



## Effect of prospect based behavior biases on the performance of real estate investments in Kenya

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### Abstract

Kenya is the world's top performer in terms of real estate transparency and there has been a phenomenal growth in real estate investment in Kenya in the last ten years (2005-2016), with returns that way outdo the returns in the security markets. Despite this growth, Kenya has the lowest real estate returns in the Eastern Africa. The returns of real estate in Kenya are the lowest, standing at an average of 8% compared to that of Uganda with 11.1% and Tanzania 8.8%. Based on this trend, a fundamental question would be what is really driving this investment. This study therefore attempted to determine the contribution of Prospect based behavioural biases in influencing real estate performance in Kenya using a sample of 353 individual investors. To test study hypothesis, Model R2, ANOVA Statistics and Regression coefficients were generated and interpreted. The results indicate that prospect bias negatively influence the performance of real estate industry. These findings imply that there is apparent irregularity in human behaviour when evaluating risk under uncertainty thus affecting the performance of their investments. Further interpretation is that losses hurt more than gains satisfy therefore real estate investors in Kenya tend to be risk averse when choosing between gains and risk takers when choosing between losses.

**Keywords:** real estate, prospect based bias, regret aversion, loss aversion

### Introduction

Behavioural finance view investors as loss-averse instead of risk-averse. Loss aversion is the belief that investors experience higher disutility from a loss than from an equivalent gain or profit. Tversky & Kahneman (1992) <sup>[1]</sup> suggested that individuals value a loss roughly twice as a similar magnitude of profit. This is an indication that losses are twice as powerful as equivalent gains and investors tend to attach more value to losses than they do losses. As a result investors increase their risk/uncertainty to avoid the slightest possible loss.

Mercer (2010) <sup>[2]</sup> notes that, individuals seem to understand profits too rapidly in the fright that their unrealized earnings will vanish. Further still, when it comes to losses, the same individuals be inclined to grasp onto stocks that are loss making longer in the hope of converting them into profits rather than cutting the losses sooner. The facts that investors are not able to realize when to cut their losses and move on makes them suffer further loss.

The Kenyan real estate market has delivered greater price stability than all of international markets surveyed - US, UK, UAE, Hong Kong, India, Australia as well as South Africa. The most outstanding feature is that the Kenyan market remained resilient and maintained price stability during global recession (Hass Consult, 2012) <sup>[3]</sup>. This can be attributed to rapid increase of the Kenyan population and vast interest in the market of real estate by MNCs.

Real estate contributes about 8% to GDP with an average growth rate of 4.1% per year (RoK, 2015) <sup>[4]</sup>. Real estate sector's contribution to GDP is way ahead of Wholesale and retail Trade (7.6%), Education (6.9%), Transport and storage (6.6%) and Finance and Insurance (5.9%). This means that it's

one of the major sectors in the Kenya Economy. Economic survey, a key report by the Republic of Kenya indicates that construction registered an accelerated growth of 13.1% between the year 2013 and 2014 (RoK, 2015) <sup>[4]</sup>. The index of reported private building works completed in Nairobi City County rose from 321.3 to 341.4 in the same period. During the same period, the public building works completed in the Country reduced from 103.7 in 2013 to a low of 61.4 in the year 2014. Cement consumption, a key indicator of the building and construction industry grew by 21.8% in 2014 to stand at 5,197 thousand tonnes. These statistics point towards one fact, that building in the private sector has been on the rise in the recent past, and that the private sector dominated the building and construction sector.

The Central bank of Kenya reports indicate that the credit extended to the building and construction sector went up by 13.6% to 32.4%, that is, from KSh 70.8 billion in 2013 to KSh 80.4 billion in 2014. The sole factor contributing to this rise was the increased financing of real estate development (CBK, 2015) <sup>[6]</sup>. These highly interrelated statistics were mainly driven by the rising demand for housing in Nairobi and also the demands for new offices in the Country (Rok, 2015) <sup>[4]</sup>. In terms of domestic credit, real estate and households account for over 26% of the gross National Domestic credit, implying that these sectors are the key drivers of Credit in the Country (CBK, 2014) <sup>[5]</sup>. Further statistics from the financial sector indicated that in terms of sectoral distribution of loans, real estate alone accounts for a significant 14.4% of the total loans in Kenya. These statistics exclude building and construction sector which accounts for 4.6% and household accounting for 24.8%. It is generally known that the cited three sectors are closely related and are or could be expected to drive the real

estate development, it could therefore be concluded that the real estate sector could possibly account for a significant 43.8% of the loans in Kenya. Further statistics from the Central Bank of Kenya, the sole regulator of the commercial sector of banking, indicate that real estate sector in the 4th largest borrower in Kenya (CBK, 2015)<sup>[6]</sup>.

