

Impact of Biases on Perceived Market Efficiency: Case of Pakistani Financial Market

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Abstract

The purpose of this study is to investigate the impact of individuals' biases e.g. Illusion of control, Representative and Availability biases on perceived efficiency of Pakistani financial market. Perceived market efficiency has been used as dependent variable, while an individual biases (illusion of control bias, representative bias and availability bias) as independent variables. The population of the study was consisted of investors of Islamabad stock exchange, financial analysts and finance scholars. The sample of the study was selected on convenient bases. A sample size of 137 self-reported respondents was purposively drawn. The data were collected by using 5 point Likert scales questionnaire, in which closed ended questions were asked from the target population. A total number of 310 questionnaires were distributed, out of which 179 were received back, from which only 137 questionnaires were useable with response rate 44.4%. Descriptive statistics, correlation and regression technique have been used for analysis purpose. The results indicate that illusion of control bias, and availability bias has significant and negative impact on perceived efficiency of Pakistani financial market, while representative bias has not significant impact on perceived market efficiency.

Keywords: Illusion of control, Representative bias, Availability bias, market efficiency

1. Introduction

People take different decision in their life, some decisions are large and some decisions are small. According to behavior finance some biases exist in the personality of every individual that prevent form taking rational decision as well as have very bad consequences on market efficiency. Baker and Nofsinger (2010) say that the "fundamental heuristics", "cognitive errors" and "psychological biases" affect financial decision making. Psychological biases refer to as belief and preferences (Pompian, 2006), these preferences and belief collectively bias the individual to adopt the specific mode of action (Sahi, Arora & Dhameja, 2013) as well as intuitive reasoning, judgment and option effect the quality of financial decision (Bondt, Mayora & Villedado, 2013). Individual investor's tendency to show behavioral biases while trading and due to these biases they make trading mistake (Chen, kin, Nofsinger & Rui, 2007) as a result market become inefficient.

Standard finance neglect these biases, it assumes that people in the standard finance are rational. They make rational decision all the time (Pompian, 2006). One of the fundamental theories of Standard finance which is explained by the Fama (1970) is that markets are efficient. Market efficiency means the price of securities holds with fair value, even if some investors make error due to biases. Whereas, several studies demonstrated that practically markets are inefficient, because of individual biases as well as anomalies persist in the market which produced inefficiency (Ajmal, Mufti & Shah, 2011). Investors make common errors because of psychological bias (Baker & Nofsinger, 2002) which considerable affect the market price (Maheran & Muhammad, 2009) as result market become inefficient. Due to heuristic biases, error occurs and price of securities deviate from their fundamental value (Shefrin, 2006) as a result market would become inefficient. Although a study is conducted against the market efficiency, in general existent evidence does not defend the investors' ability to make correct decision consistently and as result market would be efficient.

Market efficiency is a complicated concept that is still under discussion. There are many factors that affect the market efficiency such as, cognitive and emotional weakness, bounded rationality, intuitive reasoning, fundamental heuristics, limited information and anomalies etc. Issue is that how these factors affect the market efficiency. Focus of study will be on psychological biases specifically study will investigate that how illusion of control bias, representative bias and availability bias effect Pakistani financial market efficiency.

Prospect theory which is explain by Kahneman and Tversky (1979) is that people make decision on the basis of gain and losses rather than final outcomes as well as make references point and took decision accordingly. Representative and availability are heuristic biases which are used by the investors in order to avoid risk of losses in uncertain situation. When individual investors used heuristics, their mental efforts are reduced in decision making that leads to errors in judgment as a result market become inefficient. On the other hand illusion of control bias is related to mantel frame which also explain in prospect theory, in which individual investors under estimate the probability of outcome as compare to certain ones and took incorrect decision as result market become inefficient.

The basic objective of study is to check the Pakistani financial market efficiency as well as identify the impact of psychological biases (illusion of control bias, representative bias and availability bias) on the decision making process of individual investors of Pakistan. Also examine the impact of psychological biases,

specifically illusion of control bias, representative bias and availability bias on perceived market efficiency.

