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Stock Market-Driven Factors of Investors' Sentiment A Review of The Stylized Facts

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Abstract:
Investigating the stylized facts of different driving facets of retail investors' sentiment is non-existent in the literature. This study aims to find such market-driven factors by reviewing the relevant literature. More specifically, this study finds how investors' sentiment is developed from the nature of stock markets, Index/stock returns, investors'-friendly stock market environment, primary market activities, information uncertainty, trading volume and momentum, market technical and institutional investors' investment activities. A literature review approach is undertaken in this study. All the available published literature as collected from different search engines is thoroughly reviewed to explain critically the stylized facts of the facets of above market-driven drivers. This study finds that all the market drivers have some specific role to play in influencing investors' sentiment. So, this review study will be of immense help to the retail investors, professional investment communities and many others concerned in finding out the weaknesses of them and thereby avoid them or solve them. Also, this study undertakes a well-researched topic of investor sentiment, but in its unique way. No previous studies are found to do a review research to find out the sources from where the retail investors generate their sentiment. Also, no other studies clarify the stylized facts of the facets of above sentiment drivers.
Key Words: Investors' sentiment, Stylized facts, Market factors.
Article Classification: Literature Review

Introduction:

Academic followers and researchers, and practitioners have long debated the 'rationality' or 'irrationality' of the investors in different studies throughout the world. Economists mostly highlight that retail investors are bound by external constraints (i.e., market factors) and their own behavior (Somil, 2007) which make them irrational. However, the classical finance theory observes that investors are considered to be rational and utility-maximizing. Individual investors usually act rationally when making their investment decisions and select their optimal portfolio weighting by evaluating the risk-return tradeoff in a mean-variance efficient framework. These are the fundamental conclusions of both the 'portfolio theory' of Markowitz (1952) and the 'capital asset pricing model' (CAPM) of Sharpe (1964). This implies a perfectly efficient stock market. But, most international stock markets including the Indian one operate under inefficient conditions, making rational decisions impossible.

In a recent review study, Mahmood et al. (2011) posit that various empirical investigations (e.g., Baker and Wurgler, 2006; Black, 1986; Brown and Cliff, 2004; DeLong et al., 1990a; Shiller, 1981; etc.) conducted post-1980s reveal that the stock market is not efficient as explained by the 'Efficient Market Hypothesis (EMH)' of the classical finance theory, because of certain anomalies. Baker and Wurgler (2007) argue that it is difficult to explain some financial events including investors' sentiment, for which they don't always value stock/index prices as the net present value of its discounted future cash flows, by the classical theory of finance.

Behavioral finance (BF) theory, which is more concerned about the decision environment and individual differences between retail investors, also opposes the principles of rationality. It asserts that retail investors' market behavior derives from psychological principles of decision making to explain why people buy or sell the stocks (Al-Tamimi, 2005). Investment decision making is thereby a process by which an individual investor responds to the opportunities and threats that confront him/her by analyzing the options and making determinations/decisions about specific goals and course of action (Akintoye, 2006).Thus, investors' decision making is critically dependent on market factors and their assessment and interpretation of such market

situations.
So, it is indispensable for all individual investors to have thorough knowledge and understanding about the stock market drivers along with their own behavioral biases which drive their sentiment. Investors can educate themselves about various such drivers they are likely to face and then take steps towards using them profitably, thus improving their effectiveness and success rates. In the words of Warren Buffet - "It is only when you combine sound intellect with emotional discipline that you get rational behavior" (Parikh, 2011). Not only that, other stakeholders in the stock markets such as the brokers, investment consultants, regulators and policy-makers, other investors and traders all follow retail investors' sentiment closely to undertake their next move in the markets. Verma (2008) also points out the importance of understanding the investors' market psychology and sentiment for the burgeoning wealth management industry in India. Thus, it is necessary to review the stylized facts in regard to the different facets of market determinants or drivers driving investors' sentiment of the retail individual investors. No previous studies throughout the world have worked on this research question as the literature suggests. So, this study is one of its pioneering natures in this domain.

