# 16 Financial Literacy, Behavioral Biases, and Investor Rationality: Evidence from Kerala

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**Abstract**

For a long time, the behaviour of investors is assumed to be fully rational on the basis that they expected to make objective investment decision by effectively using all available information. But in real financial world, the existence of some irrational reactions is identified and these irrational reactions deviate investors from making rational decisions. This study looks at issues related to the financial decision-making ability of investors. And the problem of research primarily focused on the behavioral issues that influence the decision-making process of investors-Do investors behave rationally or is it governed by the state of mind? Rationality is normally measured in terms of absence of bias and irrationality in the presence of the same. The study is limited to the individual investors in Kerala state. And the study covers investment in financial assets only. The bias covered under the study were representativeness bias, gambler's fallacy bias, anchoring bias, overconfidence bias, availability bias, self-attribution bias-profit, self-attribution bias-loss, illusion of control bias, conservatism bias, optimism bias, pessimism bias, hindsight bias, loss framing bias, disposition effect, regret aversion bias, recency bias, status quo bias, herd behaviour, sensitivity to rumors, confirmation bias and familiarity bias.

**Keywords:** Investment, Decision Making Rational, Irrational, Biases, Behaviourial Finance.

## Introduction

Behaviour of investors is one of the most integral parts of financial research. Investor's behaviour refers to how investors make their investment related decisions such as what they intended to buy, when they are decided to buy, how much they spent for their investment and the reasons behind their choice. It further examines characteristics of individual consumers such as demographics, psychographics, and behavioral variables in an attempt to understand people's wants. And each investment asset has different risk, lock-in period, returns, tax incentives and convenience. For a

long time, the behaviour of investors is assumed to be fully rational on the basis that they expected to make objective investment decision by effectively using all available information. It means that investors are said to be perfectly rational and supposed to make investment decisions objectively using all the available information. (Chandra, & Kumar, 2011). In fact, it is usually supposed that stock prices are determined by rational investors' anticipations and reactions. In real financial paradigm, the existence of some irrational investors' reactions has been identified; these irrational reactions deviate investors from making rational decisions. (Chandra and Sharma, 2010). For decades, investors supported the Efficient Market Hypothesis, which states that market prices fully reflect all available information; however, this theory neglects human behaviour and the psychological factors that influence real-world investment decisions.

An emerging stream of research, Behavioral Finance, views people as they really are prone to making decisions based on emotions and gut feeling, then on reason alone. It provides some interesting insights into the investment decisions of both individuals and Institutions. Rational reasons are not enough to explain the trading behavior of individual investors.

**Statement of Problem**

The problem of research primarily focused on the behavioral issues that influence the decision-making process of investors-Do investors behave rationally or is it governed by the state of mind? Rationality is normally measured in terms of absence of bias and irrationality in the presence of the same. It is often complex to decide whether investors act rationally or irrationally and the nature and the type of bias which influence them at a point of time.

In the context of Kerala, where individual investors are increasingly participating in diverse financial instruments such as equities, mutual funds, and digital investment platforms, understanding the behavioural dimension of decision-making is of particular relevance. Cultural, social, and regional factors may further interact with cognitive biases, thereby influencing the financial choices of investors in ways that deviate from purely rational models. This makes it imperative to identify the nature and type of biases prevalent among investors in Kerala and to analyse how these biases affect their ability to make sound financial decisions.

**Significance of the Study**

Kerala is characterized by high levels of literacy and several parameters of growth. Hence, investment opportunities can be made known to the masses. However, this literacy need not always create financial literacy and prudence. Bias is coming on account of lack of information, inadequate information, rumors, emotions and feelings. The present study examines investment behaviour in terms of investing in financial assets considering rationality

**Scope of the Study**

The study is limited to the individual investors in Kerala state. And the study covers investment in financial assets only. The bias covered under the study were representativeness bias, gambler's fallacy bias, anchoring bias, overconfidence bias, availability bias, self-attribution bias-profit, self-attribution bias-loss, illusion of control bias, conservatism bias, optimism bias and so on

**Review of Literature**

Deshmukh et al. (2016) investigated mutual fund investment behaviour among investors in Raipur city by focusing on behavioral determinants. The study found that factors such as perception, motivation, incentive potential, and intensity of cues significantly influence investors' intention to invest. This intention subsequently affects their actual investment decisions and shapes their satisfaction with mutual funds, which depends largely on the performance and growth of the chosen fund

Pandit, et al (2015) examined the effect of psychological biases such as herding and disposition effect on investment decision made by an investors and concluded that the majority of the investors are affected by herd behaviour and disposition effect.

