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## **IMPACT OF BEHAVIORAL BIASES ON INVESTMENT DECISIONS ‘A SYSTEMATIC REVIEW’**

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### **ABSTRACT**

*The objective of this paper is to study and describe various biases in investment decision-making through the review of research papers in the area of behavioral finance. This research paper describes various behavioral patterns of investors. For writing this paper, research papers have been collected over a period of year's right from the time when the most introductory paper was published (1974) till the most recent papers (2019). These research papers are segregated on the basis of biases. This study is more focused towards the study of individual investors. This study has identified 7 various types of biases. This study is also based on some of the most recent research work to have a quick overview of the latest work carried out in this area. Practical implications of the research is that individual investors, investment advisers, students and other institutions in this area can get inputs from this research. The unique aspect of this paper is that this paper not only pays attention on basic principles of behavioral finance but also describes some emerging concepts of behavioral finance. Thus, the paper creates interest in the readers to find the solutions to minimize the effect of biases in decision-making.*

**Keywords:** Financial markets, Behavioral finance, Behavioral biases, Investment decisions

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## 1. INTRODUCTION

Investments in financial markets from a rational point of view has been researched and studied widely over the past many years, various theories being established and elaborated related to this. Most of the theoretical frameworks that have been proposed in the literature are based on the main criterion of individual rationality. Modern Portfolio Theory (MPT) and the Efficient Market Hypothesis (EMH), which justify standard finance, are successful. But in the financial markets, we often observe some puzzles and anomalies which cannot be explained rationally by standard finance theories; it can be only explained through behavioral finance theories. So the alternative approach of behavioral finance includes role of psychological factors while investing in financial markets. Behavioral finance is a relatively new concept in the financial markets which replaces traditional finance models, and it offers a better model for explaining investors' behavior in financial markets. It also explains how individual investors make decision in financial markets how they interpret and act on specific information.

## 2. LITERATURE REVIEW

Kahneman and Tversky (1979)[27] wrote a paper titled “Prospect theory: An analysis of decision under risk”. This paper has been proved as valuable contribution in the field of behavioral finance as the fundamental concept of prospect theory was introduced. This theory explains decision making process of investors based on the probabilistic alternatives involving risk when the probable outcome of investment decision is known. Thaler (1980) [64] explained that investors make decisions under the influence of behavioral biases often leading to less than optimal decisions. Thaler (1999)[65] explained in his paper, “The End of Behavioral Finance”, that there are many puzzles in financial markets where theories of modern finance give no answer and here the assumptions of behavioral finance are helpful in solving these puzzles. He has explained five areas where the behavior of the investors in the stock market differs from what have been proposed by the traditional and standard finance theories. These are dividends, predictability and equity premium, volume, volatility. Ricciardi and Simon (2000)[49] defined behavioral finance as a way of understanding psychological processes and emotional factors of investors in financial markets. Behavioral finance scholars and investment professionals are actively working for evolving this field. Shiller (2003)[53] has explained various doubts and weaknesses about efficient market hypothesis and said that association between finance and other social sciences can be termed as behavioral finance and it has led to a profound deepening of our knowledge of financial markets. Ritter, J. R. (2003)[48] explained cognitive psychology and limits to arbitrage as two building blocks of behavioral finance. Subrahmanyam (2008)[56] has also given basic analysis of related literature on the existing theories in behavioral finance and explained that there is scope to analyse the fast-growing field of market microstructure and behavioral finance and also explained that we can predict corporate events such as M&A activity, splits, security offerings, etc. using CEO profiles and observable CEO characteristics. DeBondt et al.(2010)[10] analyzed various benefits that behavioral finance research can contribute to the financial industry, but at the same time there are different views for utilizing behavioral finance research in academics and in corporate. Muradoglu &Harvey (2012)[35] examined about role of surveys in finding out investors behavior in financial markets. According to Sahi (2012)[25] investment decisions made by individual under real circumstances cannot be explained on the basis of MPT, where people violate the principles of expected utility. It can be also described that studies in neuro-finance and the autonomies of the brain has confirmed that emotions affect cognition and consequently the decisions taken by humans are not rational as claimed by the traditional and standard theory of finance. Bikas et al. (2013)[6] explained that Behavioral finance is based on recognition and emotional factors' influence on major changes in financial markets and focuses on limited human rationality and described the effect of psychological factors on financial investment activities. Statman, M.

