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Real-Estate Investor's Psychology: Heuristics and Prospect Factors

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This study contributes to the research related to investors' behavior. Heuristics and prospect theories are currently the most researched areas in the domain of behavioral finance. However, these theories have not been thoroughly examined, tested or validated. This study aims to use heuristics and prospect theories to examine the influences of behavioral constructs on real estate agents' investment decision and performance in Pakistan. Heuristics model consists of five constructs, and the prospect model consists of three constructs - both sets of constructs are tested separately. The central theme of investment performance is to measure the level of satisfaction toward investment decision. The research findings are based on data collected from 254 real estate investors. Smart PLS 3.00 was used to apply SEM-PLS analysis to the collected data. The results show that gambling and availability heuristics are the strongest positive predictors of the investment performance of real estate investors. The prospect-based relationships show that loss and regret aversion are positive, statistically supported, and substantial. Overall, the heuristics model has higher predictive power than prospect model in explaining the investment performance of real estate investors in Pakistan.

Keywords: Behavioral Finance**,** Real Estate Investors**,** Regret Aversion, Gambling, Prospect Theory, Heuristics.

INTRODUCTION

According to traditional finance theories, individual investors reach their investment decisions after considering the return and risk characteristics of the stocks. Traditional theories assume all individuals are normal and utility maximizing. However, different research studies show that this is not always the case. Furthermore, when individuals face uncertainty, they make irrational and inconsistent decisions (Shefrin & Statman, 1994; Shleifer, 2000; Kahneman & Tversky, 1979).

Malkiel and Fama (1970) stated that in an efficient market, all the investors make rational decisions and that these decisions reflect all relevant information. The Capital Asset Pricing Model (CAPM), the Arbitrage Pricing Theory (APT) and the Modern Portfolio Theory (MPT) are quantitative models that are based on rational expectations theories (Markowitz, 1952; Ross, 1976; Sharpe, 1964). However, research suggests that it is not necessary that these theories would always hold. Statman (1995) argued that the Efficient Market Hypothesis is unable to explain the behavior of the market.

Problem Statement

It is believed that the real estate bubble caused the financial market collapse in 2008, leading to extensive research on volatility in the real estate market. Shiller (2003) explained that the efficient market hypothesis is unable to explain the level of volatility in the financial market. Barberis and Thaler (2003) showed that behavioral finance theories draw evidence from cognitive psychology and the related behavioral factors through which people make preferences and make irrational decisions. Investors in Pakistan's Real Estate market tend to exhibit irrational decision making. To understand and provide a reasonable explanation of such irrational behavior, there is a need to explore the factors, which influence investment decisions of real estate investors (in Pakistan) and the effect of these factors on investment performance.

This paper investigates market inefficiency by measuring the heuristics and prospect components that influence the investment decisions of a real estate investor. However, investors' behavior in the real estate market has not been extensively documented in the literature. Therefore, consensus has not been established in the context of behavioral finance. Gou (1984) investigated the efficient market hypothesis in the context of the real estate market. Furthermore, Case and Shiller (1988) empirically examined the real estate market and concluded that the market is not perfectly efficient. A limited number of studies have been conducted in the context of behavioral finance in the real estate market in developing country. Hence, the research examined the heuristics and Prospect Theories (PT) related factors for Pakistani real estate market. Asian investors tend to be more irrational than their western counterparts (Kim & Nofsinger, 2008). Therefore, this paper aims to examine the behavioral factors of real estate agents in Pakistan as a developing country.

The research questions are:

- Do heuristic factors affect investment performance of real estate investors' in Pakistan?
- Do prospect factors affect investment performance of real estate investors' in Pakistan?

Prior studies developed the effect of behavioral factors on the investment performance of the stock market's investors. However, many scholars paid less attention to the real estate market compared to the stock market. Therefore, the research establishes the influences of behavioral constructs on the

investment decision and performance of real estate investors. By exploring different markets, researchers gain a better understanding that eventually helps the practitioner to understand the real estate investors, their behavior and market conditions.