Grover (2015) examined the behavioural factors influencing investors' decisions in the real estate sector. The study revealed that investors tend to avoid selling assets that have declined in value, while they are more willing to sell those that have appreciated. It also highlighted hindsight bias, referring to the tendency of investors to alter their original judgments or recollections in light of newly available information

Kaur, R. (2015) explored the behaviour influence of retail investors in equity investment and how their expectations are getting changed in the era of volatility. He found out that investors were risk averse and moderate risk takers and they do past information analysis as past financial performances are also considered by them in decision making.

Mitroi, A. (2014) argued that behavioral biases are detrimental to the investment return of individual investor portfolios. Michael, L. (2014) presented the gender differences among investors in a behavioural finance perspective. He pointed out that the gender differences among investors tend to be overstated.

**Concepts and Definition**

- **Individual Investor:** Individual investor for the purpose of this study includes only those individual investors who are invested in financial assets with special reference to shares.
- **Investor Behaviour:** Investor behaviour is confined to psychological behaviour of individuals

**Objective of the Study**

- The objective of the study is to analysed whether the investors were rational or irrational in taking investment decisions

**Hypothesis of the Study**

The investors are generally rational in taking their investment decisions.

**Research Methodology**

The work will be carried out by adopting descriptive research design. Both primary data and secondary data will be collected. The primary data will be collected from investors. Questionnaire will be used for collecting the information from the investors. The total sample size of individual investors would comprise of 390 and they would be classified on the basis of income and occupation.

**Data Analysis**

Data collected through questionnaire were tabulated using excel and SPSS software, Interpretation of data were based on tabulation and analysis. Statistical methods were used for data analysis. such as Mean, percentage, standard deviation, correlation etc. Non-parametric statistical tools like Chi-square, Kruskal Wallis, Spearman's rho and Mann-Whitney U were also used for the study

**Analysis and Discussions**

The objective of the study was to analyze whether the investors were rational or irrational in taking investment decisions. The rationality of an investor is determined on the basis of financial literacy and behavioural biases. If an investor is having high financial literacy, then he/she is considered to be unbiased and a rational investor. Otherwise he/she is irrational.

**Table 1: Criteria for Determining Rationality**

| Financial Literacy | Biases | |
|---|---|---|
| | Biased | Unbiased |
| High | Irrational | Rational |
| Low | Irrational | Irrational |

**Financial Literacy**

Financial literacy means literate about the factors that were considered before investing in financial assets. Some of the factors were such as condition of the financial statement of the company, dividends paid by the company, firm status in the industry, Inflation rate, fluctuations in the stock index, expected issue of bonus share, government policies, interest rates and economic conditions. Five point scale was used for analysis, where 1 denoted strongly disagree and 5 the maximum

The weights assigned by paired ranking method to the factors considered by the Investors before taking investment decision were as follows. *Fluctuation in the*

*stock index* had highest weight of 0.200, followed by *government policies* and *economic condition* having a weight of 0.156 each. For details refer table no 2

**Table 2: Weights assigned by paired ranking method to the factors consider by the Investors before taking investment decision**

| Factors | Weights |
|---|---|
| Expected issue of bonus share | 0.022 |
| Dividends paid | 0.089 |
| financial statement of the company | 0.089 |
| Firm status in the industry | 0.089 |
| Interest rates | 0.089 |
| Inflation rate | 0.111 |
| Economic condition | 0.156 |
| Government policies | 0.156 |
| Fluctuations in the stock index | 0.200 |

