

Behavioural Finance - Literature Review

Summary and Relevant Issues

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Abstract

Objective of this review paper is to present a summary of 55 papers reviewed which were published on behavioural finance from 1975 to 2019. This paper helps regarding categorisation of biases while investing in equity shares. It includes studies which are based on time period, coverage of issues, methodology used and researcher's contribution on this concept. It has been found that researches conducted in the advanced countries are going to support behavioural finance up to large extent. In today's scenario few developing countries are also supporting the empirical strength of behavioural finance as a tool for investment. The concept has stored noteworthy consideration in the advanced countries; however, its execution and soundness issues are under dispute almost all over the world. The paper presents an ample review of literature and decisive investigation to go towards the advances of behavioural finance. Further, paper provides path to research on the varied issues related to this appealing and worth adding area.

Keywords

Behavioural Finance, Herd Behaviour, Cognitive Biases, Efficient Market Hypothesis, Physiological Factors and Stock Returns.

1. INTRODUCTION

Psychological factors play a dominant role in decision making regarding investment in security market. That's why there is an immense significance to study all these factors comprehensively to know their impact in today's scenario. Studies on behavioural finance proved that the psychological factors are relevant at the time of investment decision. Hence, in the present literature review an attempt has been made to pioneer the impression of biases of individual investors and as a group in taking investment decision. Existing literatures had been reviewed and it was concluded that there are number of factors which shows their presence in taking decisions allied to investment like loss aversion, invest in those financial instruments which are already familiar, prefer known risks, herding behaviour, heuristics etc. Demographic variables also had a deep impact on investor's investment decision like gender, educational background and marital status etc.

The study of finance is being discussed from several decades about the notion of efficient market. Investor follows logical and rationale attitude to take realistic decisions (Nozick, 1993). The term efficient market hypothesis (EMH) is a classical theory of finance which states that at any given time period the price of one or all the assets and securities being traded is truthful and reflects every aspect of available information. It also defines the law of one price which means that single price prevails in the

market for an asset at a particular point of time. The investors should consider the range of factors explained in theory of rational choice before taking rational decision. Efficient market hypothesis believes that all the information is reflected on the security prices when the market condition is efficient (Fama, 1970). The rational expectations theory has been widely accepted as well as efficient market hypothesis are lacking their significance due to certain reasons and escalating demand of behavioural financial theories (Ritter, 2003). Barberis and Thaler (2003), observed that the benefit of traditional financial structure is quite simple. But unluckily, after the years of attempt, now it could be concluded that the crucial facts related to aggregate stock market, cross-section of average returns and behaviour of individuals while trading are not that easy to comprehend this framework. Rational expectations theory which was normally dominated by many psychological and emotional factors while taking financial decision and it also affects the trading performance (Lo *et al.*, 2005). To challenge the EMH theory, a concept has been evolved which is known as 'bubble' in stock market. It means cognitive biases of investors have high influence on stock market; these biases are group thinking and herd behavior. Thus the concept of "bubble" degrades the importance of traditional finance and instigates a new theory named behavioural finance. An idea of bounded rationality proposed by Simon (1956), suggests that due to lack of information and memory errors people may take irrational

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decision. Behavioural finance is a turf that helps to study the theories which are based on psychology. There is a long queue of psychological factors which obstructs rational thinking. It consists of many biases which were related to cognitive behavior of investors such as heuristics, overconfidence, mental accounting, framing, representativeness, the conservatism, disposition effect and misevaluations of financial assets (Ritter, 2003), emotional reactivity (Lo *et al.*, 2005). Apart from this some other factors are not have proper understanding and doing blunder while measuring financial aspects such as volatility and impact of WOM and feedback which was drive from media (Shiller, 2003). Behavioural finance is based on two concepts; these are cognitive psychology and limits of arbitrage (Barberis and Thaler, 2003).

Table 1: Demographic Factor which have Relationship with Psychological Biases

Age	Income	Trading Behaviour
Gender	Education	Personality
Marital Status	Experience	Perception
Profession	Wealth	Attitude
Knowledge	Beliefs	Socio Demographic

Source: Literature Review

2. SCOPE OF THE STUDY

Performance of financial market has been a mounting apprehension based on these demographic, psychological and cognitive biases such as herd behaviour, mental accounting and heuristics etc. As discussed in the initial part of this paper, the above measures had a significant role in capturing the psychological behavior of investors while taking investment decisions. Thus, behavioural finance has expand its fame in the world predominantly in United States of America, United Kingdom and European countries as investors are extremely influenced by the psychological factors for internal as well as external performance of security while investing in stock market. Due to this bundle of research effort had in late 2000's to cover varied issues of behaviour finance. Even though its significance had been demonstrate nevertheless still there are some slit amid diverse studies with reference to the pre-eminence of behavioural finance. With the help of some academic literatures the idea has been proved finer than the traditional measures, although there are few studies which discard this premise somewhat or entirely. In the glow of above, the current review has been performing to uncover assorted concern related to behavioural finance and to put them at a solitary place. A further rationale of this review paper is to show the relevant studies which were conducted in distinct countries using dissimilar research methodology and variables to confirm their particular hypotheses. This study is a footstep to fetch out the methodologies and variables which could be

used as the basis for potential research. The paper covers 55 relevant studies done during the period of 1975 to 2019.

2.1 Objectives of the Study

Outlined objectives of this review paper are to put together the research done on behavioural finance in a logical manner so as to facilitate effortless and speedy access, categorise literature and to interpret the conclusion of the studies examined. Apart from this, categorise slit in the obtainable literature and signifying the journey of research on behavioural finance are some additional objectives of this paper.

