

Chapter 2

REVIEW OF LITERATURE

Contents	2.1	<i>Introduction</i>
	2.2	<i>Review of Literature</i>
	2.3	<i>Research Gap</i>

2.1 Introduction

Equity mutual funds are regarded as the best investment avenue for long-term investment. Despite the higher returns they provide, investment in mutual funds is low in India when compared to other investment options. Several studies have been conducted in the field of mutual fund investment, covering its different aspects. The findings, analytical framework and policy proposals developed by the researchers are remarkable. Although some of the studies are comprehensive, some gaps still persist. An extensive literature review has been done to understand the various studies conducted in this field and to find out the research gap.

2.2 Review of Literature

The existing literature reviews made for the present study are presented as follows:

2.2.1 Relationship between the Stock Market and Mutual Funds

Despite the fact that there have been numerous studies on mutual funds in India, research on the relationship between mutual funds and the stock market is limited.

Gupta, Mathur, and Singh (2021) have examined the long-run relationship between returns of equity mutual funds and stock market indices in India. Johansen's cointegration test and Engle-Granger cointegration test have been used to analyse the linkage between them. A strong long-run relationship has been found between equity mutual funds and stock market indices.

Ardhani, Effendi, and Irfany (2020) studied the short-term and long-term relationship of Islamic mutual funds' net asset values with the inflation rate, exchange rate, money supply and gross domestic product in Indonesia. It was found that none of the variables influenced the net asset values of mutual funds in the short run. Inflation, money supply and GDP influence the net asset values in the long term, whereas the exchange rate has no significant effect on the mutual funds' net asset values.

Agarwal and Khan (2019) studied the effect of macroeconomic variables such as exchange rate, gold price, crude oil price, silver price, money supply, interest rate, foreign exchange reserves and stock market indices on gold mutual funds and energy mutual funds. Interest rates and foreign exchange reserves have had a greater effect on gold funds. There was a low degree of cointegration between macroeconomic variables and the energy funds.

Qureshi, Kutan, Ismail, and Gee (2017) examined the relationship between stock market volatility and mutual fund flows in emerging markets in Asia by employing a panel VAR model. A positive relationship was found to exist between equity fund flows and market volatility, whereas market volatility moves inversely with movements in balanced fund flows.

Othman, Kameel, and Aziz (2015) studied whether there exists a causal relationship between the prices of Islamic equity unit trust funds and certain macro-economic variables of the Malaysian economy, such as the consumer price index, industrial production index, treasury bill rate, money supply, crude oil price, foreign exchange rate, national political elections and corruption index. VECM and Granger causality tests have been employed for the study. It has been found that political elections, the industrial production index and the financial crisis have a unidirectional causal relationship with fund unit prices. The results imply that a bi-directional causal relationship exists between crude oil prices and fund unit prices. There was no causality among the Treasury bill rate, money supply, foreign exchange rate, corruption index and fund unit prices.

Aydogan, Vardar, and Tunc (2014) have studied the dynamic relationship between mutual fund flows and stock returns in the Turkish stock market. Their study revealed the existence of a long-run relationship between all categories of mutual fund flows and stock returns. Results of the Granger Causality test indicate that bidirectional causality exists between mutual fund flows and stock returns.

Deo (2014) analysed the cointegration among four Indian stock market indices, namely, CNX Mid-cap, CNX Small-cap, CNX Nifty and CNX Nifty 500. Johansen's cointegration test and the Engle-Granger cointegration test have been used to test whether a long-term relationship exists between the variables. At least one cointegrating equation has been found among the indices, which indicates the presence of a long-run relationship.

Jebran (2014) explored the dynamic linkage between the stock market of Pakistan and the stock markets of India, Indonesia, China, Malaysia and Sri Lanka. He used correlation matrix to find an association between stock markets and evidence of integration between the Indian and Indonesian equity markets was found. The long-run relationship between the variables was examined using the Johansen and Juselius co-integration approach. Only one cointegrating equation was found. Srilankan stock market was found to be granger caused by Indian, Malaysian and Indonesia stock markets. The study revealed that there is no long-term relationship between the Pakistan stock market and other stock markets.

Pojanavatee (2014) examined the dynamic linkage between the stock market and equity funds in Australia using Johansen's cointegration and VECM-based causality tests. The evidence of cointegration and causality indicates the possibility of gaining from arbitrage. A causal relationship was found to run from mid-cap and small-cap funds to large-cap equity funds. The long-run pricing of Australian equity funds is cointegrated with the stock market index.

