

## BEHAVIOR FINANCE OR FINANCIAL BEHAVIOR?

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### **ABSTRACT**

*Conventional and modern finance is related to various theories and concepts that has done respectable job in financial market in providing guidance for strategic financial decisions. Among all, emerging behavior finance has come up with psychological and sociological issues that affects the financial choices and are often ignored by modernized financial theories.*

*This paper will elaborate the concept of behavior finance and its relation with Efficient Market Hypothesis. The paper helps us to know that the loopholes in EMH gave birth to behavior finance but due to lack of clarity of its usage it could not be accepted fully by the market. It is also observed that the psychological factors or cognitive factors that cannot be incorporated objectively in financial decision making process may make difference in valuation of security, thus, it is very important to keep such factors into consideration. The paper is primarily based on secondary study of research conducted on behavioral finance and can provide an insight on importance of qualitative factors in financial decision making process.*

**Key Words:** Behavior, Anomalies, Overconfidence, Regret theory, Prospect theory

### **INTRODUCTION**

Behavior Finance- as the name suggest is the impact of behavior on financial decisions. Behavior here is refers to behavior of all the financial market players whether it is corporate, investors, government, or financial institutions. Adam & Smith famous book “Moral of Sentiments” published in 1759 talks about philosophical, psychological and methodological behavior of individual. His studies have given very meaningful theories on how a human being behave and react to different situations.

“Smith believed that much of human behavior was under the influence of the “passions”—emotions such as fear and anger, and drives such as hunger and sex—

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but these passions were moderated by an internal “voice of reason,” which he called an “impartial spectator.”

Behavior as an act of reacting to certain situation, affects decision making power of individual, thus, it should be consider as an important factor in financial market too.

However, in most cases, these behavior factors have been ignored. Modern financial world follows some conventional theories that are based on assumptions such as market without anomalies and market with full rationality that restrict its complete application in current uncertain market conditions. However, behavior finance brings various issues into financial decision making processes that are generally ignored or sometime are not known to experts or analysts. Hence, these problems raises a need of systemised financial theory that can be feasible in all market conditions and consider human factors also.

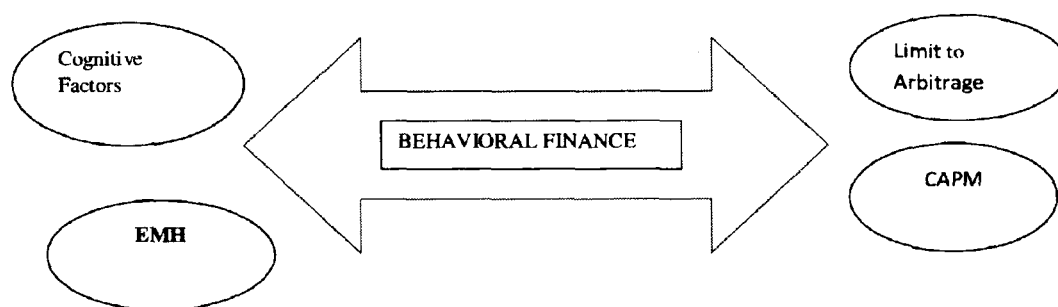
Behavior finance is defined with its two building blocks; cognitive factors and limit to arbitrage. In contrast, other financial theory such as EMH is defined through efficiency of market which is shown by information flow. Although, it should not be compare with Efficient Market hypothesis, both concepts can be related to draw a simple understanding on how valuation of stock affected by various factors.

Efficient market hypothesis and Capital Asset pricing method (CAPM) are logical and rational theories that do not consider the behavior factors and ignore the fact that emotions or extraneous factors influence investment & economic decisions. There are two building blocks of behavior finance; cognitive psychology (how people think) and limit to arbitrage (when market will be inefficient) (J.R Ritter, 2003). Efficient market hypothesis asserts that market is informationally efficient in result of which no investor can make abnormal profits at given level of information. It is assumed that market is rational and it can make unbiased forecast for future. In contrast, behavior finance assumes that market in some conditions can be informationally inefficient that can help in achieving excess returns. These assumptions are based on cognitive & arbitrage factors of behavior finance.

