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Human Behaviour In The Stock Market – A Study

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ABSTRACT
Traditional models predict that individuals are rational beings capable of making their own decisions. However, after the emergence of the field of Behavioural Economics, economists found out that individuals are not at all rational. They get carried away by emotions and behave rather peculiarly. Human behaviour can be analyzed using two theories, the Heuristic Theory and the Prospect Theory. Each of these theories possesses certain biases which individuals need to consider when making choices. These biases may have positive and negative impacts on the individual's investments. We conducted a study with two stocks in the stock market and found out that if a stock behaves oppositely over two periods, consumers will benefit by behaving peculiarly. Next, we conduct another analysis of the two stocks to find out the inclusion of which stock in the portfolio will be beneficial to the investor. We further observe that if the stocks show a reverse trend over the two periods, then all the other indicators employed to conduct the test will convey the same message as the risks and the stock returns. It means that the investors will not have to delve into the study of the stocks and how their investment will be affected in such situations.

KEYWORDS: Behavioural Economics, Behavioural Finance, Human Behaviour, Stock Market, Stocks, Investment Decision.

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I. INTRODUCTION

Behavioural Economics combines economics and psychology to understand the behaviour of individuals in the real world, unlike classical and neoclassical economics, where we assume that the individual is capable of having well-defined preferences and making self-interested decisions based on those preferences. It seeks to find out why individuals make irrational decisions and why their behaviour does not follow the predictions of economic models. Before the emergence of Behavioural Economics, economists had confined themselves to the study of rational human behaviour.

The rational choice theory states that when individuals are presented with various options under scarcity, they choose the option that maximizes their utility. The theory assumes that individuals are rational and are capable of making choices that magnify their welfare. They possess self-control and are unmoved by emotions and other external factors. They know what is best for them and hence make choices that are beneficial to them. However, Behavioural Economics showed quite contrary results. It showed that individuals do not follow the predictions of perfect rationality.

Behavioural Finance, one of the applications of Behavioural Economics, can be studied both at the micro-level and the macro level. The former studies the market anomalies, while the latter studies the effects of human behaviour. The investors behave abnormally by selling the winning stocks very soon and holding onto the losing stocks to avoid exposing their losses. The Prospect Theory, one of the applications of Behavioural Economics, describes human decision making as an internal conflict. When individuals are threatened or are provided with attractive opportunities, they resort to innate tools for making decisions.

However, investments are also affected due to individual behaviour in the stock market. People generally prefer a stock with low risk and comparatively low returns to stocks with high returns accompanied by higher risks. The common people generally do not pay much attention to finding out the stock's health, and hence they do not investigate how the stock is performing by using other indicators. We try to investigate how the irrational behaviour of individuals in the stock market will affect their decisions in the long run and the inclusion of which stock in the investor's portfolio will be advantageous.

II. LITERATURE REVIEW

Homo economicus or economic man is a theoretical concept that incorporates the idea that a human being is rational in his decisions. He can take care of his interests and make decisions that ensure their well-being (Mill, 1848). John Stuart Mill was a well-known economist of the classical school. Most of the classical and neoclassical ideologies and concepts assumed that human beings are rational in their decision making.

Next, we delve into the study of Expected Utility Theory, which von Neumann – Morgenstern introduced in 1944. This theory shows that the expected utility of an individual's wealth is equal to the expected value of the wealth for a rational individual. If the individuals prefer wealth preservation to face the gamble, they are called risk-averse (Varian, 2006). Thus the individuals behave rationally and maximize their utility.

However, there are specific choice problems where the expected utility theory falls to explain the risk-averse behaviour of individuals. We use the Cognitive Behavioural theories of sociology, psychology, and anthropology to investigate individuals' irrational behaviour (N, 2015). Two significant cognitive behavioural theories are Heuristics and Prospect Theory (Kahneman & Tversky, 1979).

The two major theories, Heuristics and Prospect Theory involve several biases, and the individual needs to keep in mind these biases when making investment decisions. Heuristic includes the "representative bias", where the individuals base their decisions on past experiences (N, 2015). The "overconfidence bias" states that individuals tend to overestimate the stock performance. Overconfident individuals tend to trade more aggressively (Glaser & Weber, 2007). The "anchoring and availability bias" is where the individuals make decisions based on the most readily available (N, 2015).

