

The Effect of Hueristics, Prospect and Herding Factors on Investment Performance

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Abstract

This paper investigates the impact of three behavioral factors (Heuristics, Prospects, and Herding) on investment performance of individual investors. It uses a sample of 477 individual investors from Pakistani stock market to collect data by structured questionnaire. By employing regression analysis, it found weak but statistically significant relationship between these factors and performance. Heuristics and Herding are found to be positively related to investment performance, but Prospect is negatively related. This paper demonstrates the impact of irrational behaviors of agents on investment performance. This paper contributes broadly to the field of behavioral finance which explains irrational behavior as the product of certain cognitive and/or emotional biases in our thinking. This paper informs managers and shall help them understand and manage the issue of behavioral biases in financial decision making. Further research should target other ways of data collection, large array of biases and new analysis techniques to contribute to the literature on behavioral finance.

Keywords: Behavioral Finance, Irrational behavior, Heuristics, Prospects, Herding, Pakistan Stock Exchange

I. Introduction

We all make choices in our routine life. These choices include needs, wants and opportunities. Some of these choices are routines (e.g. Getting up early in the morning and praying Salah, taking hot coffee, or reading newspapers) while other choices are intricate that necessitates a thorough planning (e.g. Buying a house or car, getting married, doing job somewhere or become one's boss). These choices carry an outcome, whether small or large, routine or intricate. Even not choosing for something carries a consequence. Our action may give us the power or give others more power over us.

Effective decision making requires sharp financial skills, along with a better understanding of human nature in a broader prospective to gain the best out of their investment. Three skills are mandatory for making an effective investment decision. These skills include positive vision, foresight, determination and energy. Investors differ from one another due to their demographic factors, for example, socioeconomic background, qualification, age, gender, etc. This is tough for a shareholder to make suitable choice on the basis of a decision made by another investor. Therefore, there is no optimum level of decision that is best suited for everyone (Jenis and Mann (1977). Every investor has a different level of investment purposes, risk bearing level, inflow and outflow of cash and personal limitations and therefore he plans his portfolio consequently. Institutional investors estimate the output mean-variance too (Cohn, Lewellen and Schlarbaum 1975). On the other hand, when we talk about individual investors, they don't follow the standard procedures of optimum investment strategy, because they suffer from psychological biases, which may shake their decision making process, and therefore affecting investment performance. Individual investors often ignore the impact of behavioral factors that hampers their investment return. This research focuses on achieving the following objectives.

- To identify the behavioral factors influencing the investment decisions of individual investors at the Pakistani Stock Exchanges.
- To gauge the relationship between the behavioral biases and investor performance.
- To provide some guidelines to investors for behavioral change in order to cope with biases.

II. Literature Review

The efficient market hypothesis (EMH) is one of the most important presumptions of finance that remained for nearly 30 years. An efficient market is defined as the financial market where all the available information is reflected in security prices. According to the EMH the real world's financial market, in which bonds and stocks are traded, is efficient (Fama 1970). The power of this statement is stunning, more thoroughly; the EMH neglects the possibility to have profit in excess of equilibrium based only on the available information (Fama1970).

For the last 20 years, theoretical as well as empirical foundations of EMH are being challenged. They key assumptions on which EMH was based on and claimed the market to attain efficiency, for example, arbitrage, are much weaker and more limited than the EMH developers supposed. Still, some of the current studies of security prices favored EMH. Though with the latest studies behavioral finance has emerged as an alternative view of financial markets. This new paradigm states that we can't expect

markets to efficient by the argument provided by the economic theory. Rather a significant disturbance from efficiency can be expected to persist in the markets for a long time period. Behavioral Finance also explains and provides evidence that the phenomena which was considered anomalous by the EMH perspective, actually persists in the data.

