A Behavioral Finance Perspective of the Stock Market Anomalies

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Abstract: Stock market investors experience a lot of anxiety in the market when they take stock market decisions owing to the vast amount of stock information available and the numerous stocks available for investing. This anxiety leads to irrational behaviour of the investors which causes them to exhibit behavioral biases. Stock prices hence deviate from the norms causing anomalous stock market behaviour. This paper introduces the concept of behavioral finance and prospect theory after explaining the classical financial theory concepts and then explains the anomalies in the stock market from the behavioral finance perspective. The behavioral biases causing anomalies like Short term momentum, Long term reversal, Weekend anomaly and Value premium anomaly are explained.

Keywords: Investor Behavior, Behavioral Finance, Prospect Theory, Behavioral Biases, Anomalies, Short term momentum, Long term reversal, Weekend anomaly, Value premium anomaly, Stock Market

I. INTRODUCTION

Parikh (2009) showed that the Sensex was very dynamic. He explained that the volatility was not because of the performance of the companies which constituted it, but because of the mistakes of the crowd. The emotional intelligence of the average investor played a very important role in the overall behavior of the crowd. The emotional quotient influenced the behavior of the average investor, which in turn affected the trading decisions taken by him in the stock market. The behavior of the crowd, which included herding, overreaction, under reaction, etc., was some of the flaws made because of the inherent biases of the individual investors. The complex phenomenon of investor behavior had been the topic of concern both in the past and in the current research of the financial market. Traditional economists assumed the rational behavior of the investor; on the other hand, psychological theories emphasized the irrational behavior of the investor in a more practical sense (Iqbal et al., 2013). De Bondt (1998) was among the first to list out the specific behavior of the individual investors who managed their own portfolio. It included, discovery of naive patterns from the previous price movements, poor diversification of portfolio, and suboptimal ways of trading. The biases of the individual investors hence were the cause for the irrational behavior in the stock market. This irrational behavior in turn led to several stock market anomalies which challenged the traditional paradigm of finance. Investors’ behavior affects their decision making process in terms of their emotions, rationality or their reactions. As a result, the decisions taken by the investors were affected resulting in stock market anomalies. The reasons for stock market anomalies included the behavior of investors like overreaction, overconfidence, over estimation, less sophistication level of the investor and the biased behavior of the investors (Iqbal et al., 2013).

Each investor behaved differently to the same information depending on their level of sophistication. As a result, the performance of the investor differed based on his/her behavior. Theories of psychology helped to form a complete picture of the irrational behavior of the investor (Grinblatt & Keloharju, 2000).

Classical Financial Theories

The rationality assumption of economic agents had been the foundation for the classical economic theory. There rational agents maximized wealth and minimized risk and found a portfolio which best matched their risk level after assessing every investment option. Most of the traditional financial models were based on these assumptions. The Capital Asset Pricing model, was one, which stated that investors hold well diversified portfolios with returns compensating the time value of money and the risk taken (Barber & Odean, 2011; Pascual-Ezama et al., 2014). A history of researchers laid the foundation for the CAPM model. It all started with Harry M. Markowitz’s (1959) work on portfolio diversification followed by Jack L. Treynor’s (1961) work on equilibrium asset pricing. CAPM was then independently developed by William F. Sharpe (1964) and John V. Lintner (1965).

The assumptions of CAPM included a perfect market without any limitations like taxes, transaction costs, and short selling or borrowing limitations. The investors were also assumed to settle on the risk of the securities and their expected performance on the basis of a time frame. The basis of the CAPM model was to combine risky stocks and form a portfolio in such a way that the combined portfolio was less risky when compared to its components. The CAPM model gave the formula for the expected return on a risky security which was equal to the risk free rate plus a premium for the risk taken. The risk free rate was the return on riskless investments. The risk premium was Beta times the difference between the expected return on the market...
and the risk free rate. Hence in an ideal financial market, the CAPM investors held well diversified portfolios which were subject to only the market risk for which a premium was earned. Because of the diversification, the company specific risk was eliminated and not compensated for. In the CAPM model, Beta was the standard measure of the market risk. A stock with a beta measure of 1 implied that the price movements of the stock will be in tandem with the market index. Stocks with a beta measure greater than 1 indicated that the prices of the stocks would rise and fall at a greater rate than the market index. This would be indicative of a highly risky stock. On the other hand, stocks with a beta measure less than 1 indicated that the prices of the stocks would rise and fall at a lower rate than the market index. This was indicative of a low risk stock which was less sensitive to market changes. High beta stocks would have high expected return owing to the high risk taken and low beta stocks would have low expected return owing to the low risk taken (Mullins, 1982). The Efficient Market hypothesis, the corner stone of classical finance formulated by Eugene Fama in 1965 was another example. It was based on complete rationality of the capital market where the investors participating were also rational (Kharb & Malik, 2014). According to this hypothesis in an efficient market, the prices reflected all the information and it was impossible to beat the market and predict the price movements. Fama (1965a) gave the definition for efficient market as, “an ‘efficient’ market is defined as a market where there are large numbers of rational profit-maximizers actively competing, with each trying to predict future market values of individual securities, and where important current information is almost freely available to all participants. In an efficient market, the competition among many intelligent participants leads to a situation where, at any point in time, actual prices of individual securities already reflect the effects of information based both on events that have already occurred and on events which as of now the market expects to take place in the future. In other words, in an efficient market at any point in time the actual price of a security will be a good estimate of its intrinsic value” (p.3). The efficient market hypothesis was closely a reflection of the “random walk” (Samuelson, 1965) idea of a series of stock price changes. This meant that the stock prices change randomly in nature and predicting this change was near to impossible (Malkiel, 2003).

