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Stock Market Anomalies - A Literature Review

[1]Ayesha Fareed & [2]Dr. Syed Shabib Ul Hasan

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Abstract

This paper is aimed to provide the understanding of anomalies presented in stock market by summarizing some of the existing contributions. Basically, these are highlighted by several researchers as deviations from the conventional or we can say the traditional theories. This paper not only introduces those anomalies but also highlights the causes of anomalous behavior observed in indicators of stock market performance as documented by researchers. Studies of other researchers as well are utilized. Along with this, primary data is gathered through interviews with officials at Pakistan Stock Exchange (formally known as TRE Certificate holders). The overall content from secondary sources concludes that stock markets have been facing various anomalies including abnormal price changes known as price volatility, stock price predictability, equity premium puzzle, volatility in trade volume etc. comprising that anomalous behavior. The content also reveals the causes of those anomalies that include calendar effects, political effect and macroeconomic factors 'effect and last but not least the behavioral biases effect. It is expected that this study will contribute towards the understanding of documented anomalies and will also help the concerned bodies to identify the causes behind the inefficiencies so that the performance of the market could be understood properly.

Key words: stock market, traditional finance, anomalies.

1.Introduction

The existing literature including the criticism there on has provided significant contributions to conventional financial theories and their impact on stock market performance. However, when we looked at the performance of the listed stocks on the exchange, we discovered that there were frequent price changes that traditional theories couldn't account for. Not only can stock prices change erratically, but so do stock returns (dividend yields). Most important traditional finance model based on Efficient Market Hypothesis is not adequate to explain the variations in stock prices because its assumptions are not assessed on the basis of realism (Friedman, 1953).

Along with stock prices and returns, there are certain other factors whose fluctuations aren't meant to correspond with the stock market participants' reasonable behavior. Using the conventional ideas, many scholars have attempted to draw conclusions regarding these aberrant increases in the mentioned variables, but these modifications have thus far been adequately justified by them. (Ball and Brown (1968), Livnat and Mendenhall (2006), Gleason and Lee (2003), and Fama and French (1992). This is why these anomalies persisted as contradicting problems for a while.

"Some time investors are not rational and their collective decision can go wrong" as explained by Malkiel, 2003. This is why these anomalies persisted as contradicting problems for a while. And

1. PhD Scholar, Department of Commerce, University of Karachi. Email: ayeshafareed.doc@gmail.com
2. Associate Professor, Department of Public Administration, University of Karachi & Vice Chancellor, Hamdard University, Pakistan. Email: sshassan@uok.edu.pk

these could be explained using asset pricing theories based on human behavior (investor behavior) (Fama, 1998).

I shall now do my utmost to close the gap between stock market investors' reasonable and illogical behavior. Arguments or anomalies in the idea and practice of rationality are fundamentally the steps that make up this bridge. Note that anomalies are essentially explained as deviations from investors' rational behavior, and that these could be discussed under the macroeconomic, calendar, and event effect categories (Borromeo, 2018). Next section will highlight these stock market anomalies with the relevant literature.

2. Some Common Anomalies in Stock Market

2.1 Price Volatility

John Borromeo (2018) sought to identify market abnormalities and their causes in his doctoral dissertation. His research found that the efficient market hypothesis was only partially true, i.e., one cannot fully explain all stock market operations or behavior using EMH; rather, some atypical behavior is also seen. He provided a thorough explanation of the influence of stock market anomalies, integrating macroeconomic, calendar, and even elements.
"Overall, what causes stock volatility is not clearly understood" (Bittlingma Yar 1998). Anomalies including the weekend effect (WE), the January Effect (JE), the Turn of the Month Effect (TOTM), the Holiday Effect (HE), and the End of the Financial Year, however, were not supported by the empirical investigation. The impact of the aforementioned calendar effects on stock prices were investigated through empirical investigations. The outcomes are listed below:

2.1.1 Weekend Effect

We saw the weekend effect across all nations, with Tuesday mean daily returns in Australia and Japan being the lowest (Jaffe et al. 1985). According to Keim et al. (1984), average Monday returns are negative whereas average Friday returns are positive. Monday mean returns that are negative and below average (Gibbons et al.1981) Monday's negative mean returns (French, 1980) At a 10% level, the weekend effect is statistically significant (Cross 1973). Day of the Week has a stronger impact on large capital stocks than on small capital stocks (Choy et al. 1989). Low Monday returns are linked to market declines in the past; if the market has rebounded, the anomaly is no longer present (Jaffe et al.1989).Only the final two weeks of the month revealed Monday effect (Wang et.al. 1997).