Stock Market Sentiment Drivers – An Introduction:
It is a very pertinent question in regard to stock markets whether investor sentiment drives markets and returns or the other way round. Sharma and Gupta (2011) observe that irrespective of anything concerning retail investors, their sentiment follows the stock market's nature and price moves most closely. Empirical researches on 'investor sentiment' find that - whether the retail investors are in a bull/bear market; whether the trend of the market is up or down in the short- intermediate- or long-run; whether their respective investment destinations (stock or portfolio) follow similar pattern; whether the fundamentals and technical parameters of the market is strong; whether the market is transparent, efficient, and deep; whether the market is or will be facing economic recession/boom; and on an overall basis whether the market is providing and going to provide above-normal returns in comparison to other investment vehicles to retail investors are some of the most critical questions on which their respective investment sentiment and behavior depends. Thus, answers of all these questions will find the external sentiment drivers of the retail investors from the associated stock markets.

Nature of stock markets as a sentiment driver:
De Bondt (1993) defines bull and bear markets as two market trends with a positive and negative return respectively. Empirical research proves higher correlation between stocks in bear markets (see e.g., Ang and Chen, 2002; Connolly et al., 2007; and Longin and Solnik, 2001) and argues that it results from an increased herding behavior due to low investors' sentiment (see e.g., Barberis et al., 2005; and Kumar and Lee, 2006). Gonzalez et al. (2005), on the other hand, prove that bull markets are associated with persistently rising share prices, strong investors' interest and rising financial well-being. Arora and Buza (2003) also conclude that bull markets are usually associated with a period of prosperity, when the future seems bright and retail investors have easy access to money. Odean (1998a) find that retail investors are more likely to experience success in bull markets as the attribution bias exhibits an asymmetric property and is more present in bull conditions.
Pagan and Sossounov (2003) observe that retail investors generally have higher sentiment in bull market states and lower sentiment in bear market states. In general, bull and bear markets incorporate a lot of different factors, i.e., the volatility, the degree of the movement, the historical trend and the market price of risk (Traustason, 2009). All these have their respective roles as sentiment drivers.
In one of the earliest studies, Shiller (1981) shows that stock market prices are far more volatile than the EMH could justify. Many following studies (see e.g., Cuñado et al., 2008; and Grobys, 2012) investigate stock market volatility in bull and bear markets and find that the volatility is higher during bear than bull markets. Chordia et al. (2001) also argue that declining markets attract less investors, which leaves the markets to be subject to falling liquidity and therefore more uncertainty and volatility. Huiwen and Sun (2012) while investigating how investors' sentiment is affected by such volatility observe that under a bear market, such sentiment is typically low. Rehman (2013) also find that the volatility in stock returns does influence the investors' sentiment in shaping their emotional perception about that particular company/market.
Thus, when a high proportion of retail investors express a bearish (negative) sentiment, some analysts consider it to be a strong signal that a market bottom may be near. The predictive capability of such a signal is thought to be highest when investors' sentiment reaches extreme values (Hulbert, 2008).
Barberis et al. (1998) figure out that a representative risk-neutral retail investor is assumed to switch between two 'sentiments' in respect to stock earnings (i.e., trend extrapolation and mean-reversion). While earnings actually follow a random walk, the investor switches between these sentiments based on runs of data from markets. Here it is the psychological forces of conservatism and representativeness operating on the ultimate wealth-owner that play a key role in updating beliefs.
Fama (1998) observe – "predictability about the future stock prices is not bound to be inconsistent with the market efficiency". Chung et al. (2012) find evidence that the relationship between investors' sentiment and

stock returns is subject to change. They observe that this relationship only exists in times of economic growth, and not in times of recession. However, Brown and Cliff (2005) contradict and demonstrate that investors' sentiment is always an important factor in predicting future market returns.

The market price of risk which also moulds investors' sentiment is arising out of information signals (in relation to the Efficient Market Hypothesis [EMH]) and investors' expectations of above-normal returns. Basu (1977) states that the EMH prevents investors from earning excess returns and proceeds to find anomalies pertaining to security information not being fully reflected in its prices. However, Barberis (2003) while exploring the field of behavioral finance, find different indications that support the view that the EMH is not the sole driver of stock prices. Campbell and Shiller (2001) find that stocks with low price/earnings and/or price/book multiples produce above-average returns over time. Other researchers have shown how stock splits, dividend increases, insider buying, inclusion in the S&P 500 index, and merger announcements can all dramatically affect stock prices, thereby disproving the strongest- form EMH. On the other hand, Tsuji (2012) observe that in markets with extremely declined investors' sentiment, weak-form EMH does not hold. Jarrett (2010) find that weak-form of market efficiency does not exist for the emerging markets (like India) as the returns are predictable and so the desire of the stock markets to become strongly efficient is much difficult.