Al-Jafari, Salameh, and Asil (2013) examined the relationship between mutual funds and the Amman stock exchange index in Jordan. Error correction model and Granger causality tests have been applied for the study. The results

indicate that the Amman Stock Exchange Index exerts influence on mutual funds. However, mutual funds did not exert influence on the Amman stock exchange index.

Alexakis, Dasilas, and Grose (2013) examined whether there exists a causal relationship between Japanese mutual fund flows and stock index prices. They used hidden cointegration approach and crouching error correction model for analysis. Mutual funds and stock prices were found to be cointegrated. Bi-directional causality was found in the case of positive movements, whereas causality was found to move from funds to stock prices in the case of negative movements.

Bose (2012) examined the dynamic relationship between mutual fund flows and FIIs in India, on the basis of post-crisis data for the period 2008–2012. Granger causality analysis within a VAR framework has been employed to investigate the relationship between them. From the empirical results, it is evident that net investments by FIIs exert a causal influence on stock market returns.

Mishra (2011) examined the causal relationship between mutual fund investment flows and stock market returns in India. Augmented Dickey-Fuller test has been used to check for the presence of unit root. They applied the Toda and Yamamoto procedures of the Granger causality test. They found that a unidirectional causality runs from stock market returns to mutual fund investments in India.

Ben-Rephael, Kandel, and Wohl (2011) explored the relationship between mutual fund flows and stock market returns. The findings suggest that fund flows are positively autocorrelated with market returns. Moreover, one-half of the price change was found to be reversed within 10 trading days.

Burucu and Contuk (2011) analysed whether there exists any long-term relationship between investment fund flows and stock returns in Turkey. A long-term relationship was found between them by conducting Johansen's cointegration

tests. The Granger causality test showed no evidence of causality between investment flows and stock returns.

Ho, Ernst, and Zhang (2011) examined the size effect of large-cap stocks and small-cap stocks over long-term investment. The macroeconomic variables, such as industrial production and 3-month Treasury bill rates, have been used along with the stock prices for the study. Multivariate cointegration results showed the presence of one long-run cointegrating vector. Large-cap and small-cap stock prices exhibited a negative long-run relationship. They concluded that the size effect exhibited predictable reversals in the case of long-run investment.

Chu (2010) employed a cointegration test to examine whether long-run linkage exists between equity funds of the Hong Kong Mandatory Provident Fund (MPF) and benchmark indices of the Hong Kong Investment Fund Association. They used the Granger causality test to analyse the short-run relationship between the variables. More than half of the equity funds are found to be cointegrated with the stock market index and some of the funds exhibited short-run linkage with the stock market.

Hossain, Rahman, and Rajib (2009) have examined the relationship between mutual funds' returns and the stock market index of the Dhaka stock exchange using Johansen's cointegration and the variables were found to be cointegrated. Bi-directional causality was found between DSE general index turnover and mutual fund returns. A unidirectional causality was found to move from mutual funds' return to DSE general index return, mutual funds' return to mutual funds' turnover and DSE general index turnover to mutual funds' turnover.

Rakowski and Wang (2009) explored the relationship between mutual fund returns and daily fund flows within a VAR framework. A positive relationship was found between past fund flows and future fund returns. However, no relationship exists between fund flows and future fund returns when monthly data is used.

Mukherjee and Bose (2008) investigated the movement of the Indian stock market with other stock markets in Asia and the USA by applying cointegration,

VECM, vector autoregression and Granger causality. The Indian stock market is influenced by the US stock index and that of other Asian countries and more significantly Indian market returns highly influence the pricing of other Asian markets.

Oh and Parwada (2007) studied the relationship between mutual fund flows and stock market returns in Korea. The Granger causality test has been employed for analysing the data. A positive relationship was found to exist between mutual fund flows and stock market returns. Further, the empirical evidence suggests that stock purchases granger-cause returns.

Alexakis, Niarchos, Patra, and Poshakwale (2005) examined the causality between mutual funds and stock returns in Greece. The Granger causality test has been employed in the study. They found that there was a bi-directional causality between mutual funds and stock returns. The results of cointegration implied that mutual funds cause stock returns to fall or rise.

