"Analysis of link between risk tolerance and behavioural finance biases"

Mubin Taj
Assistant professor
Department of Commerce & Management, Vidyavardhaka First Grade College, Mysuru
Email – Izra.mohammedi@gmail.com

Abstract: *The main objective of this study is to find out the link between financial biases and the impact it has on the behaviour of the investors and how this affects their level of risk tolerance. However, the usage of behavioral finance is used a lot in the investment industry to understand the investors; a detailed study into the Indian investment style was considered necessary. The outcome of the study is to find out how the demographic characteristics has an effect of the investor behaviour and how factors such as regret aversion, loss aversion, representativeness determines the tolerance level and how investor intentions impact risk tolerance. The significance of this study will help investment companies to accurately profile their investors. The outcome of this that the modern day investors are able to tolerate risk in turn for profits. A structured questionnaire method is used to collect data and get to know the level of risk tolerance.*

Key words: *Investor behaviour, financial determinants, risk tolerance, investor intentions, regret aversion, loss aversion.*

1. INTRODUCTION:

Behavioural finance is the study of psychological influences on investors and financial markets. At its core, behavioural finance is about identifying and explaining inefficiency and mispricing in financial markets. It uses experiments and research to demonstrate that humans and financial markets are not always rational, and the decisions they make are often flawed. If you are wondering how emotions and biases drive share prices, behavioural finance offers answers and explanations. Behavioural finance originated from the work of psychologists Daniel Kahneman and Amos Tversky and economist Robert J. Shiller in the 1970s-1980s. They applied the pervasive, deep-seeded, subconscious biases and heuristics to the way that people make financial decisions. At about the same time, finance researchers began to propose that the efficient market hypothesis (EMH), a popular theory that the stock market moves in rational, predictable ways, doesn't always hold up under scrutiny. In reality, the markets are full of inefficiencies due to investors' flawed thinking about prices and risk.

In the past decade, behavioural finance has been embraced in the academic and financial communities as a subfield of behavioural economics influenced by economic psychology. By showing how, when, and why behavior deviates from rational expectations, behavioural finance provides a blueprint to help everyone make better, more rational decisions when it comes to their finances. (Kaplan finance , 2021).

Now let us understand what is Investor personality, it is the personality which determines what type of an investor a person is. Investor personality is based on the risk profile that consists of factors such as age, financial history and investment goals. Investments are one of the only ways to increase, amass and create wealth. It is a process of putting your money in a medium which compounds and increase over the years. Investing as a whole is a planned process and it tends to change from one person to the other depending on where you come from. There are various mediums where people can invest, it starts with the basic savings bank account, having an account at the post office and Fixed Deposit. These are low risk investment mediums. The other mediums which are offer high returns but with high risks like mutual funds, investing in the stock market. As Thomas Brook (2021) has cited, there is a wide consensus in the behavioural

finance literature that the investment decision-making process is significantly shaped by psychological factors, such as moods, emotions or personality traits. Consistent findings from psychological research, evidencing those humans have limited cognitive abilities and are controlled by emotions while making choices in risky and uncertain situations.

In particular, most studies in behavioural finance rely only on observable factors; being either socio-demographic variables such as gender, age, or investment characteristics, like portfolio characteristics as a proxy for the underlying psychological processes that drive investors' decision-making. Unobservable, individual-level differences in psychological traits may help to better explain the underlying mechanisms of a wide variety of behavioural biases. Despite the wide scope of published research considering the influence of psychological factors on investing behaviour, the problem of how individual investors differ from each other in terms of intensity of some personality traits, and how these differences may be related to the susceptibility to behavioural biases, is still not well researched in the field of behavioural finance. Having a good understanding of an investor's risk tolerance is crucial to any successful advisor/client relationship. It is also a key component of any good investment policy statement. Investment advisors usually explore things like age, size of investment portfolio, expected retirement date and future earnings and financial obligations to gauge an investor's risk tolerance. These are the quantifiable aspects can tell us a lot about an investor's ability to take investment risk and diversify it, but what about their willingness? The importance and complexity of an investor's willingness to take risk is one of the many differentiating factors between managing investment portfolios for large institutions and managing them for individual investors. Because most investment products and programs are developed by institutions for institutions, they fail to address this "human side" of risk tolerance. Personality typing is a new tool that is helping investment advisors better understand an individual investor's willingness to take risk and behavioral tendencies. Read on to learn more about what personality typing is, how it can help you gauge risk tolerance, and how it can give your insight into an investor's decision-making tendencies. (David Allison, 2021).