Furthermore, there is less attention on behavioral finance in developing countries. This study tests the model in the context of Pakistani real estate market. The choice of the study is made because of the lack of similar studies conducted in developing countries.

This study does not consider any cultural aspect. The research model is strengthened by the structural model using SmartPLS 3.0. In the final phase, this study revised the concept of heuristics and prospects in term of the real estate market.

This study sheds light on different behavioral components that influence investment performance as well. Therefore, investors consider different behavioral factors in decision making.

This study makes use of questionnaire data collected from 254 real estate investors in Pakistan. The collected data is examined by applying the SEM-PLS using the SmartPLS 3.00.

Findings

Investors' behavioral factors play a crucial role to influence the investment performance of real estate investors. Gambling and availability from heuristics, regret and loss aversion from prospect are the most dominant factors that influence investment performance. The justifications of the supported hypotheses are discussed in the discussion section.

LITERATURE REVIEW

Traditional Finance Theory states that investors act rationally and correctly, bringing into consideration all currently available information in the decision-making process (Kishore, 2004). Furthermore, Jim et al. (2007) argued that traditional finance states that the price of assets traded in the frictionless market reflects all available information, and there is no role for investors' sentiment.

According to Malkiel and Fama (1970), an efficient market can be defined as a market where asset prices always fully reflect all the available information. EMH assumes that all the investors make rational decisions, and their decisions reflect all available information (Malkiel & Fama, 1970). Statman (1995) EMH is unable to explain market behavior. Furthermore, French (2001) stated that the actual behavior of decision maker could deviate from the normative model of Markovitz, and this is due to the problem-solving behavior of individuals. Behavioral finance describes the actual behavior of investors and the market. Therefore, behavioral economics is a strong application to understand the actual behavior of investors and the market. Sewell (2007) explains that psychology's influence on investors and in turn influences the market. Shiller (1999) documents that behavioral finance imports human behavior theories from social sciences to explain human behaviors in markets. Statman (1999) states that behavioral finance explains the cognitive and emotional indicators that affect the investment performance of real estate agents. Ritter (2003) explains that behavioral finance is the combination of two main elements: cognitive related psychology and limit to arbitrage. Cognitive psychology explains how persons ponder, and the limits to arbitrage define whether the marketplace generates anomalies.

Waweru et al., (2008) explains the limitations in traditional financial models that focus on investors' biases that bound the investors in terms of human behavioral characteristics.

These characteristics are grounded on mental psychology and are affected via mental illusion. The cognitive illusion has two broad classifications, which are called prospect theory (PT) and heuristics decision process.

Human beings like outcomes that are known to them as compared to those outcomes that involve probability (Kahneman & Tversky, 1979). They proposed the prospect theory and argued that people value gains and losses differently. They stated that it is difficult for people to adjust themselves easily to losses. Wood (1996) finds that it is easy for investors to frame such situations that create a feeling of a sure gain or loss, which would result in pleasure or pain.

The most observed concepts of prospect theory are loss aversion, mental accounting, and regret aversion. Kahneman and Tversky (1979) argue that loss aversion is the most crucial concept that works in behavioral finance. They stated that people give twice the weight to losses as much as a gain of a similar magnitude. Investors like to sell stocks which are increased in price and avoid selling the stocks, which are decreased in price (Shiller, 1999; Lebaron, 1999). The pain of loss is much higher for people than the pleasure with an equivalent gain. Thus, loss aversion influences the real estate investor's investment decision (Rabin, 1998; Shalev, 2002).

Regret is described as the emotion that is caused by comparing the state of events or a given outcome with the state of a particular event (Bell, 1985). Choosing between a familiar and an unfamiliar brand, a consumer might not select the unfamiliar brand because he can consider the regret of finding that the unfamiliar brand performs poorly compared to the familiar brand (Inman & McAlister, 1994). Investors want to enter into the asset market because they notice that other people receive high returns on their investments. Regret plays an essential role in such markets which show high price raises, recently. Investors ignore the increased risk of capital losses; they enter into such markets because they do not want to have regret about not participating in the market (Farlow, 2004). Hence, regret aversion is considered a significant factor that influences the real estate investor's investment decision.

