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Do Investors Behave Rationally?

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ABSTRACT

Behavioral finance is a field in economics that has in recent times become a subject of significant attention to investors. This paper provides a general discussion of behavioral Finance .In this paper, a survey is made between two different groups of investors. This paper shows how we act or the psychology when we make decisions involving risk, or in the opportunity of loss .This paper also throw some light on economists who stress emotional and behavioral elements of stock-price fortitude challenge efficient market theory.

KEYWORDS behavioural finance, investment, EHM, efficient market

Introduction

Behavioral finance is the integration of classical economics and finance with Psychology and the decision-making sciences. This study is related to the fact that how investors give different weight age to investment under similar situation. Some people systematically make errors in judgment or mental mistakes. Much of the economic theory available today is based on the belief that individuals behave in a rational manner and that all existing information is embedded in the investment process or no attention being given to the influence of human behaviour on the investment process.

In fact, researchers have uncovered evidence that rational behavior is not often the case. Behavioral finance attempts to understand and explain how human emotions influence investors in their decision making process. These mental mistakes can cause investors to form biased expectations regarding the future that, in turn, can cause securities to be mispriced. Behavioral finance is based on the psychology of investors. Psychology primarily deals with human fallibility, systematic mistakes and biased judgment.

Literature Review

Back in 1896, Gustave le Bon wrote The Crowd: A Study of the Popular Mind, one of the greatest and most inertial books of social psychology ever written (le Bon 1896) [1]. Selden (1912) wrote Psychology of the Stock Market. He based the book `upon the belief that the movements of prices on the exchanges are dependent to a very considerable degree on the mental attitude of the investing and trading public'.

In 1956 the US psychologist Leon Festinger introduced a new concept in social psychology: the theory of cognitive dissonance (Festinger, Riecken and Schachter 1956). When two simultaneously held cognitions are inconsistent, this will produce a state of cognitive dissonance. Because the experience of dissonance is unpleasant, the person will strive to reduce it by changing their beliefs.

Pratt (1964) considers utility functions, risk aversion and also risks considered as a proportion of total assets. Tversky and Kahneman (1973) introduced the availability heuristic: `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.

In 1974, two brilliant psychologists, Amos Tversky and Daniel Kahneman, described three heuristics that are employed when making judgments under uncertainty (Tversky and Kahneman 1974).

Representativeness: When people are asked to judge the probability that an object or event A belongs to class or process B, probabilities are evaluated by the degree to which A is representative of B, that is, by the degree to which A resembles B.

Availability: When people are asked to assess the frequency of a class or the probability of an event, they do so by the ease with which instances or occurrences can be brought to mind.

Anchoring and adjustment: In numerical prediction, when a relevant value (an anchor) is available, people make estimates by starting from an initial value (the anchor) that is adjusted to yield the final answer. The anchor may be suggested by the formulation of the problem, or it may be the result of a partial computation. In either case, adjustments are typically insufficient.

The most cited paper ever to appear in Econometrica, the prestigious academic journal of economics, was written by the two psychologists Kahneman and Tversky (1979). They present a critique of expected utility theory (Bernoulli 1738; von Neumann and Morgenstern 1944[9]; Bernoulli 1954[10]) as a descriptive model of decision making under risk and develop an alternative model, which they call prospect theory. Kahneman and Tversky[7] found empirically that people underweight outcomes that are merely probable in comparison with outcomes that are obtained with certainty; also that people generally discard components that are shared by all prospects under consideration. Under prospect theory, value is assigned to gains and losses rather than to final assets; also probabilities are replaced by decision weights. The value function is defined on deviations from a reference point and is normally concave for gains (implying risk aversion), commonly convex for losses (risk seeking) and is generally steeper for losses than for gains (loss aversion). Decision weights are generally lower than the corresponding probabilities, except in the range of low probabilities. The theory - which they confirmed by experiment - predicts a distinctive fourfold pattern of risk attitudes: risk aversion for gains of moderate to high probability and losses of low probability, and risk seeking for gains of low

probability and losses of moderate to high probability.

Thaler (1980) argues that there are circumstances when consumers act in a manner that is inconsistent with economic theory and he proposes that Kanneman and Tversky's[7] prospect theory be used as the basis for an alternative descriptive theory. Topics discussed are: underweighting of opportunity costs, failure to ignore sunk costs, search behaviour, choosing not to choose and regret, and pre commitment and self-control. The paper introduced the notion of `mental accounting'

In another important paper 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.

Kahneman, Slovic and Tversky (1982) edit Judgment under Uncertainty: Heuristics and Biases, thirty-five chapters which describe various judgmental heuristics and the biases they produce.