A. Behavioral Finance

“Behavioral finance is the study of the influence of psychology on the behavior of financial practitioners and the subsequent effect on markets” (Sewell 2007, p.1). In the past, many different titles have been given to investors who take decisions based on psychological evidence rather than a normative economic model. Heuristics beliefs are also known as investors’ sentiments. According to normative model, the investors who use to take decisions irrationally are known as unsophisticated investors or noise traders (Black 1986; Kyle 1985). The core purpose of behavioral finance is to aid the existing finance theories by including the cognitive psychology in them, trying to make a precise model of human behavior during the decision-making process. (Thaler, R. H., 2005).

B. Theoretical framework

Heuristics

A rational investor uses to make decision after analyzing all the available information. Heuristics are the rule of thumb that people use for an immediate response to solve problem. While some people consider it as cognitive error, but broadly they are helpful tools for making decisions in complex situations (Simon, 1955, 1978). In certain conditions, evaluation of available information and their analysis is hectic or sometimes impossible because the information is countless. As everything is scarce in this world, so is the time of an investor. Therefore, these heuristics help investors to make appropriate decisions.

Prospect

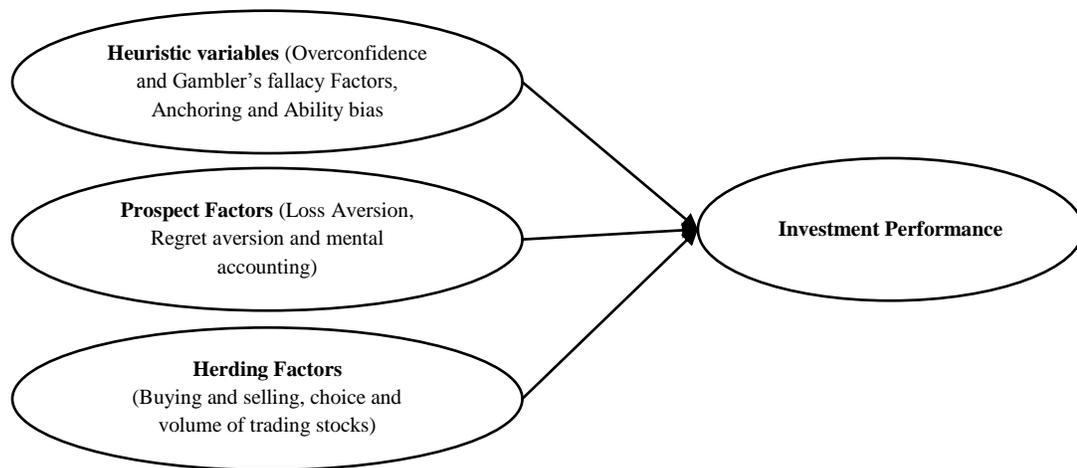
The most widely alternative theory to expected utility theory is the Prospect theory which is developed by Kahneman and Tversky to describe observed human behavior and decision making under uncertainty (Kahneman – Tversky)(1979)(1992). Prospect theory is the most popular alternative to expected utility theory. Prospect theory is so powerful that it can explain many decisions that people make, for which expected utility theory has no answer though this theory can’t cure some anomalies. Financial decision maker style decisions based on path dependence. This type of decision is based on the former decisions to make an informed decision. Many theories explain standalone decision, but the decision are difficult to explain when people make decisions in a row or simultaneous. After the selection of a reference point, a decision maker has two choices, the 1st is to integrate the results of previous decision or make a segregated decision. For example, if a person wants to evaluate the performance of a security, which point will be the reference point? What if a person purchased, sold and again repurchased the security? Though theory has made great progress but still much work needs to be done.

Herding

Herding is defined as the tendency of individuals to follow the actions of others. In financial markets, people tend to copycat the actions of others (Bikhchandani, Hirshleifer, Welch, 1998). This collective investment behavior is tending to be strongest in the

extreme market conditions like volatility, abnormal information and rumors tend to hinder the accuracy and reliability of investment expectation. Therefore, investors tend to neglect the private information they had and rely on the information that wide market has consensus on. Gathering private information costs, a lot, relying on information on which whole market agrees, is the cheapest solution, and following the herd would result in the average market return (Gleason et al. 2004). Following diagram presents the theoretical framework built on the basis of above mentioned theories.