2.1.2 Effect of The Day Of The Week

The DOW impact affects both stock price and returns (Berument et al. 2001).In 11 eastern European emerging markets, there were no significant changes recorded in connection with the DOW impact (Ajay et al. 2004). According to Boudreaux et al. (2010), the probability of change in stock prices and returns is stated in relation to bearish and non-bearish market situations.

2.1.3 Moty (Month of The Year Effect)

Although historical study has not yet reached a conclusion about the specific month or months in which investments are believed to be more beneficial, some of the findings from earlier studies are as follows:

According to Merrill (1966), December was the most lucrative month for Dow Jones Industrials. In several stock markets, November was viewed as having the highest stock returns (Bhabra et al. 1999; Gibson et al. 2000; Johnston et al. 2005).Giovanni's 2009 research led him to the conclusions that December Effect in 20 stock markets, February Effect in 9, January Effect in 7, and April Effect in 6 stocks Chia et al. 2012's comparison of stock returns shows that returns are greater in November compared to January (Nikkei Stock Market). Regarding the Bombay Stock Exchange and the National Stock Exchange, Patel (2008) came to the conclusion that November and December had greater mean returns than other months, particularly lower returns in March to May.

2.1.4 Turn of The Year Effect/Je

According to the EMH theory, stock prices are thought to reflect all available information, or we could say that all information about a stock is reflected in its price. However, the EMH theory contends that it is impossible to forecast current or future stock price returns using historical price variation data. The TOTY effect is essentially the effect of January. The EMH hypothesis and stock price determination concepts do not apply to the January impact.
In comparison to other months, Rozeff et al. (1976), Kein and Reinganum (1983) saw and noted higher returns in January. However, Thaler (1987) did not find this oddity for large cap corporations. The following are some of the results for TOTY or JE:

a) For markets where the calendar year is used as the financial year, JE is connected to tax loss selling. To lower capital gains and minimize taxes, TLS refers to the sale of equities after realizing capital losses (D' Mello et al. 2003). Institutional investors are recognized as the key participants in trading.
b) TOTY returns linked to institutional investors selling tax losses, particularly to small businesses (Sikes 2014).
c) According to Ahsan et al. (2013), the JE/TOTY effect had no discernible effects on stock prices and returns.

2.1.5 Turn of The Month Effect (Totm)

The TOTM effect, which states that stock prices are higher at the start and of the month as compared to the middle of the month and in turn, this pattern changes the returns (Maher 2013), is another anomaly or deviation from the normal behavior (rational behavior) of stock investors (forming stock market behavior). Some findings by different researchers are as follows:

a) A total of 16 foreign indexes out of 21 exhibited the TOTM effect, accounting for an average monthly return of 87% (Kunkel et al. 2003).
b) Mc. Guinness (2006) discovered a significant TOTM effect for Hong Kong small cap equities.
c) According to Niddien et al. (2009), the intra-month TOTM impact is reported in connection to macroeconomic news.

2.1.6 Financial Year Ending Effect

When the state's financial year (fiscal year) is about to expire, market changes in stock prices also signal this. The fact that investors cut their capital gains from other securities to offset their capital losses when they sell losing stocks at the end of the fiscal year to avoid paying taxes is yet another oddity supported by several experts. We may thus assert that the EOFY impact and the TLS (tax loss selling) effect are related. Stock returns are greater near the end of the fiscal year and in the early days of the next fiscal year, according to empirical research on this impact (Lee 1992). The following is a summary of some of the results about how EOFY affects stock prices and returns:

a) A study of the ASX by Broun et al. (2006) came to the conclusion that there was a "disposition effect" towards the end of the calendar year, but the TLS hypothesis is accepted based on data from June, which is the end of the financial year.
b) According to another analysis of the Australian Stock Exchange, bad (loser) portfolios had positive returns at the start of the new fiscal year, or in July. Again, the lack of a momentum impact has been proclaimed.
c) Brown et. al. (2010) once more provides data in support of a June and July influence. (ASX analysis between July 1994 and June 2007). They discovered a negative shift in prices of mainly minor mining stocks in favor with the TLS hypothesis, with increased trading activity and huge sell orders in the month of June.
d) Three times more stock returns were seen in the aforementioned months than in any other month of the year, according to the effects of the end of the calendar year (December) and the end of the fiscal year (July), as well as the month of April. TLS and liquidity restrictions may be to blame for this (Marrett et. al. 2011).