In 1985 Werner F. M. De Bondt and Richard Thaler published `Does the stock market overreact?' in the Journal of Finance (De Bondt and Thaler 1985), effectively forming the start of what has become known as behavioural finance. They discovered that people systematically overreacting to unexpected and dramatic news events results in substantial weak-form inefficiencies in the stock market. This was both surprising and profound. Mental accounting is the set of cognitive operations used by individuals and households to organize, evaluate and keep track of financial activities. Thaler (1985) developed a new model of consumer behaviour involving mental accounting.

Tversky and Kahneman (1986) argue that, due to framing and prospect theory, the rational theory of choice does not provide an adequate foundation for a descriptive theory of decision making. Yaari (1987) proposes a modification to expected utility theory and obtains a so-called `dual theory' of choice under risk. De Bondt and Thaler (1987) report additional evidence that supports the overreaction hypothesis.

Samuelson and Zeckhauser (1988) perform a series of decision-making experiments and find evidence of status quo bias. Poterba and Summers (1988)[21] investigate transitory components in stock prices and found positive autocorrelation in returns over short horizons and negative autocorrelation over longer horizons, although random-walk price behaviour cannot be rejected at conventional statistical levels. Kahneman, Knetsch and Thaler (1990) report several experiments that demonstrate that loss aversion and the endowment effect persist even in market settings with opportunities to learn and conclude that they are fundamental characteristics of preferences.

A value strategy involves buying stocks that have low prices relative to earnings, dividends, book assets, or other measures of fundamental value. Lakonishok, Shleifer and Vishny (1994) conjecture that value strategies yield higher returns because these strategies exploit the suboptimal behaviour of the typical investor.

The equity premium puzzle refers to the empirical fact that stocks have outperformed bonds over the last century by a far greater degree than would be expected under the standard expected utility maximizing paradigm. Benartziand Thaler (1995) offer an explanation based on behavioural concepts: loss aversion combined with a prudent tendency to frequently monitor one's wealth. They dub this combination myopic loss aversion. Grinblatt, Titman and Wermers (1995) analysed the behaviour of mutual funds and found evidence of momentum strategies and herding.

Amos Tversky, one of the worlds most respected and inuential psychologists died on 2 June 1996, of metastatic melanoma, at the age of 59. Ghashghaie, et al. (1996) claim that there is an information cascade in FX market dynamics that corresponds to the energy cascade in hydrodynamic turbulence.

Bikhchandani, Hirshleifer and Welch (1998) argue that the theory of observational learning, and particularly of informational cascades, can help explain phenomena such as stock market crashes. Motivated by a variety of psychological evidence, Barberis, Shleifer and Vishny (1998)[39] present a model of investor sentiment that displays underreaction of stock prices to news such as earnings announcements and overreaction of stock prices to a series of good or bad news.

In his third review paper Fama (1998) defends the efficient market hypothesis that he famously defined in his first, and claims that apparent overreaction of stock prices to information is about as common as underreaction. This argument is unconvincing, because under- and overreactions appear to occur under different circumstances and/or at different time intervals. Odean (1998) tested and found evidence for the disposition effect, the tendency of investors to sell winning investments too soon and hold losing investments for too long. Daniel, Hirsh-leifer and Subrahmanyam (1998) propose a theory of security markets based on investor overconfidence (about the precision of private information) and biased self-attribution (which causes changes in investors' confidence as a function of their investment outcomes) which leads to market under- and overreactions.

Veronesi (1999) presented a dynamic, rational expectations equilibrium model of asset prices in which, among other features, prices overreact to bad news in good times and underreact to good news in bad times.

There is a commonly observed but unexpected negative correlation between perceived risk and perceived benefit. Finucane, et al. (2000) concluded that this was due to the affect heuristic people tend to derive both risk and benefit evaluations from a common source. Hong, Lim and Stein (2000) propose that firm-specific information, especially negative information, diffuses only gradually across the investing public, and this is responsible for momentum in stock returns. Shleifer (2000) publishes Inefficient Markets: An Introduction to Behavioral Finance, a quality book that considers behavioural finance vis-à-vis the EMH. In considering descriptive theories of choice under risk, Starmer (2000) reviews alternatives to expected utility theory. In 2000, in his book Irrational Exuberance, Robert J. Shiller presented a persuasive case that the US stock market was significantly overvalued, citing structural factors, cultural factors and psychological factors (Shiller 2000).