Matallin and Nieto (2002) analysed whether Spanish stock funds can be used as an alternative to direct investing in the stock exchange through investing in the stock index Ibex 35. Cointegration was used to determine the long-run relationship between the funds and Ibex 35. 11 funds out of 63 were found to be cointegrated with Ibex 35. Hence, it was found that those funds could be used as a passive investment strategy.

Edelen and Warner (2001) have examined the relationship between returns and fund flows into US equity mutual funds. A strong association has been found between fund flows and returns on the previous day. Investors have been found to take an overnight period to react to market information.

Gregoriou and Rouah (2001) examined whether cointegration exists between hedge funds and stock market indices in Zurich. The monthly net asset values of the 10 largest hedge funds and the closing values of stock market indices were collected and analysed. While two hedge funds were found to be cointegrated

with stock market indices, the rest of them were not found to be cointegrated with the market indices.

Bailey and Lim (1992) examined the correlation between the US stock market returns and country returns. Daily and weekly returns of 19 country funds have been used for the study. The results indicated the presence of a correlation between stock returns and fund returns. In addition to the above, the prices of country funds exhibit similar behaviour to domestic stocks compared to the foreign stocks in which these funds were invested.

2.2.2 Trend of the Performance of Mutual Funds

Pastor and Vorsatz (2020) explored the performance and flows of actively managed mutual funds in the USA during the COVID-19 crisis period of 2020. Regression analysis has been employed in the study. The empirical evidence suggests that most active funds underperformed the benchmarks during the period. Moreover, funds with high sustainability ratings performed well. The investors seemed to focus on sustainability during the crisis period.

Alam (2019) explored the stock selection and market timing abilities of fund managers in India from April 2000 to March 2018. They employed the CAPM, Fama-French and Cahart models for analysis. The results revealed that, for a small number of equity funds, the fund managers exhibit positive stock selection skills by using single and multifactor models. They concluded that the fund managers have limited stock selection and market timing abilities.

Li, Yang, and Li (2017) have used the ARIMA model to analyse and predict the Shanghai Composite Index. The results indicate that the index will rise in the future, providing investors with a basis for anticipating the future of the market.

Petrevska (2017) has identified a model that best describes and forecasts future international tourism demand. Box–Jenkins ARIMA methodology has been used for modelling the data. He advocated that even though the accuracy of the

proposed ARIMA model can be regarded as good, valid and satisfactory, the model is still not highly accurate due to the presence of several structural outbreaks during the sample period.

Rapoo and Xaba (2017) studied the forecasting performance of Autoregressive Integrated Moving Average (ARIMA) and Artificial Neural Network (ANN) models with published exchange rates obtained from South African Reserve Bank (SARB). The forecasting performance of the models has been measured using MSE and MAE. The superiority of the ARIMA model over the ANN model has been revealed in the study.

Baral and Das (2016) analysed the growth trend of the Indian mutual fund industry. The sector-wise analysis revealed that the share of public sector mutual funds decreased from 2003–04 to 2014–15, whereas, the share of private sector mutual funds increased, which indicates the significant role played by private sector funds in the industry.

Guha and Bandyopadhyay (2016) have employed the ARIMA model in order to forecast the price of gold in India. Data for the period November 2003 to January 2014 were used. ARIMA (1,1,1) has been selected as the best model that enables forecasting the future prices of gold.

Gowri and Deo (2015) used the ARIMA methodology to model selected funds of mutual funds. The daily NAVs of four growth-oriented schemes were taken for the study. The validity of the models was tested by comparing the future NAVs of the funds with those of the forecasted data. No significant difference was found in their returns and the forecasts showed sustainable returns.

Panda, Mahapatra, and Moharana (2015) examined the risk-return performance of mutual funds, market timing ability and stock selection ability of the fund managers in India from January 2008 to December 2013. Treynor ratio, Jensen's Alpha and Henriksson-Merton models were used for measuring the performance and fund managers' abilities. The results indicated that the managers with very few funds exhibited superior returns. The fund managers exhibited

average stock selection skills. Furthermore, no market timing abilities were present among them.

Adebiyi, Adewumi, and Ayo (2014) have used the ARIMA model of forecasting for the prediction of stock prices. The results obtained demonstrated the potential of ARIMA models for stock price prediction which enables investors to make profitable investments. They concluded that ARIMA models have the capability to compete with emerging forecasting techniques in short-term prediction.