2.2 Data and Methodology

This paper is based on the studies carried out on behavioural finance which was published in varied sources in a number of countries. Total 55 papers (from 23 refereed journals) were reviewed for this study. Table II contains the summary of entire papers along with methodology used and contribution to research. The division of articles reviewed from a range of resources is prearranged in Table III. Literature allied the concept which addresses issues like biases and investment relationship, herd behaviour, stock returns, mental accounting, demographic factors, investment decision and psychological factors impacting stock market. All these studies are demarcated because of different methodologies used which are given in Table IV. Similarly, Table V contains year wise break up of studies related with behavioural finance. Conceptual, descriptive, empirical and exploratory are four methodologies which were used by the researchers in their studies. Researches based on conceptual methods are those papers which covers the elementary concepts whereas descriptive studies provide explanation of content or process along with its implementation. Empirical studies include statistics from present databases, records, reviews and case studies. Research in which data gathering is done with the help of surveys is categorised as exploratory studies. It is obvious from table IV that 85.46% of the overall studies reviewed are based on exploratory methodology whereas empirical constitutes 10.9% and far from this descriptive includes only 3.64%. Year-wise publication on behavioural finance is presented in Table V. There are so many behavioural biases out of them few biases have been reflected in Table VI with brief description.

3. LITERATURE ON BEHAVIOURAL FINANCE AND EVIDENCES

Prior to comprehend the picture of behavioural finance in today's scenario, firstly the inception of this concept may be discussed. Kahneman and Tversky (1979) rigorously studied the concept of behavioral finance and recognised as the father of this hottest concept. They have presented a paper on the critique of expected utility theory which empirically found out that people underweight those outcomes that are just possible in comparison to the outcomes that are obtained with certainty. They have thrown prospect theory in which value is assigned

to gain and losses rather than to final assets and probabilities are replaced by decision weights. In 1981, they introduced the concept of framing. They have presented that psychological principles that govern the perception of decision problems and to evaluate the probabilities and outcome produced predictable shift of preference when the same problem is framed in different ways. Further, Shiller (2003), commences to portray the evolution of the idea that efficient market might be feasible at micro level but not at macro level many years ago. It implies that movement in price of individual stock is more imperative as compared to the total stock market. Apart from above feedback model states that investors more often relate their trade-based off behaviour on the basis of other investors trade-based off behaviour rather than the information available in the market. This kind of behaviour creates bubbles in the stock market.

Prospect theory believes that investment decisions must be based on the likely gain not merely on the efficacy of decision. It also states that several psychological factors have influence on the investor's decisions. It has been observed that people are more risk reluctant in the bullish period but less risk reluctant in bearish period. Thaler, who was the theorist in finance proposed the idea of economic and finance theory which was crucial to relate prospect theory with financial market. These three researchers are called founding father of behavioural finance because they have contributed a lot in the development of this concept. The majority of established financial theories do not state that investor's decisions are based on risk aversion factor and models. Whether abstract or empirical theories all are based on the concept of efficient market hypothesis which means investors frequently agree to the former belief of risk aversion like Capital Asset Pricing Model (CAPM) and the mean variance model. Due to the above consequences an alternative theory was introduced called Prospect theory which is a replacement of expected utility theory, rational expectations theory and the efficient market hypothesis. Prospect theory hypothesizes that decision maker's favour definite conclusion over viable result and this is called the certainty effect. This effect mounts toward risk aversion whilst investors confront persuaded gains and risk seeking as they confront specific losses (Kahneman and Tversky, 1979). Without any doubt it can be concluded that novel prospect theory and its expansion discloses to facilitate the effects of framing, nonlinear preferences, dependency on source and loss aversion dominates investor's rational decision (Tversky and Kahneman, 1992). Nevertheless, prospect theory does not recommend that response of the market or revelation of any explicit economic event will affect the investor's decision. It merely states that person's risk taking approach in any known circumstances depends on the individual's precise economic analysis and if the incident is sighted positively then the individual be inclined to be more risk averse or vice versa (Bovi, 2009). Besides, the conclusions of the expected utility theory concerning the investor's risk aversion/seeking behavior are still used in prospect theory. Risk aversion/seeking

as per expected utility theory is one and the same concept as diminishing/increasing marginal utility. It is also a foremost constraint of expected utility theory and prospect theory.

The majority of the investors expects ideal returns on their investment and depends on elementary analysis of company to make their investment decisions. It was found that risk averse behaviour of investors invokes them to trade in gaining shares initially as compared to loss making shares. Investor's perceptions are greatly influenced by the past performance of stock market (Sahni, 2012). There are two factors of personality known as openness and neuroticism which improves the financial trading frequency after acquiring information or financial opinion from professionals. One additional trait of personality is extravert conscientious which shrinks trading frequency in stock market. Findings suggests that WOM has a positive impact on trading frequency when investors have personality traits such as extravert and agreeable. On the other hand, specialised press information suggests some further corrections in the portfolio of investors who have conscientious personality trait (Tauni and Fang *et al.*, 2016). It was analysed from past researches that male investors are more open to overconfidence and herding biases. Information hunt has a positive relation with demand identification. It has been found that male investors have a positive relation amid information source and assessment of alternatives as compared to female investors. However, no considerable relation was found between occupation of investors and the irrational decision making (Kumar and Goyal, 2016). The financial institutions in SRI (Socially Responsible Investing) are of great importance as it supports the factors of demand side whereas it escalates tough regulation on the supply side. According to the review investors investment decisions are considerably affected by their attitude towards social factors as compared to financial performance. Investors who place superior or identical stress on social issues are more akin to be prejudiced by these factors in their investment decisions. Through cross country analysis it was depicted that in Canada, firms are supposed to be more liable towards shareholders than towards society and such firms are likely to be SRI investors (Williams, 2007). It was found that decisions taken by investment managers vary from each other because these decisions are based on exclusive cultural differences although they have equal training, experience and information. Female investor's behaviour is found to be more risk averse because they generally face extensive social and technological hazardous environment as compared to male investors. It could be noted even when decision makers both male and female have alike level of expertise and experience (Olsen and Cox, 2010). Fama (1997), states that market efficiency hypothesis proves the anomalies of chance results, visible over-reaction of stock market and impact of information on prices are as common as under-reaction. Radically it also concludes that the long-term return anomalies are fragile. Above mentioned factors appropriately fades away when these