Mental accounting refers to how financial outcomes are categorized and evaluated by people (Henderson & Peterson, 1992). People use heuristics to characterize the element of their expenditures in different mental accounts (Thaler, 1985). Shiller (2000) stated that mental accounting is the tendency of individuals to make separate mental accounts of their world. In their investment portfolio, each element is treated separately and as a result. It leads to an inefficient and inconsistent investment decision by investors. Rockenbach (2004) argued that between different investment possibilities, the investors seem unable to create a connection. For arbitrage-free pricing, it is essential to make a connection between different investment possibilities. Therefore, mental accounting influences the real estate investor's investment decision.

To process significantly available information, individuals use cognitive heuristics to simplify the problem (Janis, 1989). Heuristics are the rule of thumbs which are used by human beings to make decisions in the complex and uncertain environment (Waweru et al., 2008). Kahneman and Tversky, (1979) found that individuals do not behave reasonably though doing stock choices. Investors do not follow the art of a collection of relevant information and evaluation of information; instead, investors take mental shortcuts. Waweru et al. (2008) cited that the heuristic decision process causes poor decisions. Waweru et al. (2008) mention that the illusions that arise from heuristics are overconfidence, gambler's fallacy, availability anchoring, and representativeness.

In representativeness, the investors relate one event with others to reach decisions (Waweru et al., 2014). De bondt and Thaler (1994) argued that in markets, individuals purchase popular security and evade security that has accomplished badly in recent times. The representativeness heuristic makes investors buy such stocks that represent desirable qualities (Shefrin, 2000). Solt and Statman, (1989) argue that good investment is those stocks which increase in price more than other stocks. Lakonishok et al. (1994) stated that investors like the stock of those companies which have achieved growth in the past. Therefore, representativeness effect real estate investor's investment decision.

The gambler's fallacy is a belief of people in the negative autocorrelation of a non-auto correlated random sequence of outcomes (Sundali & Croson, 2006). In Gambler's fallacy, the individual reacts to a situation reverse of a particular event. Thus, the investors choose the alternative investment and do not bring in considering whether the decision is optimal or not

Anchoring arises when an investor gives too much weight to recent performance. Kahneman and Riepe (1998) found that people think that present prices are correct and the purchase price is used as a reference point. According to Shiller (1999), investors try to fix prices concerning the last price. Thaler (1995) argued that the reference point is the stock price, and investors compare this reference point to the current stock price. Therefore, investors select the asset with the consideration of the initial point and forget whether their decision is good or bad.

Mahajan (1992) argued that overconfident individual overestimates the probabilities for a set of events. Overconfident investors believe that they can beat the market (Waweru et al., 2008). Investors are overconfident in particular areas where they have sufficient knowledge (Evans, 2006). Therefore, Investors are usually overconfident about their abilities in a complex task and consider that they are picking winning stocks. Trivers (1991) stated that investors think that they are better than they are. Investors believe that their knowledge is more accurate than it is. The illusion of control (the beliefs of people that they would affect the consequence of chance occasions), the illusion of knowledge (the beliefs of people that they are more knowledgeable when they have more data) and the illusion of self-attribution (when people get success they attribute this success to their abilities, and when they fail they attribute this failure to bad luck) are reasoned to be overconfident (Barber and Odean, 2001). They argued that these illusions drive investors to overconfidence. Therefore, investors use their talents, knowledge, and skills to select a particular asset from the market.