**Status of Investors on Behavioural Biases**

Out of 20 biases, recency bias, anchoring bias, status quo bias, sensitivity to rumors, loss framing bias, conservatism bias, disposition effect, regret aversion bias, hindsight bias and self- attribution loss bias were having more than 50 per cent impact on the identified investors. The recency bias was having high impact and pessimism bias was having least impact. The details were in the table 4

**Table 4: Distribution of investors on the basis of behavioural biases**

| Behavioural biases | Unbiased | | biased | | Total | |
|---|---|---|---|---|---|---|
| | n | % | n | % | n | % |
| Representativeness bias | 256 | 65.64 | 134 | 34.36 | 390 | 100.00 |
| Gambler's fallacy | 274 | 70.26 | 116 | 29.74 | 390 | 100.00 |
| Anchoring bias | 128 | 32.82 | 262 | 67.18 | 390 | 100.00 |
| Overconfidence bias | 339 | 86.92 | 51 | 13.08 | 390 | 100.00 |
| Availability bias | 315 | 80.77 | 75 | 19.23 | 390 | 100.00 |
| Self-attribution bias-profit | 312 | 80.00 | 78 | 20.00 | 390 | 100.00 |
| Self-attribution bias-loss | 188 | 48.21 | 202 | 51.79 | 390 | 100.00 |
| Illusion of control bias | 240 | 61.54 | 150 | 38.46 | 390 | 100.00 |
| Conservatism bias | 167 | 42.82 | 223 | 57.18 | 390 | 100.00 |
| Optimism bias | 256 | 65.64 | 134 | 34.36 | 390 | 100.00 |
| Pessimism bias | 369 | 94.62 | 21 | 5.38 | 390 | 100.00 |
| Hindsight bias | 177 | 45.38 | 213 | 54.62 | 390 | 100.00 |
| Loss framing bias | 153 | 39.23 | 237 | 60.77 | 390 | 100.00 |
| Disposition effect | 167 | 42.82 | 223 | 57.18 | 390 | 100.00 |
| Regret aversion bias | 167 | 42.82 | 223 | 57.18 | 390 | 100.00 |
| Recency bias | 85 | 21.79 | 305 | 78.21 | 390 | 100.00 |
| Status quo bias | 128 | 32.82 | 262 | 67.18 | 390 | 100.00 |
| Herd behaviour | 347 | 88.97 | 43 | 11.03 | 390 | 100.00 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Sensitivity to rumors | 137 | 35.13 | 253 | 64.87 | 390 | 100.00 |
| Confirmation bias | 212 | 54.36 | 178 | 45.64 | 390 | 100.00 |
| Familiarity bias | 205 | 52.56 | 185 | 47.44 | 390 | 100.00 |

Source: primary data

**Rationality on Behavioural Biases**

To determine rationality on behavioural biases, financial literacy and biasness of investors were consider. The following table shows the distribution of Rational and Irrational investors by different behavioural biases.

Out of twenty biases, all the biases have more than fifty per cent of irrational investors. Among the biases, the pessimism bias have high rational investors of 49.49 percent and this was followed by self-attribution loss bias of having 48.21 per cent. The least rational investors were on recency bias of having 7.44 per cent, this was followed by anchoring bias (16.15. Out of twenty biases, all the biases have more than fifty per cent of irrational investors.