2.1.7 Affect of Holidays

When stock price and return volatility arises for a reason(s) other than those expected by conventional finance, it becomes a clear sign of the stock market's unusual behavior. Effects of the calendar are one of the causes. In addition to the calendar influences already mentioned, the holiday effect may also have an impact on stock price and return. It also has a pre-holiday influence. As reported by Gama et al. (2013). The day before the holiday, he delivered greater returns. Lakonishok et al.'s 1988 study of the US stock market found that between 30 and 50 percent of stock trading value occurred prior to 1987. Additionally, Ariel (1990) discovered that pre-holiday returns were fourteen times greater than other day's returns in 1990. Following are a few results of the HE examination:

a) The HE in the FT's industrial ordinary shares index is supported by the study's findings, conducted by Arsad et al. in 1997.
b) Coutts et al. (2000)'s analysis of the Athens Stock Exchange indicated that HE was present in several indexes.
c) The pre-holiday influence in ASX multiple sub-indices is also reported by Marker and Worthington (2009).
d) Alagidede (2008) evaluated the calendar effect on other stock markets; the results showed that the pre-holiday effect was only seen in the South African market.

Rana Shahid, Iqbal Mahmoud, and Muhammad Mudassir Ghafoor's (2020) findings contradict the efficient market hypothesis due to the volatility in stock returns and prices observed in the market as a result of abnormal market behavior. These calendar effects, or anomalies, are also evidenced in the Pakistan Stock Exchange (100 index). The primary observable abnormalities are caused by speculative trading, political unrest, and war, terrorism, and interest rate fluctuations. Political and economic environments that are particularly ravenous and unclear offer possibilities for speculation and generate extraordinary gains in the market. Investors use behavioral biases to make judgments based on imperfect knowledge because no one has all the facts. Investor to investor differs on that. Anomalies in the market are created by this variable behavior (Schwert, 2003). Market inefficiencies typically affect emerging and impoverished nations like Pakistan more than industrialized nations like the USA.

2.2 Ability to Predict Stock Prices

The capacity to foresee or foretell what the future price of a security will be is referred to as the predictability of stock prices. As we well know, stock prices follow a random walk according to

traditional financial theories (Fama and French 1970), meaning that the price at any given moment is independent of its prior level. The efficient market hypothesis is based on the random walk theory and its hypothesis, and according to its weaker version, present stock prices are affected by previous information, making it impossible to forecast future values based on past trends. The stock price can no longer be influenced by information from the past.

According to the random walk hypothesis, prices will fluctuate in the future regardless of their recent and present levels. Both the random walk and the EMH reach the same conclusion: stock prices are information-dependent. Without a doubt, this is an assumption that almost all financial academics from every age have agreed upon. But in reality, three things are crucial: first, the availability of information (especially current insider knowledge), second, comprehending it and its ambiguity, and third, using it. And once more, it is a fact that none of the aforementioned three phases could bring about perfection.

Furthermore, there is no central structure for determining stock prices. When all users have access to information via a phone call or a centralized network at the stock market, the encoding and use of that information will vary from user to user.

The explanation above shows that, in reality, even well-informed investors are insufficient for a market to function efficiently. Instead, the analytical abilities are the most significant variable, since they enable investors to earn (face) through personal computers and analytical knowledge. Another empirical study (Musarrat Shamshir, Mirza Jawwad Baig, and Khalid Mustafa, 2018) discovered that the KSE 100 Index and KSE All Shares Index do not demonstrate the presence of random walks in stock prices, whereas the KSE 30 Index and KMI 30 Index were discovered with the random walk hypothesis being followed while the free hooping methodology was used as the selection criteria.

Van Dana Kahuna noted in their study that investors utilize historical data as the foundation for their investment strategies and the basis for projection (in the context of the Made in India movement). De Bondt and Thaler (1985, 1987) discovered that investors overestimate their expectations for the past loser portfolio and underestimate their expectations for the prior winner portfolio, which results in the stock price to deviate from its base value. The Winner-Loser Effect is supported by the fact that over time, when the market always correct itself, previous investors in loss are earning positive returns while earlier winners are not earning or in loss. The stocks employed in De Bondt and Thaler's experiment (1985) are specifically the top 35 and the poorest 35 over the long run (five years), after which a return reversal occurs in the following three years. As a result, a novel approach can be developed to forecast stock returns: using reverse technique to purchase the loser portfolio over the previous three to five years and sell the winner portfolio.