This study has importance with respect to domain of behavioral finance. Because the concept of behavioral finance is new as compare to other financial theories. In developing markets, behavioral finance is used to explore the behaviors that impact the investment decisions, as result market become inefficient. This study is conducted with hope to make sure suitability of using behavioral finance for all kind of financial markets.

Large number of studies has been conducted on this area in various contexts in different prospects but the result of that studies can't be implementing in Pakistan because of cultural differences. Culture and society effects the financial decision making process, especially developing countries like Pakistan which is dominated as collectivist societies. Hofstede, (2006) says that the "power distance as the culture is the collective programming of the mind which distinguishes the member of one group or category of people from another". So in Pakistan market fundamental is different from the European countries which have individualistic culture as well as thinking level of Pakistani investors also vary from others foreign countries. On the basis of those assumptions we can say that the result of foreign countries studies can't be implementing in Pakistan. So our study explains the phenomena of Pakistani financial market in better way.

The people in the stock exchange market having lack of knowledge about psychological biases as well as Pakistani under development region like Punjab, investors also not know about these biases that exist in it (Bashir, Rasheed, Raftar, Fatima & Maqsood, 2013) as result they make incorrect decision. This study will provide awareness or knowledge to such investor's about these biases as well as how these biases affect market efficiency and thus they would be able to identify these biases in their personality as well as take corrective action against these biases. This will lead to the better quality of decision making of individual investors. Further the study will also provide help to forthcoming researchers to get the idea of our study to be carried on

The rest of the report is organized as follows. A review of the crucial literature regarding psychological biases, specifically illusion of control bias, representative bias and availability bias as well as market efficiency is given in section 2, the theoretical framework is discussed in section 3, while section 4, 5, 6, 7 and 8 will contain the data and methodology, empirical Results, recommendations, conclusion and acknowledgement.

2. Literature Review

Many researchers have examined psychological biases and market efficiency from dissimilar views in different culture or environments some of which are obtained very concerning and valuable for our present study. A limited review of the dissimilar efforts of research regarding psychological biases (illusion of control bias, representative bias and availability bias) and market efficiency is cited hereinafter.

2.1. Market efficiency

Market efficiency means the price of security dominating in the financial market is the reflection of all available information (Ramon, 2011 ; Malkiel, 2003). The concept of market efficiency was explained by the Fama (1970) in his paper "Efficient Capital Market". It is the most important theory of standard finance that described that financial markets are efficient (Sewell, 2011) which means that the securities prices hold with their fair value (Aguila, 2009). The market with the greater liquidity has a greater efficiency as compare to the market with the small liquidity (Oh, Kim, & Eom, 2006). So we can say that a market in which price forever amply reflect all available information is called "efficient market" (Fama, 1997 ; Lo, 2007). It is assume that if new information enters in the market then the price of security changed, current price of securities is the reflection of new information but the most important consequence in regard to "efficient market theory" is that it is impossible to better perform the market for a longer period of time (Birau, 2011). In realism markets are never absolutely "efficient" nor absolutely "anomalous" (Pompain, 2006) because anomalies persist in the market for a shorter period of time due to mythology but in long-run anomalies are go away due to change in proficiency (Fama, 1997).

The several studies demonstrated that in practical life markets are not efficient because of behavioral as well as other dimensions of capitalists. The "noise trader risk" and "limit to arbitrage" describes that so many anomalies persist in the market that produce inefficiency (Baker & Nofsinger, 2010). The concept of bounded rationality also persist in the market, due bounded rationality individual investors can't take such decision that cover every contingency as result market would become inefficient (Dietrich, Linsmeier, Kleinmuntz, & Kachelmeier, 2001). On the other hand investors experiences success again and again, due to consistent success they are suffering in overconfidence bias and become irrational in decision making that lead to market inefficiency (Malkiel, 2003).