**Table 5: Distribution of Rational and Irrational investors by different behavioural biases**

| Behavioural biases | Rational | | Irrational | | Total | |
|---|---|---|---|---|---|---|
| | n | % | n | % | n | % |
| Pessimism | 193 | 49.49 | 197 | 50.51 | 390 | 100.00 |
| Self-attribution-profit | 159 | 40.77 | 231 | 59.23 | 390 | 100.00 |
| Self-attribution-loss | 188 | 48.21 | 202 | 51.79 | 390 | 100.00 |
| Herd behaviour | 174 | 44.62 | 216 | 55.38 | 390 | 100.00 |
| Overconfidence | 169 | 43.33 | 221 | 56.67 | 390 | 100.00 |
| Availability | 169 | 43.33 | 221 | 56.67 | 390 | 100.00 |
| Gambler's fallacy | 137 | 35.13 | 253 | 64.87 | 390 | 100.00 |
| Representativeness | 130 | 33.33 | 260 | 66.67 | 390 | 100.00 |
| Optimism bias | 129 | 33.08 | 261 | 66.92 | 390 | 100.00 |
| Illusion of control | 121 | 31.03 | 269 | 68.97 | 390 | 100.00 |
| Confirmation | 108 | 27.69 | 282 | 72.31 | 390 | 100.00 |
| Familiarity | 103 | 26.41 | 287 | 73.59 | 390 | 100.00 |
| Disposition effect | 86 | 22.05 | 304 | 77.95 | 390 | 100.00 |
| Regret aversion | 86 | 22.05 | 304 | 77.95 | 390 | 100.00 |
| Loss framing | 80 | 20.51 | 310 | 79.49 | 390 | 100.00 |
| Conservatism | 79 | 20.26 | 311 | 79.74 | 390 | 100.00 |
| Hindsight | 76 | 19.49 | 314 | 80.51 | 390 | 100.00 |
| Status quo | 76 | 19.49 | 314 | 80.51 | 390 | 100.00 |
| Sensitivity to rumors | 76 | 19.49 | 314 | 80.51 | 390 | 100.00 |
| Anchoring | 63 | 16.15 | 327 | 83.85 | 390 | 100.00 |
| Recency | 29 | 7.44 | 361 | 92.56 | 390 | 100.00 |

Source: primary data

**Level of Rationality**

The level of rationality is determined on the basis of financial literacy and behavioural biases.

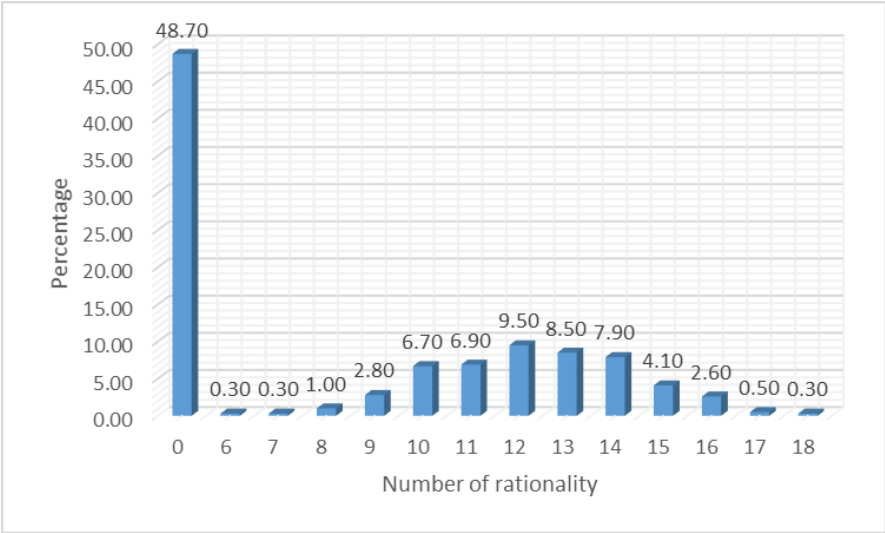


**Figure 2: Percentage distribution of investors on the basis of number of rationality with regard to behavioural biases**

The figure represents the per cent distribution of investors on the basis of number of rationality with regard to behavioural biases. 48.70 per cent of them have no rationality on any of the biases and 0.30 per cent have rationality on *six* to *seven* biases.