Pal and Chandani (2014) evaluated the performance of selected equity mutual funds in India. They have employed CAGR, expense ratio, standard deviation, Sharpe ratio, Beta and R-squared for analysis. The HDFC Mid-cap Opportunities Fund was found to be the best-performing fund among the other funds considered for the study.

Plantier (2014) documented the global growth of long-term mutual funds. It is implied that the mutual fund industry has witnessed notable growth during the period 1993–2013 in the USA, Asia-Pacific, Europe and the rest of the world. The cross-country statistical analysis results indicate that the ratio of long-term mutual funds tends to grow with the increase in per-capita income.

Rodriguez (2014) examined the ability of world fund managers in forecasting the funds. Domestic differential exposure and assertion rates were used to examine the forecasting ability. The average forecasting ability was found to be negative, which revealed that fund managers have failed to effectively manage their funds.

Anish and Majhi (2013) presented a FLANN-based net asset value technique for prediction to dig out the patterns hidden in the mutual funds. In this paper, a trigonometric expansion-based financial model has been developed for NAV prediction. They suggested that FLANN exhibited better results in terms of complexity, convergence, MAPE and RMSE.

Bollapragada, Savin, and Kerbache (2013) forecasted the prices of exchange-traded funds using simple linear regression, multiple regression, single exponential smoothing, Holt's exponential smoothing, and Box-Jenkins (ARIMA) models. They inferred that multiple regression had provided the best results in forecasting the prices of exchange-traded funds.

Devi, Sundar, and Alli (2013) have estimated the best model for the four top Nifty Midcap 50 companies. The accuracy of the models was predicted using the Akaike information criterion and the Bayesian information criterion. The trend predictions recommend that investors make investments in the index with a lower percentage of error.

Priyadarshini and Babu (2012) evaluated the interaction effects of various economic factors that influence the net asset values of mutual funds in India and forecasted the future net asset values using regression analysis and an artificial neural network and compared the performance of the two methods. The results indicated that artificial neural networks outperformed regression analysis in forecasting the net asset values of the funds.

Soongswang and Sanohdontree (2011) analysed the performance of open-ended mutual funds in Thailand and investigated whether their returns outperformed the market. Data Envelopment Analysis (DEA) and Pearson's correlation coefficients have been used for analysis. The results imply that the open-ended mutual funds outperform the market and their performance has sustained for at least three months.

Tripathy (2006) evaluated the market timing abilities of fund managers of 31 tax planning schemes in India from December 1995 to January 2004. The Jensen and Mazuy model and the Henriksson and Merton model have been employed in order to find out the market timing abilities of the fund managers. They inferred that the fund managers were timing the market in the wrong direction, which means that they failed to earn better returns.

Redman, Gullett, and Manakyan (2000) explored the performance of international mutual funds in the US market using Sharpe's index, Treynor's ratio and Jensen's alpha. The study period was 1985–1994, 1985–1989, and 1990–1994. The results imply that during 1985–1994, the international mutual funds outperformed the stock market index as per Sharpe's index and Treynor's ratio. Further, the international mutual funds outperformed the US market and domestic portfolio during 1985–1989, whereas the returns declined below the US market and domestic mutual funds during the period 1990–1994.

Jayadev (1996) explored the performance of two growth mutual funds, namely, Mastergain and Magnum Express, based on their monthly returns. Sharpe's ratio, Treynor's ratio, and Jensen's measures were used for evaluating their performance. The results revealed that Mastergain performed better as per Treynor and Jensen's measures, whereas it underperformed as per the Sharpe ratio. Further, Magnum Express exhibited poor performance according to all three measures.

Hurcich and Tsai (1989) have studied the regression and time series model selection in small samples, of which the primary focus was the Akaike Information Criteria (AIC). The study also discussed the applications of non-stationary autoregressive and moving average time series models and they inferred that AIC is the best model selection criteria when compared to its competitors.

2.2.3 Behavioural Finance

Ainia and Lutfi (2019) analysed the effect of risk perception, risk tolerance, loss aversion and overconfidence on investment decision-making. Risk perception has been found to have a negative effect on investment decision-making, whereas risk tolerance and overconfidence have a positive effect. On the other hand, loss aversion does not have an effect on investment decision-making.