2. LITERATURE REVIEW:

With reference to the above behavioural finance factors let us understand Lindeque and Schenk's (2021) point of view, behavioural finance investigates how the unpredictable nature of human psychology has an effect on investment decision-making and occasionally brings about emotionally driven behaviours that result in market anomalies that as a whole may either be speculative bubbles or bad bear markets. Behavioural finance comprises three elements, which are knowledge of finance, economics and cognitive psychology when investment decisions are made by individual investors. The financial decision-making environment is characterised by complexity and uncertainty as financial markets are neither strictly efficient nor strictly inefficient. According to traditional finance theories, it is believed that individual investors behave rationally, take all available information into account and capitalise on available opportunities to maximize their wealth when making investment decisions.

According to (Forgue, 2001) any financial and investment decision-making process requires four fundamental inputs, namely goals, time horizon, financial stability, and financial risk tolerance. While the first three inputs are relatively more objective in nature, financial risk tolerance (FRT) is highly subjective FRT refers to the retail investors willingness to accept the negative changes in the value of investment or an outcome that is adversely different from the expected one. Understanding and assessing FRT plays a crucial role in individual choices about wealth accumulation, portfolio allocation, and all other investment and finance-related decisions and in achieving financial goals However, Gutter & Fan (1998) have stated that an advisor has to accurately assess FRT for achieving his/her goal or the investor's goal. This is possible only if the advisor personally knows the client, for example, high-net-worth individual (HNWI) investors, but it is challenging for them while considering mass markets of small investors Nevertheless, it is important to measure FRT at best. Failure to do so leads to the choice of an investment option/portfolio which is inconsistent with one's FRT resulting in investor disappointment, that is, unbearable loss to the client. Such a situation may adversely affect the client–advisor relationship. In addition, it leads to an unfavourable impact on the advisor's career and exposes him to litigation, arbitration, and legal jeopardy. This problem could be minimized by an investor himself/herself measuring his/her FRT instead of FRT being measured by others (i.e., advisors) as there is a strong relationship between investment behaviour of an individual and his/her FRT. (Kannadhasan & Aramvalarthan, 2016.

As cited by Sami & Rizvi (2013) Investment decision is one of the most essential factors in today's stock market. People make investment decisions based on different fundamental and technical tools. There are various factors which affect the investor towards investment but one of the important factors which affects the investor is their emotional intelligence. Emotional Intelligence is: "The capacity for recognizing our own feelings and those in others, for motivating ourselves,

for managing emotions well in ourselves and in our relationships." The various dimensions of emotional intelligence are self-awareness, handling emotions, motivation, empathy and social skills.

Barber & O'Dean's (2000) literature suggests that there are many factors affecting people's behaviour, the emphasis there was to explore the most important psychological biases and personality traits affecting investment behaviour. These are overconfidence, risk tolerance, self-monitoring and social influence. An analytic discussion follows in the next sections and an attempt is made to link them with investment behaviour.

Behavioural Finance plays a role in making investment decisions and there is a two-way classification of these relationships:
1. Heuristic driven biases and
2. Frame dependent biases

Heuristic driven biases, it is recognized that financial practitioners use the old age or him rustic rules to process and make decisions. For the immediate, people believe that stocks can be best predicted by future performance. The author classifies biases under the rustic theme that includes more powerful learning, extra optimism, and hatred for behavior, engagement, and adjustment. Frame dependent biases: The way the decision process of financial practitioners frame their options is also affected. Themes include narrow framing, psychological accounting and the effects of diseases like nature effects. (Jain & Kesari, 2020).

In spite of the fact that some studies have found no difference in overconfidence between men and women, the majority of the literature suggests that men are apparently more predisposed to overconfidence than women Barber & O'Dean (2000) have found that males trade 45% more actively than females, and earn lower returns, while Shu et al. has shown that, even though men trade more excessively than women, their performance is not dramatically lower than that of women. Research has shown that overconfidence leads not only to increased trading activity but also to increased probabilities of taking wrong decisions (e.g., buying the wrong stocks). For example, Barber & O'Dean's (2000) study supports that an overconfident trader makes biased judgements that may lead to lower returns. Similarly, Phillip & O'Creevy (2003) have documented that overconfidence has a negative impact on trading performance. On the other hand, Barber & O'Dean's (2000) study supports that overconfident investor earn higher returns than less confident investors.