A common reason for disappearance of the efficient market hypothesis is that the investors normally do not collect information completely and without enough information compose "trading behavior". For example in some cases investors may be responded to functioning, selling that stock in which they have face losses and buying that stock in which they have face gain, such response leads to price of stock deviate from their fair value

or fundamental value (Ajmal, Mufti & Shah, 2011). Both, under-reaction and over-reaction persist in the market as result of “trading behavior” in the financial market, has been describe by the FAMA (1997) as conformation that anomalies persist in the market as a result efficient market theory changed. The concept of market efficiency is totally wrong because efficient market theory may lead to totally incorrect interpretation of event such as “major stock market bubble” (Shiller, 2003).

One of the major reasons for market inefficiency is psychological biases. There are two types’ biases one is emotional biases and second is cognitive biases. Both biases affect the market efficiency, but cognitive biases are more dangerous as compare to emotional biases. Some cognitive biases specifically illusion of control bias, representative bias and availability bias are discuss below, how these biases affect the market efficiency.

2.2. Illusion of control bias and market efficiency

Illusion of control basically behavior bias in which individual think that he can manage or handle each and every situation or at least influence outcome, actually he cannot. Illusion of control takes place when someone overrating their personal works over outcomes (pohl, 2004; Gino, Sharek, & Moore, 2011). In other words we can say that it is phenomena where individuals believe that their chance of success is greater as compared loss (Koehler, Gibbs, Hogarth, 1994) which leads the individuals to the gambling fallacy. So the concept of illusion of control is best explained by gambling context (Ejova, Delfabbro & Navarro, 2009). Illusion of control bias as the anticipation of accomplishment higher than target probability would permission (Brahmana, Hooy & Ahmad, 2012). It consist of overvaluing tempt that our behavior exercises over unruly consequence (Yarrtu, Matute & Vadiuo, 2014). The illusion of control is demo of unjustifiable hope in controlling the unruly (Dudski, 2004). So people functioning under the premise, overrating control in uncontrollable environment (Harris & Osman, 2012) as result suffering in illusion of control bias.

According to behavior finance some biases exist in the personality of every individual that prevent form taking correct financial decision. Due to incorrect decision market would be inefficient. Some trader use behavior biases to earn profit. In the financial market there could be some dealer that deliberately misguides other market player by producing illusion for the purpose of obtain profit. This new concept is known as illusionary finance. (Hamadi, Rangifo & salzman, 2005). Due to wrong information investors take incorrect decision as result market would be inefficient. The “illusion of control” consequence is associated to “bounded rationality” as well as bounded information (Satinover & Sornette, 2007) so due to bounded rationality investors can’t draw up contract or make decision that cover every contingency as result anomalies persist in the market that produced inefficiency. The illusion of control effect the performance of traders, those traders that have higher level of illusion of control, have low level of performance as compared to those traders that have low level of illusion of control (Creevy, Nicholson, Soane, & Willman 2003). So illusion of control is a bias describe by the behavior finance which “directly or indirectly” has effect on trading behaviors in the stock market such as “over-reaction” and “under-reaction” of stocks. Illusion of control bias have significant impact on “Pakistani financial market efficiency”, the reasons behind the anomalies persist in the “Pakistani financial market”, which produced inefficiency in “Pakistani financial market” (Ajmal, Mufti & Shah, 2011).

H1: Illusion of control has significant impact on perceived Pakistani financial market efficiency

2.3. Representative bias and market efficiency

Representative heuristic bias is mental shortcut that involves decision is taken according to mental stereotypes (Shefrin, 2005). In representative bias the already existing information regulates how to process the new information. If new information match with the existing information then individual believes become stronger and he takes decision without further evaluation, actually such individuals suffering in representative bias. Representativeness means much trust on stereotypes that lead the individuals to make forecasting that is not sufficient for relevant situation (shefrin, 2008). People tendency to give more value on “recent experience” (Ritter, 2003) and fall in representative bias. For example individuals choose to buy stocks that had recently delighted some suitable profits, consistent with the believing that the preceding price movement is representative of the future price movement. Individual investors believe that past returns are suggestive of ulterior returns (Chen, Kim, Nofsinger & Rui, 2007). When company basic principle are not promptly available, investors show a representative bias in fixed price Initial Public Offerings cycles, in preceding Initial Public Offerings returns and in book building price modification (Gupta & Samdani, 2008).