Cheng (2019) investigated whether investors exhibit selective information acquisition, which is a source of confirmation bias. The findings of the study indicate the evidence for information preference that is consistent with

confirmation bias exists among investors. However, there was no direct evidence of confirmation bias.

Niessen-Ruenzi and Ruenzi (2019) examined whether gender bias exists among mutual fund investors. They found that investors invest less money in female managed funds. Female fund managers are found to follow more reliable investment styles and their investment performance seems to be more stable compared to male managers. Their results imply that gender bias affects investment decisions, which further contributes to the lower participation of women in the mutual fund industry.

R and Christie (2019) explored the influence of investors' annual income on the behavioural biases exhibited by them, such as anchoring, availability, mental accounting, gambler's fallacy, regret aversion, loss aversion, representativeness and overconfidence. Data for the study were collected from 436 equity investors in Chennai through pre-structured questionnaires. ANOVA and correlation analysis were used for analysing the data. The empirical evidence suggests that the annual income of investors had a significant effect on all the biases except regret aversion and gambler's fallacy. Further, the results imply that, in the case of overconfidence bias, investors with higher annual income were prone to overconfidence bias than those having lower income, whereas for rest of the significant biases, investors with lower annual income were more affected.

Antony and Joseph (2017) examined the effect of behavioural factors on the investment decisions of investors in Kerala. Representativeness bias, overconfidence, mental accounting, regret aversion and herd behaviour were the factors considered for the study. They concluded that overconfidence exerts the greatest impact on the investment decisions of investors, whereas herd behaviour has the least effect.

Hadi (2017) examined the effect of emotional intelligence on investment decisions with a moderating role of financial literacy. Financial literacy facilitates investors having better control over their emotions and investors who have more

control over their emotions are found to be better decision-makers. A positive relationship was found between the financial literacy of investors and their investment decision making.

Jonson, Soderberg, and Wilhelmsson (2017) analysed the impact of financial literacy, risk attitude, and saving motives of mutual fund investors on the attenuation of their disposition bias by employing ordinal logistic regression. It has been found that mutual fund and market knowledge had an impact on investors' dispositions. They also conclude that men are less susceptible to disposition bias than women.

Ghelichi, Nakhjavan, and Gharehdaghi (2016) explored the influence of psychological factors such as confidence, beliefs, a sense of remorse and regret and snake bites on investment decisions by investors in the Tehran stock exchange. Data were collected from 384 investors through pre-structured questionnaires. Structural equation modelling was employed for the analysis of the data. The results imply that confidence and belief positively influence investment decisions, whereas, sense of remorse and snake bites negatively influence investment decisions.

Gupta and Sharma (2016) analysed the investors' satisfaction level with mutual fund companies and the risk minimization level of these companies. Data were collected from 90 investors in Jaipur city through questionnaires. They found that risk bearing capacity was higher in the case of investors with higher income and they highly tend to invest in mutual funds.

Irshad, Badshah, and Hakam (2016) examined the effect of representativeness bias on investment decisions among investors in the Islamabad stock exchange. Data were collected from 120 investors through pre-structured questionnaires. Regression analysis was used in the study. The results suggest that representativeness bias has a positive effect on investment decisions among investors.

Kubilay and Bayrakdaroglu (2016) studied the relationship between personality traits of investors, psychological biases and their financial risk tolerances. The study was conducted among individual investors trading in Istanbul. A chi-square test and logistic regression were used for analysing the data. It was found that a significant relationship exists between the personality traits of investors and their psychological biases. They also claimed that the financial risk tolerance of investors was affected by their personality traits.

Kumar and Goyal (2016) examined the relationship between rational decision making and behavioural biases among individual investors and how demographic variables influence the rational decision making process. They found that male investors are more prone to herding bias. Investors in higher income group are found to be less confident than investors in low income group. Furthermore, older investors are found to be less susceptible to the disposition effect.

Bodnaruk and Simonov (2015) studied the effect of financial expertise on investment. They found that the financial experts were not making better investment decisions. They do not outperform others, do not diversify risks and do not exhibit lower behavioural biases. They conclude that financial expertise does not influence investment decisions.

Daniel and Hirshleifer (2015) discussed the role of overconfidence in financial markets. They reviewed two sets of empirical findings, which were that the trading volumes were excessive and the security returns were predictable. They have used models of investor trading and security prices that consist of different aspects of overconfidence. The results indicated that investors who neglect information for trading would trade excessively; hence, such neglect would influence the prices.