Figure 1



As theory is less clear and early studies shown mixed results about the direction of discussing relations, we formulated non-directional hypotheses. Enough of this relationship has been tested in developed countries, but developing markets like Pakistan were put rarely into the analysis. In Pakistan, vast literature is available for stock price/return determination, stock market development, and market efficiency. Only a few studies targeted to measure the presence of biases in investors and focus on the impact of these biases on investment performance. The study measured this relationship in the context of Pakistan using an adopted questionnaire.

III. Research Methodology

The study is based on primary data collected from the respondents: investors of the Pakistani stock market. Data is collected through a structured questionnaire using personal visit and e-mail to brokers and financial consultants. Above mentioned variables are measured on the Likert scale of 1 to 5. In this study an adopted questionnaire is proposed to use as the primary instrument of data collection (Luong, et al. 2011). The questionnaire comprises of demographic factors of the respondents in terms of age, job status, gender and work experience; key variables of the study like the level of investment of each respondent, the steps of decision making was measured in 5-item index scales (that is: 1 = strongly disagree, 2 = disagree, 3 = Neutral, 4 = agree, 5 = strongly agree). The questionnaire is attached in appendix 1.

Table 1

Codes	Scales	Factor Loadings	CR	AVE	Cronbach's Alpha
Herding			0.865	0.445	0.865
H1	H1 You buy 'hot' stocks and avoid stocks that have performed poorly in the recent past.	0.607			
H2	H2 You use trend analysis of some representative stocks to make investment decisions for all stocks that you invest.	0.692			
H3	H3 You believe that your skills and knowledge of the stock market can help you to outperform the market.	0.703			
H4	H4 You rely on your previous experiences in the market for your next investment.	0.695			
H5	H5 You will forecast the changes in stock prices in the future based on the recent stock prices.	0.676			
H6	H6 You are normally able to anticipate the end of good or poor market returns at the Stock Exchange.	0.702			
H7	H7 You prefer to buy local stocks than international stocks because the information of local stocks is more available.	0.626			
H8	H8 You consider the information from your close friends and relatives as the reliable reference for your investment decisions.	0.624			
Prospects			0.812	0.420	0.812
P1	P1 After a prior gain, you are more risk seeking than usual.	0.658			
P2	P2 After a prior loss, you become more risk averse.	0.705			
P3	P3 You avoid selling shares that have decreased in value and readily sell shares that have increased in value.	0.662			
P4	P4 You feel more sorrow about holding losing stocks too long than about selling winning stocks too soon.	0.676			
P5	P5 You tend to treat each element of your investment	0.597			

	portfolio separately.				
P6	P6 You ignore the connection between different investment possibilities.	0.583			
	Herding		0.914	0.728	0.914
H1	H1 Other investors' decisions of choosing stock types have an impact on your investment decisions.	0.919			
H2	H2 Other investors' decisions of the stock volume have an impact on your investment decisions.	0.698			
H3	H3 Other investors' decisions about buying and selling stocks have an impact on your investment decisions.	0.916			
H4	H4 You usually react quickly to the changes of other investors' decisions and follow their reactions to the stock market.	0.862			
	Investment Performance		0.914	0.781	0.914
IP1	IP1 The return rate of your recent stock investment meets your expectation.	0.932			
IP2	IP2 Your rate of return is equal to or higher than the average return rate of the market.	0.764			
IP3	IP3 You feel satisfied with your investment decisions in the last year (including selling, buying, choosing stocks, and deciding the stock volumes).	0.944			

IV. Data Analysis and Finding

The present study applied Structural Equation Modelling (SEM). SEM as recommended has many advantages over other methods (Gefenet al. 2011; Ringle et al. 2012). SEM is also good in terms of paths and factor analysis, especially when we are looking for reliability and validity of a research outcome from different angles. This is available through this approach. The researchers chose Partial Least Squares (PLS) method to test the hypotheses. PLS simultaneously assesses the validity and reliability of constructs (McLureet al. 2005). PLS has advantages compared to other methods such as LISREL. Sample size is an important issue in SEM and PLS can handle a small sample size (Chin 1998; Ringle et al. 2012). In addition, PLS is also good for exploratory research (Chin 1998; Gefen–Straub 2004), which is the nature of this research. This method is also suitable for testing a new model and theory as it can be good for confirmatory and exploratory research (Gefen et al. 2011).