So people make probabilistic judgment by using representative heuristic (Tversky & Kahneman, 1974), the “positive feedback hypothesis” states that correct information (incorrect information) generate positive (negative) attitudes that emphasis the impact of information on the price of asset. It is particular form of representative heuristic which states that there is a trend to overstress the most recent experience. (Clapp & Trafirogla, 1992). the “representative heuristic” bias effect the market because investor become “over optimistic” due to past winners and “over pessimism” due to past loser which effect the decision process of investor subsequently price of securities deviate from their intrinsic value or fair value (Chong, Ahmad & Ali,

2011) as result market would become inefficient . Heuristics based decision making process decreased mental effort in decision making as result error occur in judgments. Representative bias directly or indirectly has effect on trading behaviors in the stock market such as over-reaction and under-reaction of stocks. So we can say that representative bias have significant impact on market efficiency.

H2: Representative bias has significant impact on perceived Pakistani financial market efficiency

2.4. Availability bias and market efficiency

In availability bias individuals forecast probability of consequence founded on the easily prevailing the data, and the closeness and preponderance of it. Availability heuristic is estimating the absolute frequency of an event by its availability, the easiness with which essential case come to mind (Brahmana, Hooy& Ahmad, 2012). So availability means “ease of retrieval” (Schie&Pligt, 1994). The “availability heuristic” is an unquestioning cognitive pattern that tends us to understand the “representativeness” of an outcome from the easiness with which it can be retrieved (Trout, 2005). Availability bias occurs in reaction to recent experiences with standardized cases when unskilled model of concluding is used, that produced error in judgments (Mamedeet al.2010).

Individual determined the chance of event by using availability heuristic, the easiness with which essential case come to mind. They also explain in his study depends on availability heuristic lead the individuals to “systematic biases” and due to these biases they overestimate the probability of it repeating (Tversky, Kahneman, 1973). People use the availability heuristic in probabilistic situation in order to avoid risk which has a negative impact on decision making process (Keller, Siegrist&Gutscher, 2006) as result market become inefficient. According to Stan Clark individuals “hear dramatically bad news” and on the basis of that bad news, they tend to overrate the chance of it repeating, this phenomenon actually known as availability heuristic or availability bias. He also explain that availability bias negatively affect individuals investment decision as result market become inefficient. Availability bias directly or indirectly has effect on trading behaviors in the stock market such as over-reaction and under-reaction of stocks. So we can say that availability bias have significant impact on market efficiency.

H3: Availability bias has significant impact on perceived Pakistani financial market efficiency

The prior studies show that illusion of control, representative and availability biases directly or indirectly affect the market efficiency. Markets are not efficient because of individual’s biases as well as market efficiency depends on trading behavior of individual investors. The individual investors may take incorrect decision due to bounded rationality as result anomalies persist in the market and that anomalies produced market inefficiency. In this study we would like to screen out roughly demonstrate by which we can examine that market efficiency also have an encroachment of trading behavior and trading behavior is regulate by cognitive and emotional biases i.e. , representative, illusion of control and availability.

3. Theoretical framework

After literature survey following theoretical framework is developed where illusion of control, representative and availability are the independent variables and market efficiency is dependent variable.