The Prospect Theory (Kahneman & Tversky, 1979) investigated the actual behavioural of the individual, unlike the Expected Utility Theory, which deals with rational behaviour of the individual. Prospect Theory includes various biases such as "loss aversion", in which the individual becomes risk-averse when dealing with gains. On the other hand, becomes a risk seeker when coping with a loss (N, 2015), "regret aversion" in which the individual hold on to a worse performing asset to avoid the recognition of a prospective loss (N, 2015). "Mental Accounting", where the individuals segregate their funds based on its subjective criteria and do specific mental calculations, which as a result lead to various irrational decisions on the part of the individuals (Mahmood & Ahmad, 2020)

The present paper tries to apply the Heuristic and Prospect Theories of human behaviour in the stock market. The Heuristic and the Prospect theories (Chandra) have shown that several biases need to be considered when making investment decisions. We proceed to examine whether the irrationality on the part of individuals in making decisions in the stock market can positively or negatively impact their investment. We undertake a comparison between two stocks in the stock market to investigate whether it is advantageous to include those stocks in the portfolio.

III. METHODOLOGY

We study the applications of Heuristic and the Prospect Theories of human behaviour to study two companies' stocks over two periods. We also find out whether irrationality on the part of the investors will be beneficial to them or not. We compare the performance of the two companies' stocks to examine which stock is better from an investor's point of view.

The data is collected from the Bombay Stock Exchange (BSE), where the two companies' stock prices, Yes Bank Limited and Mindtree Limited, are available. Yes Bank has recorded a 94.9 per cent decline in its stock prices in the last five years (2016 – 2021), whereas Mindtree has recorded a 769.2 per cent increase in its stock prices over the previous five years.

The period of study considered for analysis is five years before the date on which price is recorded (1^{st} October 2011 – 1^{st} October 2016) and a five year period over which the performance is recorded (1^{st} October 2016 – 1^{st} October 2021).

Research Methodology:

We calculate the returns series from the stock price data using the following formula to conduct the analysis.

$R_i = (P_t – P_{t-1}) / P_{t-1}$

where R_i = Returns on a particular stock , i = Y, M.

P_t = Price of a particular stock in the t^{th} period.

P_{t-1} = price of a particular stock in the $(t-1)^{th}$ period.

We can calculate the standard deviation of the returns series to get the risks of investing in the two stocks. The returns enjoyed, and the risks undertaken by the investors are the two primary indicators that will help analyze human behaviour.

To add weight to our analysis, we determine the performance of the stocks of two companies Yes Bank Limited and Mindtree Limited, based on various other indicators. These indicators will help us determine which stock is better and should be added to the investor's portfolio. We introduced the term risk-free rate of return, which is the interest rate from an investment with zero risk. The risk-free rate of return is usually taken as 3 per

cent per annum. Since we have 252 trading days in a month (taking all the holidays into account), the daily risk-free rate of return, denoted as R_f, is assumed to be (3% / 252). We intend to use the indicators such as Beta (β), Sharpe measure, Treynor measure and the Leverage ratio (LR) for our study. Each of these indicators is discussed as follows.

Beta – Beta is a measure of the market risk. It is the sensitivity of the stock with respect to the market. Beta in Capital Asset Pricing Model (CAPM) is used to measure the association between the market risk and the expected return on stocks. For Beta to be meaningful, it should be correlated to the Benchmark Index. Here, the market index is considered the Benchmark Index because investors will base their decisions on it. The formula for beta calculation is given as

Beta coefficient (β) = Covariance (R_i, R_m) / Variance (R_i)

where R_i = returns on an individual stock, i = Y,M.

R_m = returns on the overall market.

Covariance = changes in the returns of a particular stock are related to the changes in the market's returns.

Variance = shows by how much the market returns have deviated from their mean value.