are measured with realistic changes in the stock market. Prosad *et al.* (2015), found that behavioural biases are conditional to investors' demographic factors like age, profession, trading frequency and their trading complexity. Talpsepp (2010), concluded that distinct gender and age groups have unusual trading intensity and security holding periods which recognises differences in the disposition effect and performance. Older age group and female investors execute their decisions better while framing their portfolios for investment. Prominent level of trading intensity shows lower portfolio returns in case of tiny holding periods and a higher level of disposition effect. Zaidi and Tauni (2012), observed that there exists a constructive affiliation amid overconfidence & agreeableness, extroversion & consciousness whilst negative relationship between overconfidence & neuroticism. Results state that there is an alliance between investment experience and overconfidence bias. Studies of Riff and Yagil (2016), points out that respondent tends to take less risk in case of foreign, unfamiliar and non-fluent assets as compared to local, familiar and fluent assets. It was found that home bias amplified during bearish periods. The outcomes show that the respondents are willing to take additional risk in case of local assets. Shen *et al.* (2017), discovered that the commodity specific emotions like optimism, fear and joy have remarkable influence on individual commodity returns other than not on commodity market index returns. It was concluded that commodity specific emotion variables are not trustworthy to foresee market composite index returns. However, they can be used to envision the next five days' individual commodity returns. Psychology is unspoken on the degree of the biases and whether the results of the biases are unvarying over time and/or are homogeneous crossways individuals (Bovi, 2009). It was concluded from the study (Jullisson *et al.* 2005), that individuals basically invests their time, money and efforts in taking decisions regarding the securities for which they sense committed and these decisions are based on irrational escalation of commitment. Additionally, when people consider accountable for the sunk costs, time, money and efforts spent on a project they have a propensity to take risky decisions. It is pragmatic that sometimes decisions of the investors could be prejudiced by how the individual feels. Outcomes point out that age, socioeconomic status and cognitive abilities influences decision making of investors (Bruine *et al.*, 2007). Apart from this there are some more facts which hold the notion that older adults have a preference of less choice than younger adults (Reed *et al.* 2008). Ricciardi and Simon (2000), argued that those who invest in stock market and mutual funds are directed by the behavioural finance to stay away from common "mental mistakes and errors" and helps to widen their effective investment strategies. Behavioural finance has a narrow scope in its shaping years. It is not a separate discipline but as an alternative of conventional finance. Statman (1995), found that investors are affected by their behaviour and psychology while taking investment decisions. Cognitive and emotional aspects have a major sway on the

decision making process of individuals, groups and organisations as explained in behavioural finance (Ricciardi and Simon, 2000). It was found that knowledge of the concept can transform the working practices of investors so that they can perform efficiently like use of feedback model and transform in the technique information is presented can get better forecasting performance (Harvey and Bolger, 1996). Bloomfield *et al.*(2000), found that prices and value estimates under react additionally when the trustworthiness of information boosts besides this new information will obviously lead to momentum and drift in the market over time example; post-earnings announcement. Hence, flow is coupled with more steady information in an orderly and predictable manner. Brown and Kagel (2009), found that as long as participants keep on assessing their existing stocks with the available choices they do not furnish the way to the disposition effect and as a result investors usually seize their better performing stocks whilst selling poor performing stocks. It has been observed that there was a price clustering in technology vis-a-vis non-technology stocks. Price clustering is strikingly higher in tech stocks rather than in non-tech during rise in stock market and it also depends on specific segment and investors' sentiments. It was also stated that vector of auto-regression process examines the urge of responses for price clustering against exogenous shocks with investors sentiment. At last, it could be concluded that various authors endow handful insights on a massive number of cognitive factors. These factors have an immense impact on investor's decision when they are constructing their portfolio as well as investing in fussy securities.

4. FUTURE DIRECTIONS

As apparent from the literatures, behavioural finance has been the topic of curiosity for researchers predominantly in USA and few other countries since 1997. Bulk of studies narrates the notion of behavioural finance and stock returns along with its contrast with traditional measures of financial investment. Other than this there are countless essential areas which grab the attention of researchers and these areas are presented in the following section.

It has been found from the existing literatures that numbers of studies conducted on behavioural finance are almost negligible in the north region of India. It has been observed that demographic factors were considered in previous literatures but all the factors in response are not taken into consideration that's why it is not possible to establish appropriate relationship with cognitive factors. In reviewed literatures it has been found that researchers included partial cognitive factors in their studies so that scope has been left to broaden the relationship between investor's behaviour and unfolded cognitive factors. It is also promising to enlarge the sample size of respondents as earlier sample sizes were mostly less than 500 therefore there is a dire need to increase this number.

Exploratory researches evidenced that developing countries exist only because of the development in the field of behavioural finance. Readily available information promotes the idea of behavioural finance in the advanced economies resembling United States of America, Australia, New York, South Africa and Russia. On the other hand, in emerging economies number of studies available on the concept are very less due to lack of information. Hence, it could be an additional area for future research that provides evidences about the pre-eminence of this concept in the developing countries. Studies carried out on behavioural finance and traditional measures of investment are conducted in distinct sectors. These studies are unsuccessful to provide lucid evidences because these were conducted in distinct sectors whereas metric is an instrument which is more useful in explaining stock returns and can be used as an investment measure. When investigations are conducted with sector specific companies by using behavioural and traditional factors and if their outcomes are compared then it could provide a well-built area of research.