Investors’ overconfidence and reliability on recent experiences are the cognitive factors that lead to under/over valuation of shares. Arbitrageur can correct the misevaluations when the market is supportive in buying and selling of shares but if there are restricted by short sales then taking position (buy or sell) is difficult and misevaluation cannot be corrected. The actions of arbitrageurs are limited and therefore insufficient to force prices to match intrinsic value. Efficiency or inefficiency of the market requires an understanding of information flow in financial

market. An automatic correction of prices by information flow nullifies the rule of making profit from financial market investment. Also, it cannot be assumed that irrationality of the market can be exploited every time and there will be money available to be made from mispricing. Thus, it is debatable whether behavior factors should be incorporated in conventional financial theories.

“Behavior finance argues that some features of assets prices are most plausibly interpreted as deviation from fundamental values and that these deviations are brought about by the presence of traders who are not fully rational” (Barberis and Thaler,2003)



**Figure-1**  
**Four areas of that define Behavioral model**

**Concepts related to Behavior Finance**

Efficient Market Hypothesis (EMH)	Market is efficient and will reflect all the information in prices. Thus there is no scope for making excess return.
Capital Asset Pricing Model (CAPM)	The model provide required rate of return considering market risk denoted by Beta and risk free rate of return. It suggests that an investor seek premium for bearing extra risk on risky securities while making provision for market risk (beta).
Cognitive Factors	In contrast to EMH, cognitive factors suggest that market is inefficient and investors are irrational. Overconfidence, framing of choices, mental accounting, regret avoidance and prospect theory are the cognitive factors that support behavior finance.
Limit to Arbitrage	Arbitrage is possible only when market is supportive for free buying and selling and hence any mis-valuation of prices of stock can be corrected. But if there is constraint of short sale then arbitrage would be difficult and mispricing cannot be corrected.

In order to analyze behavior finance, it is required to understand the basic theories of efficient market hypothesis and capital asset pricing model. Section II and III of paper will give a brief of financial theories; EMH and CAPM

## EFFICIENT MARKET HYPOTHESIS

Efficient market hypothesis, henceforth EMH, suggest that market is efficient and all the information is reflected in prices. The theory of EMH was originated in 1953 by Maurice Kendall, a British Statistician in research paper presented to Royal Statistical society on the behavior of stock and commodity prices. The hypothesis was further supported by Eugene Fama in his Phd thesis and concluded that stock price movements are unpredictable and follow a random walk. It was based on following assumptions:

- (a) No transaction cost on trading securities
- (b) All available information is costless and available to all market participants
- (c) All agree on the implication of current information for the current price and distribution of future price of each security.

Fama proposed three level of efficiency that are distinguished by the degree of information reflected in stock prices; weak form, semi strong form and strong form:

The three form of market efficiencies are as follow:

**(a) Weak Form:** Weak Form asserts that stock prices already reflect all information that can be derived from past analysis of financial statements. Weak form of market efficiency does not believe in trend analysis and states that it is fruitless and time consuming process because the prices are already reflecting past information. Past information is costless and easily available information that can be exploited by all the investors.

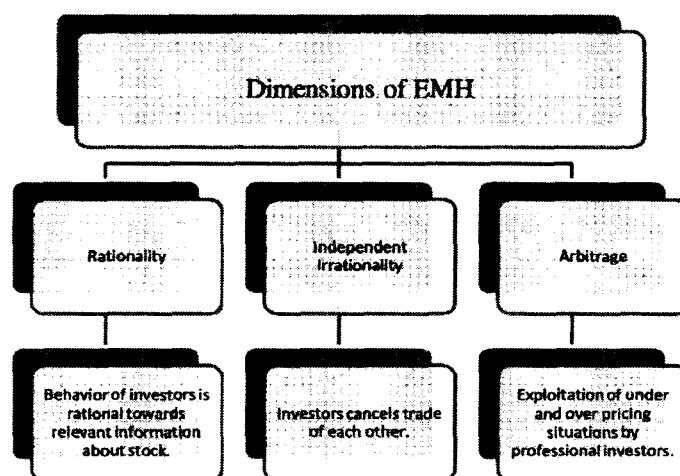
**(b) Semi Strong Form:** Semi Strong hypothesis states that stock prices reflect not only the past information but all the publicly available information is already reflected in stock prices. Any price anomalies are adjusted in stock market. It is also suggested that only internal or hidden market information can help to get market advantage.

**(c) Strong Form:** Strong form is extreme situation which asserts that there is no hidden or internal information that can help in getting extra returns in comparison to other investors. It is also argued that Securities Exchange Commission in USA and SEBI in India is preventing insiders from getting undue advantage from inside information. Any trading in result of any internal information by insiders, management or their relatives are subject to be reported and are considered as

violation of law. On the other side stock market analysts tries to uncover all the internal & external information to provide better portfolio performance that does not allow any information to be inside or hidden. Portfolio management is the only way to maximise returns with given level of risk and minimize with given level of return if market is efficient in strong form.