A. Reliability

The reliability of a survey is the stability of the measures it uses (Sapsford 2006). Each survey constructs have different items which assess internal consistency (McLureet al. 2005; Straub et al. 2004). There are different methods available to test the internal consistency. In PLS it is advisable to calculate the composite reliability, where the accepted value should exceed 0.70 and should be interpreted by Cronbach's alpha (McLureet al. 2005). The results of the composite reliability as shown in Table 1. Table 1 indicates an acceptable rate and show the research has an internal consistency. To measure reliability, the research also tested the internal consistency, which can be calculated by Cronbach's alpha, as seen in Table 1. All constructs have a value more than 0.70, an acceptable value for this test. This test of reliability ensures we can analyze the data accurately for the survey.

B. Validity

To have a high content validity, we undertook a substantial literature review in the area. The constructs of the conceptual model are taken from existing literature (Luong, et al. 2011) and have been frequently shown to demonstrate evidence of strong content validity. Noticeably, constructs drew their items from different validated sources, which improved the validity of this research with regards to the measurement of the constructs. Construct validity can be checked by discriminant and convergent validity (Chin et al. 1997). The results of convergent test are shown in Table 1, where the AVE in all constructs is more than 0.4 indicating that this research achieved these criteria.

Further assessment was made to test the validity of the research, discriminant validity, to gauge the extent to which a given construct of the research model is different from others (McLureet al. 2005). As it is shown in Table 2, all AVEs are greater and demonstrate discriminant validity.

Table 2

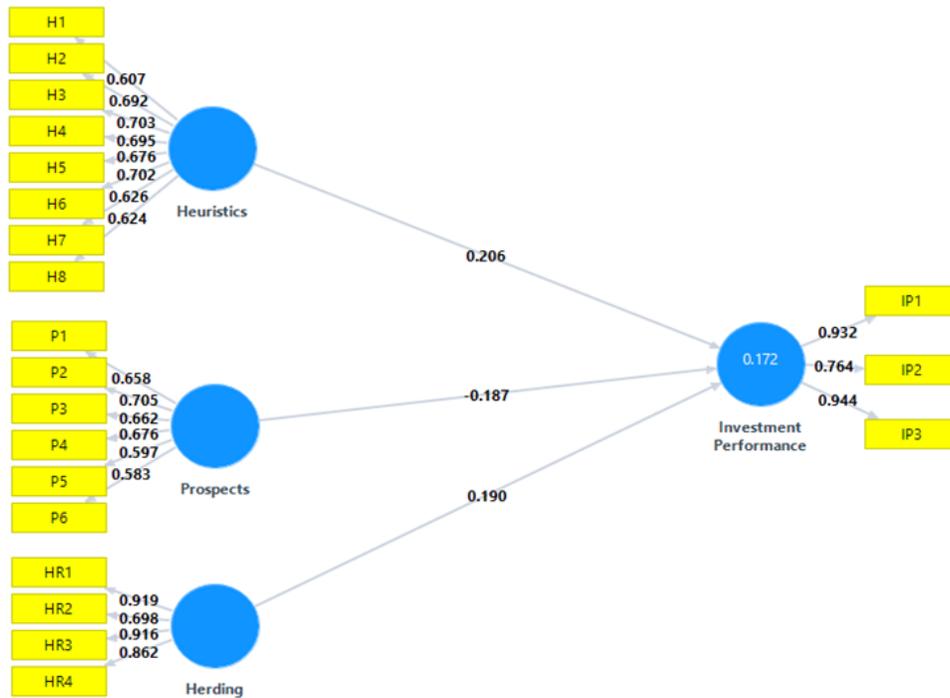
	Heuristics	Prospects	Herding	Investment Performance
Heuristics	0.667			
Prospects	-0.391	0.648		
Herding	0.219	-0.148	0.853	
Investment Performance	0.321	-0.296	0.263	0.884