A concept that also explains behavioural dispositions is social influence. Social attitude has played an important role in these attempts to predict and explain human behaviour wherein social influence has an impact on investors' trading behaviour. This claim is also supported by Nofsinger's (2005) findings. Individual investors discuss with, and are affected by (to an extent), their family members, neighbours, colleagues and friends, as far as their investment decisions are concerned. In addition, investors in financial markets imitate each other. This phenomenon is referred to as herding. Evidence of herding behaviour among stock-market participants is "Wall Street", which shares aspects of a crowd. When a large number of investors make similar decisions, it is a possible cause of market booms and bursts. This is the reason why the popular press often holds investors' tendency to herd as responsible. Many researchers have investigated the participation of households in the stock market and they have concluded that social households are 4% more likely to invest in the stock market than nonsocial households. Along the same line, Marzo (2003) suggests that individuals form their opinions by interacting with others and an obvious example is that investors' decisions are usually affected by the recommendations made by friends and/or analysts. Whereas some studies confirm the existence of herding in financial markets, others do not.

3. RESEARCH GAP:
This study has focused on a new set of rational investors in the city of Mysore as the recognition for investment products and opportunities which are growing rapidly, and since Mysore being a developing city in India. Financial Biases such as representativeness, Loss aversion, Self-control, Regret aversion, over confidence, mental accounting, Investor intentions are considered as factors to analyse investor behaviour and risk tolerance.

4. PROBLEM STATEMENT :
Purpose of this study is to understand the investor behaviour and their intentions before investing which gives us a picture of the level of their risk tolerance. We try to understand how investor behaviour impacts investor decisions. Statistical tool is used for data analysis by understanding the factors affecting investor decisions and level of risk tolerance. Investors select conventional methods of investments over newer methods. Structured Questionnaires were provided to obtain demographic information, income level of the investors. Total sample composed of 101 respondents

were collected through internet by using Google forms survey from people with financial background and students JSS Science & Technological University.

5. OBJECTIVES :
- To understand the financial determinants of the investment decision of the investors
- To know the investment intentions of investors
- To identify the factors affecting investment decision
- To know the risk tolerance level of investors
- To model the relationship between risk tolerance and factors of investment decision.

6. SAMPLING DESIGN :
The sample was composed of 101 (n = 101) respondents. Sample unit are working finance analysts and post graduate students. The sample reflected those potential candidates who were employees of audit firms and finance students. Statistically, it is desired to have the standard error not more than 05 % and 96 % of confidence level which is considered to determine the sample size.

7. DATA COLLECTION :
To investigate the research objective in this study, data is collected through survey and hence, primary data is used in this study. Primary data is the fundamental source data and it is directly related to the project at hand. The individuals who collect the data for primary data analysis also analyse it. It is also mentioned that primary data analysis permits the researcher to design an experiment that is best fit to the specific research hypothesis. This type of data could be collected from different methods such as questionnaire, interview, survey and experiment. Likert scale is a type of rating scale used to measure individual response. With this scale respondents are asked to rate items on level of agreement. This scale is used in this study is 5- point Likert Scale, the following denotes the words used in the measurements. In this study independent, dependent factors are set to describe financial bias. Each variable with respective items are measured using 5-point Likert scale from 1 to 5 in which 1 being Strongly Disagree and 5 being Strongly Agree.

Hypothesis
Following Hypothesis will be tested
Financial determinants
H1: - There is a significant relationship between financial determinants and risk tolerance Investor Intentions
H2: - There is a significant relationship between Investor Intentions and risk tolerance Representativeness
H3: - There is a significant relationship between Representativeness and risk tolerance Overconfidence
H4: - There is a significant relationship between Overconfidence and risk tolerance Availability Bias
H5: - There is a significant relationship between Availability Bias and risk tolerance Loss Aversion
H6: - There is a significant relationship between Loss Aversion and risk tolerance Regret Aversion
H7: - There is a significant relationship between Regret Aversion and risk tolerance Mental Accounting
H8: - There is a significant relationship between Mental Accounting and risk tolerance Self-Control
H9: - There is a significant relationship between Self-Control and risk tolerance.