5. CONCLUSION

Behavioural finance is a renowned concept nowadays as it is an important instrument of investment measurement all over the world. This concept is mostly used in advanced economies as these economies are adopting it as a prominent strategy. Moreover, there exist varied evidences about the supremacy of behavioural finance over traditional methods of investment. When the country specific evidences are compared with other residual investment metrics they are unable to provide lucid results. In this review paper efforts have been made to assess the relevant literatures. It is encouraging to note that in last some years, particularly from 1975 to 2019, there has been incredible boost in the number of researches on the notion. By analysing the literatures it could be concluded that there is need for additional research in the field of behavioural finance in respect of its execution issues. In order to test the feasibility of the concept it should be kept in mind that data pertaining to extended durations should be considered rather than the data of little period which usually gives erroneous results. Hence, there is a scope for future research on the idea. Consequently, efforts should be made towards mounting the applicability of this useful concept in today's investment pattern. Nowadays, investment environment is influenced by a large number of micro and macro variables like inflation, demand and supply, money supply, regulatory authorities etc. Apart from the above mentioned factors psychologies of investor also have an immense impact on investment decisions. Large numbers of psychological factors are listed and among them some are exhaustive like herding behaviour, overconfidence, disposition effect, mental accounting, anchoring etc. All these factors are triggered opinion of irrationality among investor and they show biasness while taking investment decision and create bubble in stock market. Before bounded rationality theory or it can be said that irrational thinking, theory prevail in the market

called efficient market hypothesis (rational theory) of decision making but due to these psychological biases rational theory loses its polish in current market conditions. It is also found that all these psychological biases are equally influenced by demographic factors like age, education, experience etc. which have uniformly reliant on each other. All these factors when linked behave differently in different situations like investor behave differently on overconfidence while considering age of investor. Combined impact of these factors made up a scenario for investment in securities.

REFERENCES

- Abreu, M. and Mendes, V. (2012), "Information, overconfidence and trading: Do the sources of information matter?" *Journal of Economic Psychology*, Vol. 33 (4), pp. 868-881.
- Agnew, J.R. and Szykman, L.R. (2005), "Asset Allocation and Information Overload: The Influence of Information Display, Asset Choice, and Investor Experience", *Journal of Behavioral Finance*, Vol. 6 (2), pp. 57-70.
- Alghalith, M., Floros, C. and Dukharan, M. (2012), "Testing dominant theories and assumptions in behavioral science", *The Journal of Risk Finance*, Vol. 13 (3), pp. 262-268.
- Ali, H. A. (2017), "Behavioral Timing, Valuation and Post issue Performance of UK Initial Public Offerings", *Journal of Behavioral Finance*, Vol. 18 (2), pp. 152-166.
- Andreas O., Stefan W., Florian W. and Matthias H. (2018), "Investors' Personality Influences Investment Decisions: Experimental Evidence on Extraversion and Neuroticism", *Journal of Behavioral Finance*, Vol. 19 (1), pp. 30-48.
- Benjamin, M. B. (2019), "Price Clustering and Investor Sentiment", *Journal of Behavioral Finance*, Vol. 20 (1), pp. 19-30.
- Bhandari, G. and Deaves, R. (2006), "The demographics of overconfidence", *The Journal of Behavioural Finance*, Vol. 7 (1), pp. 5-11.
- Beckmann, D., Menkhoff, L. and Megumi, S. (2008), "Does culture influence assets managers views and behaviour", *Journal of Economic Behaviour and Organization*, Elsevier, Vol. 67 (3), pp. 624.
- Bovi, M. (2009), "Economic versus psychological forecasting: Evidence from consumer confidence surveys", *Journal of Economic Psychology*, Vol. 30 (4), pp. 563-74.
- Brown, A.L. and Kagel, J.H. (2009), "Behaviour in a simplified stock market: The status quo bias, the disposition effect and the ostrich effect", *Annals of Finance*, Vol. 5 (1), pp. 1-14.
- Bloomfield, R.J. Libby, R. and Nelson, M.W. (2000), "Under-reaction, overreactions and moderated confidence", *Journal of Financial Markets*, Vol. 3 (2), pp. 113-137.
- Barberis, N. and Thaler, R. (2003), "Efficient market hypothesis, A survey of behavioural finance", *Handbook of the Economics of Finance*, Elsevier Science B. V. pp. 1052-1171.
- Bruine de, B. Parker, W. Andrew M. and Baruch, F. (2007), "Individual differences in adult decision-making competence", *Journal of Personality and Social Psychology*, Vol. 92 (5), pp. 938-956.
- Caparelli, F., D'Arcangelis and Cassuto, A. (2004), "Herding in the Italian Stock Market: A Case of Behavioral Finance", *Journal of Behavioural Finance*, Vol. 5 (4), pp. 222-230.
- Charness, G. Karni, E. and Levin (2013), "Ambiguity attitudes and social interactions: An experimental investigation", *Journal of*