In availability, investors base their decisions on most available information. Investors make their decisions based on readily available information (Waweru et al., 2008). Investors like to prefer information that they know and are familiar about. Adair et al. (1994) explained that investors invest in assets for which information is easily available. Massimo and Simonov (2006) argued that availability is the tendency of individuals to focus heavily on information that is often mentioned. Warner et al. (2008) explain that investors rely on easily accessible information or information that can be easily recalled from memory, or that corresponds to a future event that is easy to imagine. Thus, the investor relies on one piece of information for an investment decision. Investment is under consideration in many ways, such as investing in the stock market or real estate market. Nowadays, Pakistani real estate market is on an uptrend, and very few numbers of studies are conducted for the real estate market. Therefore, this study targets the real estate market. The above-postulated literature proposed the below mentioned conceptual framework and developed the proposed hypotheses for the study.

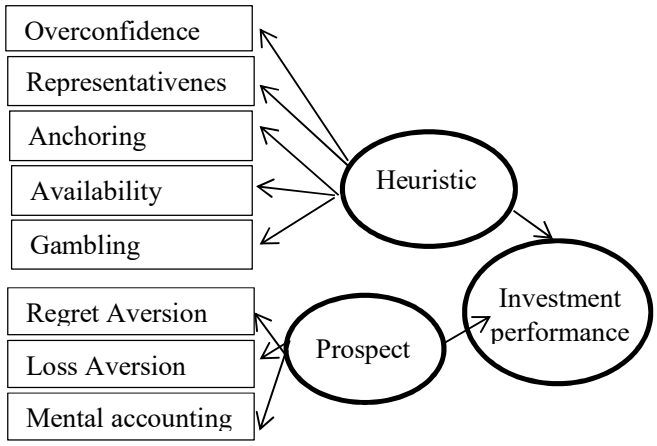

Figure 1: Conceptual framework

Research Hypotheses

H1: "Heuristic has an impact on the property's investment decision and performance in developing country (Pakistan)".

H1a: Overconfidence has an influence on a property's investment decision.

H1b: representativeness has an influence on a property's investment decision and performance.

H1c: Anchoring has an influence on a property's investment decision and performance.

H1d: Availability has an influence on a property's investment decision and performance.

H1e: Gambling has an influence on a property's investment decision and performance.

H2: *"Prospect has an influence on a property's investment decision and performance in developing country (Pakistan)".*

H2a: Loss aversion has an influence on a property's investment decision and performance.

H2b: Regret aversion has an influence on the property's investment decision and performance.

H2c: Mental accounting has an influence on a property's investment decision and performance.

METHODOLOGY

Data Collection and Sample Procedure

This study focuses on the real estate agents as investors because they show a vital part in the purchase and sale of properties and because they have good know-how about the efficient functioning of the property market. Real Estate is a rapidly growing business in Pakistan. Overall, it plays a crucial role in the economy of the country. For this research study, the sample of real estate agents includes Pakistani men aged 25 years or more with a working experience of 3 years or more.

This research study makes use of primary data gathered through survey questionnaires from real estate agents operating in Lahore and Islamabad. The questionnaires were covered with announcement letters to reduce social desirability bias. Convenient sampling technique was used to target real estate agents. Most of the data was collected face to face while the rest was gathered through email correspondence. Of the 400 targeted real estate agents, only 254 are usable for further analysis. The response rate is reasonable (63.5%) for data analysis. The response rate is relatively high due to personal presence and assurances of confidentiality. It took three months to administer the questionnaires.

Measurements

The questionnaire is taken from Waweru et al. (2008). It uses five points Likert scale for evaluating responses. One represents 'strongly disagree' and five represents 'strongly agree'. The questionnaire has three parts. The first part includes information about demographics: age, income, and experience. The second part comprises behavioral factors related to heuristics and prospect. The heuristics part consists of five constructs with 08 items. Table 1 shows the number of items of the respective construct. The prospect part consists of three constructs, with each construct carrying two items, resulting in a total of 06 items. The investment performance is developed by the work of Le and Doan, (2011). Three items were used to measure investment performance.

This study utilizes PLS-SEM to investigate the influence of behavioral constructs on real estate investors' investment decision and performance. PLS-SEM is quite suitable to identify the postulates of the relationships because some of the constructs have only one item that is not tested by the AMOS. Before applying the analysis, more than four missing values were removed using hot dock method, typo error, and extreme value.

