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Role of Greed and Fear Index in Investment Decision Making

Dr. Jyoti Singhal

Associate Professor, Vijay Patil School of Management

Abstract

Investor confidence, emotions, and psychology play a vital role in driving market upturns and downturns. Investors have gone from feeling highly optimistic with the share market regularly reaching new record highs in the period 2005-2007, to extremely pessimistic with the market falling to five-year lows in March 2009 resulting in many investors seeing their investments fall sharply in value. Periods of high optimism or exuberance are generally associated with greed while pessimism is generally powered by fear. 2020 lockdown and then sudden dip in the market price was an excellent example of fear and its influence on the market.

Markets do move in cycles, and the drivers of booms and busts may change, but investor behavior doesn't. Since the onset of the recent Indian financial crisis in March -April 2020, many investors have been in the grip of fear, paralyzed to act not wanting to crystallize losses or make the wrong decision, leading to inertia in some cases and just plain bad investment decisions in others. Many of us will undoubtedly look back on this time and realize it was a wasted opportunity, with many stocks representing outstanding value.

This paper explores some typical investor behavior, the calculation of the Greed and Fear Index, and the role they play in investment decision-making.

Keyword: Greed and Fear, Greed and Fear Index, Investor Psychology, Influence.

Introduction

There is an old saying on the market that it is driven by just two emotions: fear and greed. Succumbing to these emotions can have a profound and detrimental effect on investors' portfolios and the stock market. These two emotions are stated to be the driving forces behind the market's crashes and booms in the stock market.

Greed is simply the desire to have more. Investors within a boom are likely to get caught in the web of greed that lures them to invest significant amounts of capital in a particular stock. Fear is another emotion that dominates the movement of the stock market. Fear is an unpleasant, often strong emotion, of anticipation or awareness of danger and the risk of loss on an investment in the market. The reason for fear within the stock market is the falling prices of stocks.

The combination of value investing and growth investing, and understanding the difference between these two strategies is fundamental to building an investment strategy in the investing world, it is important to understand the influence of fear and greed on the financial markets.

The efficient market hypothesis is a myth

Modern portfolio theory assumes that markets are efficient as all known relevant information is priced into the value of shares. This means that shares always trade at their fair value and therefore there aren't any opportunities for investors to generate excess returns either through stock selection or market timing. Another critical assumption in the hypothesis is that all investors are rational. Behavioural finance theory, which had its formal beginnings in the 1980s and became a mainstream economic theory in the 1990s, takes a different view. Far from assuming investors are rational, it deems them to be irrational in their behavior, often making investment decisions based on emotions, previous experiences, or a fear of regret. This can result in investors making investment decisions unrelated to the future potential of that investment, causing its share price to trade at a discount or premium to its fair value. Irrational investor behaviour plays a role in forming market inefficiencies thereby creating investment opportunities but not every opportunity is necessarily a profitable one.

Objectives:

To study the influence of Greed.

To study the influence of Fear.

To know the causes of greed and fear.

To analyze the impact of greed and fear psychology of investors on the financial market.

1. Literature survey

How do the investors make their decision about the stock portfolio selection? From the perspective of traditional finance stemming from the work of Markowitz (1952) they should maximize their utility functions according to their levels of risk aversion. Levy &Sarnat (1970) were first to point to the fact that that, according to the widely accepted CAPM model, investors should diversify internationally in much higher extent. Investors tend prefer investments into the stocks of their country instead of international diversification in broader scale. Since then, the resulting home bias puzzle was shown by many studies, Lewis (1999) and Oehler, Rummer & Wendt (2008), for example.

In Behavioral economics there is profound evidence that irrationalities considerably affect behavior of individuals and their decision making. Barberis & Thaler (2002) made first survey of behavioral explanations of "irrational" investment decisions. Gigerenzer & Gaissmaier(2011) wrote about the heuristics and not "rational" calculations are behind most of individual decisions. In psychology big five traits were defined: openness, conscientiousness, extraversion, agreeableness and neuroticism (Costa & McCrae, 1992).These personality traits can influence the investment behavior, but the tests for personality traits were not included into our experiment due to to time complexity limits.

Böhm &Brun (2008) provided a detailed survey of literature about the research of the role of intuition and affect on risk perception and decision making. The study of affect and emotion in decision making started out with regret and disappointment theories within an economic framework (Bell, 1982; Loomes, & Sugden, 1982) and Johnsen and Tversky's seminal work on affect in risk perception (Johnsen & Tversky, 1983). Mellers, Schwartz & Ritov (1999) developed a theory according to which people are assumed to choose the option with greater subjective expected pleasure.