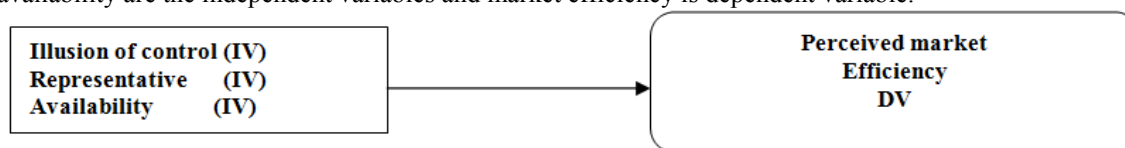


Figure 1. Conceptual Framework

4. Methodology

4.1. Population and sample

The population for this study was investors of Islamabad stock exchange, financial analyst and finance scholars of Islamabad and Rawalpindi, because topic is relevant to investment decision due to this, data was collected from the people who are investing in stock exchange or having knowledge about the market that is why population for this study was investors, financial analyst and finance scholars. My axes are Islamabad that is why region of population was Islamabad and Rawalpindi. A sample size of 137 self-reported respondents was purposively drawn. Convenient sampling technique was used. According to Saunders, Lewis and Thornhill (2009) Sample size rely on the availability of resources such as time, human capital and finance as well as ability of researchers. I am not using random sampling, because for random sampling, data of whole population are required. Pakistani economy is a developing economy because of developing economy data are not available in standard form that is why i go for convenient sampling.

The sample for the research was composed of 79.6% male and 20.4% female investors and finance scholars. This composition symbolizes the cultural and social norms of Pakistan. In terms of qualification, 62.0%

held a Mastersdegree, 29.9% of the respondents had done MS, 4.4% of respondents had done PhD While 3.6% of respondents have others qualification. In terms of age groups, major portion of the sample (about 78.8%) lied within the age level of 18-25years; while 19.0% represented 26-36 years and 2.2% representing 36-45years of age. The sample for research included 85.4 % married and 14.6% unmarried participant. Years of experience were as follows: 93.4% were having Under 5 years' experience and 6.6% having 5-10 years of experience.

4.2. Instrumentation

Primary data were collected by using 5 point Likert scales questionnaire. In questionnaire closed-ended questions were asked from the target population. Questionnaires were self-administered for every participant. Almost every participant was briefed about the purpose of the research and were explained the questionnaires in detail for the need of accurate responses. A total number of 310 questionnaires were distributed, out of which 179 were received back, from which only 137 questionnaires were useable with response rate 44.4%. All outcome measures were assessed with 5-point Likert scales with anchors of 1 = strongly disagree and 5 = strongly agree

In questionnaire four variables were used, representative, and availability, illusion of control, biases and market efficiency. First three variables are independent and last one is dependent variable. Total 40 items were used in the questionnaire, out of which 9 items related to demographic, 7 items were of representative bias, 9 items were of illusion of control, 7 items were of availability bias and 8 questions items were of market efficiency. The items of market efficiency were adopted from Luong, L. P. and Ha, D. T. T. (2011). Some representative items are

Item1: You put the past trends of stocks under your consideration for your investment

Item2: You study about the market fundamentals of underlying stocks before making investment decision

Item3: The stock prices on the exchange reflect a fair value of the current performance of listed companies etc.

And items of others three variables are developed by the researcher after reviewing the relevant literature.

4.3. Research design

Research design furnishes the framework for data collection and analysis (Ghauri & Gronhaug, 2010; Bryman & Bell, 2007). In order to understand the common behaviors of individual investors cross-sectional study is suitable. This feature is relevant to study, the first because it fits the nature of this study to describe a common trend of investors' behaviors rather than one specific case, and the second because data in this study has not been collected in stages but carried out in a single time period. So I have used Cross sectional design for data collection in order to understand the behaviors of individual investors. The core purpose of study was testing of hypothesis as well as nature of study is correlational study.

5. Data analysis

5.1. Correlation among Study Variables

Table 01
Correlation Analysis

Variables	1	2	3	4
1. Representative Bias	1			
2. Illusion of Control Bias	-.329**	1		
3. Availability Bias	-.487**	.455**	1	
4. Market Efficiency	.228**	-.447**	-.497**	1

N=137; *P<0.05 and **P<0.01; **. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 01 indicates correlations, among representative, availability, illusion of control biases and perceived market efficiency. Correlation analysis indicate statistically significant negative relationship between perceived Market Efficiency and Illusion of Control Bias (-.447**), while the relation between perceived Market Efficiency and Availability Bias is strong and negative (-.497**). The correlation between perceived Market Efficiency and Representative Bias was found to be small to moderate (.228**). Thus overall result suggest that availability bias and illusion of control bias negatively associated with perceived efficiency of Pakistani financial market.

