

# Impact of Behavioural Disposition on Portfolio Investment Decisions of Individual Investors in Rajasthan

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Received: June 27, 2018

Accepted: August 07, 2018

## ABSTRACT

*Behavioural economists claim that an investor is not rational as traditionally revealed and behavioural dispositions impact the investment behaviour of the investors. Cognitive and emotional aspects may intervene in making irrational investment decisions. The present paper is an attempt to describe the meaning of the behavioural finance and the various psychological factors that plays an important role in the investment decisions. In order to search for evidences of behavioural biases in the portfolio investment decisions of the investors a survey with questions formed on Likert scale on 5 point scale was created and responses were obtained from investors who make their own investment decisions. The paper identified through Multiple Regression Analysis that Herd Mentality, Mental Accounting, Overconfidence, Anchoring, Confirmation are a few biases affects the investment decisions of individual investors.*

**Keywords:** Behavioural finance, Behavioural Biases, Portfolio Investment Decisions.

## Introduction

Behavioral finance is a relatively new paradigm of finance, which seeks to supplement the standard theories of finance by introducing behavioural aspects to the decision making process and provide explanation for why investors make irrational decision. Efficient market hypothesis has been the most important theory that explains the behaviour of agents in the financial markets.

## Standard or traditional finance

Standard finance, also known as *traditional finance*, is based on various theories and principles, for example the arbitrage principles of Miller & Modigliani; the portfolio principles of Markowitz; the capital asset pricing theory of Sharpe, Lintner & Black; and the option-pricing theory of Black, Scholes & Merton. Traditional finance theories are often based on the assumptions of rationality, an efficient market, and profit maximization (Fama, 1970). In traditional theories of finance investment decisions are based on the assumption that investors act in a rational manner. This means that they behave rationally so they earn returns for the money they put in stock markets.

Although traditional paradigms can be useful in many applications, empirical evidence contradicting traditional finance models began to mount. Despite assumptions to the contrary, people exhibit behavioural biases that influence their investment decisions.

## Behavioural Finance

One of the most important factors in investment decisions is the emotions. Behavioural Finance approach investigates the influence of emotions on investment decisions. Modern theory of investors' decision-making suggests that investors do not act rationally at every time while making an investment decision. They deal with several cognitive and psychological errors. These errors are called behavioural biases and are exists in many ways.



Figure:1

Some of the key definitions of behavioural finance are discussed below:

**Ricciardi and Simon, (2000)** defined the term as follows: “behavioral finance attempts to explain and increase understanding of the reasoning patterns of investors, including the emotional processes involved and the degree to which they influence the decision-making process.

### **Behavioural Finance and Investment decisions**

The relationship between behavioural finance biases and investors decision –making is a well-researched topic. It studies the psychological aspect of financial decision-making and explains the irrationality of investors in investment decision-making. Usually, the investor’s behaviour deviates from making rational or logical decisions and leans towards being influenced by various behavioural biases. These biases influence the investor’s rationality in investment decision-making.

Chandra (2008) explored the impact of behavioural factors and investor’s psychology on their decision-making, and to examine the relationship between investor’s attitude towards risk and behavioral decision-making. The investment decision-making is influenced, largely, by behavioural factors like greed and fear, Cognitive Dissonance, heuristics, Mental Accounting, and Anchoring. These behavioral factors must be taken into account as risk factors while making investment decisions.

### **Review of Literature**

Shabgon & Mousavi (2016), Sharma (2014) attempted to apprehend how emotions and cognitive errors influence individual investors’ behaviours. This study revealed that behavioural finance research the outcome of social, cognitive, and emotional factors on the economic assessments of individuals and the outcomes for benefit and the resource allocation. In this study, herding can add to the evaluation of professional performance since low-ability ones may mimic the behaviour of their high-ability peers so as to develop their professional standing. It was found that heuristic factors, prospect factors, market factors, herding effect factors have crash on investors’ decision-making. It was concluded that the fondness of herding also depends on nature of investors, for instance, individual investors have propensity to go after the crowds in making investment decision than institutional investors. Many times investors knowingly or unknowingly exhibits this type of behaviour which is entirely against the rationality concept. –It is often seen that in many cases a particular group forms and it goes in a particular direction. And when a new investor comes by his own nature of being a human just follows the pattern of the group without any contemplation of his own values or beliefs or analysis. He takes it for granted that when so many people are there in that direction, they all must have something which is profitable as an investor.