DATA ANALYSIS AND RESULTS

This section sheds light on the analysis, interpretation, and presentation of the influence of behavioral factors on investment performance. The two extensive groupings of mental illusion are the heuristic theory and the PT. The heuristics theory is supported by five components, while the PT is reinforced through three components. The two models are tested separately. The SEM was used to confirm hypothesized models. Three steps were used to confirm the proposed models. The first step involves descriptive statistics such as mean and standard deviation. The second step confirms reliability and validities. The final step shows the path coefficient.

Data Analysis

In PLS, three phases are considered to confirm the adequacy of the measurement model, first of which are the item outer loading and the composite reliability of the constructs. The composite reliability estimates the degree to which a set of unobserved construct items follow the measurement of a construct. The composite reliability of each construct achieves the minimum criteria of 0.7. Table 1 shows the outer loadings for all the items ranged from 0.72 to 1.00. Second is convergent and discriminant validity. After confirming the reliability, the validity is confirmed by convergent and discriminant validity. Convergent validity is achieved if all the measurements items strongly correlated with its proposed theoretical constructs. Average Variance Extracted (AVE) is used to confirm the convergent validity; it shows the ratio of the summation of its constructs items variance as extracted by the construct relative to the measurement error followed to its items (Gefen & Straub, 2005). The minimum threshold of AVE is 0.5; all constructs of the study meet the minimum criteria. Table 1 shows that the AVE value for all variables lies between 0.66 and 1.00. Discriminant validity examines whether a construct shares more variance with its measure than it shares with another construct in the model (Hulland, 1999). Thus, the square root of the AVE should be greater than the correlation with all other constructs in the model (See: Table 2 and 3). Tenehaus et al., (2005) introduce the global goodness fit formula to measure the model fit, i.e. the R^2 value. The value of R^2 is considered substantial if it falls between 1 and 0.67, moderate if it lies between 0.67 and 0.33 and weak if it is less than 0.19 (Chin, 1998). Therefore, table 2 shows that the ability of heuristics to predict investment performance is satisfactory (R^2 is 0.294). Table 3 shows that the predictive power of prospect toward investment performance is also adequate (R^2 is 0.290).

Structural Model

To apply the structural model to measure the significance of the hypothesized relationship, this study uses bootstrapping procedure with 500-resample (Tenehaus et al., 2005) to measure the t value of the proposed relationships between the two models (See: Table 4). Table 4 shows the path coefficient and significance of hypothesized relationships. In the heuristics-based model, gambling (β=0.292, p-value < 0.000) and availability (β=0.212, p-value < 0.001) are the strongest predictors of investment performance. The two facets of anchoring and overconfidence are statistically insignificant toward investment performance; they are not even significant at the level of 90% confidence interval. The representativeness heuristics is significant and supports predictor ((β=0.212, p-value < 0.05) of the investment performance. In the prospect-based model, regret aversion is the strongest predictor ((β=0.375, p-value < 0.000) of the real estate investors' investment performance. The second facet loss aversion

((β=0.220, p-value < 0.000) is also significant and supported predictor toward investment performance. Mental accounting is supported, but it is not a statistically significant predictor of the real estate investors' investment performance in Pakistan.

Table 1: **Summary of Measurement Scales**

	IV	DV	B	P-Value	Results
H1a	OVC	IDP	0.040	0.607	No
H1b	REE	IDP	0.192	0.010	Yes
H1c	ANC	IDP	0.080	0.342	No
H1d	AVA	IDP	0.212	0.001	Yes
H1e	GAM	IDP	0.292	0.000	Yes
H2a	LOA	IDP	0.220	0.000	Yes
H2b	REA	IDP	0.375	0.000	Yes
H2c	MEA	IDP	0.108	0.130	No