Portfolio management is based on expectation of stock volatility. If stock is expected to increase in future, investors start buying it more today which in result increase the prices automatically. It is also argued that any information that can be predicted will be reflected in today's information. The stock price that changes in response to new (unpredictable) information must move unpredictably. If stock prices can be predictable then the market is said to be inefficient, because the ability to predict prices would indicate that all information was not reflected already in stock prices. The notion of reflection of all information in current stock prices is possible because of competition floated between financial analysts. Investors tend to spend time and money on gathering information that can facilitate in getting higher returns and when it is hard for an investor to get such information then services of financial analysts or investment analysts are employed. The competition among analysts for better investment performance ensures that stock prices ought to reflect available information regarding their proper levels.

**EMH** is based on some necessary conditions that can make this theory feasible and possible; rationality, deviation from rationality and arbitrage. However, these conditions have not been accepted by many financial analysts. Relying on stock exchange information about stock trend has shown non acceptance of weak form hypothesis of EMH. Figure 2 gives an understanding of necessary conditions of EMH.



**Figure-2**

***Basis of Efficient Market Hypothesis***

**Rationality:** Efficient Market Hypothesis assumes that investors will behave rationally and will respond rationally to market conditions. If there is any positive news come up in the market about the stock then all the investors will take it in logical manner and behave accordingly. Rational investors will value the security with respect to their fundamental value.

**Independent Irrationality:** EMH also asserts that market can have irrational investors too but their behavior towards investing decision would be uncorrelated. In addition, their trading will cancel each other without affecting the price. Every market has investors with different attitude and thought process; some investors may expect bull market and some may believe in bear market. The actions of both the type of investors will provide prices consistent with efficient market if there are equal number of such investors. For example, a news of new project of any company may be taken differently by different types of investors. Optimistic investors will take this information as positive and believe this will increase future prices; in contrast, pessimistic investors will have doubt on completeness of this information and may not react or expect a fall in prices if real information about incomplete news comes in market. The actions will cancel trading of each other.

**Arbitrage:** Stock market is sometime dominated by professional traders; they are well knowledgeable investors and make use of all the information about under and over price of stock. When securities are underpriced, arbitrageur buys those stocks which bring the prices at equilibrium with sale of substitute securities. Thus, presence of arbitrage in the market supports the hypothesis of efficient market.

Efficient market hypothesis asserts three stages of efficiency that are possible if any of above condition satisfied in reality.

### **Capital Asset Pricing Model**

Risk has been given prime importance in valuation of security because risk is what an investor ask return for. Higher the risk higher will be the expected return. Security can be segregated into two types; one that has risk free nature and other is a security with risk. The expected return on riskless security is less than the risky security. Expected return depends on what a riskless security is giving to investors and addition of premium for market risk. The model that helps in making out a relation between risk and expected return is known as Capital Asset Pricing Model.

$$\Sigma_r = R_f + B(ER_m - R_f)$$

Where

$E_r$  = Required rate of return

$R_f$  = Risk free rate of return

$B$  = Beta is the sensitivity of the expected excess asset returns to the expected excess

market returns, or also  $\beta_i = \frac{\text{Cov}(R_i, R_m)}{\text{Var}(R_m)}$ ,

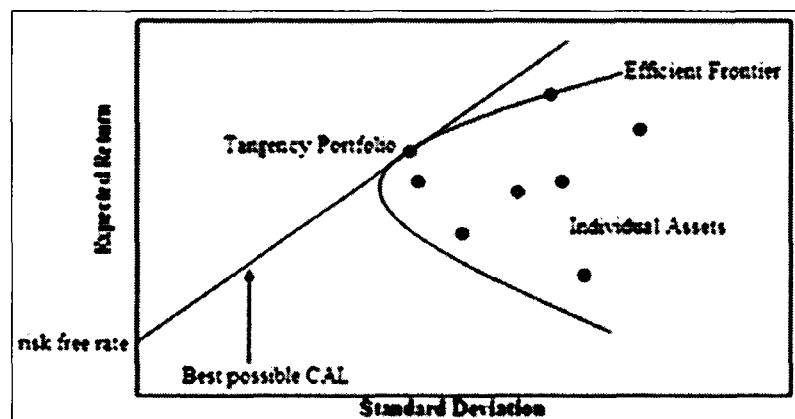
$ER_m$  = Expected return from market

### Assumptions of Capital Asset Pricing Model

The model is based on following assumptions:

