

## **FINDINGS AND CONCLUSION**

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### **8.1 Introduction**

The present study is intended to examine the relationship between the stock market and equity mutual funds in India, analyse the trend of the performance of equity mutual funds, assess the nature and extent of behavioural bias among equity mutual fund investors with regard to different socio-economic factors and examine the influence of behavioural bias of equity mutual fund investors in Kerala on their investment performance. The major findings and conclusion of the study are presented in the chapter.

### **8.2 Findings of the study**

#### **8.2.1 Relationship between the stock market and equity mutual funds in India**

- The results of the Johansen's cointegration test indicate the existence of long-run relationship between equity mutual funds and the stock market in India and the speed of price adjustment to long-run equilibrium is found to be significant for the Sensex and equity mutual funds as per the results of VECM.
- Granger-causality test results imply that a movement in equity mutual funds causes the Sensex to change.
- The results of Variance decomposition analysis and impulse response function proved that Sensex had less strength of exogeneity when

compared to the equity mutual fund categories and the movements in the values of equity mutual funds would cause the stock market index to change.

### **8.2.2 Trend of the Performance of Equity Mutual funds in India**

- Among the equity mutual fund categories, small-cap funds were the most volatile mutual funds, as they make at least 65% of their investment in small-cap companies, which are highly risky and has huge growth potential.
- Large-cap funds were the least volatile mutual funds, proving them to be the least risky equity mutual fund category.
- Small-cap funds would offer the best returns in 2022 and 2023, per the ARIMA forecast results. The performance of large-cap funds would initially decline in 2022 before gradually improving.
- The large and mid-cap funds and the mid-cap funds would continue to grow in 2022 and 2023.

### **8.2.3 Descriptive Statistics of the Respondents**

- The descriptive statistics of the sample investors indicate that 281 (72.1%) of the sample investors are male and the remaining 109 (27.9%) are female. Despite the fact that females outnumber males in Kerala, female participation in equity mutual fund investments appears to be very low.
- It is found that 16 (4.1%) of the investors belong to the age group ‘below 25 years’, 290 (74.4%) belong to ‘26 – 40 years’ category, 70 (17.9%) belong to ‘41-60 years’ category and 14 (3.6%) belong to ‘above 60 years’ category. Subsequently, it can be inferred that the majority of the investors involved in the equity mutual fund investment in Kerala are youngsters.
- The study shows that 79 (20.3%) of the sample investors reside in municipal corporations, 116 (29.7%) reside in municipalities and 195

(50%) reside in panchayaths, which indicate that half of the sample investors reside in the rural areas of Kerala.

- The study reveals that 270 (69.2%) of the sample investors are married and the remaining are unmarried.
- The study implies that 24 (6.2%) of the sample investors are undergraduates, 118 (30.3%) are graduates, 155 (39.7%) are post graduates, 66 (16.9%) are professionally qualified and 27 (6.9%) are technically qualified. This shows that majority of the sample investors are reasonably educated.
- It can be inferred from the study that 263 (67.4%) of the respondents are employed on a salaried basis, 70 (17.9%) are professionals, 10 (2.6%) are businessmen, 19 (4.9%) are retired and the rest, 28 (7.2%) belong to other occupations. Therefore, the majority of the investors belong to a fixed income group.
- It can be observed that 190 (48.7%) of the sample investors belong to the 'less than Rs. 5,00,000' annual income category, 151 (38.7%) belong to 'Rs. 5,00,000-10,00,000' category, 19 (4.9%) belong to 'Rs. 10,00,000-15,00,000' category and 30 (7.7%) belong to the 'more than Rs. 15,00,000' category. This indicates that the majority of the sample investors fall into the lower income bracket.
- The study indicates that 193 (49.5%) of the sample investors invest 'less than Rs. 25,000' annually, 63 (16.2%) invest 'Rs. 25,001-50,000', 55 (14.1%) invest 'Rs. 50,001-1,00,000' and 79 (20.3%) invest 'more than Rs. 1,00,000' in equity mutual funds. It can be inferred that the majority of the investors tend to invest less than Rs. 25,000 in equity mutual funds on an annual basis.
- The analysis regarding the investment mode preferred by the sample investors suggests that 69 (17.7%) resort to the lump sum mode of investment, 229 (58.7%) invest through SIPs and 92 (23.6%) invest

through both modes of investment. The majority of investors were found to invest systematically in equity mutual funds.