Index/stock returns as a sentiment driver:

One of the most significant considerations for the retail investors in relation to the stock market is daily stock returns (Glaser et al., 2009) and/or predictability of future returns because of over-pricing or under-pricing at present (Baker and Wurgler, 2006; Lemmon and Portniaguina, 2006; and Qiu and Welch, 2006).

Thus, the existing literature support a positive (negative) relationship between investors' sentiment and contemporaneous (expected) stock returns because of the overvaluation (undervaluation) in the stock prices (Finter et al., 2011; Dash and Mahakud, 2012; and Stambaugh et al., 2011). Brown and Cliff (2004), in one of the most talked-about papers also explore the relation between investors' sentiment and near-term stock returns in a vector auto regression (VAR) framework. Although sentiment levels and changes are strongly correlated with contemporaneous market returns, they find that sentiment has little predictive power for near-term future stock returns. Using consumer confidence as a proxy for individual investors' sentiment for 18 industrial countries, Schmeling (2009) finds that sentiment negatively forecasts aggregate stock market on average across countries, and there seems a bidirectional causal relationship between the two. Specifically, stocks that are hardest to arbitrage and whose valuations are more subjective are found to be most vulnerable to sentiment mispricing (Baker and Wurgler, 2006; 2007; and D'avolio, 2002).

The fact that apparent mispricing is in many studies stronger among small or thinly traded firms makes some researchers very skeptical of such findings (Fama and French, 1998). Apparent mispricing is also stronger among firms that do not have close substitutes (Wurgler and Zhuravskaya, 2000). Baker and Wurgler (2000) argue that it shows that rational managers take advantage of temporary mispricing in the stock market by issuing equity when stocks are over-priced. However, it is to be expected that mispricing will often be stronger where it is harder to verify. If a mispricing is very easy to identify, retail investors will either price the stock correctly in the first place, or else smart and foolish investors will trade heavily against each other causing large flows of wealth away from the investors who are inducing the mispricing. However, evidence of mispricing is not limited to very fuzzy cases.

Investors'-friendly stock market environment as a sentiment driver:

Investors'-friendly market environment (Elton et al., 1998; Al-Tamimi, 2005; Rashid and Nishat, 2009; etc.) and/or trading opportunity (Hossain and Nasrin, 2012) can also act as a sentiment driver. Elton et al. (1998) indicates that investors' sentiment does not exist even in a market whose environment is expected to be more prone to it than in other developed markets. For the smooth functioning of financial markets, there must be at least some market participants who collect and interpret fundamental information to calculate fair asset prices. Recent research also indicates that the influence of fundamental risk factors on returns is state dependent and therefore needs to be interpreted by retail investors (see e.g., Bacchetta and van Wincoop, 2004; Boyd et al., 2005; and Conrad et al., 2002).

Rashid and Nishat (2009), in their article - "Satisfaction of retail investors on the structural efficiency of the market: Evidence from a developing country context", find that **s**atisfied investors are a necessary element of the stock market. This study explores the components of market structure that contribute to the satisfaction level of retail investors. By studying around 300 retail investors from 25 randomly selected brokerage houses registered with the Dhaka Stock Exchange, Bangladesh they reveal that most investors are young and inexperienced but educated, with shortages of skills and income. The study suggests the importance of effective regulation, disclosure requirements to ensure a supply of quality information, investor education and technology-driven trading in brokerage houses for overall investors' satisfaction. It is usually believed that the less developed countries are weak-form efficient only because of lack of access to information by the retail investors,