8. SCOPE OF THE STUDY :
This study focuses on the factors which influence investors risk tolerance and investor behaviour. It determines the factors which make the investors to invest, which in turn helps the investment companies and investor advisors to examine and make necessary changes in the present-day investment scenario. It also addresses the low impact factors to re-examine and provide the right type of investment options to the investors.

9. LIMITATIONS :
- Cross sectional survey method is opted for carrying out this research, in other words data collected at one given point of time across the sample population. Whereas in longitudinal survey method respondents are monitored continuously by considering all the risk factors. With the practice of adopting longitudinal survey researchers learn more about cause-and-effect relation. Therefore, this study can be conducted using longitudinal survey for proper clarity.
- The result of this research is represented through limited sample of data. The factors used in this research namely financial determinants and investor intentions may not cover all possible determinants that have a critical influence on

investor risk tolerance. The other limitation is due to limited time period, the data collected and the sample size is restricted which can affect the accuracy of the research.

Descriptive statistics for independent variable

Factors	Items	N	Mean	Std. Deviation	Variance	Skewness	Kurtosis
Financial Determinants	I review past performances of my invested wealth	101	3.732	0.733	0.538	-0.464	0.221
	I consider the Advice received from professionals / Intermediaries	101	4.089	0.664	0.442	-0.517	0.832
	I compare the performances Based on company wise analysis	101	3.643	0.878	0.772	-0.947	1.185
Investor Intentions	I intend to invest for my retirement planning	101	4.099	0.877	0.770	-1.011	1.491
	I intend to have a portfolio that focuses on multiple asset classes	101	3.980	0.812	0.660	-0.763	1.073
Over Confidence	I am sure that I can make the correct investment decision.	101	3.594	0.838	0.704	-0.667	0.771
	I believe I can master the future trend for my investment	101	3.227	0.785	0.618	-0.176	-0.221
Loss Aversion	After a prior gain, I am more risk seeking than usual.	101	3.306	0.857	0.735	-0.155	-0.411
	After a prior loss, I become more risk averse	101	3.287	0.952	0.907	-0.183	-0.622
	I sell my shares to avoid further losses	101	3.356	0.843	0.712	-0.759	-0.161
Representativeness	I continue investing only if markets are performing well	101	3.346	1.033	1.069	-0.797	-0.153
	My investments are based on the reputations of the firm in the stock market	101	3.732	0.811	0.658	-0.847	0.954
Self-Control	I invest in all mediums to gain more profit	101	3.633	0.845	0.714	-0.532	0.225
	I do not prefer saving for retirement, rather I would save for the near future	101	3.148	1.089	1.188	-0.538	-0.459
	I invest once in a while and not regularly	101	2.940	1.206	1.456	0.186	-1.017
Regret Aversion	I regret when I miss out on the opportunity to earn profit	101	3.485	0.955	0.912	-0.273	-0.619
	I fear I might invest in the wrong fund a regret later	101	3.277	0.928	0.862	-0.355	-0.343
	I tend to invest in funds which are peaking and panic sell to when it's falling to avoid loss and regret.	101	3.188	1.016	1.034	-0.388	-0.282

Factor analysis for independent variable

KMO test measures sampling adequacy for independent variable and it is calculated as .647 as in the above table. It depicts that good validity for conducting factor analysis. Bartlett's test of sphericity is used to measure the inter significance of sampling. Table also infers the significance value is 0. So, there is a significant relationship among the components and it is better framework and fit for conducting factor analysis. For the sampling size to be adequate the KMO value should be greater than .5. Here KMO value is .647 hence the sampling adequacy for items of independent variable is meritoriously acceptable.

Reliability Statistics for Independent variable

Reliability refers to the degree to which a test is consistent and stable in measuring what it is intended to measure. Most simply put, this test is reliable if it is consistent within itself and across time. Cronbach's alpha is a measure of internal consistency that is how closely related a set of items are as a group. It is considered to be a measure of scale reliability. A test that is not perfectly reliable cannot be perfectly valid. The result got in factor analysis is further used in reliability. To compute the reliability of each group (Component) of factors, the table below shows the alpha value that should be minimum of .5 and greater than indicates the items of the respective factors are highly reliable.