(2014)[52] explained that Behavioral finance extends the stream of finance beyond, asset pricing, portfolios and market efficiency. It analyzes the behavior of managers and investors in direct and indirect ways with the help of examining wants, errors, preferences, and behavior in questionnaires, experiments, and the field. Nair and Antony (2015)[40] examine that the investors behave irrationally in financial markets and this irrationality is due to behavioral biases and heuristics and these emotional and psychological biases play a very important role in investment decision making. Kumar and Goyal (2015)[29] discussed systematic literature review on the mainly four types of biases of individual investors and given systematic details about the research papers on the basis of citation, tools used and data analysis. Huang et al. (2016)[22] has given analysis of the papers that have been published in the past 20 years to give view on important work done in this area. Kapoor & Prosad (2017)[26] explained that investors are influenced by psychological biases and these biases can get translated in to their irrational investment behavior and again it will lead to suboptimal decision. Valaskova et al (2019)[67] determined a strong link between fuzzy logic and behavioral finance. He examined that Fuzzy sets can accurately model the human decision-making process and Behavioral psychology has proved that the fuzzy logic model of human decision-making has strong validity in the real world. There are several biases that influence decision-making process of investors incorporates loss aversion, herding behavior, overconfidence, representativeness, disposition effect, mental accounting and anchoring bias. This paper reviews seven biases on the basis of literature review. Maximum researchers have mentioned above mentioned biases in their studies.

## 2.1. Over Confidence

Odean (1998)[41] explained that overconfident traders do not manage and control risk properly and they generally take information from various sources and they perform frequent trades in market. Scheinkman (2003)[57] et al. derived a simple model to analyze bubbles in financial market and trading volume. And discussed high trading volume occurs because of speculative trading among agents with heterogeneous beliefs. Heterogeneous beliefs arise from the presence of overconfident agents. Nevins, D. (2004)[38] defined Overconfidence as overestimation of their capacity by investors to forecast market events, and as final result investors regularly go out on a limb without getting similar returns. Statman et al. (2006)[59] discussed that some investors feel overconfident about the value of active trading after they get positive portfolio returns, and feel less overconfident after they get negative portfolio returns. Glaser et al. (2007)[17] analyzed that overconfidence, as measured by calibration questions, is not related to trading volume. Fagerström (2008)[16] performed a study to analyze overconfidence in financial markets and factors that affect human beings in decision making when it comes to investment in financial markets. This research concluded that analysts of the S&P 500 were influenced with over confidence bias and the over optimistic biases. Deaves R. et al. (2008)[11] analyzed that higher overconfidence level leads to increase in trading activity. This is true both at the level of the individual and market and also concluded that there is no significant differences between genders in trading activity. Graham et al. (2009)[19] analyzed those investors who feel highly confident trade frequently and have more investment exposure in international assets. Puetz A. Et al. (2011)[44] examined that fund managers generally trade more after good past performance of mutual funds. Menkhoff et al. (2013)[36] examined that there is a significant differences in overconfidence between groups, it has been found that institutional investors were least overconfident and investment advisors were most overconfident. Jaya, M.P. (2014)[24] analyzed that men are more overconfident. And in case of the intraday traders; traders with high practice and investor of latest companies are affected by overconfidence bias. Prosad J. M et al. (2015)[45] examined that men are more overconfident than women with respect to their knowledge of the Indian stock market. Seetharaman A. et (2017)[61] al found that behavioral biases, such as excessive optimism and

overconfidence greatly affects investor behavior. KHAN Y. et al. (2017)[30] found that overconfidence has great and positive impact on investors’ return. Ngacha, S. W. (2019)[39] examined that there was a high positive correlation between overconfidence behavior and investment decision making. Kurniawati D. et al.(2019)[31] examined that overconfidence bias and self-control bias have a great positive effect on investment decisions made by investors during investing in IPO. Baker H. et al. (2019)[7] found that financial literacy is not related to overconfidence bias.