Larrick, Burson & Soll (2007), Shefrin (2000), Siddiqui and Singh(2009) ,Dobelli(2014) , Najaf,Shah and Najaf (2015) Gervais and Odean( 1998,2001).Moore and Healy(2008) stated Overconfidence Bias and Investment Decision is another estimate of risk is when people contemplate themselves better and superior relative to others. Too many people overestimate what they are not and undervalue what they are. Overconfidence is basically the exaggeration of investor capabilities because they think that they can do better decision as compared to others but actually it is not. Excessive accuracy in one’s belief also called miscalibration and over placement of one’s performance comparative to others, better than average effect are due to overconfidence bias. People inclined to perceive their starting performance better than it actually is, after learning the result. There are two main effect of overconfidence with respect to investor point of view, one is failure to generalize the information and second is to do extra trading due to this failure. Further it is an unreasonable conviction of an individual in his mind, intuitions and decisions. This stems from the fact that individuals think themselves more intelligent than they are or think that they have better knowledge. This situation can be refereed as the estimate of the difference between real knowledge of people and the knowledge which they think that they have comprehend. Investor overconfidence results from self-serving attribution bias .They infer their own capabilities from successes and failures because of this tendency to take too much credit for their success, they become overconfident

Shiller, 1997) ,Shiller (1998) Barberis & Huang, (2001) , (Barberis & Thaler, (2003) Ritter (2003),Rockenback Bettina(2002) described Mental accounting as the inclination of people to place specific events into different mental accounts based on apparent characteristics or the process by which people think about and examine their economical transactions . It is the tendency of people to place specific events into different mental accounts based on hypothetical features. Investors place their investments into randomly separate mental department and react separately and in different ways to the investment based on which department they are in. Mental accounting allows investors to categorize their portfolio into separate accounts .

Kahneman & Tversky ( 1974), Waweru et al., (2008) elaborated Anchoring is an event used in the situation when people use some starting values to make approximation, which are biased toward the starting ones as different initiation points yield different estimates . In financial market, anchoring emerges when a value scale is fixed by latest observations. Investors always refer to the initial purchase price when selling or analyzing. Thus, today prices are often determined by those of the past. It makes investors to define a range for a share price or company’s income based on the past trends, resulting in under-reaction to unexpected changes.

Shefrin and Statman (1985), (Shefrin,2000) narrated that the investor viewpoint of holding losers, while selling winners early. He called this phenomena as ‘selling winners too early and carrying losers too long’ as the disposition effect. He calls this phenomenon “get-evenitis”, that is people aim that market will work in their favour and that they will be able to abort their investment without experiencing any losses.

**Limitations of the Study**

- The limitation arises out of the fact that India is a vast country, and this study cannot be considered an evaluation of the average Indian investor.
- The sample size is small and the location was chosen mainly because it was the researcher’s home city thus making data collection convenient. It remains to be seen whether investors in other parts of the country would exhibit a similar behaviour as would be found out by this study.

**Objectives**

The primary objective of the study is to find the impact of various behavioural biases on portfolio investment decisions of Individual investors.

**Hypothesis**

H0: There is no impact of behavioural dispositions on the Expected rate of Return.

H1: There is impact of behavioural dispositions on the Expected rate of Return.

H0: Behavioural Dispositions do not impact Duration of investment.

H1: Behavioural Dispositions impact Duration of investment.

H0: Behavioural Dispositions do not impact Motivation to invest.

H1: Behavioural Dispositions impact Motivation to invest.

H0: There is no impact of behavioural dispositions on the Investment objectives.

H1: There is impact of behavioural dispositions on the Investment objectives.

**Methodology**

It is a micro investigation nature which gives the role of behavioural biases on the portfolio investment decisions of individual investors. On the basis of the review of literature the following biases has been identified for the study. The study undertakes three heuristic based biases and three prospect theory based biases.

The overall sample design is as follows:

Universe: Adults above 18 years of age,

Sampling Frame: List of investing clients from equity brokers in Rajasthan.

Sampling Unit: List of male and female investors in Rajasthan.

Sampling Technique: Non-Probability Convenience Sampling method,

Sample Size: 310 respondents.

**Figure 1.1  
Variable Identification**

<u>Independent Variable</u>	<u>Dependent variable</u>
<b>Factors Influencing Behavioural Dispositions</b> <ul style="list-style-type: none"> <li>• Herd mentality</li> <li>• Overconfidence bias</li> <li>• Anchoring Bias</li> <li>• Mental accounting</li> <li>• Confirmation bias</li> <li>• Loss aversion</li> </ul>	<b>Portfolio Investment Decisions</b>

The investment decision is studies through -

- Expected rate of return
- Objectives of investment

c) Duration of making investment

The respondents were also asked to summarise their preferences on the investment avenues.