2.3 A Puzzle on Equity Premium

The equity premium is the difference between the equity returns on risky securities and the equity returns on risk-free securities, such as the return on a stock minus the return on a Treasury bill. Traditional financial models maintain that the risk associated with hazardous securities, which may be diversified, is what causes their excess return. The calculation of return takes into account overall market risk and how it affects the corresponding investment or portfolio. Due to its systematic nature and potential effect on the whole market, this aggregate market risk is seen as being improvable.

Although higher risk implies that return will also be higher, when we examine the equity premium and its volatility in the context of an analysis of market efficiency, it is also discovered that the equity premium varies for reasons other than diversifiable market risk, which is an anomalous behaviour. Due to the fact that the estimated market risk (which is not diversifiable) has not provided a sufficient rationale for the observed changes in stock returns, equity risk premium (also known as equity premium) is being viewed as a conundrum. This suggests that the change in equity premium is not just a result of risk related to a securities or portfolio.

Diverse temporal horizons might also be used to explain the perplexing nature of equity premium. According to Poterba and Summers (1988), the mean reversion property of stock prices and returns indicates that standard deviation (risk) reduces over a lengthy period of time. The association between standard deviation and equity premium and the impact of mean reversion were also identified by Sigel (1922 b). He discovered that stock returns had barely varied by 2.76% over a 20-year period, leading to low equity returns over the long term (low risk, low return). This association is discovered to be stronger in the case of fixed income assets like T bills. Compared to equities, T-bills' standard deviation over 20 years reduces less. In the long term, this concept of "mean aversion" (lower rate on risky securities minus higher rate on risk free securities) calculates even negative equity premiums.

Decreases in real rates of interest or returns on short-term fixed-income instruments offer another explanation for the equity premium conundrum (Siegel, 1992b). The return after accounting for inflation or deflation is essentially what is meant by real rate of return. The risk free rate drops once actual inflation is taken into account, resulting in a real rate that is lower than the nominal rate of risk-free securities, if the risk free rate of return does not include the proper inflation premium. According to Siegel's analysis (1992 a, b), the actual rate of return or yield on fixed income securities fell from 5.4 percent to 0.7 percent between 1926 and 1970 as a result of comparatively greater inflation (he has split the data of a period of 193 years into three segments to examine the effects of greater inflation from 1926 to 1970, which boosted the equity premium to 6.6 percent from 5.3 percent in the study by Mehra and Prescott (1985), who did not segment the data. This suggests that even if the actual rates of both types of assets (risky and risk free) are compared, the equity premium will grow even if the real rates on fixed income securities decline owing to greater inflation. The results demonstrate that the equity risk premium (difference between real rates), which remains positive and bigger than U.S. (which survived the Stock Market), is related to the higher sensitivity of fixed income instruments to inflation than equities. Gregor Gielen (1994) and Hirose and TSO (1995).

By comparing it to the rational expectations proposed by Campbell and Cochrane (1999), Cecchetti et al. (2000) suggested a different approach called irrational expectations to explain the equity premium. According to Chen (2017), the Equity Premium Puzzle occurs because people develop habits during economic cycles, especially during recessions. For example, households get used to maintaining a comfortable lifestyle, which leads to risks in the overall economy that are not taken into account by asset-pricing models. DaSilva, Farka, and Giannikos didn't achieve findings in line with US equity premium data till 2019, in a model that incorporates increasing risk aversion as individuals age, without making any other excessive assumptions about risk aversion levels.

Kogan et al. (2007) found that the equity premium can be attained in an economy that enforces limitations on borrowing. Bansal and Coleman (1996) argue that the Equity Premium Puzzle arises from the adverse liquidity premium associated with bonds, leading to a reduction in the risk-free interest rate and an expansion in the disparity between stock returns.

According to De Long et al. (1990), the creation of dividends is a high-risk process that results in a large equity premium. Lacina, Ro, and Yi eliminated the use of forecasts in 2018, demonstrating a nearly zero risk premium. The Equity Premium Puzzle is also explained by individual income tax rates (McGrattan and Prescott 2010), GDP growth (Faugere and Erlach 2006), information (Gollier and Sehlee 2011; Avdisa and Wachter 2017), and spatial dominance (Lee et al. 2016).

As behavioural finance gained popularity, several academics started to utilize its theories to explain the Equity Premium Puzzle. Based on prospect theory, Benartzi and Thaler (1995) proposed a causal relationship between loss aversion and the equity premium, suggesting that the equity premium plays a vital role in motivating investors to include stock assets in their portfolios and maintain an appropriate balance between stocks and bonds precisely because investors are concerned about stock losses.

