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Application of behavioral finance in investment decisions

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Introduction

All of us are living in an imperfect world and with the growing imperfections in the financial markets the field of behavioural Finance is gaining importance. Due to uncertainty in the market regarding investment decisions people became confused and emotions tend to influence their investment decisions. This sometimes results in irrational financial decisions by the investors and which further contributes to the imperfection of the market. Behavioral finance provides explanations to the question why people make irrational financial decisions. It demonstrates how emotions and cognitive errors influence investors and the decision-making process.

1.0 BEHAVIOURAL FINANCE

As a separate field of study it can be stated that 'Behavioral Finance' is the offspring of psychology and economics. It is the study of the influence of psychology on the behaviour of financial practitioners and the subsequent effect on markets (Sherfin, 1999). Itis a fairly new field that pursues to combine behavioral and cognitive psychological theory with conventional economics and finance to provide explanations for the irrational financial decisions of investors. It challenges the theory of market efficiency by providing insights into why and how market can be inefficient due to irrationality in human behaviour (Sewell, 2007). It studies how investors' emotions and psychology affect their investment decisions. It makes an attempt to find out how people in general and investors in particular make common errors in their financial decisions due to their emotions.

1.1 EVOLUTION OF BEHAVIOURAL FINANCE

The evolution of the behavioural finance as a separate field of study can be attributed to the growing gap between expected and actual returns from the market because of irrational decisions on the part of investors. To recognize such fallacies with the intention to avoid them in future and to transform the quality of decision-making process, slowly a need was felt regarding the impact of psychology in investment decisions. All these developments led to the growth of behavioural finance as a separate field of study. The conventional financial theory states that most of the participants in the financial market are wealth maximizers. Nevertheless, there are many occasions where emotion and psychology influence their decisions, instigating them to behave in impulsive or irrational ways. Behavioral finance combines behavioral and cognitive psychological theory with conventional economics and finance to provide reasons for why people make irrational financial decisions and what implications such decisions have on market and make the market inefficient. It is the study of influence of psychology on the behavior of financial practitioners and its impact on the financial markets. Behavioral finance helps in finding answers to the questions of inefficiency of financial markets, (Sewell, 2001). At the initial stage perpetrators of traditional finance were not willing to accept the view put forth by psychologists. It was only when the evidence of the influence of psychology and emotions on decisions became more convincing, behavioural finance received some acceptance. The award of 2002 Nobel Prize in Economics to psychologist Daniel Kahneman and economist Vernon Smith is the vindication of the field of behavioural finance. It was in 1970s when the researchers began to explore the field of behavioural finance to understand the psychological process resulting in such mistakes. In that decade numbers of books were published on investors' psychology. The turning point in its development came when in 1979 Amos Tversky and Daniel Kahneman published their work in 'Econometrica'. In their research they criticized the "Expected Utility Theory" model and developed their own model known as "Prospect Theory" which showed how the people manage risk and uncertainty. After reading "Prospect Theory", Thaler linked the psychological approach to what he believed were the shortcomings of economic theory—especially regarding the explanation of irrational behaviour given present economic model. Tversky, Daniel Kahneman and Thaler started to cooperate, resulting in merging of psychology and economic and financial theory (M. Sewell, 2007).Among other prominent researchers who contributed to the advancement of behavioural finance and explain many stock market anomalies and crashes were Shefrin and Statman(1994), Shiller (1995), Shliefer (2000).

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2.0 REVIEW OF LITERATURE

A large number of studies have been executed to explore the impact of psychological factors on the investment decisions of investors. These studies have empirically identified the influential factors in investment decisions by surveying the behaviour of investors.