5.2. Regression Analysis

Table 02
Regression analysis of outcomes

Predictor	Market Efficiency		
	B	R ²	ΔR ²
Step1			
Control Variables		.09	
Step2			
Representative Bias	-.07		
Illusion of Control Bias	-.26***		
Availability Bias	-.38***	.34	.253***

N=137; *P<0.05, **P<0.01 and ***P<0.001

Regression analysis was performed to test the hypotheses or to test the effect of independent variables on dependent variable. In the first step of Table 02 demographic were entered as control variables and only value of their R square is reported that shows 9% of the dependent variable (M.E) is being explained by control variables. In the second step of Table 02, Representative Bias, Illusion of Control Bias and Availability Bias were regressed on perceived market efficiency showing values of beta (β), R square and R square change. The value $R^2 = .34$ shows that about 34% of the dependent variable (M.E) is being explained by the independent variables' (Representative, Availability and Illusion of control). The result also suggested that the second hypothesis H2: Representative bias has significant impact on perceived Pakistani financial market efficiency was rejected because the P-value is greater than 0.05% level of significance. The first hypothesis H1: Illusion of control has significant impact on perceived Pakistani financial market efficiency and third hypothesis H3: Availability bias has significant impact on perceived Pakistani financial market efficiency was accepted because the P-value is less than 0.05% level of significance.

6. Discussion

The objective of the study was to find out the impact of Representative, Availability and Illusion of control biases on perceived efficiency of Pakistani financial market. In this study regression and correlation analysis was used to test the effect of behavioral biases (Representative, Availability and Illusion of control) on perceived efficiency of Pakistani financial market. Perceived market efficiency was used as dependent variable, while Representative, Availability and Illusion of control biases were used as independent variables. The sample of the study was selected on convenient bases. The population of the study was consisted of investors of Islamabad stock exchange, financial analysts and finance scholars. A sample size of 137 self-reported respondents was purposively drawn. The data were collected by using 5 point Likert scales questionnaire, in which closed ended questions were asked from the target population.

The results of the study showed that there is negative and significant relationship between perceived efficiency of Pakistani financial market and illusion of control bias and availability bias. It means that dependent variable, market efficiency; negatively dependent on the independent variables which is individual biases i.e. illusion of control (IOC) and availability bias. The result suggests that because of illusion of control bias and availability bias, the perceived market efficiency of Pakistani financial market decreased. It means that when investors affected with illusion of control bias and availability bias, they took incorrect decision regarding investment as result market become inefficient. Stan Clark (2012) said that availability bias negatively affect individuals investment decision as result market become inefficient According to these results first hypothesis H1: Illusion of control has significant impact on perceived Pakistani financial market efficiency and third hypothesis H3: Availability bias has significant impact on perceived Pakistani financial market efficiency was accepted. These results are according to Ajmal, Mufti and Shah (2011) who found that Illusion of control bias have significant impact on "Pakistani financial market efficiency", the reasons behind the anomalies persist in the "Pakistani financial market" which produced inefficiency in "Pakistani financial market.

The second hypothesis H2: Representative bias has significant impact on perceived Pakistani financial market efficiency was rejected because the P-value is greater than 0.05% level of significance. The basic reason of the rejection of the hypothesis is that the investor has not properly response in the section of representative bias because it is tendency of human being to convey theothers that they possess superior skills as compared to others. On the basis of that assumption we can say that investors may think that if they response in this way that they represent others or performed function similar to others then it will decrease their value that is why investors not give correct response in the section of representative bias and as result the hypothesis of representative bias was rejected.

7. Implication

7.1. Practical implication

It will generate the effective information about the effect of emotional and cognitive biases on market efficiency as well as trading decision making. It is beneficial for the investors when they would invest in stock market, by getting help from this study.

7.2. Further research

For the future research, the further researchers are recommended to explore the other behavioral biases, which affect financial decision of individual's investors as well as market efficiency.

7.3. Limitations

Focus of study on only individual investors in Pakistan and the sample size is also small. It is necessary to have further researches to confirm the findings of this research with the larger sample size and the more diversity of respondents across the globe.

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