- Investment experience-wise analysis shows that 82 (21%) sample investors have experience of less than 1 year, 128 (32.8 %) have experience of 1-3 years, 46 (11.8%) have experience of 3-5 years and 134 (34.4%) have experience of more than 5 years. The majority of the investors have at least five years of investment experience.

#### **8.2.4 Influence of Socio-Economic factors on different Behavioural Biases**

Behavioural biases can be classified into Cognitive biases and Emotional biases. Cognitive biases can be further classified into belief perseverance bias and information processing bias. Hence, belief perseverance bias, information processing bias and emotional bias are considered as the types of behavioural bias. Belief perseverance bias consists of representativeness, confirmation bias, cognitive dissonance and illusion of control bias. In information processing bias, anchoring, availability, self-attribution and mental accounting biases are considered for the study. Emotional biases include overconfidence bias, loss aversion, regret aversion and herd behaviour.

- The aggregate mean score of all the types of behavioural bias is more than 3.3 (65%), which implies that the equity mutual fund investors in Kerala possess an above-average level of behavioural bias while making investment decisions. Belief perseverance bias has the highest mean score of 3.56 (SD 0.68), indicating that it has 71% influence among investors in Kerala. Emotional bias possesses the lowest mean score of 3.38 (SD 0.63), which has 68% of influence among investors in Kerala.
- In gender-wise analysis, the mean score of behavioural bias among male investors is 163.81 (SD 28.36), whereas in the case of female investors, the mean score is 143.95 (SD 21.41). The mean scores indicate that male investors are more affected by behavioural bias. A significant difference exists between male and female investors with regard to behavioural bias.

The analysis of the types of behavioural bias implies that belief perseverance bias, information processing bias and emotional bias have a significant difference between male and female investors. Furthermore, male investors are found to be more affected by these biases when compared to their female counterparts.

- In age-wise analysis, investors belonging to the age group below 25 years have the highest mean score of 177.31 (SD 41.66), whereas investors who are above 60 years of age have the lowest mean score of 152.14 (SD 13.96). This implies that young investors are more influenced by behavioral bias. A significant difference is found to exist among the age categories of investors with regard to behavioural bias.

Analysing the types of behavioural bias makes it evident that significant difference does not exist among age category of investors with regard to belief perseverance bias. However, in the case of information processing bias and emotional bias, significant differences exist among different age group of investors.

- In educational level-wise analysis, investors who are undergraduates possess the highest mean score of 174.88 (SD 33.56), whereas professionally qualified investors have the least mean score of 138.41 (SD 19.93). This suggests that investors with the lowest qualifications are the most affected by behavioural bias when making investment decisions. Moreover, there exists a significant difference among different education levels of investors with regard to behavioural bias.

In the case of types of behavioural bias, a significant difference exists among investors' level of education with regard to all three types of behavioural bias.

- Occupation-wise analysis reveals that employed investors have the highest mean score of 160.54 (SD 29.79) and businessmen have the lowest mean score of 139.40 (SD 15.86). The empirical evidence suggests that investors

who are employed on a regular basis are more prone to behavioural bias, whereas businessmen are the least affected category. As the p-value is less than 0.05, there exists a significant difference among investors' occupations with regard to behavioural bias.

While analysing the types of behavioural bias, it is evident that a significant difference does not exist among different occupations of investors with regard to belief perseverance bias. However, a significant difference is found to exist among investors' occupations with regard to information processing bias and emotional bias.

- While analysing the marital status of employees, the mean score of married investors is 154.16 (SD 25.98), whereas the mean score of unmarried investors is 167.51 (30.30), which implies that unmarried investors are more prone to behavioural bias. Furthermore, a significant difference exists between married and unmarried investors with regard to behavioural bias.

The analysis of the types of behavioural bias indicates that belief perseverance bias, information processing bias and emotional bias have a significant difference between married and unmarried investors. However, unmarried investors are found to be more affected by these biases when compared to the married investors.

- In income-wise analysis, the mean score is maximum for the investors having an annual income of 'less than Rs. 5,00,000' which is 163.06 (SD 27.91), whereas the mean score is minimum for the investors having an annual income of 'more than Rs. 15,00,000' which is 152.43 (SD 29.39). This suggests that investors with lower incomes are more affected by behavioural bias. Moreover, a significant difference exists among the annual income categories of investors with regard to behavioural bias.