Tversky and Kahneman (1973) in their study described three important heuristics namely; representativeness, availability and anchoring which are employed in making judgments under uncertainty. 'A*vailability'* is a judgmental heuristic in which a person evaluates the frequency of classes or the probability of events by availability', i.e. by the ease with which relevant instances come to mind. The reliance on the availability heuristic leads to systematic biases. '*Representativeness'* refers to the tendency to form judgments based on stereotypes. While representativeness may be a good rule of thumb it may lead people astray. E.g. detecting patterns in random data, being overly optimistic about past winners and overly pessimistic about past losers, healthy growth in earnings in the past will be sustained in futures as well whereas in reality it could be by chance as well. *'Anchoring'* means after forming an opinion, people are unwilling to change it, even if relevant new information is available. **Kahneman and Tversky (1979)** in their study described how people frame and value a decision involving uncertainty which is popularly called prospect theory. In this theory they found empirically that people look at choices in terms of potential gains or losses in relation to a specific reference point which in most of the cases is the purchase price. According to this theory, people feel more strongly about the pain from loss than the pleasure from an actual gain. **Thaler (1980)** argues that there are circumstances when consumers act in a manner that is inconsistent with economic theory and he proposes that Kahneman and Tversky's prospect theory be used as the basis for an alternative descriptive theory. In yet another study **Tversky and Kahneman (1981)** introduced framing. They showed that the psychological principles that govern the perception of decision problems and the evaluation of probabilities and outcomes produce predictable shifts of preference when the same problem is framed in different ways. **Shiller (1981)** discovered that stock price volatility is far too high to be attributed to new information about future real dividends. **Fernandez and Rodrik (1991)** model an economy and show how uncertainty regarding the identities of gainers and losers can lead to status quo bias. **Grinblatt, Titman and Wermers (1995)** analysed the behaviour of mutual funds and found evidence of momentum strategies and herding. **Basu (1997)** finds evidence for the conservatism principle, which he interprets as earnings reacting `bad news' more quickly than `good news'. **Camerer and Lovallo (1999)** found experimentally that overconfidence and optimism lead to excessive business entry. **Wermers (1999)** studied herding by mutual fund managers and he found the highest levels in trades of small stocks and in trading by growth-oriented funds. **Meir Statman (1999)** in his study focused on Market efficiency as it is at the center of the battle of standard finance, behavioral finance, and the value of investment professionals. As per him "market efficiency" has two meanings. One meaning is that investors cannot systematically beat the market and the other is that security prices are rational. Rational prices are always based on the practical characteristics, such as risk and ignore value-expressive characteristics, such as sentiment. Behavioral finance has shown, however, that value-expressive characteristics are importantnot only in investor choices but also in asset prices. **Huberman (2001)** provide compelling evidence that people have a propensity to invest in the familiar, while often ignoring the principles of portfolio theory. **Harrison and Rutstrom (2009)** in their study proposed a reconciliation of expected utility theory and prospect theory by using a mixture model. **The Wall Street Journal (2009)** found that where behavioral finance comes in. Most investors are intelligent people, neither irrational nor insane. But behavioral finance tells us we are also normal, with brains that are often full and emotions that are often overflowing and that means we are normal smart at times, and normal stupid at others. **Sahni (2011)**in his study analysed the behaviour of Indian investors and came out with the findings that Indian investors are risk aversive in nature and theory of behavioural finance is equally applicable in India.

3.0 OBJECTIVES OF THE STUDY

The present study has been carried out with the objective of studying the relevancy of the theories of behavioural finance in Indian context and risk aversive nature of investors.

3.1 HYPOTHESES OF THE STUDY

The study tested the following two hypotheses:

H1: "Investors behavior remains unchanged in the situations of rise and fall in the price of a share" for checking the loss averseness of Indian Investors.

H2: "Investors' perceptions towards broader stock market do not change even if there is a rise or fall in the stock market for three consecutive days."This hypothesis was developed for assessing the validity of Anchoring on Indian Investors.

3.2 RESEARCH METHODOLOGY

The research design for the present study is descriptive in nature. To assess the applicability of behavioral finance a survey of investors has been conducted in the National Capital Region of the country. The relevant information has been obtained from the investors with the help of a structured questionnaire. The sample size for the survey has been restricted to 150 and convenient random sampling has been used for the purpose. For testing the validity of the hypothesis non parametric chi-square test has been used.

4.0 RESULTS AND DISCUSSION

4.1 LOSS AVERSENESS OF INDIAN INVESTORS

Loss aversion means that investors are more sensitive towards the losses in comparison to gains. In other words it means investors are generally interested in reducing the amount of loss rather than expecting to increase their future profit. It can be explained by the propensity of the investors to hold on to a loss making stock while selling winning stocks at an early stage. There is a great degree of asymmetry between the values that people put on gains and losses. Out of 150 respondents 91 have stated that they would like to hold the stock in case of loss whereas 59 respondents have stated their willingness to sell the stock when it is losing. In the case of a gaining stock 103 respondents opted for selling the stocks when it was rising in the market whereas 47 respondents have showed their inclination to hold the stock. (Table 1)

The validity of role aversive nature is checked with the help of Chi-Square Test. The hypothesis being tested is that "Investors behaviour remains unchanged in the situations of rise and fall in the price of a share."