inadequate regulations, lack of supervision and non-availability of data in simple and usable form (Mobarek and Keasey, 2000).
Thus, it is very critical on part of the respective Capital market regulator (the SEBI [Securities and Exchange Board of India] in Indian case) to regulate the activities and thereby funds by the international investors to make the stock market more stable, deep and efficient. Also, the regulator and the respective Government have the responsibilities of educating capital market participants regarding their rights and duties for proper functioning of capital market (Deene et al., 2011). Similarly, Subha (2009) also observe that the responsibility of creating an environment of trust and confidence lies with the regulators, stock exchanges and companies. Each of them should act in a responsible way and provide a healthy atmosphere for the functioning of an efficient capital market. Selvam et al. (2008), in their study entitled - "Equity Culture in Indian Capital Market", examine the need for promoting equity culture, which deserves special attention for the development of economic growth. The study discusses in detail the current trend of equity culture, its implications and its revival and remedial measures. It suggests intervention by government, the SEBI and the Reserve Bank of India (RBI), and evaluation of suitable credit policy for projects in order to assure safety and assured returns to the retail investors, in order to restore investors' confidence.

Primary market activities as a sentiment driver:
IPO activity/issue is often associated with market tops and is considered as a measure of investors' sentiment because of information asymmetries between managers and investors (See Ibbotson and Ritter, 1995). Thus, Polk and Sapienza (2004) find retail sentiment to have effects on the real economy by influencing managers' decisions to issue new shares when sentiment is high. The IPO market is also viewed as being sensitive to sentiment with high first day returns representing investors' enthusiasm (Loughran et al., 1994). Mahjoub (2010) point out that sentiment is a primary driver of under-pricing, and individual investors are those driving the first day closing prices and are conducting the short-run IPO puzzle more than the institutional investors. So, Baker and Wurgler (2007) suggest that IPO volume can also be used as a sentiment proxy. They claim that the underlying demand for IPOs is perceived to be extremely sensitive to the prevailing sentiment in the stock market.

Information uncertainty as a sentiment driver:
Jiang et al. (2005) and Zhang (2006) suggest that the retail investors' overreaction are more prominent under conditions of information uncertainty since these investors become more overconfident for firms that are hard to value. Zhang (2006) also suggests that under conditions of information uncertainty, announcements of good news generate relatively higher abnormal returns while announcements of bad news generate relatively lower abnormal returns. This hypothesis is motivated by the findings of Chan et al. (1996) who claim that price continuation is due to a gradual market reaction. Also, Daniel et al. (1998; 2001) and Hirshleifer (2001) posit that psychological biases are increased when there is more uncertainty. Brown and Cliff (2005) find that 'sentiment' as measured by genuine investor surveys, matters for stock returns only for a period of intermediate to long horizons.

Trading volume and momentum as sentiment drivers:
Wang (2001) use trading volume since it is recognized by economists as an important factor indicating investors' interest. In some empirical tests for market efficiency, stock price changes are interpreted as the market evaluation of new information, while the corresponding trading volume is considered as an indication of the extent to which investors disagree about the meaning of the information (Hiemstra and Jones, 1994; and Karpoff, 1987). Recent international evidence and especially evidence from emerging markets (e.g., Chan et al., 2001; Chordia and Swaminathan, 2000; Lee and Rui, 2000; Moosa and Al-Loughani, 1995; and Silvapulle and Choi, 1999), gives support for 'causality' relationships between stock returns and trading volume, but the evidence is not clear in terms of the involved dynamics. Baker and Stein (2004) argue that market liquidity as measured by trading volume could be an indicator of investors' sentiment, however it is also used as a liquidity indicator. Increase in trading volume reflects the participation of overconfident investors in the market and indicates an increase in investors' sentiment. They also suggest that higher trading volumes indicate overvaluation and abnormally low subsequent expected returns for both firm-level and aggregate market data.
The number of new accounts reflects the mood of the spectators to the current market condition. When the situation turns well, a lot of new accounts and new liquid capital are turned up, that raises market sentiment. They also represent the market liquidity.
Momentum effects are present in both European countries (Rouwenhorst, 1998) and emerging markets (Rouwenhorst, 1999). Momentum seems to exist in the non-market component of returns (Grundy and Martin, 2001) and certain portfolios of stocks also exhibit negative autocorrelations at the relevant lags (Lewellen, 1999). Cross-sectionally, US stocks that have done very well relative to the market in the past tend to do so in the future

