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A Systematic Literature Review on Evolution of Behavioral Finance

Sushma
Research Scholar, Dr. APJ Abdul Kalam Technical University, Lucknow, Uttar Pradesh
Dr. Naela Jamal Rushdi
Director and Professor, IILM Academy of Higher Learning, Lucknow, Uttar Pradesh.

ABSTRACT:

Traditional finance is a knowledge base that summarizes the concepts and theories based on principle of rationality to take financial decisions. Standard finance theories are based on an underlying concept that investor act carefully and objectively while making their financial decisions. In addition, individual investor is assumed to behave rationally keeping in mind the risk and return involved. However, the researchers in psychology interpret that the financial decisions are often made in an irrational manner. Therefore, a new field of behavioral finance has evolved in past few decades to explain how personal, social and psychological factors help an individual to make their financial decisions.

Behavioral finance; an emerging and prospective field has been developed with the input taken from the field of psychology and finance which tries to explain the puzzling factor in stock market fluctuations. It is defined as "study of the influence of socio-psychological factors on asset price". The behavioral and psychological insights have emerged as an application of economics with psychology, which seeks to provide an explanation for people's irrational financial decisions. It is a combination of psychology, sociology, and finance. The paper here tries to generate a procedural study to provide a systematic review of the evolution of behavioral finance theories and concepts. The study tries to explain how the assumptions of standard finance theories fail to provide an explanation of various anomalies, which led to an evolution of Behavioral Finance.

Keywords*: Behavioral Psychology, Biases, rational decision, anomalies, Traditional Finance.*

1. STANDARD/TRADITIONAL FINANCE: AN INTRODUCTION

Standard finance has tried to explain the financial decisions based on two concepts only i.e. risk and return. According to standard finance theories, every individual tries to maximize return and minimize risk through their decisions and they are very rational in this procedure. Traditional finance says that financial decisions are based on strict mathematical calculations or standard financial theories already available. In addition, traditional finance theories are based on four basic assumptions:

- Investors are rational
- Investment markets are efficient
- Investors design their portfolio on the basis of mean variance
- Expected returns are a function of risk

The foundation for traditional finance theories is assumed to be conceptualized in the mid of nineteenth century in the year 1844, **John Stuart Mill** introduced the concept of rational economic man or ***homo-economics*** who tries to maximize his economic well being within the constraints he faces. The three underlying assumptions for this are perfect rationality, perfect self- interest and perfect information (John Stuart Mill, 1844)[1]. These assumptions became the basis of the traditional financial framework that sought equilibrium solutions by maximizing marginal utilities of individuals subject to situational constraints. This concept later act as an assumption for most of the economic theories came later. Daneil Bernoulli in the year 1738 and later in 1954 studied decision making under risk by comparing expected utilities (Daneil Bernoulli , 1738)[2]. Later Von Neumann and Morgenstern in the year 1944 used this concept for development of ***"Expected Utility Theory".*** According to the\construction by selecting a combination of risky securities with risk free assets by maximizing the expected return and minimizing the risk (Harry Markowitz, 1952)[4]. Later come the concept of ***"Capital Asset Pricing Model"*** with various contributors named as Jack Treynor, William F. Sharpe, John Lintner and Jan Mossin worked from 1962 to 1966 (Mossin,1966)[5].The simplicity of the model made it the most widely accepted and popular asset pricing model (Sharpe, 1964)[6]. However, many traditional theorists were not in favor of this model because of various anomalies regarding market efficiency (Lintner, 1965)[7]. In order to overcome these anomalies a new asset pricing theory was introduced by Eugene Fama in the year 1970, which is known as ***"Efficient Market Hypothesis".*** Efficient Market Hypothesis talked about the impact of any type of news or information into market and hence interpreting the efficiency of market and the expected return (Eugene Fama, 1970)[8]. Eugene Fama has categorized efficiency of market into three categories:

- A *weak* efficient market is one where a small news or information affect the market returns and create abnormalities into the market.
- A *semi strong* efficient market uses publicly available information but it fails to create superior returns.
- A *strong* efficient market is one where even insider trading cannot provide abnormal returns. (Eugene Fama, 1992)[9]

After Efficient Market Hypothesis (EMH), one more economist named Stephen Ross in the year 1976 come up with a concept of arbitraging in the form of a new theory named as ***"Arbitrage Pricing Theory".*** The theory talked about greed of investor where he tries to create return by taking benefit of price fluctuations. According to arbitraging model, the investor purchases security from the place where it is cheaper and tries to sale it at a place where it is costlier (Stephen Ross, 1980)[10].