- There are many competitive investors in market and they all diversify across range of investments.
- There is no tax and no transaction cost
- Investors can borrow and lend any amount at a fixed risk free rate.
- Investors are price takers, in that they act as though security prices are unaffected by their own trades.
- All investors analyze securities in same way and share the same economic view of the world. The result is identical estimate of probability distribution of future cash flows from investing in available securities.
- All risky assets are publicly traded

CAPM assume that the risk-return profile of portfolio can be optimized. The portfolio that consists of securities that collectively reduces the risk and maximise the return of overall portfolio is known as optimum portfolio. A set of optimum portfolios that offers a highest expected return for defined level of risk can be depicted by graph known as efficient frontier.



The line tangent to efficient frontier is known as capital market line (CML). The point of intersection of efficient frontier and CML provides a portfolio that give maximum return with minimum risk. Similarly, Security market line (SML) depicts the relation between expected return and systematic risk. SML is graphical representation of CAPM model.

The theory of CAPM is based on single factor i.e. market premium which may be insufficient to explain stock return completely. Stambough (1982) found a positive relation between beta and average return, however, it was “too flat” and the intercept was greater than a risk free bond. Comparing risk with risk of riskless securities may not be that much useful if investors’ behaves irrationally. In addition, it is hard to draw portfolios with maximum return and minimum risk factor for getting efficient frontier.

Proponents of behavioral finance argue that risk is not priced in accordance with the CAPM and that market prices often deviate from fundamental values. Moreover, the calculation of required rate of return through CAPM is based on unrealistic assumptions of no transaction or trading cost. Secondly, all investors cannot take security in similar manner because of behavior and psychological biases. Hence such anomalies ask for a behavior study of market players.

## **BEHAVIOR FINANCE**

The two pillars of behavior finance as stated above are cognitive factors and limit to arbitrage. It is believed that conventional financial theories ignore the way investors make decisions. There are numbers of irrationalities that does not allow investors to process correct information and therefore, infer incorrect probability distribution about future rate of return. This error in processing of information sometime results in poor investments decision. A series of experiments by Kehneman and A Tversky indicate that people give too much weight to recent experience while making forecast and when this behavior of investors reflects in P/R ratio, the prices becomes a reflection of recent changes in market. An Investment decision becomes unproductive when prices that are based on recent experiences come to their correct value.

There is no doubt that investors make difference in stock prices, it is their expectations that lead to volatility. Fundamentals and market uncertainties do affect the prices however, secondary market prices are highly affected by the way investors are taking stock information that is floated in the market. Market consists of two broad categories of investors; individual investors and institutional investors (brokers or



analysts) and their way of interpretation the information is different. Individual investors are usually optimistic towards positive news while analyst may take same information as just a short term movement that will be corrected sooner or later. Chuang & Susmel studies the differences in behavior of individual and institutional investors and concluded that institutional investors do not trade more actively following market gains in contrast; individual investors tend to trade more aggressively with trading in risky securities following market gains. Hence individual investors are more confident than institutional investors. This is another addition to behavior finance that has not been incorporated in modern financial theories. Assuming that all investors will take perceive all available information in same manner may not true with diversified investors' behavior .

### **Behavioral Biases**

Framing risk & return by the investors is affected by behavior biases. These behavior biases do not allow investors to behave rationally fully even when information is processed correctly. Mental accounting, framing, regret avoidance are behavior biases that help in making risk-return trade off.

#### **a) Cognitive Factors**

- i) Mental Accounting:** It is a way of framing risk-return through segregation of certain decisions. Investors set priority in their mind before investing about which type of security they would prefer, that leads to irrationality in their behavior . Statman argues that mental accounting is consistent with some investors' irrational preference for stocks with high cash dividend and with a tendency to ride losing stock positions for too long. Mental accounting effects can help in explaining momentum in stock prices.
- ii) Regret Avoidance:** Regret avoidance is one of characteristic of behavior that forces investors to behave irrationally. Most of the decisions of individual depend on regrets as per psychologists; they anticipate regret when they make a wrong choice in result of which decision making gets affected. Losing money on blue chip company put blame on luck and losing money on small firm is considered as bad investment decision as per behavior analysts on individual behavior . Similarly, losing an opportunity of making money has more regret than losing money on some investment. Investors tend to take wrong investment decision when regrets lie heavy on their decisions.  
If investors focus on the gains or losses of individual stocks, rather than on broad portfolios, they can become more risk averse concerning stocks with

recent poor performance, discount their cash flows at a higher rate, and thereby create a value stock risk premium. (Bodie et al.)