C. Structural model

The estimation results from SmartPLS software are shown in Fig. 1. According to the results, the dependent variable (Investment Performance) is strongly determinate by selected independent variables (Heuristics, Prospect and Herding). However, heuristics and Herding determine Investment Performance positively, whereas, Prospect has negative relationship. All the paths among constructs are significant at the 0.05 level. The model validity is assessed by R square value and the structural paths (Chwelos et al. 2001). A slope coefficient of 0.289 by Heuristics show that these factors determine 28.9% of the variations in Investment Performance, positively. The Herding behavior has a slope coefficient of 0.206, indicating 20.6% explained variations. Similarly, the Prospect shows 27.9% opposite variations in Investment Performance as shown by a negative sign of slope coefficient. All the three variables are significant, hence

generalizable. The performance of an investment is affected by the three different behavioral factors. I.e. Heuristics, Prospects and Herding. The heuristics factor is classified into two sub-groups: overconfidence-gamble’s fallacy and anchoring-ability bias. The prospect factor includes four biases; loss aversion, regret aversion and mental accounting. Herding includes four behavioral biases: buying and selling, speed of herding, trading volume and choice of stock. All of these biases affected the individual investors trading in Pakistan stock exchange significantly. Heuristics and herding affect the investment performance positively, while prospect affects the investment performance negatively.

Figure 2



V. Discussion

Behavioral finance is the result of the structure of various sciences (Ricciardi – Simon, 2000). Many authors provided significant evidence that people’s behavior in practice differs from theory, and the models of classical finance are not able to predict the financial decisions (Kahneman–Tversky 1979; Raiffa 1994). This is the reason that the model of economic rationality of human being is being criticized.

Behavioral finances are more related to analysis of non-professional investors’ decision making. But it is impossible to separate market influence and personal psychological factors, analyzing conditioning individuals’ treatment in financial markets. Increased interest in the profits gained via financial transactions in recent decade stimulates the inquiries in this field. In spite of massive discussions on this newly born

domain, behavioral finance has long to go. Although Mr. Richard Thaler, the behavioral finance scholar negates this phenomenon in his famous study “The End of Behavioral Finance”, by claiming that finance is incomplete without involvement of psychology. So, he posits that finance is only of behavioral type, and there is no other type of finance. According to him, ignoring the effects of psychology, investor’s behavior, the behavior of financial analysts, brokerage, consultants, and financial managers it would be irrational in stock markets.

With the inception of prospect theory and identification of other relevant biases as some of them are used in this study, this attracted the attention of academia and practitioners. They participated on many dimensions of this notion like, bias identification, bias presence effects, reasons of bias and getting rid of biases. Studies in “effects” part can further classify as: effects on market efficiency, effects on macro-economic indicators, and effects on individual investor’s choice of investment and performance. But, less discussed area is “effects of biases on individual investor’s performance”, this area includes some of the studies as cited above, which are based in some of countries, include a specific audience and specific biases. This study attempted to add more to this part.

By using the responses of a structured questionnaire from a sample of 477 individual investors from the stock exchanges of Pakistan, this study found that behavioral biases (prospect, heuristics and herding) have a significant impact on the (perceived) investment performance. Whereas, first has the negative and other two has the positive impacts. It implicates that, more a person is a victim of these biases; he is more likely to perform better. The findings of this study are consistent with previous ones, like (Barber –Odean2001). Biases related to prospect factors are negative for investment performance, so more the investors are victim of this bias, less likely they will perform better.

VI. Limitations

This study is subject to some limitations. First, it is based on some of most discussed biases; all of the biases are not possible to study in a single study. Second, the sample of investors is confined only to Pakistan’s market. Third, the study was based on structured questionnaire; more work can be contributed using interview approach. By considering more biases and collecting qualitative data using an unstructured questionnaire or interviews from a diverse sample, a study can contribute more and will provide a clearer picture of this phenomenon.

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