- Risk and Uncertainty*, Vol. 46 (1), pp. 1-25.
- Chaudhary, A. K. (2013), "Impact of behavioral finance in investment decisions and strategies: A fresh approach", *International Journal of Management Research and Business Strategy*, Vol. 2 (2), pp. 85-92.
- Cohn, R. A., Lewellen, W. G., Lease, R. C., & Schlarbaum, G. G. (1975), "Individual investor risk aversion and investment portfolio composition", *The Journal of Finance*, Vol. 30 (2), pp. 605-620.
- Crosan, R. and Sundali (2005), "The gambler's fallacy and the hot hand: Empirical data from casinos", *The Journal of risk and uncertainty*, Vol. 30 (3), pp. 195-209.
- Costa, N. Mineto, C. and Da Silva, S. (2008), "Disposition effect and gender", *Applied Economics Letters*, Vol. 15 (6), pp. 411-416.
- Daniel, K. Hirshleifer, D. and Subrahmanyam, A. (1998), "Investor psychology and security market under and overreaction", *Journal of Finance*, Vol. 53 (6), pp. 1839-86.
- Du, D. (2012), "Momentum and behavioral finance", *Managerial Finance*, Vol. 38 (4), pp. 364-379.
- Durand, R. B., Koh, S. and Tan, P.L. (2013), "The price of sin in the Pacific-Basin", *Pacific-Basin Finance Journal*, Vol. 21, pp. 899-913.
- Fama, E.F. (1970), "Efficient capital markets: A review of theory and empirical work", *The Journal of Finance*, Vol. 25 (2), pp. 383-417.
- Fernandez, B., Merino, T.G., Mayoral, R., Santos, V. and Vallelado, E. (2011), "Herding, information uncertainty and investors' cognitive profile", *Qualitative Research in Financial Markets*, Vol. 3 (1), pp. 7-33.
- Fama, E. (1997), "Market efficiency, long-term returns, and behavioural finance", *The Journal of Finance*, 49(3), pp. 283-306.
- Fiksenbaum, L., Marjanovic, Z., and Greenglass, E. (2017), "Financial threat and individuals' willingness to change financial behavior", *Review of Behavioral Finance*, Vol. 9 (2), pp. 128-147.
- Fuertes, A., Muradoglu, G. and Ozturkkal (2012), "A behavioral analysis of investor diversification", *The European Journal of Finance*.
- Rompotis, G. G. (2018), "Herding Behavior among Exchange-Traded Funds", *Journal of Behavioral Finance*, 19(4), pp. 483-497
- Goetzmann, W.N. and Massa, M. (2008), "Disposition matters: volume, volatility, and price impact of a behavioral bias", *The Journal of Trading*, Vol. 3 (2), pp. 68-90.
- Gokhale, J., Schroeder, and Tremblay, J. (2014), "Valuation bias and profit opportunities in financial markets", *International Journal of Economics and Finance*, Vol. 6 (14).
- Goldstein, D.G. and Taleb, N.N. (2007), "We don't quite know what we are talking about when we talk about volatility", *Journal of Portfolio Management*, Vol. 33 (4), pp. 84-96.
- Harvey, N. and Bolger, F. (1996), "Graphs versus tables: effects of data presentation format on judgmental forecasting", *International Journal of Forecasting*, Vol. 12, pp. 119-137.
- Heukelom, F. (2014), "Behavioral economics", New York, NY: Cambridge University Press.
- Itzkowitz, J. and Itzkowitz, J. (2017), "Name-Based Behavioral Biases: Are Expert Investors Immune?", *Journal of Behavioral Finance*, Vol. 18 (2), pp. 180-188,
- Jullisson, E.A., Karlsson, N. and Garling, T. (2005), "Weighing the past and the future in decision making", *European Journal of Cognitive Psychology*, Vol. 17 (4), pp. 561-575
- Kahneman, D. and Tversky, A. (1979), "Prospect theory: An analysis of decision under risk", *Econometrica: The Econometric Society*, Vol. 47 (2), pp. 263-291.
- Kannadhasan, M. (2006), "Risk appetite and attitudes of retail investors' with special reference to capital market", *Management Accountant*, Vol. 41 (6), pp. 448-454.
- Kilka, M. and Weber, M. (2000), "Home Bias in International Stock Return Expectations", *Journal of Psychology and Financial Markets*, Vol. 1 (4), pp. 176-192.
- Kim, K. A., & Nofsinger, J. R. (2008), "Behavioral finance in Asia", *Pacific-Basin Finance Journal*, Vol. 16 (1), pp. 1-7.
- Kumar, S. and Goyal, N. (2016), "Evidence on rationality and behavioural biases in investment decision making", *Qualitative Research in Financial Markets*, Vol. 8 (4), pp. 270-287, <https://doi.org/10.1108/QRFM-05-2016-0016>; accessed on March 18, 2018.
- Khan, M.T., Tan, S. and Chong, L. (2017), "Perception of past portfolio returns, optimism and financial decisions", *Review of Behavioral Finance*, Vol. 9 (1), pp.79-98.
- Lin, Y., Hu, S., Chen, M., (2005), "Managerial optimism and corporate investment: Some empirical evidence from Taiwan", *Pacific-Basin Finance Journal* Vol. 13 (5), pp. 523-546.
- Lin, H.W. (2011), "Elucidating rational investment decisions and behavioral biases: Evidence from the Taiwanese stock market", *African Journal of Business Management*, Vol. 5 (5), pp. 1630-1641.
- Lo, A.W. Repin, D.V. and Steenbarger, B. N. (2005), "Fear and greed in financial markets: A clinical study of day-traders", *The American Economic Review*, Vol. 95 (2), pp. 352-9.
- MacGregor, D., Slovic, P., Dreman, D. and Berry, M. (2000), "Imagery, affect and financial judgment", *The Journal of Psychology and Financial Markets*, Vol. 1 (2), pp. 104-110.
- Mauck, N., and L. Salzsieder. "Diversification Bias and the Law of One Price: An Experiment on Index Mutual Funds." *Journal of Behavioral Finance*, 18, (2017), pp. 45-53.
- Murata, A., Nakamura, T. and Karwowski (2015), "Influence of cognitive biases in distorting decision making and leading to critical unfavorable incidents", *Safety*, pp. 44-58.
- Mazzoli, C., Marinelli, N. and Palmucci, F. (2017), "Mind the gap: Inconsistencies between subjective and objective financial risk tolerance", *Journal of Behavioral Finance*, Vol. 18 (2), pp. 1-12.
- Menkhoff, L. and Nikiforow, M. (2009), "Professionals' endorsement of behavioral finance: Does it impact their perception of markets and themselves?", *Journal of Economic Behavior and Organization, Elsevier*, Vol. 71 (2), pp. 318-344.
- Natividad, B., Pilar, C. and Sandra, F. (2012), "Herding, volatility and market stress in the Spanish stock market," in *Handbook of Investors' Behavior During Financial Crises*, pp. 151-168
- Nozick, R. (1993), "The Nature of Rationality", *Princeton University Press, Princeton*.
- Olsen. R. and Cox, C. (2010), "The Influence of Gender on the Perception and Response to Investment Risk: The Case of Professional Investors", *Journal of Psychology and Financial Market*, Vol. 2 (1), pp. 29-36.
- Philip, S. Chen, M. and Su, X. (2014), "Comparative study of behavioral mindsets in team decision", *International Journal of Educational Management*, Vol. 28 (5), pp.578-589.