Additionally, Barberis et al. (2001) stressed in the BHS model they developed that investors' loss aversion would evolve over time, resulting in equity premium, while Ang et al. (2005),

Xie et al. (2016), and others explained the Equity Premium Puzzle by introducing disappointment aversion of Behavioural Finance as an influence factor. Hamelin and Pfiffelmann (2015) used behavioural finance to solve the conundrum of how can one effectively clarify the concept of private equity to traders who make decisions based on cognitive factors? Additionally, how can the acceptance of lower returns by business owners, despite being fully aware of their substantial exposure, be rationalized?

When Mehra and Prescott examined 107 research publications on the Equity Premium Puzzle in 2003, they came to the conclusion that no one had offered a convincing solution. In summary, it is determined that when stock premium exhibits unusual variations that are still unreasonable in light of changes in market risk, it becomes an abnormality. The following factors are mentioned in the literature review in addition to market risk:

- Impact of time period on portfolio risk measure.
- Inflation's effect on the risk-free rate of return.
- Effect of loss aversion

Together, the aforementioned discussion and contributing factors made clear that while low equity returns, when calculated on a nominal basis, give lower or even negative equity premiums, when adjusted for inflation, real rates of return on risky and risk-free securities give positive and higher equity premiums. In contrast, equity premium exhibits unusually greater results in the short term due to a higher standard deviation of stock returns as well as the predictability of stock prices as a result of cyclical changes in the economy and insider knowledge.

2.4 Anomaly of Company Size and Stock Returns

Any listed company's size is known or quantified in terms of its market capitalization when stock market efficiency is being examined. The size or market capitalization of any listed business has a big impact on how well its stock will do in the future. Although the efficient market hypothesis asserts that stock prices reflect all information (strong form), it is likely to occur that a small number of investors who have access to information before it is made public can benefit from it by earning abnormal returns. Typically, this early information allows some investors to make abnormal profits in the short term with their early Stock price forecasting (Fama, 1970).

This situation goes against the EMH tenet that stock values are unpredictable and move in a random manner. In the framework of bounded rationality, the size impact is one of the aspects that is investigated as an anomaly (unusual deviation) (Kuhn, 1970). According to Annear and Combez's findings from 2022, there is an inverse correlation between affirmative stock returns and size. The stock return is the decreasing function of trim zed, according to Banz's (1981) analysis of the small business impact on stock returns. Additionally, Levis (1985) and Corhay, Hawawini, and Michel (1988) provide empirical support for the size effect in their studies of the book-to-market value ratio, and their impact on stock return is also explored. Eugene F. Fama, 1996; Timmermann, 1996; and K.R French, 1995.

Kihenjo (2016) analyses the Nairobi Securities Exchange from 2011 to 2015 in order to look at the effects of small size on stock returns. The results showed that small size enterprises had greater returns than large size firms. Cheung et al. (1994) also found that enterprises with big capitalizations generate poorer returns than those with modest capitalizations. Additionally, Dimson and Marsh (1986) noted that small businesses experienced larger yearly stock returns than did large businesses.

Along with size impact, the holding period effect (daily vs. yearly) is investigated since Roll (1983) found a connection between holding period disparities and anomalous returns of small enterprises. The results of another study (Gomes, Kogan Zhang, 2003) comparing the stock returns of small businesses with their level of risk came to the conclusion that the traditional financial models could

not account for the sensitivity of small businesses to economic changes because the actual returns of small businesses are higher (than estimated) due to higher levels of risk, some of which are not taken into account by the models.

Moore (2005) emphasized the retention ratio as one of the factors that contribute to better returns in order to explain the greater return of small company stocks. He came to the conclusion that smaller organisations often kept more employees than bigger ones, increasing stock value more quickly than those larger enterprises that did not. Banz (1981), Berges, Mc Connel, and Schlarbaum (1984) are only a few such research that have shown the size impact, particularly the small business effect, in stock returns in developing markets.

In addition, month-of-the-year impact anomaly is sometimes explored with size effects. For example, Berges, Mc Connell, and Schlarbaum (1984) found that small enterprises saw greater returns in the month of January. Anomalies in the stock market caused by the size impact and tiny size effect have received attention on the level of economic developments. Stock prices in developing countries are more likely than those in developed ones to be impacted by size effect anomalies, according to Jayen's (2012) analysis.