Figure 1 below provides a comprehensive review of traditional finance theories available.

FIGURE 1

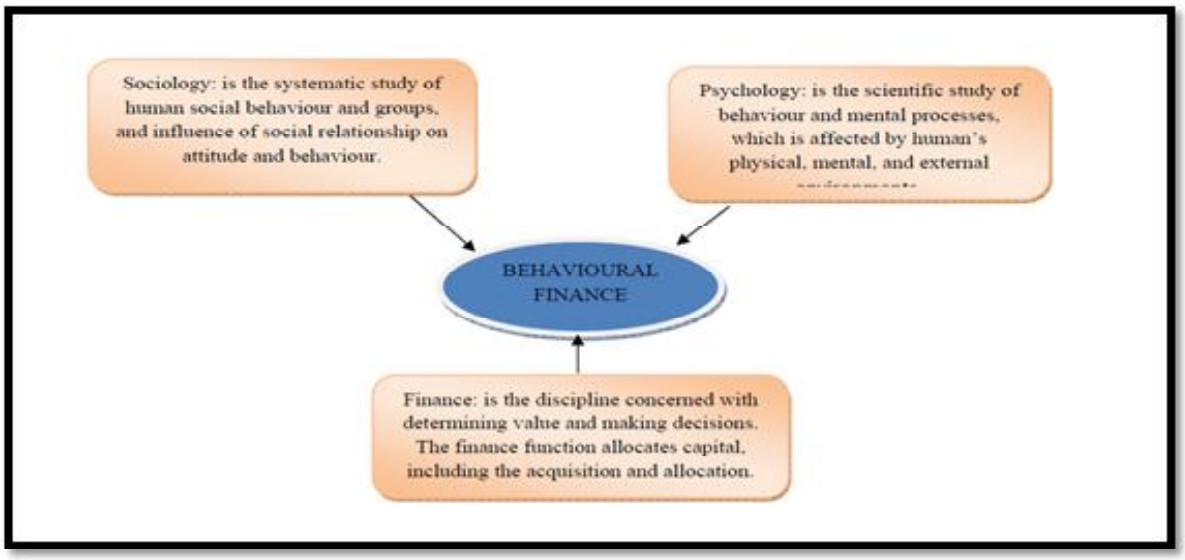
Source: Self Compiled

2.BEHAVIORAL FINANCE: A BRIEF REVIEW

Since last 20-30 years, these traditional financial theories have played an important role in explaining the investor decision-making process but a major setback came when theories fail to explain irrational behavior of investor. Various researchers studying stock market have seen various market bubbles, which were difficult to be explained by traditional finance theories. This led to the emergence of a new field of finance, which tries to explain the psychology, irrationality and biased nature of investors.

The assumptions of this new financial field differ from traditional one. This new branch of finance known as ***behavioral finance*** is based on assumptions that investors do behave irrationally sometimes, investment markets are not always efficient and investors don't always follow mean variance rule for designing their portfolio.

The studies in the area of neuroscience and psychology has already interpreted that people mind is a complex thing to study. Human brain is considered as the most complicated organ People are sometimes **rational** in their decision making but at times, they also behave stupidly. In addition, people are aware about the weaknesses of others, they try to use it in exploiting them, and here comes the other prospect of **morality**. People here have developed a particular system of various principles to distinguish between right and wrong as ethics.



Source: Evolution of behavioral finance, model edited from: Schindler, 2007.

It is in the mid of 18th century; in the year of **1759** when a Scottish economist, moral philosopher and professor from Stanford University named **Adam Smith** in his work named "***Theory of Moral Sentiments***" talked about morality and selfishness (Smith, 1759)[11]. He interpreted that people generally take decision for their own benefit. In addition, people love to be praised by others and sometimes their decision making depends on the psychology that whether that decision will be praiseworthy or not. Praiseworthy decision gives them pleasure and they consider it as correct decision (Smith, 1776)[12].