The Adaptive Toolbox, a collection of workshop papers which promote bounded rationality as the key to understanding how real people make decisions. The book uses the concept of an `adaptive toolbox,' a repertoire of fast and frugal rules for decision making under uncertainty. Huberman (2001) provide compelling evidence that people have a propensity to invest in the familiar, while often ignoring the principles of portfolio theory.

Barberis and Thaler (2003) publish a survey of behavioural finance. More recent developments in decision making under risk have improved upon cumulative prospect theory, such as the transfer of attention exchange model (Birnbaum 2008). Harrison and Rutstrom (2009) proposed a reconciliation of expected utility theory and prospect theory by using a mixture model.

Interpretations, Analysis and Results
Important Heuristics
Affect: The affect heuristic concerns `goodness' and `badness'. Sentimental responses to a stimulus occur quickly and automatically: note how quickly you sense the feelings associated with the stimulus words treasure or hate.

Availability: Availability is a cognitive heuristic in which a decision maker relies upon knowledge that is readily available rather than examine other alternatives or procedures.

Similarity: The similarity heuristic leads us to believe that `like causes like' and `appearance equals reality'. The heuristic is used to account for how people make judgments based on the similarity between current situations and other situations or prototypes of those situations.

Behavioural Finance attributes such stock market pointlessness to six traits that lead to errors of sensitivity and conclusion, each of which is discussed in brief:

1. Audaciousness: Investors are often bombastic about their own abilities in relation to others' abilities. As a result they tend to overvalue the accuracy of information. Investors believe that they have better forecasting abilities and have power over over the happening of upcoming events. This results in an investor trading excessively. Excessive trading in turn does not imply higher returns.

2. Hurt to be Repentant: Very often, investors are reluctant to admit to their mistakes. This leads to investors avoiding ruthless decisions or delaying them. The result is that investors hold on to loosing stocks and selling of potentially good stocks too soon.

3. Cognitive Disagreement: This refers to investors' propensity to deny or avoid contradictory information. Investors' try and seek a foundation of information that is in line with their own philosophy and that will support their view. Any source providing contradictory information is immediately discredited and overlooked. Objective decision making process must necessarily incorporate a step of re- evaluating the validity of a decision taken over time, to avoid errors of judgment.

4. Anchoring: refers to selecting the wrong point of reference. It is significant that investors take decisions based on a thorough analysis rather than focusing only on a few definite attributes of a stock. For example, recent prices and earning of a company may not necessarily guarantee similar returns at a future point in time.

5. Representativeness: Categorizing stocks as "good" stocks or "bad" stocks on the basis of a few characteristics can lead to errors of conclusion. It is important to concede that reclassification of stocks over a period of time is required. "Bad "stocks may move to the "good buys" category and "good" stock may slip to "not good buys" category over a period of time.

6. Prejudiced Risk Aversion: Investors have a propensity to take decisions based on short term gains rather than having a long term perspective. Such thoughtlessness can lead to losses at a future point in time.

How Investors Behave While Investing & Why?
Behaviour Finance field is so new, most professionals responsible for large portfolios were not exposed to the principles of behavioral finance in their college curricula and these principles have significant practical implications for investment management.

Consequently, this article provides an overview of behavioral finance. No matter how much investor is well informed, have done research, studied deeply about the stock before investing then also he behave irrational with the fear of loss in the future. For instance the loss of `100 twice as painful as the pleasure received from a `100 gain.

It consider the Idea that people are Irrational & make investment decision from many reasons for instance some while investing wants to behave like professional & are over confident, some follow the past trends followed by others.

Tversky and Kahneman originally described "Prospect Theory" in 1979. They found that contrary to expected utility theory, people placed different weights on gains and losses and on different ranges of probability. They found that individuals are much more distressed by prospective losses than they are happy by equivalent gains.

Methodology and Survey
Broking Companies having active programs and walk-in clients were selected as potential participants in a telephone survey for this study. A letter explaining the purpose of the study and requesting participation was sent to the relevant broking companies. These brokers were called and appointment was taken. We contacted the walk-in customers and their appointment was taken. Telephonic interview was taken for 384 customers and certain questions were asked to them during this telephonic interview. For the purpose of research, I have approached 6 companies in the area. The period of survey was from 1st Oct. 2011 to 30th Nov. 2011, but I have completed the survey in 23 days. The identity of interviewed customers is kept hidden on their request.

Following Questions were asked to the two groups of investors 'A' & 'B' by (Verma P, 2010).

Group-1 In addition to whatever you own, you have been given Rs.10, 000. You are now asked to choose between:
A. A sure gain of Rs.5, 000.
B. A 50% chance to gain Rs.10, 000 and a 50% chance to gain nothing.