In other words, even though information processing systems are developing and becoming more widely known in the stock markets too quickly to allow the stock prices to reflect all information, there are still a number of other changes that affect businesses of various sizes in various ways, and all of these changes (risk factors) cannot be accounted for by corporations when determining stock prices and returns. As a result, there is an abnormality in the behavior of returns of small and large size firms. Among the variables might be holding or multiple economic shifts, retention rate, calendar influence, economic development level, etc.

2.5 Stock Market Anomalous Trading Volume

The amount of stock market transactions including the buying and selling of stocks is referred to as the volume of trading stocks. Trading activity is linked by rational financial theories to the portfolio's hedging, liquidity, and rebalancing needs (Lee, Kim, and Tong, 2016). But practically all stock markets, especially those in developing nations, have abnormally high levels of volatility in stock prices and returns, which do not accurately represent the exact nature of the link between trading volume and those parameters. Lee, Kim, and Tong (2016) reviewed and investigated a number of other parameters related to unusual trade volume. They looked into investor attention, behavioural biases, and trade volume decency. Overconfidence, a lack of attentiveness, and inconsistent beliefs are among the biases. As a result of the volatility of stock prices and returns caused by highly volatile or anomalous trading volume, which cannot be explained by the efficient market hypothesis, random walk theory, etc., it is regarded as an anomaly.

I have addressed the causes or contributing variables for the abnormal trading volume as I investigated in this part and beneath this point. History-based studies have emphasised the link between volume and stock returns (Karpott 1987, Stoll and Whaley 1987, Bessembinder et al. 1996, Lo and Wang 2000).

Additional research (Datar et al 1998, Brennan et al 1998, Chordia et al 2002) have concluded that trading volume has a detrimental influence on stock returns, whereas similar studies (Avramor et al 2006, Banerjee and Kremers 2010) have reached the opposite conclusion.

As we can see, the volume of trades has a variable natural influence on stock returns, therefore several research have attempted to explain the observed inconsistency in the function of trade volume (which elevates it to the status of an anomaly). According to Benos (1998) and Odean (1998), investor overconfidence bias causes overreaction, which increases market trading volume. The results of an empirical study (Odean 1999) also show that the frequency of trading is influenced by investor overconfidence.

The effect of self-attribution (together with overconfidence) on stock prices in the short and long term through over and under response is another addition (Daniel, Hirshleifer, and Subramanyam 1998). Theoretically, as stated by Gervais and Odean (2001), Thorley and Vorkink (2006), and Glaser and Wevor (2009), there is a positive correlation between stock returns and market volume, i.e., the greater the past returns, the greater the volume of trade in the corresponding stocks.

Following overconfidence and self-attribution bias by Shefrin and Statman (1985), disposition effect is the third bias that affects trade volume. According to Shefrin and Statman (1985), the disposition effect is "investors' reluctance to sell assets those have lost their value and greater likelihood of selling assets that have made gains."

Prospect theory (loss aversion), regrets aversion, and mental accounting are further theories that lend credence to this natural way of thinking and doing. Similar to Grinblatt and Han (2005) and Frazzini (2006), these authors use the ideas of mental accounting and loss aversion to demonstrate the disposition effect. According to Barber and Odean (2008), investor attention to certain equities may be used as a proxy for trading volume; hence higher trading volume is also related to investor attention. While stocks with a big business, a long history, a higher market price, and greater analyst coverage may attract more investors' interest than other stocks. Based on research done by Fang and Peress (2009). They demonstrate a strong relationship between stock price and fellowship while receiving media attention. This is so that investors may keep themselves informed through any stock-related information releases. Comparatively larger uncertainty exists when valuing equities with small size enterprises, low age, and little analyst coverage (Zhang 2006).

To investigate the sources of volatility predictability, Fong and Wong (2007) utilized volatility-volume regressions to analyze the daily realized volatility of common stocks. Their findings indicate a robust presence of the ARCH effect when volume is considered, and they further revealed that unexpected volume can explain approximately half of the variations observed in realized volatility. For various business sizes and trading volumes, Xiao et al. (2009) conducted a study examining the correlation between volume and volatility across the entire Australian Stock Market. Their analysis revealed a significant explanatory influence of daily trading volume on the variance of daily returns, particularly for actively traded equities with higher trading volumes.