Hypothesis Results

Factor 1: Regret Aversion H1: - There is a significant relationship between Regret Aversion and risk tolerance Since significance value of Regret Aversion is lesser than alpha value, Sig (P-value) < = alpha that is $0.010 < 0.05$ it indicates that there is significant relationship between Regret Aversion and Risk Tolerance, therefore Hypothesis H1 is accepted.
Factor 2: Financial Determinants H1: - There is a significant relationship between Financial Determinants and risk tolerance Since significance value of Financial Determinants is lesser than alpha value, Sig (P-value) < = alpha that is $0.032 <= 0.05$ it indicates that there is significant relationship between Financial Determinants and Risk Tolerance, therefore Hypothesis H1 is accepted.
Factor 3: Representativeness H1: - There is a significant relationship between Representativeness and risk tolerance Since significance value of Representativeness is lesser than alpha value, Sig (P-value) < = alpha that is $0.00 < 0.05$ it indicates that there is no significant relationship between Financial Determinants and Risk Tolerance, therefore Hypothesis H1 (Alternative Hypothesis) is accepted.
Factor 4: Investor Intensions H1: - There is a significant relationship between Investor Intensions and risk tolerance Since significance value of Investor Intensions is lesser than alpha value, Sig (P-value) < = alpha that is $0.041 <= 0.05$ it indicates that there is significant relationship between Investor Intensions and Risk Tolerance, therefore Hypothesis H1 is accepted.
Factor 5: Loss Aversion H1: - There is a significant relationship between Loss Aversion and risk tolerance Since significance value of Regret Aversion is lesser than alpha value, Sig (P-value) < = alpha that is $0.044 < 0.05$ it indicates that there is no significant relationship between Loss Aversion and Risk Tolerance, therefore Hypothesis H1 is accepted.

10. Findings :

Investment is the safest way to multiply one's wealth. This study has focuses on helping the investment advisors and investment houses to understand the pulse of the investors. What they are seeking, what are their intentions and how much are they willing to take risk in order to make a profit. This study also helps the advisor to suggest the right investment plan based on the goals of the investor and their earning level. From the data analysis it is inferred that the factors which help in investor's decision are key influencers. The other factors such as representativeness, loss aversion, regret aversion, financial determinants, Investor intentions has a positive effect while investor intentions have a negative effect which shows that there is a fluctuation in the intentions behind the investment and the investor has a high-risk tolerance level.

11. Conclusion :

From this study we can conclude that the investors who were subject to this research were studied based on demographic characteristics such as place, age and educational qualification and financial earning. The factors such as representativeness, loss aversion, regret aversion has a strong impact on investor decisions. It can be learnt that these decisions are these decisions make the investor to take risks in spite being aware of the consequences of their decisions. The intentions of the investors in this study are negatively correlated which shows that's that their intent behind the investment is not constant and they tend to fluctuate. To find out the risk tolerance level of the investors a questionnaire method was used and it showed that modern day people have a high-risk tolerance level.

REFERENCES:

1. Barber, & O'Dean. (2000). The Internet and the Investor. The journal of economic perspective.
2. David Allison. (2021, April). Matching investing risk tolerance to personality. Retrieved from Investopedia: https://www.investopedia.com/articles/professionaleducation/09/risk-tolerancepersonality-typing.asp.
3. Jain , N., & Kesari, D. (2020). Impact of behavioral biases on financial risk tolerance. The journal of behavioural finance.
4. Lindeque, A. V., & Schenk, S. F. (2021). Individual Investor Risk Tolerance from a Behavioural Finance perspective. International Journal of Economics and Financial.
5. Forgue, G. &. (2001). Prsonal finance- Australia.
6. Kaplan finance . (2021, July 23). Behavioral finance . Retrieved from Kaplan financial education: https://www.kaplanfinancial.com/resources/careeradvancement/behavioralfinance#:~:text=Behavioral%20finance%20is%20the%20study,personal%20biases%2 0instead%20of%20facts.
7. Sami, A., & Rizvi, T. (2013). Emotional Intelligence and personality traits as predictors of life satisfaction. Projournal of humanities and social science.