**Tools of Data Collection:**

The data for the present study has been collected through a structured questionnaire, questionnaire description. In order to study the investor’s behaviour, the researcher has used various behavioural finance variables. The rationale was (1) investors awareness about investment avenues available (2) investor perceptions (3) the factors affecting investor behaviour (4) test of behavioural finance biases. (Questionnaire statement reliability Cronbach’s Alpha 0.669 for 24 items statements) and for other parts of it (Questionnaire statement reliability- Cronbach’s Alpha 0.724 for 24 items)

**Data Analysis and Interpretation:**

Quantitative data was presented in tables and explanation in prose. In addition, the study conducted a multiple regression analysis. This provided the generalization of the findings on impact of behavioural biases on investment decisions of investors.

The regression equation given below was used:

$$Y = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6$$

Whereby the variables will be identified as follows

Y – The dependent variable represents the individual investor decision and is measured by an analysis of the individuals’ risk adjusted returns resulting from such decisions. Scores were derived from Likert scale for each behavioural factor.

X1 – Loss Aversion

X2 – Anchoring

X3 – Confirmation

X4 –Mental Accounting

X5 – Over Confidence

X6 – Herd Mentality

Regression analysis was done using statistics software, SPSS. The  $\beta$  coefficients from the equation above represent the strength and direction of the relationship between the independent and dependent variables. Assuming that the error term in the linear regression model is independent of x, and is normally distributed, with zero mean and constant variance, by testing the null hypothesis that  $\beta = 0$ , it will be realized that there is a significant relationship between x and y, at a 0.05 significance level.

• **Expected Rate of Return and Behavioural Dispositions**

**Table :1  
Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.828 <sup>a</sup>	.685	.679	.647

a. Predictors: (Constant), Herd Mentality, confirmation, Overconfidence, Mental Accounting, Loss Aversion, Anchoring

b. Dependent Variable: Expected Return

Table 1 indicating the model summary shows that the  $R^2=.685$  adjusted to .679. This means that 69% of the variance in individual investor decisions is explained by the regression model. The adjusted .679 means that 68% of the variance in individual investor decisions is explained by the regression model derived from the sample population. Hence the null hypothesis is rejected.

The following is the regression equation:

$$Y = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6$$

$$Y = -1.948 .189X_1+ .209X_2 -.118X_3 -.750X_4 -1.813X_5 + .412X_6$$

**Table 1.1  
Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-1.948	.469		-4.156	.000
Loss Aversion	.189	.111	.089	1.695	.091
Anchoring	.209	.132	.129	1.586	.114

Confirmation	-.118	.116	-.067	-1.020	.309
Mental Accounting	-.750	.065	-.453	-11.624	.000
Overconfidence	1.813	.107	.810	16.883	.000
Herd Mentality	.412	.173	.138	2.389	.018

a. Dependent Variable: Expected Return

Table 1.1 shows that the estimated regression coefficients, standard errors of the estimates, t-values and significant levels.

• **Duration of Investment and Behavioural Dispositions**

**Table 1.3  
Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.939 <sup>a</sup>	.882	.880	.258

a. Predictors: (Constant), herd mentality, confirmation, overconfidence, mental accounting, loss aversion, anchoring

b. Dependent Variable: time period

Table 1.3 indicating the model summary shows that the  $R^2=.882$  adjusted to  $.880$ . This means that 89% of the variance in individual investor decisions is explained by the regression model. The adjusted  $R^2=.880$  means that 88% of the variance in individual investor decisions is explained by the regression model derived from the sample population. Hence the null hypothesis is rejected.

The following is the regression equation:

$$Y = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6$$

$$Y = -.380 - .043X_1 + 1.015X_2 - .966X_3 - .747X_4 - .764X_5 + .903X_6$$

**Table 1.4  
Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.380	.187		-2.028	.043
Loss aversion	-.043	.044	-.031	-.970	.333
Anchoring	1.015	.053	.959	19.314	.000
Confirmation	-.966	.046	-.831	-20.830	.000
Mental accounting	-.747	.026	-.690	-28.973	.000
Over confidence	.764	.043	.523	17.811	.000
Herd mentality	.903	.069	.464	13.108	.000

a. Dependent Variable: time period

Table 1.4 shows that the estimated regression coefficients, standard errors of the estimates, t-values and significant levels.