The volume of the variation of daily returns will be more influenced by the quantity of information arrivals every day. Small firms with low trading volumes increase the persistence of GARCH effects, as opposed to the top most active stocks' elimination impact. On average, the volume variable reduces the ARCH and GARCH effects on all other equities by less than it does on the top most actively traded stocks. For companies with the greatest liquidity and/or highest market capitalization, the exclusion of both ARCH and GARCH by adding the liquidity variable is greater. Their empirical results disproved the random-walk for stock returns, and they came to the conclusion that there is no statistically significant correlation between volume and volatility. The volume effect on volatility is not likely to be reduced when it is discovered, unlike other anomalies.

3. Methodology

This study is based on literature review categorized as Narrative Literature Review (Baker, 2016) as it aims to provide a comprehensive material on the specific stock market anomalies, contributed by well-known researchers. The articles, dissertations and other secondary data is gathered based on the criteria of providing thorough knowledge about market efficiency, in efficiencies, criticism on rational decision making, bounded rationality, stock market anomalies and the effect of behavioral biases.

4. Anomalies and Behavioral Finance

Through the lens of behavioral finance, some other work has sought to explain the aforementioned oddities, and the authors have created models. BSV model is the first. Barberis, Shleifer and Vishny, 1998, BSV model is one of the three major behavioral finance models. The existing BSV model

is about how behavioral investors form beliefs, and is able to produce both overreaction and mean-reversion for a wide range of parameter values.

According to Barberis et al. (1998), the representational bias and the conservative bias are the two incorrect paradigms that people tend to use while making investing decisions. The former refers to investors who focus too much on recent data's changing patterns while paying insufficient attention to these data's broader qualities. The latter explains how investors are unable to quickly adapt their enlarged forecasting model to their new circumstances. Separately, these two biases cause under reaction and overreaction. The BSV model illustrates how market price swings that deviate from the EMH are caused by investors' decision-making processes.

The DHS model, formulated by Daniel et al. (1998), integrates two widely recognized psychological biases, namely investor overconfidence and biased self-attribution. As per the DHS model, it is posited that overconfident investors tend to overestimate their ability to make accurate predictions. Prediction errors, an overreliance on private information, and an underestimation of the significance of public information all contribute to overreaction by elevating the importance of private indications in the perspective of overoptimistic investors. Overreacting prices typically turn around when more public information becomes accessible, despite the fact that noisy information might moderately remedy market inefficiencies when it first appears.

The HS model is another model to correct momentum anomalies. In contrast to the BSV model and DHS model, the HS model, sometimes referred to as unified theoretical model, places more emphasis on the mechanisms of various players than on their cognitive bias (Hong and Stein, 1999). Their model separates respondents into two groups: momentum traders & observers. While momentum traders just consider previous price changes, observers are presumptively making forecasts based on information about future values.

According to the aforementioned hypotheses, the model uses both under reaction and overreaction as its foundation. The concept contends that momentum traders attempt to take advantage of observers' propensity to under react to private information by using hedging tactics, causing the opposite extreme to overreact in turn.

The regret-aversion model holds significant importance within the field of behavioral finance as it serves as a valuable tool for investors to make informed decisions regarding the selection of investments for their portfolio (Barberis et al., 2001; Muermann et al., 2006). This model not only finds application in portfolio management but also extends its usefulness to various other domains, including hedging and options. By considering the potential regret associated with different investment choices, investors can effectively evaluate and strategize their risk management techniques, leading to more comprehensive decision-making processes. Moreover, the versatility of the regret-aversion model allows its application in diverse financial contexts, contributing to a better understanding of the complexities involved in investment decision-making (Guo and Wong, 2019; Guo et al., 2017).

On the other hand, the Bell (1982) and Loomes and Sugden (1982) disappointment-aversion models can also be applied in behavioural finance. It can be used, for instance, to calculate the proportions of bonds and stocks that investors ought to hold. For more information, readers might see Guo et al. (2019) and the citation therein.

With little data, Wan and Wong (2001) created a behavioural model that can be applied to refinancing during a financial crisis. They discovered the factors that can cause financial crises to spread from one nation to another. In order to test for the contagion effect, Fry et al. (2010) and Fry-McKibbin and Hsiao (2018) constructed statistics.