Group-2 In addition to whatever you own, you have been given Rs.10, 000. You are now asked to choose between:

A. A sure loss of Rs.5, 000
B. A 50% chance to lose Rs.10, 000 and a 50% chance to lose nothing.

Results
In the first group 87% chose A. In the second group 66% chose B. The two tribulations are matching in terms of net cash to the subject; however the wording of the question causes the problems to be interpreted differently.

The word investment is all walks of life. The reasons behind the investment vary from person to person depending upon their time & need. For example, if you glance at Warren Buffet's approach to investment is to search for fundamental values unnoticed by the stock market. He has also followed an elementally simple rule: Never invest unless you can find something worth buying. The prototypical pragmatist, Buffet is interested only in realities and is free of any illusions, especially about him. His influence on others' stock market behaviour has, therefore, been limited, since markets are driven to a significant degree by fear, greed and delusions. But his success has established that common sense and consistent rationality with the day even in irrational markets. Then, what does the word investment means to an ordinary man?

A theoretical view with a perfect blend of real life gives the meaning of investment as the following equation:

Investment = (Postponement of current consumption) + (Commitment of funds) + (For a future period) + (In expectation of good rate of return) + (With some degree of risk)

Investors' Groups	(I)	(II)
A. Investment will give sure gain/loose of 50% of your investment	87%	34%
B. Probability of .5 to gain 100% & probability of.5 to lose 100%	13%	66%

Z – Test:
Group 1:
H0: Investors' Behaviour is not irrational.
H1: Investors' Behaviour is irrational.

$\mathbf{H_0}$ is rejected at 1%, 5% and 10% level of significance. The proportion of investors' behaviour is not significant at 0.01 (z-tab = 2.58), at 0.05 (z-tab = 1.96) and at 0.10 = (z-tab = 1.645). The alternative hypothesis is accepted and it shows that investors' behaviour is irrational.

Group 2:
H0: Investors' Behaviour is not irrational.
H1: Investors' Behaviour is irrational.

H0 is rejected at 1%, 5% and 10% level of significance. The proportion of investors' behaviour is not significant at 0.01 (z-tab = 2.58), at 0.05 (z-tab = 1.96) and at 0.10 = (z-tab = 1.645). The alternative hypothesis is accepted and it shows that investors' behaviour is irrational.

From the above table it is clear in the survey that in Group I 87% of the investors chose (A) & in Group II 34% chose (A). Thus it is found that individuals will react differently to alike situations depending on whether it is offered in the context of losses or gains. This research established that inhabitants are prepared to take more risks to stay away from losses than to realize gains. Faced with sure gain, most investors are risk-averse, but faced with sure loss, investors become risk- takers. Buying a stock with a bad image is harder to downsize if it goes down. Investors characteristically give too much weight to recent understanding and extrapolate recent trends that are at odds with long-run averages and statistical odds. In general individuals, tend to feel regret and pain after having made an error in judgment.

Typically, investors deciding whether to sell a security are emotionally affected by whether the security was bought for more or less than the current price Investors sell winners more frequently than losers. Odean (2000) studies 163,000 individual accounts at a brokerage firm. For each trading day during a period of one year, Odean counts the fraction of winning stocks that were sold, and compares it to the fraction of losing stocks that were sold. He finds that from January through November, investors sold their winning stock 1.7 times more frequently than their losing loosing stocks. In other words, winners had a 70 percent higher chance of being sold. This is an anomaly, especially as for tax reasons it is for most investors more attractive to sell losers.

Conclusion
This study has empirically examined how investor behave while captivating investment decisions which engross risk, it shows that market participants calculate financial outcomes in harmony with prospect theory .It shows that psychology of investor effect the share movement. Moreover, a greater kindliness to losses than to gains implies that decisions differ according to how a choice problem is framed.

A very important question to be replied within this context is, whether irrational behaviour of individual market participants may also lead to inefficiency of the market as a whole. It is believable that even if the average investor behaves according to the psychological mechanisms mentioned, the market as a whole will generate efficient outcomes anyway. This is not the case, behavioural finance argues, for example as the arbitrage required to recompense for price inefficiencies is costly and risky. We often take notice of the great news on television, the radio or read it in newspapers. "The market hits new highs!" With all this wonderful news and quotes from industry experts, it is easy to extrapolate that the upward trend will continue. Millions of people come to the conclusion that "It is safe to invest again!" Orders overflow in and quantity soars as prices rise. This, in itself, is irrational behavior.

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