorities must take into account the behavioral factors affecting the real estate prizes and proper regulations should be incorporated which could help in reducing irrational behavior in the real estate industry. The objective to policy makers should focus on creating awareness and conditions through which behavioral factors have the least amount of impact on

the real estate prices. This would also ensure that the economy is cautioned from a market crash as was witnessed in America and China in 2007.

5.5 Limitations of the Study

The main limitation is the fact that this study only covered Nairobi leaving out other urban areas of Kenya. It would have been ideal to cover other geographical regions other than Nairobi. The study was also limited to only some aspects of investor sentiment (frame dependence and behavioral factors) whereas behavioral finance theory has identified a number of biases that can influence the investor's decision making.

Limitation of time made it impractical to have more respondents in the study. More respondents would have been essential to increase the representation of the real estate investors in Kenya in this study. There was also a limitation of finances, collection of data proved to be an expensive. Had there been more funds there could have been a bigger geographical location covered as well as more questionnaires given out. Respondents were also not very welcoming, as they saw filling of questionnaires being a distraction from their busy schedules, one needed to be very patient

5.6 Suggestion for Further Research

A similar study is recommended to be undertaken in a different locality in Kenya or even in another country so as to compare the findings with those of this research.

Further studies would also be recommended in the areas of valuation methods used by the real estate agents and a comparison to the traditional finance methods should be done. This is so because during the research most agents admitted to doing valuation but when prompted on the method used the answers though not analyzed dint seem to be the conventional valuation methods. I would also suggest a research on the total investments in real estate that are as a result of psychological factors.

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APPENDICES

Appendix I: List of Property and Real Estate Companies in Kenya as at 19th July 2015

1. Active Homes	2. Josmarg Agencies
3. Afriland Agencies	4. Kali Security Co Ltd
5. Ark Consultants Ltd	6. Karengata Property Managers
7. Barloworld Logistics (Kenya) Ltd	8. Kenya Prime Properties Ltd
9. Betterdayz Estates	10. Kenya Property Point
11. British American Asset Managers	12. Kilifi Konnection
13. Canaan Properties	14. Kiragu & Mwangi Limited
15. Capital City Limited	16. Kitengela Properties Limited
17. CB Richard Ellis	18. Knight Frank Limited
19. Colburns Holdings Ltd	20. Kusyombunguo Lukenya
21. Coral Property Consultants Ltd	22. Land & Homes
23. Country Homes and Properties	24. Land & Homes
25. Crown Homes Management	26. Langata Link Estate Agents
27. Crystal Valuers Limited	28. Langata Link Ltd
29. Daykio Plantations Limited	30. Lantana Homes
31. Double K Information Agents	32. Legend Management Ltd

33. Dream Properties	34. Lloyd Masika Limited
35. Dunhlill Consulting Ltd	36. Mamuka Valuers (M) Ltd
37. East Gate Apartments Limited	38. Mark Properties Ltd.
39. East Gate Apartments Limited	40. MarketPower Limited
41. East Gate apartments limited	42. Mentor Group Ltd
43. Eastwood Consulting Limited	44. Merlik Agencies
45. Ebony Estates Limited	46. Metrocosmo Ltd
47. Ebony Estates Limited	48. Mombasa Beach Apartments
49. Elgeyo Gardens Limited	50. Monako Investment Ltd
51. Fairway Realtors And Precision Valuers	52. Muigai Commercial Agencies Ltd.
53. FriYads Real Estate	54. Myspace Properties (K) Ltd.
55. Gimco Limited	56. N W Realite Ltd
57. Greenspan Housing	58. Nairobi Real Estates
59. Hajar Services Limited	60. Neptune Shelters Ltd
61. Halifax Estate Agency Ltd.	62. Oldman Properties Ltd
63. HassConsult	64. Oloip Properties
65. Hewton Limited	66. Ounga Commercial Agencies
67. Homes and lifestyles	68. Palace Projects Limited

69. Housing Finance	70. Property Investment Network
71. Jacent Properties Limited	72. property zote.com
73. Jimly Properties Ltd	74. Raju Estate Agency Limited (REAL)
75. Jogoo Road Properties	76. Tysons Limited
77. Josekinyaga Enterprises Ltd	78. Urban Properties Consultants & Developers Ltd

Source: (<http://softkenya.com/property>)

Appendix II: Questionnaire

Below is a questionnaire that intends to capture your views towards the effect of behavioral biases and frame dependence on real estate prices in Kenya. Please note that information given is intended for academic purposes only. Ensure that you respond to all the questions.