**Testing of Hypothesis**

**Table 7: Distribution of Rational and Irrational investors by different behavioural biases with test proportion**

| | Rational | | Irrational | | Test Proportion | Exact Sig. |
|---|---|---|---|---|---|---|
| | N | Observed Proportion | N | Observed Proportion | | |
| Pessimism | 193 | 0.49 | 197 | 0.51 | 0.5 | 0.879 |
| Self-attribution-loss | 188 | 0.48 | 202 | 0.52 | 0.5 | 0.510 |
| Herd behavior | 174 | 0.45 | 216 | 0.55 | 0.5 | 0.038 |
| Overconfidence | 169 | 0.43 | 221 | 0.57 | 0.5 | 0.010 |
| Availability | 169 | 0.43 | 221 | 0.57 | 0.5 | 0.010 |
| Self-attribution-profit | 159 | 0.41 | 231 | 0.59 | 0.5 | 0.000 |
| Gambler's fallacy | 137 | 0.35 | 253 | 0.65 | 0.5 | 0.000 |
| Representativeness | 130 | 0.33 | 260 | 0.67 | 0.5 | 0.000 |
| Optimism bias | 129 | 0.33 | 261 | 0.67 | 0.5 | 0.000 |
| Illusion of control | 121 | 0.31 | 269 | 0.69 | 0.5 | 0.000 |
| Confirmation | 108 | 0.28 | 282 | 0.72 | 0.5 | 0.000 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Familiarity | 103 | 0.26 | 287 | 0.74 | 0.5 | 0.000 |
| Disposition effect | 86 | 0.22 | 304 | 0.78 | 0.5 | 0.000 |
| Regret aversion | 86 | 0.22 | 304 | 0.78 | 0.5 | 0.000 |
| Loss framing | 80 | 0.21 | 310 | 0.79 | 0.5 | 0.000 |
| Conservatism | 79 | 0.2 | 311 | 0.80 | 0.5 | 0.000 |
| Hindsight | 76 | 0.19 | 314 | 0.81 | 0.5 | 0.000 |
| Status quo | 76 | 0.19 | 314 | 0.81 | 0.5 | 0.000 |
| Sensitivity to rumors | 76 | 0.19 | 314 | 0.81 | 0.5 | 0.000 |
| Anchoring | 63 | 0.16 | 327 | 0.84 | 0.5 | 0.000 |
| Recency | 29 | 0.07 | 361 | 0.93 | 0.5 | 0.000 |

**Hyp:** Investors were generally rational in their investment decisions.

Binomial test was applied to test whether proportion of rational and irrational investors. Out of 21 aspects, investors have irrationality in 19 aspects and rationality in pessimism and self- attribution profit bias. Hence the result rejects the null hypothesis investors are generally rational in their investment decisions

**Findings of the Study**

Out of twenty biases, all the biases have more than fifty percentage of irrational investors. The recency biases having high irrational investors, followed by anchoring bias, hindsight bias, status quo bias, sensitivity to rumours, conservatism bias and so on. The least irrational investors were on pessimism bias, self-attribution bias, herd behaviour, availability bias and so on. But all these biases have more than 50 percentage irrational investors. So the investors were irrational on all these biases. While considering the level of rationality, 48.70 per cent of them have no rationality on any of the biases. And 0.30 percentage have rationality on six to seven biases. While considering eighteen biases only 0.30 percentage have rationality. So it can be concluded that the investors were irrational in taking their investment decisions.

**Suggestions of the Study**

- Recognition of biases in oneself and others can be the first step in avoiding them. Such recognition is possible through use of information for decisions and benchmarking of decisions based on preset standards. We use information and standards to set expectations and guide actions.
- In order to overcome these biases, the investor need to review trading records then calculate the performance of the firm and judge operations such updated information can often help investors to understand the errors in their ways.

**Conclusion**

Behavioural finance highlights the psychological edge of investment decision. It analyses the more complex elements of the puzzle by identifying structural biases in human behaviour and using such findings to explain some of the financial market

anomalies. It is the individual investors who are more susceptible to behaviourial anomalies and mental errors.. With an objective to create investors' confidence in the stock market, behaviourial biases are the newest of the things which must be considered while formulating investment strategies for individual investors. Investment advisors and finance professionals must incorporate behaviourial issues as a risk factor in order to formulate efficient investment strategies.

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