- Prosad, J. K., Kapoor, S. and Sengupta, J. (2015), "Behavioural biases of Indian investors: A survey of Delhi-NCR region", *Qualitative Research in Financial Market*, Vol. 7 (3), pp. 230-263.
- Ritter, J.R. (2003), "Behavioural finance", *Pacific-Basin Finance Journal*, Vol. 11 (4), pp. 429-37.
- Ricciardi, V. and Simon, H. (2000), "What is behavioural finance"? *Business, Education and Technology Journal*, Vol. 2 (1), pp. 1-9.
- Reed, A. E. Mikels, J. A. and Simon, K. I. (2008), "Older adults prefer less choice than young adults", *Psychology and Aging*, Vol. 23, pp. 671-675.
- Riff, S., and Yagil, Y. (2016), "Behavioural Factors Affecting the Home Bias Phenomenon: Experimental Tests", *Journal of Behavioural Finance*, Vol. 17 (3), pp. 267-279.
- Robson, B. and Fávero, L. P. (2017), "Disposition Effect and Tolerance to Losses in Stock Investment Decisions: An Experimental Study", *Journal of Behavioral Finance*, Vol. 18 (3), pp. 271-280.
- Sadi, R., Asl, H.G. and Rostami (2011), "Behavioral finance: The explanation of investors' personality and perceptual biases effects on financial decisions", *International Journal of Economics and Finance*, Vol. 3 (5), pp. 234-241.
- Sahi, S. K., Arora, A. P. and Dhamija, N. (2013), "An exploratory inquiry into the psychological biases in financial investment behaviour", *Journal of Behavioural Finance*, Vol. 14, pp. 94-103
- Shefrin, H. and Statman, M. (1985), "The disposition to sell winners too early and ride losers too long: theory and evidence", *The Journal of Finance*, Vol. 40 (3), pp. 777-790.
- Shiller, R.J. (2003), "From efficient markets theory to behavioural finance", *The Journal of Economic Perspectives*, Vol. 17 (1), pp. 83-104.
- Shua, L., Qiaob, Y., Zhengyuc, T., & Jiand, Z. (2006), "Psychological experimental study on hot-hand effect and gambler's fallacy", *Economic Research Journal*, Vol. 8, pp. 58-69.
- Simon, H.A. (1956), "Rational choice and the structure of the environment", *Psychological Review*, Vol. 63 (2), pp. 129-138.
- Soydemir, G., Verma, R. and Wagner, A. (2017), "The asymmetric impact of rational and irrational components of fear index on S&P 500 index returns", *Review of Behavioral Finance*, Vol. 9 (3), pp.278-291,
- Statman, M. (1995), "Behavioural finance vs. standard finance", *Behavioural finance and decision theory in invested management*, pp. 14-22.
- Sahni, D. (2012), "Behavioural finance: testing applicability on indian investors", *International Journal of in Multidisciplinary and Academic Research*. Vol. 1 (2), pp. 1-12.
- Shen, J., Najand, M., Dong, F. and He, W. (2017), "News and Social Media Emotions in the Commodity Market", *Review of Behavioural Finance*. Vol. 9 (2), pp. 148-168, <https://doi.org/10.1108/RBF-09-2016-0060>
- Tversky, A. and Kahneman, D. (1992), "Advances in prospect theory: Cumulative representation of uncertainty", *Journal of Risk and Uncertainty*, Vol. 5 (4), pp. 297-323.
- Talpsepp. (2010), "Does gender and age affect investor performance and the disposition effect"? *Research in Economics and Business: Central and Eastern Europe*, Vol. 2 (1), pp. 76-93.
- Tauni, M. Fang, H. and Iqbal, A. (2016), "Information sources and trading behaviour: does investor personality matter"? *Qualitative Research in Financial Markets*, Vol. 8 (2), pp. 94-117, <https://doi.org/10.1108/QRFM-08-2015-0031> accessed on February 10, 2018.
- Williams, G. (2007), "Some determinants of the socially responsible investment decision: A cross-country study", *Journal of Behavioural Finance*. Vol. 8 (1), pp. 43-57, DOI: 10.1080/15427560709337016 accessed on June 19, 2018.
- Zaidi, F.B. and Tauni, M.Z. (2012), "Influence of investor's personality traits and demographics on overconfidence bias", *Institute of Interdisciplinary Business Research*, Vol. 4 (6), pp. 730-746.

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APPENDICES

Table 2: Summary of articles published by eminent researchers

S. No	Researcher (s)	Year	Methodology	Contribution to Research
1	Kumar and Goyal	2016	Exploratory	Gender and income have a noteworthy inconsistency with respect to rational decision-making process. Male investors are more prone to overconfidence and herding bias in India.
2	Tauni, Fang and Iqbal	2016	Exploratory	Sources of information used by investors as groundwork of their financial choices have a major impact on trading frequency. Personality traits modest the liaison amid sources of information and trading behavioural.
3	Fama	1997	Exploratory	Lag in the reaction of prices to an event is short-lived. Efficient market generates categories of events that alone advise that prices over-react to information.
4	Du	2012	Exploratory	Momentum may have manifold sources that risk behavioural biases in segregation and may not be enough to make clear momentum fluctuations.
5	Williams	2007	Exploratory	Demographic factors shape & SRI and few indirect facts that market context in terms of institutional ownership and the regulatory environment may play an important role.
6	Beckmann <i>et al.</i>	2008	Exploratory	Training, experience and information impacts investment decision but investment managers craft their decisions based on exclusive cultural differences.
7	Shua <i>et. al</i>	2006	Exploratory	Stock prices correlate with investor sentiments which sway stock prices more robustly when investors are in a positive mood.
8	Shiller	2003	Exploratory	A speculative bubble, an unstable situation with potential for an increase in the short term only while negative speculative bubble, an unstable situation with hope for a downturn in the short term only.
9	Sahi <i>et al.</i>	2013	Exploratory	Investors have plentiful beliefs and preferences that bias their financial investment decisions. These biases divulge the design of the investor's mind somewhat than flaws of the investors.
10	Kim and Nofsinger	2008	Exploratory	Social mood determines the types of decisions made by investors and corporate managers equally. Edges in social mood are characterised by optimistic/pessimistic cumulative investment and business activity.
11	Mauck, and Salzsieder	2017	Exploratory	Investors pick high-fee index mutual funds regardless of the fact that the future payouts are nearly identical.
12	MacGregor <i>et al.</i>	2000	Exploratory	Imagery and affective are part of a coherent psychological structure for evaluating classes of securities but that framework may have low validity for predicting performance.
13	Kilka and Weber	2010	Exploratory	Investors group sense more proficient about domestic stocks. The asymmetric insight of competence is linked with an asymmetric review of probabilities.
14	Philip, Chen and Su	2014	Exploratory	Behavioural approach evolves over time and contextual factors such as changes in the macro-environment, the composition of decision makers, and their personalities, play a vital role in determining the final outcome.
15	Alghalith <i>et al.</i>	2012	Exploratory	Investors are risk seeking; a change in the signal of preference does not essentially involve an alter in the sign of return and vice versa.
16	Gokhale and Tremblay	2015	Exploratory	Better capable to spot valuation bias reveals profit opportunities and may get better efficiency of financial markets.
17	Fuertesa and Muradoglub	2012	Exploratory	Finance professionals, married investors and those placing high-volume orders all the way through investment centers demonstrate poorer diversification perhaps as a sign of overconfidence.
18	Cohn <i>et al.</i>	1975	Exploratory	With respect to stock decisions, irrationality cannot be established. Investment in stocks was found to be prejudiced by hope, past experience in the capital market and familiarity regarding the past performance of selected market indices.