The Bayesian models, which can be used to explain investors' behavioural biases, were created by The study conducted by Barberis et al. (1998) and subsequent research by other scholars have delved into the interplay of conservatism and representativeness heuristics to understand investor behavior. Building upon these concepts, Lam et al. (2010) expanded the existing body of work by incorporating a pseudo-Bayesian technique that accounts for biases arising from investor behavior associated with dividend expectations. Previous studies by Thompson and Wong (1991, 1996) as

well as Wong and Chan (2004) laid the foundation for this pseudo-Bayesian approach, which enables a more comprehensive analysis of investor decision-making. Through the integration of these methodologies, Lam et al. (2010) aimed to deepen the understanding of how cognitive biases influence dividend perception and subsequent investment choices. This expanded research contributes to the broader understanding of behavioral finance and its implications for asset pricing and portfolio management. Excess volatility, long-run overreaction, short-run under reaction, and their size effect may all be explained using their approach. By developing certain new features and employing the pseudo-Bayesian model to account for market anomalies and investor behavioural biases, Lam et al. (2012) enhanced the theory.

The research conducted by Fung et al. (2011) represents an advancement in the theoretical framework by incorporating the impact of financial crises. They extended the existing theory by considering the effects of a financial crisis on asset prices. To achieve this, they introduced modifications to the normality assumption, allowing for the inclusion of exponential family distributions to model earnings shocks within a random-walk framework, both with and without drift.

Building upon this work, Guo et al. (2017a) further refined the theory. Recognizing the need to explain various phenomena observed during financial crises and subsequent recovery periods, such as excess volatility, long-term overreaction, short-term underreaction, and their respective magnitudes, they introduced additional attributes. These additional attributes were developed to account for the specific dynamics and patterns witnessed during financial crises, as well as the subsequent period of recovery.

By incorporating these enhancements, Fung et al. (2011) and Guo et al. (2017a) contribute to a more comprehensive understanding of the complexities of financial markets, particularly during times of crisis. Their research provides valuable insights into the dynamics of asset pricing and market behavior in the face of significant economic disruptions, offering potential avenues for improved risk management and investment decision-making.

Excess volatility, long-run overreaction, short-run under reaction, and their size effect are just a few examples of market anomalies that the theory produced by Guo et al. (2017a) and the references within can only explains. It cannot be utilized to verify the theory empirically. To get around this restriction, Fabozzi et al. (2013) created a number of statistics that can be used to determine the extent of any long- and short-term overreactions and under reactions in the markets. They determined that long-run overreaction, short-run under reaction, and their size effect did exist in the markets they analyzed after applying their statistics empirically.

5. Findings and Conclusion

After reviewing various contributions by well-known researchers following key findings are concluded in a classified manner: In the context of price volatility it is concluded that macro-economic factors, events and calendar effects cause volatile behavior in stock prices.

Calendar effects conclude the following:

- Friday with positive and Monday with negative returns are evident.
- Not significant results are documented for day of the week effect.
- Months of November and December are revealed most of the time with providing higher positive returns as compare to other months of the year.
- Turn of the year or January effect is also present in stock market with higher returns in January but it is evident with the impact of tax loss selling hypothesis.
- Higher returns with tax loss selling in June and July are documented as end of the fiscal year of the country as well.

- Decreasing trend in returns from beginning to the mid and end of a month is also concluded when turn of the month effect is analyzed.
- Higher returns on pre holidays are also found by researchers.

In the context of predictability of stock prices it is revealed that stock prices are forecasted and estimated on the basis of historical data and current information using trend analysis and fundamental analysis and on the basis of such prediction momentum, contrarian and winner- looser effects are observed within the stock market. These effects in turn reflect deviation from EMH.

If we talk about the equity premium puzzle then it is considered as an anomaly due to the effect of inflation, time horizon and loss aversion along with the impact of market risk on it.

Size effect or in other words market capitalization impact, when analyzed as an anomaly, revealed that stock returns are negatively correlated with firm size or market capitalization.

Last but not the least is trade volume anomaly i.e abnormal or unusual changes in trading activity at stock market. It is explained with various interlinked behavioral biases including overconfidence, over and under reaction, self-attribution and disposition effect etc.

Summing up all above findings says that just like many other theories in economics and finance, theory of EMH (Efficient Market Hypothesis) also has limitations, exceptions and assumptions and criticism there on. The critical analysis of EMH reveals deviation from its basic assumptions observed in the behavior of stock prices, volume and returns. The factors behind these deviations are calendar effects, event effects, macroeconomic effects and effect of different behavioral biases such as overconfidence, disposition effect, loss aversion etc.

5.1 Implication of the Study

Various models in the field of behavioral finance could be applied to analyze the impact of behavioral biases on investment and trading activities. Furthermore, a stable political environment can bring stability in economy which ultimately reduces the uncertainty and fear of loss among investors. And at last, the awareness and provision of correct and timely information with lower degree of equivocality can enhance the efficiency of the stock market.

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