IV=Independent variables, DV=Dependent Variables

Table 2: Discriminant Validity

Items	Mea	SD	loading	CR	AVE
Overconfidence				1.00	1.00
OVC1	3.37	1.09	1.00		
Representativeness				0.91	0.84
REE1	3.57	1.13	0.93		
REE2	3.71	1.15	0.91		
Anchoring				0.80	0.67
ANC1	3.41	1.03	0.90		
ANC2	3.32	1.07	0.72		
Availability				0.90	0.80
AVA1	3.30	1.23	0.91		
AVA2	3.36	1.08	0.90		
Gambling				1.00	1.00
GAM1	3.56	1.05	1.00		
Loss Aversion				0.85	0.74
LOA1	3.52	1.02	0.89		
LOA2	3.48	1.00	0.82		
Regret Aversion				0.79	0.66
REA1	3.54	1.08	0.80		
REA2	3.57	0.97	0.81		
Mental Accounting				0.91	0.84
MEA1	3.50	1.07	0.90		
MEA2	3.48	1.08	0.93		
Investment				0.85	0.66
IDP1	3.63	1.08	0.86		
IDP2	3.40	1.26	0.85		
IDP3	3.48	1`.15	0.72		

SD=Standard Deviation; CR=Composite Reliability;

Table 3: Discriminant Validity

	R^2	1	2	3	4	5	6
OVC		1.00					
REE		0.29	0.92				
ANC		0.58	0.32	0.81			
AVA		0.28	0.29	0.25	0.91		
GAM		0.17	0.21	0.25	0.20	1.00	
IDP	0.294	0.25	0.35	0.29	0.36	0.40	0.81

Table 4: Results of the Study

	R^2	1	2	3	4
LOA		0.86			
REA		0.23	0.81		
MEA		0.1	0.58	0.91	
IDP	0.290	0.32	0.49	0.35	0.81

DISCUSSION

The objective of this study is to find the determinants of real estate investors' decisions in Pakistan by focusing on heuristics and prospects aspects. Accordingly, the findings show that investors' behavioral factors play a pivotal role to influence the investment performance of real estate investors. For instance, gambling and availability are the most dominant factors that influence investment performance. The investors set the property prices based on their knowledge and reaction against the real estate market due to gambling. The other most important factors are the information about the property market and the focus on trend property.

Furthermore, investors rely on the availability of information and prefer to buy local property due to information available about the local property. Most of the real estate agents use advertisement, newspaper, and web for collecting information about the property market. Moreover, mental accounting does not have a statistically significant impact on investment decisions in the prospect view. Investors do not manage their wealth into different accounts because they are confident about their decisions.

Thus, this research concludes that behavioral factors play a significant role in decision making. Hence, behavioral finance provides a process to understand investor's behavior to make real estate investments in Pakistan. Empirical results suggest that investors' behavior influences their investment performance.

Of the five components of heuristics, only availability and gambling are the significant predictors that influence the investment decision and performance. This implies that investors use availability heuristic due to limited resources to process efficient information. Pakistani investors do not want to spend money to get valuable information to make an investment decision. Therefore, they use information that can be easily accessed in decision making. Furthermore, investors use anchoring heuristic in the absence of reliable information that influences their investment performance. From prospect factors, regret aversion is a significant predictor to influence real estate investors' decisions in Pakistan. This implies that investors feel regret to avoid opportunities or they overvalue the gain in an investment. Pakistani investors have different risk attitudes according to the market situation. Research findings establish a broader analysis of the real estate market that explains the phenomenon of heuristics and prospects concerning real estate investors.

CONCLUSION

This study focuses on a set of behavioral factors that influence property agents' investment performance. The research confirms that psychological and behavioral constructs act a vital part in the investment performance. Our results are consistent with existing literature. For instance, Grinblatt and Han (2005) contends that stakeholders are risk averse over gamble for some security and risk lover over gambling in another security. Hence, behavioral finance provides a mechanism that helps the investors to use the behavioral factor rationally in their policymaking. The findings of the research will support researchers and practitioners to understand the real estate markets in developing countries. However, behavioral finance is widely used in developed countries. This work is accomplished with the aim of establishing the suitability of applying behavioral finance for all types of markets.

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