Geetha and Vimala (2014) explored the influence of gender, age, education, occupation and income of investors on their risk-taking abilities. The data were collected from 500 investors in Chennai city. Descriptive statistics along with chi-

square tests have been employed in the study. A significant relationship was found between income level and the risk-taking ability of investors.

Mishra and Metilda (2015) studied the impact of investment experience, education level and gender on behavioural biases such as self-attribution bias and overconfidence bias. Investment experience had a significant impact on self-attribution bias and overconfidence bias. The study revealed that overconfidence and self-attribution bias increase as the level of education increases. Men were found to be more overconfident than women. But there is no statistically significant difference in self-attributive bias between male and female investors. However, no significant association was found between self-attribution bias and overconfidence bias.

Mobarek, Mollah, and Keasey (2014) explored country-specific herding behaviour in the European stock market. They included continental Europe (France and Germany), the Nordic countries (Sweden, Denmark, Finland and Norway), and the PIIGS countries (Portugal, Italy, Greece and Spain) as samples in the study. Daily stock returns for a panel of European markets are used in the study. Regression analysis was used for analysing the data. They found evidence for herd behaviour across many markets in Europe. The findings imply that herd behaviour was significant in Europe during crises and extreme market conditions.

Onsomu (2014) examined whether the investors at the Nairobi Securities Exchange are affected by various behavioural biases. They also analysed whether these biases had any significant relationship with the gender of the investors. No significant correlation was found to exist between representativeness bias, overconfidence bias, availability bias, the disposition effect, confirmation bias and gender.

Zindel, Zindel, and Quirino (2014) demonstrated that behavioural finance contributes to a better understanding of the decision-making process. Cognitive illusions, heuristics and cognitive biases lead to faulty decisions rather than

rational ones. Understanding and letting the investors know about the cognitive illusions would help them make investment decisions more appropriately.

Lakshmi, Visalakshmi, Thamaraiselvan, and Senthilarasu (2013) analysed the relationship between investment decisions of long-term and short-term Indian investors and certain behavioural traits such as herding, representative heuristics, social contagion, overconfidence, the disposition effect, risk aversion and cognitive dissonance. They found that long term investors exhibited low levels of overconfidence and weak herding behaviour, whereas short-term investors exhibited a high level of overconfidence and strong herding behaviour. Short-term investors possess low levels of risk aversion, the disposition effect and cognitive dissonance, whereas they are high in the case of long-term investors.

Rekik and Boujelbene (2013) examined the impact of demographic and behavioural factors on the investment decisions of investors in the Tunisian stock market. Factor analysis has been employed in the study. They found that representativeness, loss aversion, herding attitude, mental accounting and anchoring have significant influence on the investors' decision-making. Moreover, it was concluded that gender, age and experience exerted influence on their investment decisions.

Bailey, Kumar, and Ng (2011) examined the effect of the behavioural biases of mutual fund investors on fund choices. They considered disposition effect, narrow framing, overconfidence, local bias, lottery stock preference, inattention to earnings news, inattention to macroeconomic news, fund-level local bias, and fund-level inattention to analyse the effect of biases on investment decisions. Factor analysis revealed that the biased investors conform to five types of stereotypes such as gambler, smart, overconfident, narrow framer and mature. Highly biased investors tend to invest in funds with higher expense ratios and higher loads, resulting in poor investment performance.

Sadi, Asl, Rostami, Gholipour, and Gholipour (2011) examined the relation between investors' personalities and perceptual errors in the Tehran stock market.

Data were collected from 200 investors through pre-structured questionnaires. Parametric analysis and correlation were used for analysis. Direct correlation was found between extroversion and openness with hindsight bias and overconfidence, while, reverse correlation was found between conscientiousness and randomness with openness and availability bias.

Dash (2010) explored the factors that affect an individual's investment decision and how these factors impact the risk tolerance levels and investment decisions of investors belonging to different gender and age groups. A pre-structured questionnaire was used for data collection. Factor analysis has been employed for the analysis of the data. The results suggest that age and gender have an influence on the risk-taking ability of investors.

Al-Tamimi and Kalli (2009) examined the relationship between financial literacy and the factors affecting investment decisions. The most influencing factors on investment decisions were found to be religious reasons, perceived ethics of the firm, diversification purpose and reputation of the firm, whereas, the least influencing factors were found to be rumours, the ease of obtaining borrowed funds, opinions of family members and recommendations from friends.