Analysing the types of behavioural bias implies that there exists no significant difference among the annual income categories of investors with regard to belief perseverance bias. However, information processing bias and emotional

bias have significant differences among investors belonging to different annual income categories. Investors with lower incomes are found to be more prone to these biases.

- In investment experience-wise analysis, the investors with investment experience of 'less than 1 year' possess the highest mean score of 164.37 (SD 26.86), while, the investors with investment experience of '1 – 3 years' possess the lowest mean score of 152.63 (SD 30.42). Hence, it can be inferred that investors with the least experience in equity mutual fund investment are more prone to behavioural bias. Also, it is found that a significant difference exists among the investors' experiences regarding equity mutual fund investment with regard to behavioural bias.

In the case of types of behavioural bias, there exists a significant difference among the investors' experience in the case of belief perseverance bias and information processing bias. However, no significant difference exists among investment experiences with regard to emotional bias. Investors with lower income are more prone to the belief perseverance bias and information processing bias.

The researcher analysed the influence of different sub-types of behavioural bias on the investment decisions of investors and found out that all the behavioural biases influence the equity mutual fund investors in Kerala on an above-average level. Herding bias possesses the highest mean score of 3.78 (SD 0.78) while cognitive dissonance bias possesses the lowest mean score of 3.20 (SD 0.81). From this, it is evident that herding bias exerts the greatest influence on the investors, whereas cognitive dissonance bias has the least influence among the investors in Kerala.

- Gender-wise analysis implies that all the sub-types of behavioural bias except cognitive dissonance have significant differences between male and female investors. While analysing the mean scores among the male and female investors, it is evident that male investors are more prone to all the biases such as representativeness, confirmation, illusion of control,

anchoring, availability, self-attribution, mental accounting, overconfidence, loss aversion, regret aversion and herding while making investment decisions than female investors.

- In age-wise analysis, illusion of control bias, anchoring bias, self-attribution bias, regret aversion bias and herding bias have significant differences among the age categories of investors.

While analysing the mean score among different age groups of investors, it is evident that younger investors are more prone to these biases when compared to older investors while taking investment decisions.

- Education-wise analysis shows that all the behavioural biases except mental accounting bias have significant differences among different educational qualifications of investors.

In the case of representativeness and confirmation bias, post graduates are the most affected category, whereas professionally qualified investors are the least affected ones. Professionally qualified investors are the most affected by cognitive dissonance bias, whereas graduates are the least affected. Investors who resorted to vocational education are highly affected by illusion of control bias, while professionally qualified investors are least affected by it. Anchoring bias, availability bias, self-attribution bias, loss aversion bias, regret aversion bias and herding bias show that undergraduates are highly prone to it, whereas professionally qualified investors are the least affected category. Overconfidence bias is highest among the undergraduates and lowest among the technically qualified investors.

- Occupation-wise analysis suggests that cognitive dissonance bias, anchoring bias, availability bias, self-attribution bias, mental accounting bias, overconfidence bias, loss aversion bias, regret aversion bias and herding bias show significant differences among different occupations of investors.



Cognitive dissonance bias, anchoring bias, availability bias, self-attribution bias and overconfidence bias are highest among the investors who are employed on a regular basis. Mental accounting bias, loss aversion bias, regret aversion bias and herding bias are highest among professionals. Businessmen are least affected by cognitive dissonance, anchoring, self-attribution, loss aversion, regret aversion and herding bias. Retired employees are the least prone to availability bias, whereas investors belonging to other occupations are least affected by mental accounting bias and overconfidence.

- Marital status-wise analysis shows that all the biases except confirmation bias show a significant difference between married and unmarried investors.

While analysing the mean scores of the married and unmarried investors, it is evident that unmarried investors are more affected by all the biases such as representativeness, cognitive dissonance, illusion of control, anchoring, availability, self-attribution, mental accounting, overconfidence, loss aversion, regret aversion and herding while making investment decisions.

- Annual income-wise analysis shows that confirmation bias, illusion of control bias, anchoring bias, self-attribution bias, regret aversion bias and herding bias show significant differences among different annual income categories of investors.

The mean scores indicate that investors belonging to the lowest annual income group are more prone to these biases while making investment decisions.

- Investment experience-wise analysis implies that representativeness, confirmation, illusion of control, anchoring, self-attribution, regret aversion and herding bias show significant differences among investors with different levels of investment experience.