The three forms of efficient market hypothesis included (1) weak form EMH, where all the past historic prices were already reflected in the stock prices and they moved only randomly and independent of each other. In other words, it was not possible to beat the market by employing technical analysis where the future price change was anticipated using the past prices. (2) semi-strong form EMH, where all the publicly accessible market information was already reflected in the stock prices. This implied that the fundamental analysis which employed the use of public information to anticipate the price change and earn abnormal returns cannot be used. (3) strong form EMH indicated that the past, publicly accessible and the privately accessible insider information was all reflected in the stock prices. Hence it was not possible to beat the market by insider trading (Naseer & Tariq, 2015). In Koonce (2001) review of Shleifer (2000)’s book Inefficient Markets, all the three main assumptions of the EMH were critically reviewed. With respect to the first assumption of EMH which stated that investors were rational, Shleifer (2000) explained that the investors were irrational and their decisions were based on how the problems were framed. The stock price fluctuations were attributed to under reaction and over reaction of the market participants. With respect to the second and third assumption of EMH which stated that to the extent to which the investors were not rational, their behavior will cancel each other and that the rational arbitragers will eliminate the influence of irrationality, Shleifer (2000) pointed that arbitrage was limited and risky in real world situations. Thereby all the assumptions were reviewed. Fridson (1994) in his review of the book Advances in Behavioral Finance by Richard H. Thaler contradicted all the three forms of EMH. In the context of the weak form EMH, the stock market players failed to fulfil the rationality assumption of EMH. The disturbances hence created owing to irrationality were however corrected by the arbitragers. In the context of the semi-strong form EMH, the stock prices frequently diverged from their intrinsic values for prolonged periods due to analytical errors. In the context of the strong form EMH, the reflection of corporations’ financial performance on the stock prices was limited instead; the price changes were more driven by manias.

Rise of Behavioral Finance

A more practical explanation of the financial anomalies explaining the behavior of the stock market investors was necessary. Understanding the financial personality of the investor and the analysis of the financial market’s inefficiency became important. Literature with empirical evidences against the random walk nature of the stock prices had kindled the surge of what is now known as the “Behavioral Finance” (Grinblatt & Keloharju, 2000). Wouters (2006) explained Behavioral Finance as a branch of finance which used psychology related theories to explain the anomalies in the stock market. It was during the 1990s when a new field called Behavioral Finance emerged in academic journals in order to explain the reasoning process of the investors and thus their irrationality. However, the foundation for Behavioral Finance was laid nearly 150 years ago. MacKay’s Extraordinary Popular Delusions and the Madness of Crowds published in 1841 showcased the various panics and schemes in a chronological order. It explored how group behavior could be applied to today’s financial markets. The Crowd: A Study of the Popular Mind by Le Bon elaborates crowd psychology and group behavior. The book, Psychology of the Stock Marker by Selden published in 1912 was the first to apply psychology to the stock market directly, explaining the emotions behind the investors and traders in the
markets. These three important works along with others mark the basis for the application of sociology and psychology to finance (Riccardi & Simon, 2000).

Shleifer and Summers (1990) put forward the two main blocks of Behavioral Finance: Investor sentiment and Limited arbitrage. First was that investors were not fully rational and their claim for risky assets was not completely explained by the fundamental news and hence affected by their sentiments. The irrationality of investors would lead to irrational preferences and irrational decisions leading to the drift from the fundamental values. Second was the concept of limited arbitrage. In an ideal financial world, the arbitrageurs would nullify the noise created by the irrational investors and market efficiency will be restored. But in reality, arbitrage was risky and not all securities had perfect substitutes. Hence arbitrage was limited. Both these blocks put together indicated that changes in investors’ sentiment were not completely covered by the arbitrageurs. This in turn affected the returns of securities (Shleifer & Summers, 1990; Wouters, 2006). Behavioral Finance helped to understand the irrational behavior in the market by relaxing two important principles of the traditional finance theories. One was that agents failed to amend their beliefs and the other was that there was a systematic alteration from the standardized process of making investment choices (Kishore, 2004). “Traditional finance assumes that people are rational and tells us how people should behave in order to maximize their wealth. Alternatively, Behavioral Finance studies how people actually behave in a financial setting” (Nofsinger, 2001, p.8). The road to Behavioral Finance was set with the proposition of the Prospect theory which helped to explain the irrationalities of individuals.