19	Caparelli <i>et al.</i>	2004	Empirical	Herding is present during intense market situation both in terms of sustained growth rate and high stock levels.
20	Agnew and Szykman	2005	Exploratory	Low-knowledge individuals opt for the default allocation more frequently than high-knowledge individuals.
21	Natividad <i>et al.</i>	2012	Exploratory	Influence of well-versed trading as a price stabilising factor in heavily traded and highly capitalised stocks. It leads to a marked diminish in volatility for these particular stocks both in periods of calm and crisis.
22	Itzkowitz and Itzkowitz	2017	Empirical	Investors employ name-based heuristics or short-cuts together with alphabetical ordering and name fluency whilst trading stocks resulting in irrational decisions.
23	Soydemir <i>et al.</i>	2017	Exploratory	Irrational investors, who are thoughtful in their irrationality merely probing their performance and deficiencies, do not have a lot of a systematic effect on stock returns when pooled with rational investors.
24	Sadi <i>et al.</i>	2011	Exploratory	There is straight correlation stuck between extroversion and openness with hindsight bias and over confidence bias. Also, a reverse correlation between conscientiousness and randomness bias, between openness and availability bias.
25	Prosad <i>et al.</i>	2015	Exploratory	Biases are reliant on investor's demographics and their trading sophistication with utmost influencing factors being age, profession and trading frequency.
26	Barberis and Thaler	2003	Exploratory	Two families of invasive regularities: under reaction of stock prices to news such as earnings announcements and overreaction of stock prices to a series of good or bad news. Results are on the basis of parsimonious model of investor sentiment.
27	Talpsepp	2010	Exploratory	Unlike gender and age groups have unusual trading intensity and security holding periods, which realise in differences in the disposition effect and performance. Portfolios of older age groups and female investors perform better.
28	Zaidi and Tauni	2012	Exploratory	Positive connection among overconfidence & amicability, extroversion & consciousness along with negative relationship amid overconfidence & neuroticism.
29	Chaffai and Medhioub	2014	Exploratory	Persons having a high level of education are subject to behavioural biases and agents who invest amounts between 1,000 and 20,000 TND are most vulnerable to behavioural biases.
30	Lin	2011	Exploratory	Irrational investment behavioural biases might happen in a range of decision-making stages. Male and female investors radically differ in disposition effect, herding and tendency of overconfidence.
31	Fernandez <i>et al.</i>	2011	Exploratory	Dependence relation exists between information, biases and herding fact. Information with reference to the number of prior transactions in the market is mostly pertinent to make clear herding propensity amongst investors.
32	Bhandari and Deaves	2006	Exploratory	Market forecasters are overconfident in the sense that they are mis-calibrated. Know-how of market exacerbates overconfidence chiefly during knowledge worsening.
33	Daniel <i>et al.</i>	1998	Exploratory	Overconfidence implies negative long-lag auto-correlations, excess volatility and when managerial actions are correlated with stock mispricing then public event based return predictability.
34	Goetzmann and Massa	2008	Exploratory	Higher the fraction of investors disposition, the less sensitive the stock price is to current shocks to fundamentals.
35	Lin <i>et al.</i>	2005	Exploratory	More financing constrained firms where optimistic manager's exhibit higher investment cash flow sensitivity as compared to non-optimistic managers.
36	Costa <i>et al.</i>	2008	Exploratory	Both human subjects be evidence for the disposition effect, the more knowledgeable investors are less affected.
37	Menkhoff and Nikiforow	2009	Exploratory	Endorsers distinguish the biases notably stronger than non-endorsers, yet the latter mostly concede the existence of these behavioural finance effects too.
38	Durand <i>et al.</i>	2013	Exploratory	Personality traits are allied with overconfidence and overreaction in financial markets.