Regret theory in investment works to large extent in the sense that it either makes investor more risk avoider or motivates them to take higher risk. Research and analysis of stock helps in avoiding regrets.

- iii) **Prospect Theory:** Prospect theory was developed by Kahneman and Tversky in 1979 and aims to bring psychological factors in economic and financial decision making. It helps in framing the choices one has to face under uncertain situations. Decisions are based on judgement when are taken in risky conditions and where one can not see consequences or outcomes of events with clarity. Judgements consider all the choices and decisions become difficult if it involve contradictory values & goals.

The developer of theory predicts that individual tend to be risk averse in a case of gains, when things are going well, and relatively risk seeking in a domain of losses as when a leader is in the midst of crisis. People have more emotional impact than equal amount of gain thus they give preference to losses while taking decision in uncertain situation. This behavior study shows an irrationality of investors while selecting a stock

#### **b) Limit to Arbitrage**

Arbitrage is one of the building block of behavior finance. Behavior biases are the supporters to experts who can fully exploit the mistakes of behavior investors. Investor's behavior as defined in biases can affect stock pricing even if information is perfectly processed and in result may lead to mispricing or prices may deviate from fundamental value. Financial analysts (arbitrageurs) or experts try to utilize the opportunity of making profit from such mispricing. However, behavior advocates argue that in practice, several factors limit the ability to profit from mispricing such as fundamental risk and implementation cost that allows mispricing to survive. For example, if stock is underpriced and buying seems profitable but with hardly risk free nature. The risk of buying under price stock lies in an assumption that market under pricing can get worse. While price eventually should converge to intrinsic value, this may not happen until after the trader's investment horizon. Secondly, arbitrage is costly due to its implementation cost that make short positions costly, Lamont & Thaler (2003) show how shorting costs played a major role in the substantial mispricing of many carve outs of technology stocks.

Behavior biases do undermine the efficiency of market and limit to arbitrage does not allow market to become inefficient because arbitrage is possible in inefficient market. The statement is bit confusing and has been explained by researchers who have worked in EMH and behavior finance. Some of them define market efficiency as "circumstances where prices fully reflect all available information (Lo (2004) &

Chordia et al. (2007)). Whereas others define it as non existence of arbitrage opportunities (Malakiel (2003)), in fact all these statements are equivalent statements.

## **EMH, CAPM VS BEHAVIOR FINANCE**

Efficient Market Hypothesis and Capital Asset Pricing Model are conventional financial theories that are based on some assumptions. If these assumptions do not follow in the market, its results will be irrelevant. All the investors cannot be rational plus it is not possible that market has no transaction cost and taxation. Although modern financial theories have given productive outcome that deals with different situations, lack of clarity on extraneous factors reduces its importance. Financial theories should also answers what, how and why to finance in particular asset from human perspectives. In result of such requirement, behavior finance has come up with findings that can relate with psychological factors of investors.

It studies the psychological and sociological factors that influence the financial decision making process of individual and group. EMH, however, has tried to cover the impact of information on stock prices which is nothing but the qualitative characteristics of human behavior that are sometime actual or created with perceptions. It assumes that all investors are alike, meaning all have same expectations and thus any action or reaction against new information will not help them to earn extra returns. If this holds true, then there is no point of investing in stock market. Having homogeneous expectations will not lead to any trade, in other words difference in expectations can only help in making profits. Financial market is considered as a market to gain instant returns for which investors do research to make best forecast. But according to EMH market efficiencies, making profit more than others is not possible even from having an inside information. And critiques of EMH argues that if strong form of efficiency could exist, 90s stock market bubble would not happen.

Easily availability of information is another argumentative area of EMH because having information is not sufficient what is required is the way one can interpret that information. Every individual holds unique way of understanding & interpreting information. Yet if every person has different interpretation, then this difference will have an effect on their forecast.

Secondly, theory of efficiency also known as EMH states that assets prices cannot be correct always but it is ensured that no investor can determine correct price (Burton G makiel,2011). Criticising on its misconception has undermined the importance of theory. There are number of writers and economists who have rejected the hypothesis; Justin Fox has written a book “the myth of rational market” and Robert Shiller described EMH as “the most remarkable error in the history of economic thought”.