Thanks in advance.

THE EFFECT OF BEHAVIORAL BIAS AND FRAME DEPENDENCE ON REAL ESTATE PRICES IN KENYA

PART 1: BACKGROUND INFORMATION

1. Name of the Real estate agent.

Company/Investor_____

2. Indicate your category of real estate property investment

Residential Properties [] Commercial Properties [] Land []

3. For how long have you been investing in the real estate sector?

Up to 1 year [] 6-10 years [] 1-5 years [] More than 15 years []

4. How do you mainly finance your investments?

Loans [] Mortgage [] Cash [] other (Please specify) _____

5. What is your client's main motivation for investment in real estate?

Capital Appreciation [] Expected Yield [] Speculation []

Other (Please specify) _____

6. On average, how long do your clients hold investments?

1-6 Months 6-12 Months 1-2 Years Over 2 years

7. Do you carry out valuation for property that you are investing in or selling to your clients? Yes () No ()

8. What valuation model do you use? please specify

.....
.....
.....

9. Do you advice your clients while investing in the real estate on the basis of valuation carried out.

Yes () No ()

10. Do your clients maintain an efficient portfolio while investing in real estate?

Yes () No ()

11. With changes on client's investment, do the clients refer to their portfolios?

Yes () No ()

PART 2:

To what extent do the following factors influence your decisions and that of your clients in investing in real estate property?

Use the following scale: 1= Very Great Extent; 2= Great Extent; 3= Moderate; 4 = Small Extent; 5 = Very Small Extent.

Tick the extent in the brackets at the end of each question. The questions have been categorized according to the variables of the study.

Emotional Time Line.

1) To what extent does hope and fear drive your clients while investing in real estate?

1. () 2. () 3. () 4. () 5. ()

Herd Instinct.

2) To what extent do you provide real estate valuation to your clients?

1. () 2. () 3. () 4. () 5. ()

3) To what extent do you use news events when investing in the real estate market?

1. () 2. () 3. () 4. () 5. ()

4) To what extent do you use the following media for marketing your property?

Radio. 1. () 2. () 3. () 4. () 5. ()

TV 1. () 2. () 3. () 4. () 5. ()

Newspaper 1. () 2. () 3. () 4. () 5. ()

Business newspaper 1. () 2. () 3. () 4. () 5. ()

Financial Journals and publications 1. () 2. () 3. () 4. () 5. ()

5) To what extent do you use as an opinion of other real estate agents/experts to assess performance of the real estate market?

1. () 2. () 3. () 4. () 5. ()

6) To what extent do you rely on opinion of peers or family for real estate investment decisions?

1. () 2. () 3. () 4. () 5. ()

Loss Aversion.

7) To what extent do your clients view opportunities with regard loss and gain as compared to total wealth while investing?

1. () 2. () 3. () 4. () 5. ()

Mental Accounting.

8) To what extent does your client speculate on gains in real estate as compared to their original capital investment?

1. () 2. () 3. () 4. () 5. ()

Narrow Framing.

9) To what extent do your clients evaluate an investment option in relation to their portfolios?

1. () 2. () 3. () 4. () 5. ()

Behavioral Portfolios.

10) To what extent do your clients evaluate an investment decision with reference

to changes in their total wealth?

1. () 2. () 3. () 4. () 5. ()

Shadow of the past

11) To what extent do you use past performance as an indicator of future performance when investing in property?

1. () 2. () 3. () 4. () 5. ()

12) Are there other behavioral factors that influence your client's decision investing in real estate? Please specify.

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.....*THANK YOU*