β >1 means that the stocks are more volatile than the market, i.e. if the market falls by 1 per cent, then the stock will fall by more than 1 per cent. These stocks are called aggressive stocks, and it is perilous to invest in these stocks. β <1 implies that the stocks are less volatile than the market, i.e. if the market falls by 1 per cent, then the stock will fall by less than 1 per cent. These stocks are called defensive stocks. If β = 1, then the asset is similar to the market, i.e. if the market falls by 1 per cent, then the stock will also fall by 1 per cent. If β = 0, then the market and the stock are not correlated.

Sharpe measure – Sharpe measure, which is used to measure the performance of an asset, was introduced by Professor William F Sharpe, a Noble Laureate and professor of Finance at Stanford University. It is a ratio that measures the own risk-adjusted return of a particular asset. Sharpe ratio is the ratio of the difference between the returns on a stock and the risk-free rate of return relative to the standard deviation of the stock. The formula for calculating the Sharpe measure is given as follows.

Sharpe Measure = (R_i –R_f) / SD (R_i)

where R_i = Return on a particular stock, i = Y,M.

R_f = Daily risk free rate of return.

SD (R_i) = the standard deviation of return on a particular stock.

From the formula of Sharpe measure, it is evident that the Sharpe measure is inversely related to the standard deviation of the stock [SD (R_i)] and directly related to the difference between the returns from that stock (R_i) and the daily risk-free rate of return (R_f). The standard deviation of a stock measures the riskiness of that stock. Therefore, the higher the stock's riskiness, the lower the Sharpe ratio and the lower the riskiness of that stock, the more significant is the Sharpe ratio. The risk-free return on an asset is a theoretical concept assumed to be constant (3 per cent) in our analysis. Therefore, the higher is the return on a stock, the higher is the Sharpe ratio and the lower is the return on a stock, the lower is the Sharpe ratio. An investor would always prefer a less risky stock and, at the same time, yields a higher return. Hence, a stock with a higher Sharpe ratio attracts investors.

Treynor Measure – The Treynor measure, introduced by Jack L Treynor, is an indicator used to measure the performance of an asset. It is the measure of the market risk-adjusted return of a particular stock. The Treynor measure can be stated as the ratio of the difference between the returns on a specific stock and the risk-free rate of return relative to the market risk. The formula calculation Treynor measure can be stated as

Treynor Measure = (R_i – R_f) / β

where R_i = Returns on a particular stock, i = Y, M

R_f = Daily risk-free rate of return.

β = the sensitivity of the stock with respect to the market.

The Treynor measure is the same as the Sharpe measure except that, in this case, we consider the market risk instead of the risk on a particular stock. From the formula of the Treynor measure, we find that the Treynor measure is inversely proportional to the market risk (β) and directly proportional to the difference between the returns on a particular stock (R_i) and the daily risk-free rate of return (R_f). The risk-free return on an asset is a theoretical concept assumed to be constant (3 per cent) in our analysis. Therefore, the lower the market risk, the higher is the Treynor measure and the higher the market risk, the lower is the Treynor measure. The higher the return on a particular stock, the higher is the Treynor measure, and the lower the returns on a particular stock, the lower is the Treynor measure. Since an investor prefers a less risky stock and gives high investment returns, a stock possessing a higher Treynor measure is preferred to that with a low Treynor measure.

Leverage Ratio (LR) – The Leverage ratio, introduced by Modigliani and Modigliani, is another indicator used to determine the health of a particular stock. The standard deviation of the overall market returns

is compared with the standard deviation of a specific stock's returns. The formula for Leverage Ratio is given as follows.

Leverage Ratio (LR) = SD (R_m) /SD (R_i)

where SD (R_m) = Standard deviation of the overall market returns.

SD (R_i) = Standard deviation of the returns of a particular stock, i = T, M.

If the Leverage ratio =1, i.e. SD (R_m) = SD (R_i), then both the stock and the market are equally risky. If the Leverage Ratio >1, i.e. SD (R_m) > SD (R_i), then the market is riskier than the stock. If Leverage Ratio < 1, i.e. SD (R_m) < SD (R_i), then the market is less risky than the stock. The higher the Leverage Ratio, the better is the stock. An investor will always choose a stock whose Leverage Ratio is higher as compared to the others.

IV. RESULTS

We calculate the average returns and the risk of the entire return series for Yes Bank Limited and Mindtree Limited stocks and get the following result as shown in Table 1.

