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BEHAVIORAL FINANCE: TESTING APPLICABILITY ON INDIAN INVESTORS

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Abstract

Behavioral finance is a new approach to financial markets that has emerged in response to the difficulties faced by the traditional investors. In broad terms, it argues that some financial phenomena can be better understood using models in which some agents are *not* fully rational. More specifically, it analyzes what happens when we relax one, or both, of the two concepts that underlie individual rationality. In some behavioral finance models, agents fail to update their beliefs correctly. In other models, agents make choices that are normatively questionable. It gives a glimpse to behavioral finance, describes the background, aim and objectives of the paper. It begins with a description of standard as well as behavioral finance, which often contradicts the modern financial theories.

Keywords: *Financial Theory, Indian Investors, Stock Analysis, Anchoring theory, Loss aversion*

1.0 INTRODUCTION TO BEHAVIORAL FINANCE

The principles on which the behavioral finance is based are derived from the economic theory. Adam Smith, who is considered the father of the modern economics states that there is insight to the human psychology which is further developed today into behavioral finance.

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Behavioral finance and behavioral economics are closely related fields which apply scientific research on human behavior and social cognitive and emotional biases to better understand economic decisions and how they affect market prices and returns, and the allocation of resources. The fields are primarily concerned with the rationality or lack of economic agents. Behavioral models typically integrate insights from psychology with neo-classical economic theory. There is now a days an increasing debate in theoretical finance between the efficient market hypothesis and the growing field of the behavioral finance. The efficient market hypothesis has been, since its development, the most important theory on understanding the behavior of the various asset markets, but at the end of the 1970s and the start of the 1980s a growing number of studies showed anomalies comparing with this theory. From the 1990s a lot of the focus of the academic discussion shifted away from the analysis of these anomalies comparing the efficient market hypothesis towards a in-depth study of human psychology as related to financial markets leading to the growth of the behavioral finance, a new branch of finance that applies principles of psychology, sociology and other social sciences to the finance.

2.0 LITERARTURE REVIEW

Jay R. Ritter (2003) provides a brief introduction to behavioral finance. According to the author, Behavioral finance encompasses research that drops the traditional assumptions of expected utility maximization with rational investors in efficient markets. The two building blocks of behavioral finance, mentioned in the article, are cognitive psychology (i.e., how people think) and the limits to arbitrage (i.e., when markets will be inefficient).

Meir Statman (1999) focuses on Market efficiency as it is at the center of the battle of standard finance, behavioral finance, and the value of investment professionals. But the author argues that the term "market efficiency" has two meanings. One meaning is that investors cannot systematically beat the market. The other is that security prices are rational. Rational prices reflect only practical characteristics, such as risk, not value-expressive characteristics, such as sentiment. Behavioral finance has shown, however, that value-expressive characteristics matter in both investor choices and asset prices.

Richard Fairchild introduces the concept of behavioral finance and capital budgeting models, and explains the relation between the two. It focuses on the effects of managerial irrationality in

capital budgeting. The author has developed a model, and an experiment, that tests three specific behavioral factors:

a. Reciprocal trust between an investor and a manager,
b. Framing behavior resulting in irrational commitment to a project that should be abandoned, and
c. Framing behavior combined with managerial overconfidence resulting in excessive effort levels.

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.

Albert Phung, Investopedia says According to conventional financial theory, the world and its participants are, for the most part, rational "wealth maximizers". However, there are many instances where emotion and psychology influence our decisions, causing us to behave in unpredictable or irrational ways.

Behavioral finance is a relatively new field that seeks to combine behavioral and cognitive psychological theory with conventional economics and finance to provide explanations for why people make irrational financial decisions.

3.0 OBJECTIVES OF THE STUDY

☆ To test the applicability of Behavioral Finance theories on Indian Investors.

Sub-objectives

☆ To study the concept of behavioral finance and various theories associated with it.
☆ To prove the loss averse nature of investors.

4.0 RESEARCH METHODOLOGY

RESEARCH DESIGN

To check the applicability of Behavioral finance, it is essential to conduct a sample survey among the investors. This is to know the investing behavior of the investors. Some brokers and financial institutions are also included with the general investors. A questionnaire has been designed to get information.