The study further indicates that representativeness bias and confirmation bias are highest among investors with '3-5 years' of experience, whereas they are

lowest among investors with '1-3 years' of experience. However, the least experienced investors are more affected by confirmation, illusion of control, anchoring, self-attribution, regret aversion and herding bias.

### **8.2.5 Influence of behavioural bias of Equity Mutual Fund Investors on their Investment Performance**

Overall investment performance possesses a mean score of 6.72 (SD 3.91), which indicates that investors' satisfaction level regarding the investment performance of mutual funds is 45%. The statement 'I feel satisfied with my investment decisions in the last year' has the highest mean score of 2.61 (SD 1.29), which implies that more than 52% of investors are satisfied with their investment decisions made in the previous year. The statement 'my rate of return is equal to or higher than the average rate of return in the market' has the lowest mean score of 2.03 (SD 1.31). This indicates that only 40% of the investors receive more than the average return in the market. Hence, it can be concluded that most investors are not satisfied with their equity mutual fund investments.

- Gender-wise analysis shows that there exists a significant difference between male and female investors with regard to investment performance. Male investors possess a mean score of 5.99 (SD 3.49), while female investors have a mean score of 8.60 (SD 4.31). This implies that female investors have performed better than their male counterparts when making mutual fund investments.
- In the case of age-wise analysis, significant difference does not exist among different age categories of investors with regard to investment performance.
- Education level-wise analysis shows that there exists a significant difference among different education levels of investors. The results suggest that technically qualified investors have exhibited the best investment performance, whereas, investors with the lowest educational qualifications have exhibited weak performance.

- Occupation-wise analysis suggests that there exists no significant difference among investors' occupations with regard to investment performance.
- Marital status-wise analysis shows that there exists no significant difference between married and unmarried investors with regard to investment performance.
- In the case of annual income category-wise analysis, significant differences do not exist among different annual income categories of investors with regard to investment performance.
- In investment experience-wise analysis, there exists no significant difference among the investors' experiences regarding mutual fund investment with regard to investment performance.
- While analysing the influence of the types of behavioural bias on investment performance, the results show that the coefficients of belief perseverance bias and emotional bias are significant at a 5% significance level, and the coefficients are negative. This indicates that the investors who are affected by belief perseverance bias and emotional bias have weak investment performance.

### **8.3 Conclusion**

The present study on the analysis of behavioural bias and investment performance among equity mutual fund investors in Kerala indicates that a long-run relationship exists between equity mutual funds and the stock market in India. A long-run equilibrium relationship is found to exist between the Sensex and equity mutual funds in India. Furthermore, equity mutual funds exert a significant influence on Sensex, suggesting that changes in the values of equity mutual funds cause Sensex to vary. Moreover, the Sensex has less strength of exogeneity when compared to equity mutual funds.

Equity mutual funds have provided good returns for most of the years in the past decade. Large-cap equity mutual funds provided consistent returns most of the time, making it the least volatile category since these funds invest a major portion of their assets in equity shares of highly reputed Indian companies. Small-cap equity mutual funds are the most volatile category among equity mutual funds, as they invest at least 65% of their assets in equity shares of small-cap companies. The high risk taken by the investors provides them with a high return. As per the forecasts, all the equity mutual fund categories would provide better returns in 2022 and 2023. Moreover, the forecasts indicate that small-cap funds would be the best performers in these years. The findings also suggest that the performance of large-cap funds would decline in the initial phase of 2022 and then rise at a slow pace. However, they would deliver good returns in 2023. The large and mid-cap funds and mid-cap funds would continue to grow in 2022 and 2023. Due to the highly volatile nature of small-cap funds, it would be suitable for aggressive investors to invest in them. Large-cap funds would be advisable for conservative investors due to the low level of risk.

On average, the investors in Kerala are 65% affected by behavioural bias when making investment decisions. Investors are most affected by belief perseverance bias (71%), whereas, investors are least affected by emotional bias (68%). All types of behavioural biases exert an above average level of influence among investors. Moreover, herding bias exerts the most influence among the equity mutual fund investors in Kerala, whereas, cognitive dissonance bias has the least influence on them.

The level of investment performance is low (44.8%) among equity mutual fund investors in Kerala, which indicates that the investors are not satisfied with their returns. Belief perseverance bias and emotional bias exert a negative influence on investment performance, which implies that investors who are prone to these biases have experienced weak investment performance.