Glaser, Langer, and Weber (2007) attempted to test the trend recognition and forecasting abilities of financial professionals. Probability estimates and confidence intervals were the two methods of trend prediction used in the study. It has been found that the degree of overconfidence was positively correlated for the experimental subjects. Furthermore, the results imply that professional traders have been more overconfident than students in trend prediction tasks.

Agnew (2006) examined the individual characteristics of behavioural biases with a view to determining whether propensities to follow biases vary across individuals. They found that higher-salaried employees tend to make significantly better decisions. Women were found to make better decisions in 401(k) participation and investment in company stocks. The study also found the evidence of mental accounting.

Brozynski, Menkhof, and Schmidt (2006) investigated the impact of experience on overconfidence, risk-taking, and the herding of fund managers. Data were collected from 117 fund managers in Germany. Their analysis regarding the impact of experience on overconfidence yields mixed results. Further, experienced fund managers were less affected by herding bias and the degree of risk taking has also been found to decrease with experience.

Massa and Simonov (2003) examined the ways in which investors react to prior gains or losses. They found that on a yearly horizon, investors do not behave according to loss aversion. They behave according to the house money effect and the standard utility theory. Their study also found that the investors are not affected by mental accounting bias.

Barber and Odean (2001) examined whether overconfidence among investors leads to excessive trading based on the gender to which they belong. They proved that men are more overconfident than women and trade more. They also established that overtrading causes men to perform worse and earn lower returns than women.

Donkers, Melenberg, and Soest (2001) examined the factors that affect the risk attitude of an individual. The data were collected from Dutch households. A strong relationship was found to exist between risk aversion and income level. Furthermore, the individuals with high income levels were found to be less risk averse.

Hirshleifer (2001) categorised the various cognitive errors of investors. They explained that self-deception occurs due to the tendency of people to think that they are better than they really are, heuristic simplification occurs due to the limited attention and processing capabilities of individuals and the individuals affected by the disposition effect are prone to sell winning stocks too soon and hold on to losing stocks for too long.

Camerer and Lovallo (1999) explored whether optimistic behaviour influences entry into competitive markets. They explained that frequent failures are

due to the limited opportunities to make money and bounded rationality. From their experimental research, they arrive at the conclusion that overconfidence leads to excessive entry into markets.

Barberis, Shleifer, and Vishny (1998) proposed a model of investor sentiment that is consistent with the heuristic of representativeness. They found that stocks underreacts to good news such as earnings announcements. On the other hand, investor sentiment displays an overreaction of stock prices to consistent good or bad news.

Grinblatt, Titman, and Wermers (1995) examined the extent to which stocks are purchased by mutual funds based on their past returns and their tendency to exhibit herd behaviour. They found that 77 percent of the funds bought stocks which are past winners. They also found evidence of herding in the mutual funds.

Eagly and Carli (1981) explored whether men and women differ in the way they are influenced. Meta-analysis has been employed in the study. The results suggest that females are more conforming and persuadable than their male counterparts. Due to a lower level of confidence among females, they were found to be more prone to herding bias than males.

Bradley (1978) analysed the evidence related to self-serving biases in the attributions of causality. In the works reviewed by him, it was found that individuals tended to accept responsibility for the positive outcomes, whereas they denied responsibility for the negative outcomes. Evaluations made by others of one's performance are found to be the central theoretical factor underlying the effects of publicity.

2.2.4 Influence of Behavioural Bias on Investment Performance

Lebdaoui, Chetioui, and Ghechi (2021) explored the impact of behavioural biases and financial literacy on investment performance. Data were collected from a sample of 196 Moroccan investors. Financial literacy was found to be negatively related to overconfidence and positively related to representativeness.

Overconfidence and representativeness were the most significant biases among the Moroccan investors. The results also indicate that overconfidence and representativeness exert a significant impact on investment performance.

Keswani, Dhingra, and Wadhwa (2019) examined the impact of behavioural factors on investors' investment decisions and on their investment performance at the National Stock Exchange. Heuristic theory, prospect theory, market factors and the herding effect were the behavioural factors used in the study. Exploratory factor analysis and multiple regression tests have been used for analysis. The variables are found to have greatly influenced the investment decision and return on investment.