as well, based on the past 3-12 month holding period (Jegadeesh and Titman, 1993). Momentum is strongest in the performance extremes. The abnormal performance tends to reverse after about 4-5 years (Jegadeesh and Titman, 2001; and Lee and Swaminathan, 2000). Momentum is stronger in small than in large firms (Jegadeesh and Titman, 1993; and Moskowitz and Grinblatt, 1999), in growth than in value firms (Daniel and Titman, 1999), and in firms with low rather than high analyst following (Hong et al., 2000). These tendencies are potentially consistent with limits to attention reducing the extent to which investors take advantage of momentum. Also, it suggests that smart investors may be more deterred by transactions costs than foolish investors. Avramov and Chordia (2006) show that investors' sentiment is closely related to business cycle, and it has potential to explain not only the size and value effects but also the momentum effect. However, Chordia and Shivakumar (2002) argue that momentum profits are conditional on business cycle. Momentum profits are positive during expansionary periods while become negative during recessions. Momentum profits are also positively related to analyst forecast dispersion, transaction costs and the familiarity of the market to foreigners, and negatively related to firm size and volatility (Chui et al., 2010).

Market technical as a sentiment driver:

In regard to Put-Call-Ratio (PCR), buyers of put options generally bet on stock price drops and may be considered pessimists. Accordingly, buyers of call options bet on stock price increases and may be considered optimists. Using trading volume as the basis of measurement, the PCR therefore reflects pessimism as a percentage of optimism. If the PCR is greater than one, then pessimists outweigh the optimists and vice versa. Although a value of 1.0 might seem to be a 'neutral' reading, empirically it has been observed that there are more calls than puts bought on what would be considered an 'average' day. As a result, a PCR of approximately 0.80 is considered 'normal'. The stock markets are considered 'strong' when the ratio falls below 0.7 since the optimists clearly outweigh the pessimists. These markets are considered 'weak' when the PCR rises above 1.1 (Bandopadhyaya and Jones, 2008). The PCR at its upper extremities show excessive bearishness because then put volume is significantly higher than call volume.

Market analysts also often track the differences between advances and declines, accumulating the difference over some time period. The Advance/Decline Line is the simplest of all breadth measures. This Line of a market (such as the NYSE, the BSE and/or the NSE) moves with the price of the market's benchmark index (such as the Nasdaq, BSE SENSEX and/or NIFTY-50). When more stocks advance than decline it moves up and vice versa. By separating the advancing from declining constituent stocks, retail investors can get an additional insight about the direction of the market. Divergences between the market and advancing issues are monitored closely by them to find trend reversals if any emerge.

Discount of closed-end funds/Closed-end fund discount (Zhu, 2012) is another critical market factor to contribute immensely in driving retail investors' sentiment. Uygur and Tas (2012) also observe that most of the market-based proxies are derived from empirical puzzles like closed-end fund discount and IPO under-pricing (see earlier). Closed-end funds are investment companies who issue a fixed number of shares, which are then traded on the stock exchange. They are held and traded primarily by individual investors. The closed-end fund discount is the average difference between the net asset values of closed-end fund stocks and their market prices. Literature roams around the controversy over the closed-end fund discount as a measure of individual investors' sentiment (see e.g., Lee et al., 1991). Because, if it is accepted that markets are efficient and arbitrage opportunities are exploited immediately, the fact that closed-end funds are traded at a discount is one of the most puzzling remarks in financial markets. However, studies of Berk and Stanton (2004); Chan et al. (1993); Malkiel (1977); Ross (2005); Spiegel (1997); and Zweig (1973) provide rational explanations for this puzzle such as agency costs, illiquidity of assets and tax liabilities. Neal and Wheatley (1998) point out that variation in discounts of closed-end funds can reflect changes in investors' sentiment. In general, when investors are in high spirit, the discounts are reduced, otherwise it rise.

Institutional investors' investment activities as a sentiment driver:

Dash and Mahakud (2012) selected 12 sentiment-drivers - turnover volatility ratio, share turnover velocity, advance decline ratio, change in margin borrowing, buy-sell imbalance ratio, put-call ratio, number of IPOs, equity issue in total issue, dividend premium, fund flow, and cash to total assets in the mutual fund market, and price-to-earnings high-low difference. Since their objective is to deal with the irrational component of the sentiment, they try to circumvent this problem by regressing each of the above 12 drivers on fundamental factors such as industrial production growth rate, term spread, exchange rate, rate of inflation, percent change in net FII inflow. In contrast to prior literature, they use percent change in net foreign institutional investors (FII) inflow as an additional fundamental factor, because of the observed sensitivity of the concerned (i.e., Indian) stock market to the behavior of FII in terms of their market participation. The Foreign Direct Investment (FDI) in domestic country's industries and more and more institutional capital flows in them and overall in the market by the FII and domestic institutions including MFs, FIs and HNIs also cause individual investors' sentiment to grow.