Between the years 2010 and 2016, there has been an important growth in real estate development, driven by rising demand for both office and residential houses (PwC, 2015)<sup>[7, 8]</sup>. These are largely financed through mortgages and private borrowings by developers. While the commercial banks play a major function in assessing the credit worthy of the projects, in terms of capacity to pay and timelines of repayment, there has been a worrying trend in terms of loan repayments, casting doubt as to whether the borrower's projections are realistic. For example, real estate alone accounts for over 12% of the Non Performing Loans (NPL) in Kenya, followed by building and construction 9.4% and household with 9.1%. These statistics indicate that the three sectors alone account for over 30% of the NPL in Kenya. These numbers are not only worrying but it implies that they have the capacity to bring the financial sector to its knees. This contrast in loan repayment points to inadequate returns and begs the question as to whether the investment decisions of real estate investors are driven by objective market fundamentals?

This research therefore sought to explore the influence of Prospect based behavioural biases on the real estate performance in Kenya.

### Literature Review

Barberis and Thaler (2003)<sup>[9, 18]</sup> contend that the magnitude of loss aversion will impact the frequency with which investors appraise their portfolio and that the way investors frame losses as well as gains is reasonably manipulated by the manner in which information is available to them. Investors that evaluate their portfolio frequently, also known as energetic investors, for instance, on a daily basis are more loss averse. Subsequently, they will apportion less of their wealth in equities. The combination of loss aversion and evaluations of frequent is termed as myopic loss aversion, which is a situation whereby investors base their decisions on current temporary fluctuations in their investments value rather than base them on implications that are long-term.

Berkelaar, Kouwenberg and Post (2004)<sup>[10]</sup>, Barberis Huang and Thaler (2006), Polkovnichenko (2005) and Gomes (2005) demonstrate that loss-reluctant investors tend not to take part in equity markets otherwise will normally apportion significantly a smaller amount of their wealth to equities. If investors are loss-reluctant the possible gain from decline of stock market overshadows the delight from achievements even with a superior premium of equity (Mbaluka *et al.*, 2012)<sup>[11]</sup>. Consequently, loss-averse investors prefer to avoid any investment in equity. Loss aversion indicates that individuals categorize events to be either losses or gains in relation to a point of reference. In investments, this phenomenon is believed to manifest itself in what is known as "disposition effect". Individuals portray the tendency to get gains too rapidly in the fright that they might make losses.

Literature review on Psychological biases and the capital structure decisions, Bilgehan (2014)<sup>[12]</sup> looks at Ullah, Jamil,

Qamar and Waheed (2012)<sup>[13]</sup> who in their study, reveals that managers in an organization are risk reluctant, while profitability and size are positively associated to the structure of capital. This research elaborates that do the bosses alter their capital structure in agreement with risk of business and how the firm size, growth of sales as well as profitability, contributes to the formation of capital structure.

### Methodology

#### Population, sample and data

This research utilized a process of multi-stage sampling in the choosing of the sample for this study. The target population is the real estate agents in Kenya. However the accessible population is known, that is, the registered real estate agents in Nairobi Kenya. However of the many and unknown real estate investors in Nairobi, there is that category of investors who are enlisted with real estate agents. This study used the real estate investors who are enlisted with the Estate Agents Registration Board (EARB) in Kenya. EARB is a regulatory body for estate agency practice in Kenya and maintains a list of all registered real estate agents. The study used the list of real estate agents to get in touch with investors. Out of the registered EARB list of 331, 86% (284) operate in Nairobi. The accessible real estate agents population is regarded as 284. In order to access these investors, a multi-phase process was used. Multi stage or multiphase sampling entails a process of selecting a sample in two or more successive stages (Gatara, 2010; Cooper and Schindler, 2011)<sup>[14, 16]</sup>.

To determine the size of the sample when the whole population is greater than 10,000 (n), Fisher *et al.* (1983)<sup>[15]</sup> recommend the use of equation below. In the equation, n refers to the preferred size of the sample (if the total population is more than 10,000), letter Z refers to the standard normal diverge at the necessary level of confidence, p refers to the proportion within the population of target predicted to have characteristic being examined. In this expression, q is the proportion of the population of target predicted not to have the character being sought. On the other hand d is the level of statistical significance.

$$n = \frac{Z^2 pq}{d^2}$$

The study used (0.5) to be the values of p and q in the formula. Fisher *et al.* (1983)<sup>[15]</sup> recommended that if there are no estimates available in population of target assumed to have the characters of importance, 50% should be utilized for the proportion of the target population with characteristic being measured. Based on the above equation, at 95% desired level of confidence, the size of the sample for this study (n) was determined as a minimum of 384 respondents.