Table 1 : Average Returns and Risks of the stocks.

	1st October, 2011 - 1st October, 2016		1st October, 2016 - 1st October,2021	
	Yes Bank	Mindtree	Yes Bank	Mindtree
Average Return	0.16	0.08	-0.17	0.21
Risk	0.0267	0.02964	0.059	0.0252

Source: (www.bseindia.com)

We calculate the values of the various indicators for the stocks of the two companies for both periods. The measures used to assess the performance of the stocks are given below in Table 2.

Table 2 : Measues of the indicators used to determine the health of the stocks.

	1st October, 2011 - 1st October, 2016		1st October, 2016 - 1st October,2021	
	Yes Bank	Mindtree	Yes Bank	Mindtree
Beta	0.233	0.051	0.027	0.144
Sharpe Measure	0.055	0.023	-0.03	0.078
Treynor Measure	0.0063	0.014	-0.066	0.014
Leverage Ratio (LR)	0.377	0.3397	0.1976	0.4625

Source: (www.bseindia.com)

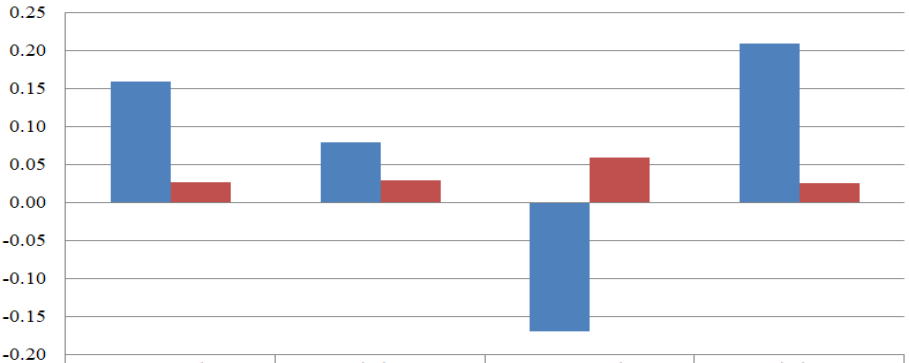
From Table 1, we get that the average returns from the stocks of Yes Bank Limited in the period 1st October 2011 to 1st October 2016 are 0.16 per cent and the average returns from Mindtree during that same period 0.08 per cent. The risks of investing in the stocks of Yes Bank and Mindtree are 0.0267 and 0.02964, respectively. For the period 1st October 2016 to 1st October 2021, the stocks of Yes Bank has negative average returns of (-) 0.17 per cent, while Mindtree has positive returns of 0.21 per cent. The risks faced for investing in the stocks of the companies Yes Bank and Mindtree are 0.059 and 0.0252, respectively.

From Table 2, we obtain that for the stocks of Yes Bank, the market risk (β) during the first period (1st October 2011 to 1st October 2016) is 0.233, which reduces 0.027 in the second period (1st October 2016 to 1st October 2021). The Sharpe and Treynor measures of the first period are 0.055 and 0.0063, respectively, which are more significant than those in the second period. The Sharpe and the Treynor measures of the second period are both negative. The leverage ratio of the first period (0.377) is higher than that of the second period (0.1976). The stocks of Mindtree, however, show opposite results. The value of market risk (β) is 0.051 during the first period, which rises to 0.144 in the second period. The Sharp measure increases from 0.023 to 0.078, while the Treynor measure remains the same in both periods. The leverage ratio is boosted up from 0.3397 in the first period to 0.4625 in the second period.

Interpretations

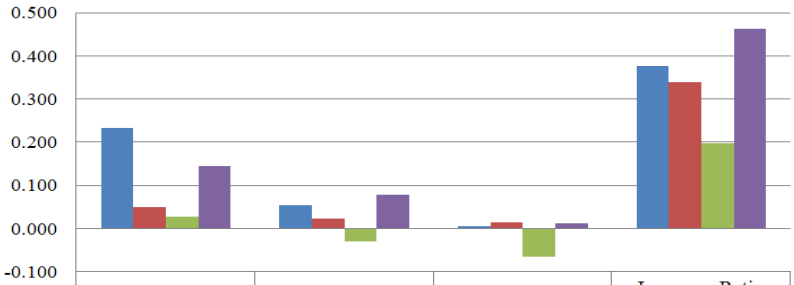
The data obtained from the Table 1 and Table 2 are shown graphically in Figure 1 and Figure 2.