## 2.2. Herding

Garg et al.(2013)[17] examined herding behavior in Indian stock market for a period 2000 to 2013 and concluded absence of herding in Indian Stock Market and also explained that herding is not related to trading volume. Poshakwale S. (2014)[46] analyzed that herding is more prevalent during bearish financial market. And herding generally increases with the anticipation of financial crisis and minimizes just before the actual occurrence of the crisis. Filip A. et al.(2015)[14] concluded that the investors’ behavior in CEE stock markets and explained that most of investors follow decisions of other participants and found that herd behavior is present in both upward and downward movement. Choi S. (2016)[9] examined stronger herding behavior among offline investors comparing to online investors. Generally old age offline investors have more trust on information provided by their friends and family members because they are not having fast and easy access for information. Ripoldi, F. (2016).[51] analyzed evidences of the herding bias among investors in both Shanghai and Shenzhen markets. Satish B. et al. (2018)[60] examined that Herding behaviour was not present among investors during the pre-financial crisis period, crisis period and post-financial crisis period. Dewan, P. (2019)[12] explained herding as how individuals follow each other together in a group and dotcom bubble was result of herding bias and even same thing is happening in crypto currency. Chauhan Y. et al. (2019)[8] examined that herding bias is a priced risk factor in large-cap stocks, but it is not found in small cap stocks because of lower trading volume. Dewan P. et al. (2019)[12] explained that Herding means how individual take decisions together in a group. Because of herding asset prices can be moved away from its fundamental value. Indārs E. R.(2019)[23] analyzed that generally individual investors do not exhibit herding behavior on the Moscow Exchange. But they found some evidence of herding being driven by non-fundamental factor on the days of bearish market.

## 2.3. Disposition Effect

Shefrin H.(1985)[63] explained conceptual framework related to general disposition to sell winners too early and hold losers too long and discussed that this disposition exist in real financial markets among investors , it is not only laboratory experiment. Odean(1998)[42] analyzed that individual investors generally have high preference for selling winners and holding losers, except in December when tax motivated selling prevails and it generally lead to lower returns. Weber et al. (1998)[68] explained the disposition effect as the behavior of investors to sell assets that have gained value (‘winners’) and stay invested in assets that have lost value (‘losers’). Frazzini (2006)[15] explained that disposition effect can cause under reaction to any news and information which will lead to return predictability and post-announcement price drift. Lin, H. W. (2011)[34] examined that during the 1997 Asian financial crisis, the disposition effect significantly exists in the Chinese and Taiwan stock market. Prosad et al.(2017)[43] examined the occurrence of the disposition effect the Indian financial market during 2006–2013 and given some robust empirical evidences for this.

## 2.4. Anchoring

Tversky et al. (1974)[66] explained that anchoring is a concept used in the circumstances when people use some initial values to make projections, which are biased toward the initial ones as different starting points yield different estimates. Shiller (1999)[54] explained that when people are asked to make quantitative assessments their assessments are generally impacted by suggestions and it is called as anchoring and it generally help to solve many puzzles in financial markets. Kaustia et al.(2008)[28] conducted a survey and found existence of anchoring effect in the students' long-term stock return expectations and it was found there was less impact of anchoring effect among professionals. Dodonova (2009)[13] examined that people generally use anchoring to judge the objects that they want to buy. Andersen et al. (2010)[1] explained anchoring as general tendency of investors to rely too greatly (anchor) on any information for making decisions in financial markets.