This study used a sample size of the sample which was arrived at in two successive stages. First, the list of registered real estate agents operating in Nairobi, which is listed alphabetically, was used. This list has 284 REAs. From this list one investor each was selected giving a sample of 284 investors. In order to arrive at the remaining minimum of 100 respondents, a systematic random sampling was used. The 284 REA was divided by the required sample size of 100 REI. This process resulted into obtaining an investor from every

2nd REA in the list of 284. Similarly as in the first phase of sampling, all the second REA was used to provide the second investor. A total of 142 investors were obtained in the second phase. The total sample size of the investors for this study was therefore the total of 284 arrived at in the first phase and an additional 142 computed in the second phase, which was 426 REI. This was deemed appropriate since the minimum sample size statistically computed was 384 respondents. In social research, it is deemed more appropriate to oversample where the response rate is likely to be small. One of the reasons for low response rate in research is when the information sought is regarded as confidential or sensitive to the respondent. This study relied on real estate investors providing information on the performance of their investment. This information could in business finance be regarded as quite confidential to the investors themselves. It was therefore appropriate to retain the oversampling of approximately 10% over and above the statistically determined minimum sample size of 384 respondents.

For the study objective, statistical modeling was done through a series of procedures. First, factor analysis was done. Based on the output of the model parameters, the preferable model was selected. Secondly, bivariate regression was done and inferences drawn for the objective. After the bivariate regression, the resultant model residual was used to test homoscedasticity and assess the suitability of the bivariate model between prospect bias and investment performance (Shevlin & Miles, 1997) [17]. For the bivariate regression, model fitness was assessed to determine the coefficient of determination for the predictor on dependent variable. Further, one way analysis of variance (ANOVA) was presented to determine the specified model suitability.

To establish the influence of prospect based behavioural biases on performance, bivariate regression expression was used. In this expression, (REP) is Real Estate Performance,  $\alpha$  is the constant;  $\beta$  is the rate of change of performance with a unit change in predictor and X, the composite measure of prospect based behavioural biases.

$$REP = \alpha + \beta X$$

## Results and Discussion

This study analyzed the effect of prospect based behaviour biases on the performance of real estate investments in Kenya. To achieve this objective, respondents were asked to indicate their level of agreement to various prospect based behaviour biases. Prospect based behaviour biases included the regret aversion and loss aversion. The results showed that there was a significant relationship between prospect based behaviour biases and performance of real estate investments in Kenya. The null hypothesis;  $H_0$ : Prospect based behaviour do not affect the investment performance of real estate investors in Kenya, was rejected and the alternative hypothesis accepted. Using the standardized coefficient, prospect bias had a beta value of -0.435 with a t value of -5.133 and  $p=0.000$ . Since  $p < 0.05$ , we reject  $H_0$  at significance level 0.05.

These results imply that prospect biases (Regret aversion and loss aversion) affect investment performance of real estate in Kenya. This finding has an implication that there is apparent irregularity in human behaviour when evaluating risk under

uncertainty thus affecting the performance of their investments. Further interpretation is that losses hurt more than gains satisfy therefore real estate investors in Kenya tend to be risk averse when choosing between gains and risk takers when choosing between losses.

These findings collaborate with the findings by Barberis and Thaler (2003) [9, 18] who found out that the magnitude of loss aversion will impact the frequency with which investors appraise their portfolio or investment and that the way investors frame gains and losses is reasonably influenced by the way information is availed to them. Similarly, in their study on behavioural biases and firm behaviour among Kenyan retail shops Kremer, Lee, Robinson and Rostapshova (2013) [19] showed that loss aversion can potentially help explain a series of puzzles related to the persistence of unrealized high-return investment opportunities.

## Recommendations

This study indicates that prospect behavioural bias has a negative impact on investment performance. To avoid the negative impact of behavioural biases firstly, when evaluating investments, investors should avoid at barely looking at the risk and return characteristics of that individual investment. Rather, analyze how that particular investment will impact to the total portfolio performance, and determine whether it will enhance the total return, minimize risk, or both.

Secondly, these findings provide a basis for policy setting in the real estate market. The Estate Agents Registration Board (EARB) which is the regulatory body for estate agency practice in Kenya and other individual and institutional market players can use these findings as a basis of investor education and minimization of noise trading in the Kenyan real estate markets. Therefore, this study recommends that the government, through the ministry of planning and in conjunction with the real estate agents make periodical publications on the performance of the real estate market. These publications would serve as a reliable source of information and provide insight to current and potential investors regarding price movements since they can be able to make viable investment decisions without relying on incorrect information based on market sentiments and individual perceptions.

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