Alrabadi, Al-Abdallah, and Aljarayesh (2018) examined whether behavioural biases exist among investors at the Amman Stock Exchange and their effect on their investment performance. They also studied whether these biases differ between male and female investors. The results indicate that overconfidence bias, loss aversion bias, familiarity bias, disposition bias, representativeness bias, confirmation bias, availability bias and herding bias have a significant effect on investment performance. No significant difference was found between males and females.

Ibrahim and Umar (2017) analysed the effects of behavioural factors on the investment performance of investors in the Nigerian capital market. Multiple regression has been used for analysing the data. It was found that behavioural factors, including prospect factors, herding factors, heuristic factors and rationality factors, have a positive and significant influence on investment performance.

Javed, Bagh, and Razzaq (2017) examined the effect of herding bias, overconfidence, representativeness and availability bias on the perceived investment performance of investors in the Pakistan stock exchange. The judgmental sampling technique has been used for sampling purposes. Regression has been used to analyse the data collected through questionnaires. The results

imply that herding bias, overconfidence, representativeness and availability bias had a significant positive impact on perceived investment performance.

Kumari and Sar (2017) investigated whether herd behaviour, overconfidence and risk tolerance influence the investment performance of investors in East India. Data were collected using pre-structured questionnaires from 106 investors. Descriptive statistics, followed by multiple regression, have been applied for data analysis. The results indicate that market-wide herding under herding bias, unrealistic optimism and dispositional optimism under overconfidence and speculative risk and calculative risk under and risk tolerance influence the investment performance of investors.

Aziz and Khan (2016) analysed the behavioural biases that influenced the investment decisions and performance of investors at the Pakistan Stock Exchange. Variables were taken on the basis of heuristics and prospect theory. Regression was used to analyse the data collected from the investors. Biases based on heuristics had a positive relationship with investment performance, while biases based on prospect theory have a negative relationship with investment performance.

Kengatharan and Kengatharan (2014) analysed the behavioural factors influencing the investment decisions of individuals at the Colombo stock exchange and their influence on investment performance. Herding, prospect, heuristics and market factors were found to be the factors affecting investment decisions. Choice of trading from the herding factor and overconfidence from the heuristics factor had a negative significant influence on investment performance, while anchoring from the heuristics factor had a positive influence on investment performance.

Ranjbar, Abedini, and Jamali (2014) examined the relationship between heuristic factors, prospect theory and herding behaviour on the investment performance of investors in the Tehran stock exchange. Structural equation modelling has been used for analysis. The results revealed that heuristics and

herding behaviour influence the investment performance of investors positively, whereas prospect variables influence investment performance negatively.

Park et al. (2010) explored whether psychological factors influence investors' information processing from virtual communities and whether it influences their investment performance. The data were collected from 502 investors in South Korea. The results imply that there exists a significant confirmation bias among investors in Korea. Furthermore, confirmation bias among investors leads to higher levels of overconfidence, which adversely affect investment performance.

Oh, Parwada, and Walter (2008) made a comparative study of the trading behaviour and performance of online equity investors with that of non-online investors in Korea. The trading activity of individual traders, local institutions and foreign investors has been studied. The findings indicate that the performance of non-online investors was better than that of online investors. The best returns were made by the foreign investors compared to the other investor types.

Grinblatt and Keloharju (2000) attempted to study the behaviour and performance of different types of investors in Finland. They examined the influence of past returns on the propensity to buy and sell. A binomial parametric test has been used for analysing the data. The results indicate that foreign investors pursue momentum strategies, whereas domestic investors pursue contrarian strategies when making investments.

2.3 Research Gap

The extensive literature review and the researchers' experience brought a sharp focus on the research gap, which is identified as follows:

1. At present, there are limited studies undertaken to analyse the relationship between equity mutual funds and the stock market in India.

2. Many studies have been conducted in the field of mutual fund performance evaluation. But only a few studies have focused on forecasting the future performance of equity mutual funds.
3. Only a limited number of studies were conducted to assess the behavioural bias of equity mutual fund investors.
4. No studies have been found to examine the impact of investors' behavioural biases on the investment performance of equity mutual fund investors.
5. So far, there is rarely any study of this area in India, particularly in Kerala.

Thus, the findings of this study would certainly contribute to filling the existing gap in the concerned research area.