Similarly, the assumption on which CAPM model is based, are also unrealistic. The findings of CAPM suggest that return is directly related to beta and many studies testing CAPM have proven it right too. In contrast, Fama(1992) & French(1993) presents evidence that the relationship between average return and beta is weak over the period from 1941 to 1990 and virtually nonexistent from 1963 to 1990. They have also argued that the average return in a security is negatively related to both P/E ratio and M/B ratio.

Further, with the assumption of identical expectations of investors about risk & return, efficient portfolio becomes better than any other portfolio of risky assets (market portfolio is an aggregate of all portfolios) and assuming that well diversified portfolios are subject only to systematic risk are questionable assumptions. Investors experience different earned, after tax returns from differential tax law. They will hold different portfolios based on their investment specifications. Government securities that provide fixed interest rate are usually preferred by taxable investors and preference shares are held by corporate investors; in other words each investor will select securities that can give comparative advantage. Similarly, an assumption of no transaction cost is not true for long term and that is why CAPM hold for short term. Thus, efficient portfolio cannot be feasible in long run.

The problems in conventional financial theories gave birth to behavior finance which talks about various qualitative characteristics of securities market.

## **CONCLUSION**

Behavioral finance is collaboration between finance and other social science that has led to profound financial knowledge. Since long time, we have been focusing on financial theories, methods, formula based valuations of securities for investment decisions and failed to see the other side of financial market. Market players are the

important constituent of financial market and can bring changes in stock movements, however, their own opinion or attitude towards spending & earning are not taken into consideration while forecasting the future of stock. Behavior is a way in which one react or conduct oneself as defined by many psychologists in their research. Overall human tendency may not be formularised to provide a standard neither one should expect such tendency to provide a method to make lot of money because these are subjective matters. Indeed, we should accept the fact that each human will behave in different manner in different conditions but overall attitude towards money will be same. Diminishing marginal utility is not applicable in the case of money due to attitude of individual towards earning money. Cognitive factors, one of building block of behavior finance defines these behavior attitudes and guide the market to analyse movements of stock by considering behavior factors of market players.

Financial market plays an important role in economic development. Moreover, it deals with hard earned money of small and large investors. Thus, it becomes necessary to analyse each aspect of working of the market. Behavior finance has not been given that much importance yet due to its subjective nature, although, its impact on working of market is quite substantial.

The concept of behavior finance may be result of flaws of EMH but it has given some very important understanding on valuation of securities and one should look at its contribution on behavior aspects of investments. An illusion present in financial system such as psychological biases of agents allows other agents to make profits. (Hamadi, Rengifo et.al.2005). Designing of proper structure that can facilitate in adding behavior factors into financial decision making process may make the valuation process profound.

Subjective matters are hard to convert into a model but well tested models can be reconstructed to incorporate such behavior factors into account. Although, investors cannot predict how they are going to react on volatility, the reactions can be predicted if conventional models can facilitate the system.

In India behavior finance is still relatively new and the concept of rational market has not been accepted by many researchers. On the same side they failed to define how limited rationality can affect stock prices. It has provided biases that brings irrationality in market but fails to guide how to exploit any irrationality. Secondly, it fails to answer whether there is money to be made from mispricing. There were some questions on validity of efficient market hypothesis that gave birth to behavior

finance, however, it could not guide where the economy can utilize resources if prices are distorted when capital market is giving misleading results.

A research conducted by Malkiel has shown that EMH never says prices are always correct rather they are wrong and market players do not know the fact whether they are too low or too high. Secondly, EMH has not ignored behavior factors too and accepted the fact that these factors influence rate of return and risk premiums. It has been observed that EMH is not interpreted properly to market players which in result gave birth to behavior finance. It is also pointed that behavior finance and EMH are not comparable models. Behavior finance defines how individual forms expectations and how valuations of securities are affected from such expectations. And EMH works on efficiency of market which is defined through flow of information. If information is reflected in stock prices then it is up to players how do they take it.

EMH lies on few assumptions and holds true only when these assumptions are possible. Behavior finance is subjective concept and do not define how to incorporate behavior constraints in making investment decisions. Cognitive factors such as mental accounting, framing of options and prospect theory provides a psychological perspective of investors that creates anomalies in the market. Thus, behavior of investors in reacting towards financial securities becomes financial behavior because these psychological factors of all investors lead to changes in financial environment and to large extent influence the stock prices.

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