**Prospect Theory**

The Prospect theory by Kahneman and Tversky (1979) was the first step which used cognitive psychology to explain the various divergences of economic decision making. This was the foundation to explain irrationality of individuals. Prospect theory was based on the idea that individuals did not always have a rational behavior. The main assumption of Prospect theory was that investors prioritize avoiding losses over achieving gains which laid the foundation for loss aversion (Riccardi & Simon, 2000). Prospect theory explained preferences of individuals in terms of “decision weights” which was different from the probabilities. As a result, small probabilities could be given more weight and large probabilities could be given less weight (Kahneman & Tversky, 1979; Riccardi & Simon, 2000).

The third premise of prospect theory was that investors assess gains and losses with respect to a specific reference instead of looking at the final value of wealth. The prospect theory demonstrated that when investors were given the choice of a sure gain versus a probable gain, they tended to become risk averse and chose the sure gain option though the probable gain option had a higher payoff. Similarly, the theory explained that when investors were faced with the prospect of losing money, they tended to be risk taking. This provided the experimental evidence for investors preferring lotteries and insurance. This disposition to investing was the manifestation of irrationality (Kahneman & Tversky, 1979; Riccardi & Simon, 2000).

Behavioral Finance helped to provide answers to many anomalies the efficient market had faced. These anomalies include:

- Short term momentum
- Long term reversal
- Weekend anomaly
- Value premium anomaly

Behavioral economists explained the short-run momentum as a result of the propensity of the investors to under react to new incoming information. Hence, important news announcements would be absorbed only eventually over a period of time by the equity market (Malkiel, 2003).

Daniel et al. (1998) provided a theory on the basis of the overconfidence bias of the investor and self-attribution bias to explain the short term momentum and the long term reversal which were left unexplained by the rational models. They explained that investors’ behaved in a way that they had the propensity to over react to private information; and on the other hand, under react to publicly available information resulting in the anomalies. Hence the behavioral concept of under reaction of the investors to incoming news explained the momentum in the short term. On the other hand, the behavioral concept of overreaction of investors to incoming news explained the reversals in the long term (Grinblatt & Keloharju, 2000). Barberis et al. (1998) explained the under reaction and overreaction of investors to stock information as the outcome of behavioral biases like conservatism bias and representativeness bias. Conservatism bias in investors would lead them not to utilize the complete information content of public announcements like earnings, etc., and under react. As a result of this, they made only incomplete adjustments of stock valuations. The representativeness bias, on the other hand caused investors to over react when they tried to see patterns in random events. That is, they overrated stocks of companies with huge earnings growth and extrapolated the same extraordinary growth in the future. Due to this hiking of the fundamental value, the overreaction ultimately resulted in long term reversals. The weekend effect stock market anomalies, where the stock returns were mostly negative on Mondays were explained because of the negative returns on Fridays. It was proved that nearly 80% of the time, when returns were negative on
Fridays, the returns were negative on Mondays (Abraham & Ikenberry, 1994). This anomaly was because of the representative bias (Grether, 1980; Kahneman & Tversky, 1973) exhibited by the investors where the past information was used as predictors for making judgments. In this case, the returns on Friday were assumed as representative of the stock and hence reflected in the returns on Monday. Similarly, other seasonal anomalies could be explained by this biased behavior of investors. Such seasonality anomalies had also been studied in the Indian stock market (Ignatius, 1992; Nath & Dalvi, 2004; Singhal & Bahure, 2009). The value premium anomaly, which is, higher returns of the value stocks in comparison to the growth stocks were explained by the rational school of thought as a result of the systematic risk which was however not observed. The behavioral explanation for the value premium was that the value stocks were able to generate a higher return because of the biased behavior of the investor. The value premium was the result of the inability of investors to interpret information correctly (Wouters, 2006). Lakonishok et al. (1994) explained the return difference between the value stocks and growth stocks as due to the optimistic and pessimistic behavior of investors. The value stocks were viewed with pessimism and hence lower expectations and thereby returns were positive. On the other hand, the growth stocks were viewed with optimism and hence higher expectations and thereby returns were negative. In recent times, several researchers had been studying the irrational behavior of individual investors in the equity market (Pascual-Ezama et al., 2014). The impact of this irrational behavior on the financial health of the individual investors had been documented by many researchers like Barber and Odean (2011). Several models like Barberis et al. (1998) and Lovric et al. (2008) had also been put forward to explain the empirical implications of this irrationality in the stock market.

II. CONCLUSION

This paper explains the anomalies in the stock market from the behavioral finance perspective. Short term momentum was explained as an anomaly owing to the under reaction of the investors because of the conservatism bias. Long term reversal anomaly was owing to the overreaction of the investors because of the representativeness bias. Weekend anomaly was also explained as an anomaly owing to the representativeness bias. Value premium anomaly was explained as an anomaly resulting due to the optimistic attitude towards the growth stocks and pessimistic attitude towards the value stocks. Hence this paper brings to light the behavioral biases which lead to the anomalous behaviour of the stock market which was left unexplained by the classical financial theories.

III. REFERENCES


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