• **Motivation behind Investment and Behavioural Dispositions**

**Table 1.5  
Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.755 <sup>a</sup>	.569	.561	.279
A. Predictors: (Constant), Herd Mentality, Confirmation, Overconfidence, Mental Accounting, Loss Aversion, Anchoring				
B. Dependent Variable: Encouragement for investment				

Table 1.5 indicating the model summary shows that the  $R^2=.569$  adjusted to  $.561$ . This means that 59% of the variance in individual investor decisions is explained by the regression model. The adjusted  $R^2=.561$  means that 56% of the variance in individual investor decisions is explained by the regression model derived from the sample population. Hence the null hypothesis is rejected.

$$Y = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6$$

$$Y = -.567-.503X_1+.710 X_2 -.018X_3-.206 X_4-.067 X_5 + .960$$

**Table 1.6**  
**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	-.567	.202		-2.804	.005
Loss Aversion	-.503	.048	-.644	-10.486	.000
Anchoring	.710	.057	1.188	12.517	.000
Confirmation	-.018	.050	-.028	-.362	.718
Mental Accounting	-.206	.028	-.337	-7.400	.000
Overconfidence	-.067	.046	-.081	-1.450	.148
Herd Mentality	.960	.074	.875	12.912	.000

a. Dependent Variable: Encouraged Investment

Table 1.6 shows that the estimated regression coefficients, standard errors of the estimates, t-values and significant levels.

• **Investment Objectives and Behavioural Dispositions**

As per the data analysis in the descriptive study it has been observed that the investment objectives which are of primary importance to the individual investors are : safety principle, specific investment objectives, assets accumulation. The regression analysis is applied to test the significance of behavioural disposition on each investment objective.

A) Safety of the funds and behavioural dispositions

**Table 1.7**  
**Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.839 <sup>a</sup>	.703	.697	.339

a. Predictors: (Constant), Herd Mentality, confirmation, Overconfidence, Mental Accounting, Loss Aversion, Anchoring

b. Dependent Variable: SAFETY PRINCIPAL

Table 1.7 indicating the model summary shows that the  $R^2=.685$  adjusted to .679. This means that 68% of the variance in individual investor decisions is explained by the regression model. The adjusted  $R^2=.880$  means that 67% of the variance in individual investor decisions is explained by the regression model derived from the sample population. Hence the null hypothesis is rejected.

$$Y = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6$$

$$Y = 5.379-.438X_1+.360 X_2+ .452X_3-.267 X_4-.410 X_5 + .126X_6$$

**Table 1.8**  
**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	5.379	.246		21.876	.000
Loss Aversion	-.438	.058	-.382	-7.495	.000
Anchoring	.360	.069	.412	5.223	.000
confirmation	.452	.061	.470	7.416	.000
Mental Accounting	-.267	.034	-.298	-7.875	.000
Overconfidence	-.410	.056	-.339	-7.269	.000
Herd Mentality	.126	.091	.078	1.388	.166

a. Dependent Variable: safety principal

Table 1.8 shows that the estimated regression coefficients, standard errors of the estimates, t-values and significant levels.

**Table 1.9**  
**Behavioural dispositions and their Impact**

Loss Aversion	Anchoring	Confirmation	Herd Mentality	Overconfidence	Mental Accounting
2.88	2.45	2.50	2.97	2.46	2.88

The table 1.9 shows the comparative mean scores of all the respondents. The mean scores suggest that all the behaviour dispositions have a positive relationship with the investment behaviour of the respondents. Hence, we reject the null hypothesis that there exists no relationship between the behaviour dispositions and investment decisions of the investors.

### Conclusion

The tests of this study show that there exists a positive relationship between behavioural dispositions and portfolio investment decisions. The results on overconfidence imply that people are overconfident. Moreover, the results imply that people systematically underestimate volatility and the learning of volatility is poor.

The impact of the behavioural disposition and the expected rate of return shows that the herd mentality, Overconfidence, Mental Accounting, Loss Aversion has a negative relationship with expectations from return whereas the confirmation and anchoring dispositions show a positive change. Similarly, herd mentality, overconfidence, mental accounting, loss aversion, shows negative change in relation to the duration of investment whereas the confirmation and anchoring disposition confirm positive change in relation to the duration of investment the relationship between the primary investment objective, that is, the safety of funds and the behavioural dispositions shows that Confirmation, Overconfidence and Anchoring share a positive relationship however herd mentality, mental accounting and loss aversion convey negative relationship.

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