"The Wealth of Nations" names to be the next work of Adam Smith; first published in 1776. The book offers one of the world's first collected descriptions of what builds nations' wealth, and is today a fundamental work in the field of economics (Smith, 1991)[13]. Another author named Bentham emphasized on the role of sentiments and emotions like pride, shame, insecurity, egotism etc. and highlighted the psychological aspects of utility function (Bentham J, 1789)[14].

This work was then restrained to mid of twentieth century when many other researchers criticized the concept of *homo economicus* and argued that human beings cannot be completely informed of every situation in order to maximize their expected utility. Instead, they advocate the ***"Theory of the Bounded Rationality"*** given by Herbert Simon in the year 1955. This theory assumes that rationality of individuals depends on various information they have and the cognitive limitations of their minds. Bounded rationality explains that individuals have upper and lower limit of constraints within which they try to maximize their utility and find an optimal way (Herbert Simon, 1955) [15].

The credit for an ice-breaking work in behavioral finance goes to a pair of Israeli psychologists named Daniel Kahneman and Amos Tversky (Kahneman D& Tversky A)[16]. These two trailblazing psychologists turned the world of decision science upside down. They introduced the concept of ***"Prospect Theory"*** in the year 1979 for interpreting decision making under risk (Kahneman D& Tversky A, 1979)[17]. This theory is considered most influential literature in the field of behavioral finance. The theory tries to explain how individual evaluate

gain or losses (Kahneman D& Tversky A, 1973)[18]. According to prospect theory:

- People sometimes show risk aversion and sometimes risk seeking behavior depending on the nature of the prospects and relative probability of outcomes. Hence, they act as risk averse for decisions in which they assume sure gains while risk lover for decisions with probability of sure losses.
- People assign value to gains and losses. They try to find out various alternatives (or prospects) they have and then rank the based on rules of thumb (heuristics) (Kahneman D& Tversky A, 1974)[19]. Later they evaluate these prospects in relation with a reference that generally provides a relative basis for determining their gains and losses.
- The theory says that the weightage given to losses is always higher than the gains for the same amount because people are more averse to losses than gains (Kahneman & Tversky, 1981)[20]. This is known as *loss aversion*. Later they have introduced various behavioral biases that affect the financial decision making of individuals (Kahneman D, 1992)[21].

In the year 1981 an author named Robert J Shiller during his study regarding stock market volatility presented the contradictions for standard financial theories. In his bestselling book ***Irrational Exuberance*** (Shiller RJ, 2005)[22]**,** he tries to explain the movements in US stock market with the help of behavioral approach of market participants. He explained the impact on investor's perception, psychological and cultural factors in creating the market bubble during late 1990's (Shiller RJ, 1981)[23].

In the year 1994 two economists Meir Statman and Shefrin developed a new pricing model called as ***"Behavioral Asset Pricing Model (BAPM)".*** This model categorizes investor into informational traders and the noise traders. Information traders are the rational investors who follow the CAPM model whereas noise traders do not follow the CAPM and traditional financial concepts (Shefrin and Statman, 1994)[24].

Later in the year 2000 they also developed a new portfolio theory, named as the ***"Behavioral Portfolio Theory (BPT)".*** The Behavioral Portfolio Theory takes into account the behavioral biases of investors to construct their portfolios in relation with associated risk tolerance (Shefrin and Statman, 2011)[25].

Another significant contribution in justifying market anomalies was given by Barberis and Thaler in the year 2003. According to them Behavioral finance has two building blocks: *limits to arbitrage,* which argues that it can be difficult for rational traders to undo the dislocations caused by less rational traders; *and psychology,* which catalogues the kinds of deviations from full rationality. They studied individual trading behavior to explain behavioral finance applications in stock market average returns.

The figure 3 below explains the systematic development in various behavioral finance theories until the starting of 21st century.