Figure 1



	Yes Bank	Mindtree	Yes Bank	Mindtree
	1st October, 2011 - 1st October, 2016		1st October, 2016 - 1st October,2021	
Average Return	0.16	0.08	-0.17	0.21
Risk	0.0267	0.02964	0.059	0.0252

Figure 2



	Beta	Sharpe Measure	Treynor Measure	Leverage Ratio (LR)
1st October, 2011 - 1st October, 2016 Yes Bank	0.233	0.055	0.0063	0.377
1st October, 2011 - 1st October, 2016 Mindtree	0.051	0.023	0.014	0.3397
1st October, 2016 - 1st October,2021 Yes Bank	0.027	-0.03	-0.066	0.1976
1st October, 2016 - 1st October,2021 Mindtree	0.144	0.078	0.014	0.4625

According to Figure 1, we get that the average return of Yes Bank Limited during the period 1st October 2011 to 1st October 2016 is 0.16 per cent which decreases to (-) 0.17 per cent in the next period from 1st October 2016 to 1st October 2021. The average return of Mindtree Limited increases from 0.08 per cent in the 1st period to 0.21 per cent in the next period. Thus, we can say something about how human beings will behave in such a situation and its consequences on their investment decisions.

From previous studies, we can analyze irrational behaviour among individuals using two significant theories. Applying the biases of Heuristic Theory in this analysis, we get glimpses of different instances where the individuals have benefitted or have suffered. The individuals who had made decisions solely based on past experiences would lose. If the individuals had invested in Yes Bank stocks in the period from (2016 – 2021) believing that it would continue to show similar performance to that of the 2011 to 2016 period, they would suffer because, in the next five year period from 2016 to 2021, Yes Bank stocks became extremely risky with negative returns. On the other hand, the individuals who had avoided the Mindtree stock believing that it will continue to have low returns and risk in the 2016 to 2021 period that it had in the period from 2011 to 2016, would also lose because Mindtree showed better performance in the latter period.

If the individuals had predicted that there would be a reversal in the trend of the performance of the two stocks, then that would have positive effects on their investment. If the Yes Bank stock investors had predicted that the stock would perform poorly in the five years from 2016 to 2021, they would sell off the stock to protect themselves from losses. The investors of Mindtree stock will hold on to their stocks if they predict a

boom in the stock's performance to earn higher returns. Individuals tend to depend on the most readily available information for taking their investment decisions. Individuals generally base their investment decisions on returns and risks. They do not normally devote their attention to those indicators which measure the health of the stock. However, in this situation, if they rely on only one trait for taking decisions, the individuals would be benefitted. The measures of risk and return show that Yes Bank is a better stock in the first period and a worse stock in the second period. It also shows that in the second period, Mindtree is a better stock compared to Yes Bank. All the indicators used to measure the assets' health also convey the same message to the investor.

Applying the Prospect Theory, we find that the individuals who had behaved peculiarly by selling off a better performing stock would be saved from a tremendous loss. Similarly, holding on to a worse performing stock to avoid recognizing losses would allow them to enjoy considerable gains. As Table 1 shows, the investor holding on to the Yes bank stock because it performed better in the first five year period would suffer considerably. The stocks, which showed better yields in the initial period, showed completely contrary performance in the next five year period. On the other hand, the individuals holding on to the Mindtree stock would get a chance to experience the benefit of increased returns in the next five year period. The stocks which were not yielding much during the first five year period boomed in the next five year period. This situation can be seen as a particular case in which irrational human behaviour in uncertain situations turns out to be beneficial.