39	Abreu, and Mendes	2012	Exploratory	Extraversion along with conscientiousness positively modest the relationship between information acquisition & trading frequency instead of openness shows negative relationship between information acquisitions and trading frequency.
40	Charness <i>et al.</i>	2013	Exploratory	Majority of investor's exhibit ambiguity neutral attitudes many others display ambiguity incoherent attitudes and few either ambiguity-averse or ambiguity-seeking attitudes.
41	Robson and Fávero	2017	Exploratory	Majority of investor's exhibited momentous disposition effect. Beliefs especially those in the loss domain but not the dual risk attitudes appreciably contributed to the between investor variation of the disposition effect.
42	Croson and Sundali	2005	Exploratory	Investor's with higher cognitive skills are commonly found to be less prone to the hot-hand myth and more stalwartly engage the gambler's fallacy.
43	Ali	2017	Exploratory	Stock price and operating under performance in the post issue are in a straight line linked to the degree of IPOs' mis-valuation.
44	Mazzoli <i>et al.</i>	2017	Exploratory	Low financial literacy, high income, no children, and incautious economic behavioural are normally coupled with erroneous inconsistencies.
45	Fiksenbaum, <i>et al.</i>	2017	Exploratory	Total debt was negatively correlated to inhibitory and prospective anxiety & positively related to one's willingness to change one's debt level. Both inhibitory and prospective anxiety were positively related to financial threat and negatively related to life satisfaction and general health.
46	Shen <i>et al.</i>	2017	Exploratory	Commodity explicit emotions like optimism, fear, and joy have major influence on individual commodity returns but not on commodity market index returns. It also incorporates appraisal effect on commodity returns.
47	Khan <i>et al.</i>	2017	Exploratory	Perception of past portfolio returns influences mutually retail and institutional investor's trading and risk taking.
48	Riff and Yagil	2016	Exploratory	Investor's tended to take less risk with foreign, unfamiliar and non-fluent assets as compared with local, familiar and fluent assets.
49	Benjamin	2019	Empirical	Price clustering is noticeably superior in technical stocks than in non-technical stocks during the period of rising, sector-specific investor sentiment.
50	Andreas <i>et al.</i>	2018	Empirical	More extraverted individuals sell out Financial assets for higher prices and buy financial assets when they are overpriced than less extraverted individuals do.
51	Kannadhasan	2006	Descriptive	Experience of the investor has an explanatory role in his regard with less experienced investors being prone to extrapolation whereas more experienced investors commit gambler fallacy.
52	Rompotis	2018	Empirical	Elevated the trading volumes are, the higher the return dispersion in the midst of ETFs. While it comes to herding all through highly volatile markets, return dispersion among ETFs decreases on days with very high intraday volatility.
53	Murata <i>et al.</i>	2015	Empirical	Disposition bias, confirmation bias and loss aversion bias extensively shape investment performance although at a critical level of ($p \leq 10\%$).
54	Sahni	2012	Descriptive	Majority of investors fancy steady returns irrespective of the fact that they may be lower. Information from companies as a basis for fundamental analysis has utmost significance for mass of respondents while investing.
55	Kahneman and Tversky	1979	Empirical	Presented prospect theory a critique to expected utility theory. According to prospect theory people favor the outcomes that may be obtained with certainty than outcomes which are just possible. Further, under isolation effect people throw away components that are shared by all prospects under consideration.

Table 3: Division of articles reviewed with reference to journals

Sr. No.	Journals	Number of Papers
1	Journal of Behavioural Finance	19
2	Review of Behavioural Finance	5
3	Journal of Psychology and Financial Market	5
4	Qualitative research in Financial Market	4
5	Journal of Financial Economics	2
6	Managerial Finance	1
7	International Journal of Educational Management	1
8	The European Journal of Finance	1
9	International Journal of Economics and Finance	2
10	Research in Economics and Business	1
11	Interdisciplinary Journal of Contemporary research in Business	1
12	African Journal of Business Management	1
13	Journal of Economic Behavioural and Organisation	2
14	Journal of Portfolio Management	1
15	Pacific-Basin Finance journal	1
16	MPRA Paper- Munich Personal RePEc Archive	1
17	HAL Archives Ouvertes	1
18	Personality and Individual Differences	1
19	Journal of Risk and Uncertainty	1
20	International Journal of Multidisciplinary and Academic Research	1
21	Research Gate	1
22	Jordan Journal of Economic Sciences	1
23	Econometrica: Journal of The Econometric Society	1

Table 4: Distribution of various methodologies used in studies under review

Methodology	Number of papers	Percentage
Empirical	6	10.9%
Exploratory	47	85.46%
Descriptive	2	3.64%
Total	55	100%

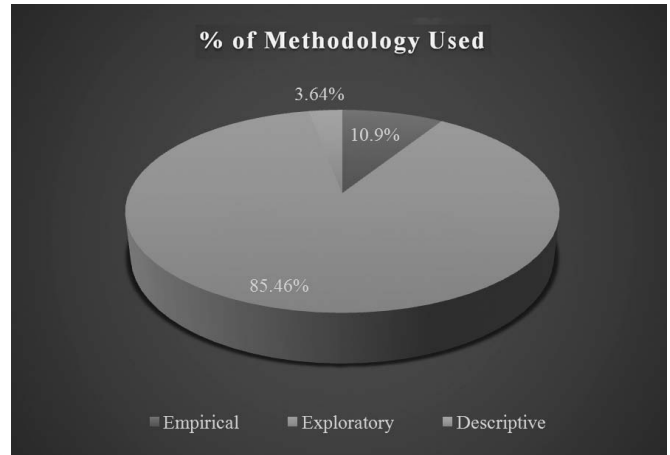


Figure 1: Different Methodologies used by Researchers

Table 5: Year-wise break up of studies on behavioural finance

Sr. No	Year	Number of studies
1	1975	1
2	1979	1
3	1997	1
4	1998	1
5	2000	2
6	2003	2
7	2004	1
8	2005	3
9	2006	3
10	2007	1
11	2008	4
12	2009	1
13	2010	2
14	2011	3
15	2012	7
16	2013	3
17	2014	2
18	2015	3
19	2016	3
20	2017	8
21	2018	2
22	2019	1

Table 6: Few behavioural biases and their description

Sr. No.	Behavioral Biases	Description
1	Anchoring	Generally, people connect their thoughts to a reference point even though that may hardly have any reasonable association with the decision at hand.
2	Overconfidence	Mostly people are overconfident towards their knowledge, ability and experience. This overconfidence can cause significantly low return on their investments than the market.
3	Herd Behaviour	Tendency of individual to follow the actions of larger group. There is misconception that decisions taken by larger group are mostly right.
4	Over and Under-Reactions	Inconsistent action to news, more optimistic when market is going up and highly pessimistic when market is going down.
5	Loss Aversion	People are willing to take more risks to avoid loss than to realise gain.
6	Representative Bias	Evaluating all matters based on how they look like rather than based on true probabilities.
7	Availability Bias	Natural tendency to grasp any irrelevant information when they have to make decision.
8	Problem of Inertia	People fail to get around to taking action even though on the things they have agreed to do. Inertia may act as a barrier to effective financial planning, de-motivating about savings and making necessary changes to their portfolios.
9	Disposition Effect	Individual tend to sell winners and hold losers resulting negative effects on returns on investment.

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