## 2.5. Loss aversion

Hwang et al. (2010)[21] examined that investors in financial markets are highly loss averse than assumed in the literature. It was also analyzed that impact of loss aversion changes depending on financial market situations; investors become far more loss averse during bull markets than during bear markets. Arora et al.(2015)[2] examined that Investors with age group 41-55 years show high impact loss aversion bias as compared to individuals with age group 25-40 years and it was also examined that females show more loss aversion and regret more as compared to males. Lee et al.(2016)[33] examined that investors who are highly impacted by loss aversion generally have lower stock investment as a share of total portfolio. Loss averse investors tend to observe their stock portfolio performance too often, which contributes to the prevalence of myopic loss aversion. Mahina et al. (2017)[37] analyzed that loss aversion bias highly affected investment in Rwanda stock market. This study further examined that investors at the stock market tend to be more regretful about holding losing stocks too long than selling winning ones too soon. Kumar et al.(2018)[32] examined that that gender of the investors have high impact on occurrence of loss aversion in investors and so investment decisions made by the investors are impacted by loss aversion bias.

## 2.6. Mental Accounting

Barberis et al. (2001) [4] explained mental accounting is a term defined as “the process by which investors think about and evaluate their financial investments and transactions”. Barberis et al. (2003) [5] explained that mental accounting allows investors to organize their portfolio into various separate accounts. Grinblatt et al. (2005) [20] analyzed that mental accounting maintains a foundation for the style in which investors set reference points for the accounts that determine gains and losses. The main idea is that decision makers tend to separate different types of gambles into separate accounts, and then apply prospect theory to each account by ignoring possible interactions. Agnew (2006) [3] finds that individual investors are generally impacted by behavioral biases such as mental accounting bias. Investors who are influenced by mental accounting bias generally treat every element of their portfolio separately Instead of analyzing a portfolio's in totality. Sewell, M. (2007) [58] explained that mental accounting is the set of mental operations used by individuals and households to organize evaluate and monitor the financial activities and transactions.

## 2.7. Representativeness

Ritter, J. R. (2003) [50] defined representativeness bias as that people generally underweight long-term averages returns. And tend to give more weight to recent experience and returns. Shefrin, H. (2008) [55] explained that It is a mental shortcut can be defined as over trust on

stereo types. Pompian, M. M. (2017) [47] explained that representativeness bias generally occurs due to imperfect emotional framework when processing new information. To make new information easier to process, some investors project outcomes that reverberate with their own pre-existing ideas and decision making. Shah et al. (2018) [63] explained that representativeness bias have significant negative impact on investment decisions made by investors frequently trading on the PSX and on perceived market efficiency.

### 3. RESEARCH GAP

After reviewing available literature on behavioral finance and behavioral biases, it has been found that there are some research gaps which need to be addressed and future studies can be conducted on these research gaps like: -

1-Majority of these studies have focused on the developed world so limited research in developing countries

2- Majority of behavioral finance literature analyses individual investors in developed markets

3- Most of the research in behavioral finance literature depends on data that is generally limited to the subsamples of overall Investor groups in these countries.

### 4. CONCLUSION

From the review of available literature on behavioral finance and behavioral biases it can be concluded that behavioral finance offers psychology-based framework to explain stock market anomalies, such as extreme rises or falls in stock market. Behavioral finance includes psychology, sociology and other research methods for the study of investment behavior of investors in financial markets. This field liberalizes the assumptions of rationality present in standard finance theories and explains that real investors are influenced by their psychological biases. In this study we have reviewed previous research papers and studies on behavioral finance and behavioral biases and most of the studies provide evidences for presence of above mentioned seven behavioral biases in investors. Many researchers have found out presence of overconfidence and herd bias among investors. Few researchers also support presence of other five biases among investors. Many researchers have also found out association of behavioral biases with demographic factors like age, gender etc. So over all it can be concluded that a lot of research work has been done in this area in developed countries financial market and there is lot of scope and opportunity in this area in developing countries financial markets.

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