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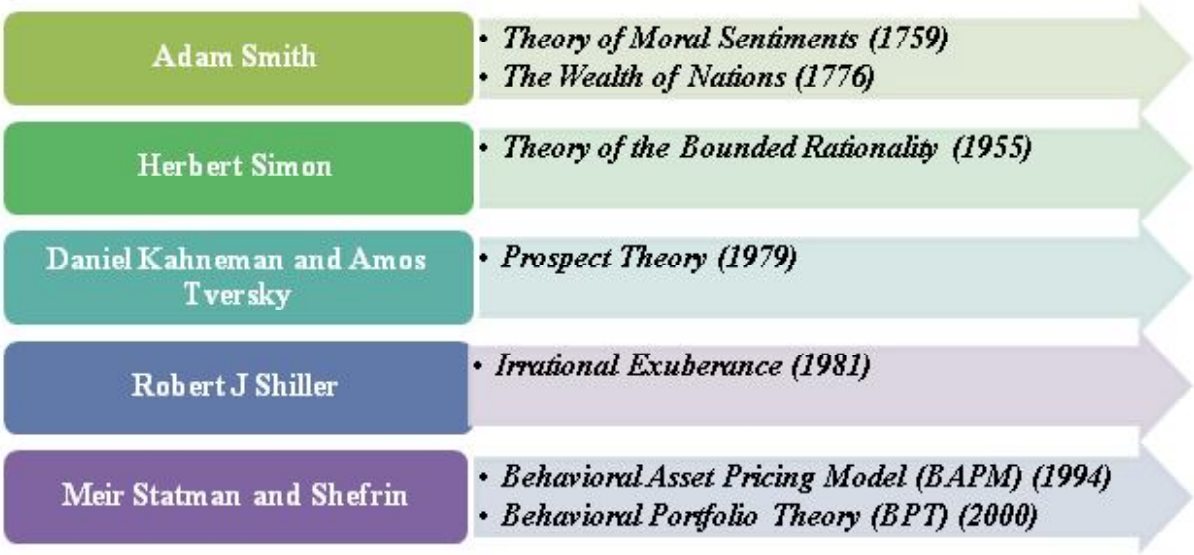

FIGURE 3

Source: Self Compiled

3. BEHAVIORAL FACTORS/ BIASES:

Hersh Shefrin in the year 2000 has talked about various factors associated with psychology of investors which are also known as behavioral biases. He has broadly classifies these biases into heuristic driven and frame dependent biases (Hersh Shefrin, 2000) [27].

- **Heuristics** are defined as the rules of thumb, which makes decision making easier, especially in complex and uncertain environments. Heuristics includes overconfidence, anchoring, adjustment, reinforcement learning, excessive optimism and pessimism.
- **Frame dependent biases** influence people by the way they frame their mindset with the options available. It includes biases like narrow framing, mental accounting and the disposition effect.
- Michael M Pompian gave one more categorization for behavioral biases in the year 2011. He categorized the behavioral biases into two categories named cognitive and emotional biases (Pompian M, 2011)[28].
- **Cognitive biases** are the systematic deviations from rationality because of the individual perceptions. It includes overconfidence, representativeness, anchoring and adjustment, framing, cognitive dissonance, availability, mental accounting biases.
- **Emotional biases** are the behavioral pattern of a person which is affected by their particular emotion that gives them pleasant feeling. It includes endowment bias, loss aversion, optimism and status quo.

4. CONCLUSION:

Behavioral finance literature has grown to its heights in recent years. The literature here tries to shed specific light on how the concept evolved and later developed to various stages and helped to understand various market anomalies and the psychology of individuals in the form of behavioral biases. Behavioral finance tries to explain the logic behind applying of heuristics or shortcuts by investors to take investment decisions, which still need to be extensively studied.

An analysis of the available literature also revealed that a very little work has been done in India in comparison to global level. As behavioral biases are associated to the psychology of human beings, therefore the implications are also very wide. Hence, it is going to help a lot to the financial practitioners as well as those seeking a growth in the field of financial advisory. It will definitely help financial advisors to effective understand the client's psychology and will aid them to develop a behaviorally modified portfolio best suits them. Behavioral finance concepts are going to help investment bankers to understand the market sentiments before going for public issues and will help them to make contingency financial strategists to handle adverse situations.

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