Table 1
Observed Frequency

	Sell Stock Now	**Hold Stock for a Month**	**Total**
Losing Stock	59	91	**150**
Gaining Stock	103	47	**150**
	162	**138**	**300**

Source: Primary Survey (2020-21)

Table 2
Expected Frequency

	Sell Stock Now	**Hold Stock for a Month**	**Total**
Losing Stock	81	69	**150**
Gaining Stock	81	69	**150**
	162	**138**	**300**

Source: Author's Calculations (2020-21)

Table 3
Computation of Chi Square

Observed Value (O)	**Expected Value (E)**	**(O-E)**	**$(O-E)^2$**	**$(O-E)^2/E$**
59	81	-22	**484**	**5.975**
91	69	22	**484**	**7.014**
103	81	22	**484**	**5.975**
47	69	-22	**484**	**7.014**
			Chi Square Value	**25.978***

Source: Author's Calculations * significant at 5% level

The degree of freedom in this case will be given by {(r-1)*(c-1)}, where r stands for number of rows and c stands for number of columns. Thus degree of freedom will be equal to {(2-1)*(2-1)} = 1. 5% significant level has been chosen for the purpose of testing the hypothesis. At this level the tabular value of $x2$ (Chi-Square) is 3.84. Since, the computed value of $x2$ (Chi-Square) (25.978) is greater than the tabular value, the first hypothesis (H1) is rejected. Therefore the inference may be drawn that there is a

difference in investors' behavior when a stock is losing in the market and when it is gaining in the market. The risk aversion in gains leads an investor to sell too quickly into rising stock prices, thereby depressing prices relative to fundamentals. Conversely, risk seeking in losses causes them to hold on too long when prices decline, thereby causing the prices of stocks with negative momentum to overstate fundamental values.

4.2 RELEVANCE OF ANCHORING IN RESPECT TO INDIAN INVESTORS

Anchoring means individuals give more importance to the recent behaviour and give less importance to the long time trend. The anchor is the most recently remembered price. The tendency of the investors to use this anchor results in similarity of stock prices from one day to another. The tendency of past prices to serve as anchors may explain the observed tendency for trends in individual stocks prices to be reversed.

Out of 150 respondents 62 respondents have stated that market can't be predicted on the basis of past prices alone. Therefore their responses have not been considered for testing the second hypothesis. Out of remaining (88) respondents 34 investors believed that there would be a similar trend in case of an uptrend in the market for three consecutive days while 54 believed that it will reverse. Whereas, in the case of a downtrend in the market, 30 respondents believed that downtrend will continue in the market and 58 expected that it would get reversed.

The validity of Anchoring is checked by the Chi-Square Test. The hypothesis being tested is that"Investors' perceptions towards broader stock market do not change even if there is a rise or fall in the stock market for three consecutive days."

Table 4

Observed Frequency

Market Trend	**Increase**	**Decrease**	**Total**
Increase for three days	34	54	**88**
Decrease for three days	58	30	**88**
	92	**84**	**176**

Source: Primary Survey (2020-21)

Table 5

Observed Frequency

Market Trend	**Increase**	**Decrease**	**Total**
Increase for three days	46	42	**88**
Decrease for three days	46	42	**88**
	92	**84**	**176**

Source: Author's Calculations

Table 6

Computation of Chi Square

Observed Value (O)	**Expected Value (E)**	**(O-E)**	**$(O-E)^2$**	**$(O-E)^2/E$**
34	46	-12	144	3.130
54	42	12	144	3.429
58	46	12	144	3.130
30	42	-12	144	3.429
			Chi Square Value	**13.118***

Source: Author's Calculations * significant at 5% level

The degree of freedom is {(r-1)*(c-1)}, where r equals to row involved, and c is the no. of columns, so degree of freedom is {(2-1)*(2-1)} or 1. The level of significance chosen is 0.05. On this basis tabular x2 (Chi-Square) is 3.84. Since, the computed x2 (Chi-Square) value is 13.118, the hypothesis is rejected.

Thus, there is a difference in investors' perception when the index of a stock market has consequently increased or decreased for three days in a row, which shows that the anchoring theory is relevant in Indian context.

5.0 Concluding Remark

The study concludes that most of the investors are risk aversive in nature. They prefer stable returns even if these are moderate. Investors have the tendency to sell the stock whose price is rising at an early stage

of growth. In contrast to this they like to hold a stock when it is losing in the anticipation that it will rise in the future. It shows that in case of losses investors are ready to take risk. The study also confirms that anchoring theory is relevant in context of our country as well.

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