So, the positions institutional investors take in the stock market may be a better indicator to approximately reflect institutional investors' recognition and attitudes on the current stock market. However, there is dearth of study in investigating the impact of investment from domestic and international investors on driving the investors' sentiment.

Conclusion:

It is a proven fact that the correlation between stock/index returns increases in market downturns, i.e., bear markets. This is due to the higher uncertainty and extreme volatility in markets which make retail investors more circumspect and cautious. But, on the other hand, if we consider prosperity and confidence as a sentiment indicator then bull markets is the real evidence. Thus, it is quite evident that investors' sentiment is also an indicator of predictability of market movement up or down. So, it is obvious that markets returns are also an observed phenomenon arising out of such sentiment.

The market returns and/or predictability of such returns are one of the strongest motivators for retail investors. It is quite obvious that higher returns influence most investors positively. But, in regard to the predictability of such returns the literature is inconclusive. The mispricing stylized fact in relation to stock-specific cases point out that small thinly traded stock, volatile stocks and less arbitrage-prone stocks are the ones which are influenced by temporary mispricing. So, retail investors should avoid these stocks, but in real life they feel for such stocks and get trapped.

The mispricing phenomenon is also sometimes used by companies to raise funds through initial public offering (IPO) and follow-on public offering (FPO). The IPO first-day returns speak about investors' enthusiasm and sentiment towards a stock. So, it is used as a sentiment indicator/proxy in measuring investors' sentiment in many empirical studies.

It is also necessary for the stock markets to have an investors'-friendly soundly regulated market environment. Free flow of information in line with strong-form of the EMH is a must. It is also very critical for the retail investors to interpret that fundamental information effectively to be successful in the stock markets. It is observed that investors' overreaction are more prominent under conditions of information uncertainty. This is due to the stylized fact that investors are more optimistic and become overconfident when there is good news in the markets. The psychological bases prevail in these situations over their rationality and fundamental approach. Thus, investor education and technology-driven well-managed platforms are indispensable for the investors to be rational and mitigate their sentimental backdrops. It is also important for the regulatory authority (like SEBI in India) to regularly monitor, assess and implement the regulations meticulously.

Along with information, another influential sentiment driver is the trading volume and momentum in the stock markets. The mismatch of stock/index price changes with the corresponding trading volume implies that investors are not confident about the received information. However, it is evident that higher trading volume indicates liquidity and investors' overconfidence in terms of positive sentiment. The momentum effect is also very critical in driving investors' sentiment for certain categories of stocks in which smart investors can reap abnormal returns. However, such a momentum phase is dependent on the existing market conditions and state.

The investment timings, amounts and patterns of institutional investors especially the foreign institutional investors do act as a strong catalyst in driving investors' sentiment in the domestic stock markets. But, this fact is not well-studied in the existing literature.

The technical parameters in the stock markets are also an important consideration for driving investors' sentiment. The PCR measure is an important sentiment driver for the retail investors. Higher call option prices and lower put options imply positive investors' sentiment and vice versa. Another significant market technical is the Advance/Decline line. Positive line drives up investors' sentiment and negative line make them pessimistic. In many empirical studies, Closed-end fund discount is used as a proxy to measure investors' sentiment. Most of these conclude that in inefficient market conditions where agency costs, illiquidity of assets and tax liabilities prevail, this phenomenon exists. Generally, when investors' sentiment is high, discount is low.

On an overall basis, if the investors look at the markets from a short-term perspective, index/stock returns, primary market activities, trading volume and momentum, and market technical influence their sentiment. However, when they take a long-term call on the markets, their sentiment is driven by overall market nature and fundamentals, presence of a strong regulatory and investors'-friendly market environment, information distribution patterns and what the domestic and foreign institutional investors are doing.

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