RESEARCH TYPE

- Descriptive Research - in the form of collection of secondary data.

Hypothesis

For checking the loss averseness of Indian Investors, the hypothesis to be tested is:

"The hypothesis being tested is that there is no difference in investors' behavior when a stock is losing in the market and when it is gaining in the market."

For checking the validity of Anchoring on Indian Investors, the hypothesis to be tested is:

"The hypothesis being tested is that there is no difference in investors' perception when the index of a stock market has consequently increased or decreased for three days in a row."

SAMPLE DESIGN AND SIZE

The population from which sample is drawn comes from India. The sample size for the consumer survey is 135 and they are drawn randomly.

HYPOTHESIS TESTING

Hypothesis is tested by using Chi-square Analysis, which involves following steps:

1) Calculate the expected frequency of all the given cells, which is worked out as:

$$\textit{Expected Frequency of any cell} = \frac{\textit{(Row total of the cell) X (Column total of the cell)}}{\textit{(Grand Total)}}$$

2) Obtain the difference between observed and expected frequency and find out the difference between such differences i.e., calculate $(O_{ij} - E_{ij})^2$.

3) Divide the quantity $(O_{ij} - E_{ij})^2$ by the corresponding expected frequency to get $(O_{ij} - E_{ij})^2 / E_{ij}$ for all the cell frequencies.

4) Find the summation of $(O_{ij} - E_{ij})^2 / E_{ij}$ values. This is the required Chi-Square value (x^2).

$$x^2 = \sum \frac{(O_{ij} - E_{ij})^2}{E_{ij}}$$

5) The computed value is then compared to a tabular chi-square value.

If the compared chi-square value is great then the tabular chi-square value at predetermined level of significance, the hypothesis is rejected, otherwise the hypothesis is accepted.

5.0 Results and Discussion

Loss Averseness of Indian Investors

Loss aversion is greater sensitivity to losses than to gains. It can be explained by the tendency of investors to hold on to loss making stocks while selling winning stocks too early. There is a sharp asymmetry between the values that people put on gains and losses.

This has been collected from the questionnaire that 86 investors chose to hold the stock in case of loss that means 49 will sell it, while 90 opted for selling the stocks when it was winning in the market that means 45 will hold it. This has been further shown with the help of Chi-Square Analysis.

The hypothesis being tested is that there is no difference in investors' behavior when a stock is losing in the market and when it is gaining in the market.

TABLE 5.1

OBSERVED FREQUENCY (O_{ij})

	Sell Stock Now	***Hold Stock for a month***	*Total*
Loosing Stock	49	86	**135**
Gaining Stock	90	45	**135**
Total	**139**	**131**	**270**

The expected frequency of all the given cells is worked out as:

$$\textit{Expected Frequency of a cell} = \frac{\textit{(Row total of the cell) X (Column total of the cell)}}{\textit{(Grand Total)}}$$

TABLE 5.2

EXPECTED FREQUENCY (E_{ij})

	Sell Stock Now	***Hold Stock for a month***	*Total*
Loosing Stock	69.5	65.5	**135**
Gaining Stock	69.5	65.5	**135**
Total	**139**	**131**	**270**

TABLE 5.3

CALCULATION OF CHI-SQUARE

Cell (i,j)	O_{ij}	E_{ij}	$(O_{ij} - E_{ij})$	$(O_{ij} - E_{ij})^2$	$(O_{ij} - E_{ij})^2 / E_{ij}$
(1,1)	49	69.5	- 20.5	420.25	6.047
(1,2)	86	65.5	20.5	420.25	6.416
(2,1)	90	69.5	20.5	420.25	6.047
(2,2)	45	65.5	- 20.5	420.25	6.416

$$\text{Chi-Square value } (\chi^2) = \sum \frac{(O_{ij} - E_{ij})^2}{E_{ij}} = 24.926$$

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 x^2 (Chi-Square) is 3.84.

Since, the computed x^2 (Chi-Square) value is 24.926, the hypothesis is rejected.