Next, we examine which stock is better from the individual's point of view and, therefore, should be included in an investor's portfolio. As we have already seen, the returns of Yes Bank stocks exceed that of Mindtree in the first five year period, but the opposite results are obtained in the next five year period. The risk of Yes Bank is also lower than that of Mindtree in the first five years period but is higher than Mindtree stocks in the next five year period. Therefore, any individual would prefer a stock that comes with higher returns accompanied by lower risk. Therefore, based on returns and risk, Yes Bank is a better stock in the first five year period and Mindtree a better stock in the second five year period.

Beta (β) for both the stocks in both periods are less than 1. Therefore, both the stocks behave like defensive stocks, i.e. the stocks rise or fall by less than 1 per cent when the market falls by 1 per cent. Therefore, we cannot draw any comparison from the value of β. Sharpe measure is greater for Yes Bank stocks than the stocks of Mindtree in the first period, while Mindtree has a higher value of Sharpe measure in the second period. Therefore, according to Sharpe measure, Yes Bank is a better asset than Mindtree in the first five year period, while Mindtree is a better asset in the second five year period. The Leverage Ratio (LR) of Yes Bank is higher in the first period, while that of Mindtree is higher in the second period. Again, Yes Bank is a better stock in the first period, while Mindtree is better in the second period. Therefore, all the indicators indicate that Yes Bank is a better performing stock in the first period (1st October 2011 to 1st October 2016) and should be included in an investor's portfolio. In the second period (1st October 2016 to 1st October 2021), Mindtree is a better performing stock and should be included in the investor's portfolio.

V. CONCLUSIONS

Previous studies have shown that human beings are rational, capable of making their own decisions. The expected utility theory also assumed that humans are rational. However, the expected utility theory showed that the expected utility of a sensible individual is equal to the expected value of their wealth. However, certain individuals prefer a lower return with no risk compared to higher returns with unknown risk. They are called risk-averse individuals. Risk-averse individuals are those who are scared of taking risks. They would rather choose a certain amount than going for the gamble. The failure of the expected utility theory in explaining choices brought the Prospect theory to the forefront. The Prospect theory explained that human beings demonstrate irrational behaviour when faced with uncertain choices. Irrational behaviour is normally known to affect investments negatively. However, irrational behaviour does not always negatively impact investment decisions; it can also positively affect.

As this paper illustrates, we consider two stocks, one showing declining performance and the other showing a progressive performance. Therefore, the application of irrational human behaviour in the investment in these stocks, keeping in mind the two different periods, will positively affect the investment. Irrational human behaviour implies that individuals tend to predict a reversal in the trend of the stock's performance. If they can predict that the trend will reverse, they can either hold on to the stocks or sell them to earn huge profits or avoid losses. Similarly, the individual's habit of relying on only one trait for taking decisions will benefit them. Individuals will normally base their decisions on risk and return for trading in a stock and not investigate its health. In this case, all the indicators and returns and risks convey the same message. Therefore, the ignorant nature of the investors benefits them in this situation. Thus, we portray a particular case where the irrational behaviour of the individuals, instead of harming their investments, benefits them.

BIBLIOGRAPHY

[1]. (n.d.). Retrieved 3rd October, 2021, from www.bseindia.com.
[2]. Chandra, A. (n.d.). Decision Making in the Stock Market: Incorporating Psychology with Finance.
[3]. Glaser, M., & Weber, M. (2007). Overconfidence and trading volume. *Palgrave Macmillan Journals*.
[4]. Kahneman, D. (2003, 5th December). Maps of bounded rationality: Psychology for behavioural economics. *The American Economic Review*.
[5]. Kahneman, D., & Tversky, A. (1979). Prospect Theory: An Analysis of Decision under Risk. *Econometrica*.
[6]. Mahmood, A., & Ahmad, M. (2020). A Study on Behavioural Traits of Risk-Averse Investors: Evidences from India. *Smart Journal of Business Management Studies*.
[7]. Mill, J. S. (1848). *Principles of Political Economy.* John.W. Parker.
[8]. N, S. (2015). Heuristic and Biases Related to Financial Investment and the role of Behavioural Finance in Investment. *ZENITH International Journal of Business Economics & Management Research*.
[9]. Okasha, S. (2007). Choice, Risk Aversion and Evolution. *Journal of Philosophy*.
[10]. Varian, H. (2006). *Intermediate Microeconomics.* W.W. Norton & Co.

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