Thus, 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 causes investors 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.

Relevance of Anchoring in respect to Indian Investors

Anchoring describes how individuals tend to focus on recent behavior and give less weight to longer time trends. The anchor is the most recently remembered price. The tendency of investors to use this anchor enforces the similarity of stock prices from one day to the next. The tendency

of past prices to serve as anchors may explain the observed tendency for trends in individual stocks prices to be reversed.

This has been collected from the questionnaire that 51 respondents are rational which say that the market cannot be predicted, in case of uptrend in the market for three days, 37 investors believed that there would be a similar trend while 47 believed that it will reverse. Whereas, in the case of downtrend, 51 respondents are rational which say that the market cannot be predicted 27 respondents believed in similar trend, and 57 believed in reverse trend.

The validity of Anchoring is checked by the Chi-Square Test.

The hypothesis being tested is that there is no difference in investors' perception when the index of a stock market has consequently increased or decreased for three days in a row.

TABLE 5.4

OBSERVED FREQUENCY (O_{ij})

Market Trend	***Increase****	***Decrease****	*Total*
Increase for three days	37	47	**84**
Decrease for three days	57	27	**84**
Total	**94**	**74**	**168**

* Indicates the market trend on the fourth consecutive day.

The expected frequency of all the given cells is worked out as:

$$\textit{Expected Frequency of a cell} = \frac{\textit{(Row total of the cell) X (Column total of the cell)}}{\text{(Grand Total)}}$$

TABLE 5.5

EXPECTED FREQUENCY (E_{ij})

	Sell Stock Now	***Hold Stock for a month***	*Total*
Loosing Stock	47	37	**84**
Gaining Stock	47	37	**84**
Total	**94**	**74**	**168**

TABLE 5.6

CALCULATION OF CHI-SQUARE

Cell (i,j)	O_{ij}	E_{ij}	$(O_{ij} - E_{ij})$	$(O_{ij} - E_{ij})^2$	$(O_{ij} - E_{ij})^2 / E_{ij}$
(1,1)	37	47	- 10	100	2.128
(1,2)	47	37	10	100	2.703
(2,1)	57	47	10	100	2.128
(2,2)	27	37	- 10	100	2.703

$$\text{Chi-Square value } (\chi^2) = \sum \frac{(O_{ij} - E_{ij})^2}{E_{ij}} = 9.662$$

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 x^2 (Chi-Square) is 3.84.

Since, the computed x^2 (Chi-Square) value is 9.662, 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 case of Indian Investors.

6.0 CONCLUSIONS AND SUGGESTIONS

Following conclusions may be drawn on the basis of study findings:

1) Majority of investors prefer stable returns, irrespective of the fact that they may be lower.
2) Information from companies as a basis for Fundamental Analysis has greatest importance for majority of respondents, while investing. Historical Performance and Professional's forecasts are also considered well before making investments.
3) The investors would prefer to gamble and hold on to the loosing stock in the hope that the prices will increase. This shows investors are risk lovers when confronted with losses.
4) The investors chose to sell a winning stock early, which shows their risk aversion in gains.
5) A great part of respondents would sell a losing stock to invest in a gaining one, which is a rational decision.
6) Majority of the investors feel that market would either show a similar trend or reverse its direction if the sensex has been bullish or bearish for three days in a row.
7) The Indian Investors are found to be Loss Averse, i.e., there is difference in investors' behavior in case of losses and gains.
8) There is a investors' perception about market trend is influenced by the past performance of a stock market on three consecutive days, which shows that the anchoring theory is relevant in case of Indian Investors.

6.1 SUGGESTIONS

The following suggestions are made on the basis of finding of the study to avoid mistakes in financial investments decisions by applying behavioral finance:

1) Fundamental Analysis, alone can lead to wrong conclusions. The Psychological mood of the market should be studied before making investments.
2) Check the source of your information, before reacting to it. The announcements from the companies should be sufficiently adjusted in the portfolio as soon as possible
3) The losing stocks should be disposed off if there is negative news associated with it.
4) Anchoring to an expectation can be reasonable, but the quality of anchored figure can be insufficient and should be checked.

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