Now, the issue of affect and emotion in decision making can even be regarded as a "hot" topic (Peters, Västfjäll, Gärling, & Slovic, 2006). Matzler& Mueller (2011) present in their recent paper that there is a relationship between personality traits (extraversion, neuroticism, openness to experience or intellect, agreeableness and conscientiousness) and the observed behavior. The psychological factors can influence the investment decision making process.

Our research is linked most directly with the following three papers. Firstly, In the paper from Bollen, Mao & Zeng (2011) authors claim that the decision made on individual basis are affected by the mood state of the society. They analyzed with POMS[1] the large-scale twitter posts and based on it find out correlation between predictability DJIA closing prices. Secondly, Zaleskiewicz (2011) provides evidence about the ability to predict future stock movements during the financial crisis. He finds evidence that the experienced investors made slightly better predictions of the movements of the stock market than the lay-out investors. Thirdly, Cao, Han, Hirshleifer& Zhang (2011) in their paper model fear of unfamiliar events as a result of individual inclination to focus on the worst-case scenarios. Their model predicts that under uncertainty investors would diversify less and reveal home biasness.

Research Methodology

This research is explorative research and started with the problem of finding the right time to enter and exit from the market for investment purpose. The data is collected from secondary market . this study is done on Nifty 50 current market values. According to study by Karagozoglu & Riedl (2010), several types of emotions are highly correlated. People distinguish mainly between two emotional states: positive (joy-happiness) and negative (anger-fear). We expected that negative emotions are best represented by the emotion of fear. However, it was difficult to create a index that would indicate a positive attitude towards stock investments. The CNN index is referred for greed and fear sentiment to calculate the Fear and greed index. Therefore, our main hypothesis about the impact of a positive attitude was reversed and we tested the impact of fear.

Greed's Influence

The greed in the market is caused by increasing prices of a specific stock associated with speculation. For example, it was anticipated by the investors that the dot com companies would provide staggering profits in the future. This anticipation raised the demand for stocks of dot com companies and the price of stocks soared to unimaginable heights. Investors got greedy with the rising prices and they anticipated that further investment would result in higher future gains. The end result was a stock market bubble with stocks greatly overpriced.

Investors get caught up in greed. Everyone has a desire to acquire as much wealth as possible in the shortest amount of time. 400% increase in Indian stock market in two years in early 1990s, the internet boom of the late 1990s and subprime crime in USA when Sensex has increased 5000 points in six month from July 2007 to Dec 2007are perfect examples. At the time it seemed all an advisor had to do was simply pitch any investment in any stock, and investors leaped at the opportunity. Buying activity in stocks market, many just start-ups, reached a fever pitch. Investors got greedy, fueling further greed and leading to securities being grossly overpriced, which created a bubble. It burst with Harshad Mehta Scam in late 1992, dot com bubble in mid-2000 and market crash of 2008 kept leading indexes depressed in coming years.

This get-rich-quick mentality makes it hard to maintain gains and keep to a strict investment plan over the long term, especially amid such frenzy, or the "irrational exuberance" of the overall market.

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[1] POMS – Profile of mood states - psychological rating scale used to assess transient, distinct mood states.

Fear's Influence

When stocks suffer large losses for a sustained period, the overall market can become more fearful of sustaining further losses. But being too fearful can be just as costly as being too greedy. In a bid to stem their losses, investors quickly moved out of the equity (stock) markets in search of less risky investment. Money poured into money market securities, stable value funds and principal-protected funds or any other low-risk and low-return securities.

This mass exodus out of the stock market shows a complete disregard for a long-term investing plan based on fundamentals. Investors threw their plans out the window because they were scared, overrun by a fear of sustaining further losses. Granted, losing a large portion of your equity portfolio's worth is a tough pill to swallow, but even harder to digest is the thought that the new instruments that initially received the inflows have very little chance of ever rebuilding that wealth.

Scrapping investment plan to hop on the latest get-rich-quick investment can tear a large hole in the portfolio, so too can getting swept up in the prevailing fear of the overall market by switching to low-risk, low-return investments.

Causes of greed and fear

Human psychology causes this fear and greed among the shareholders. Greed is nothing but excessive desire. When the crowd of investors gets caught in the mesh of greed or desires to acquire as much as possible and as fast as possible. Investors were ready to pitch in for anything at any price through Market had reached a feverish pitch. Investors got greedy and further fueled the prices of securities and as a result securities started getting overpriced. Thus these bubbles were created.

The speculation, anticipation and the rising prices are the primary factors that cause greed within the market. The rising prices are generally based on speculation and anticipation of future earnings of an organization based on current data. The rising prices indicate future capital gains on a large scale and this causes investors get greedy. The ability to get rich overnight seems to be like a dream come true to many investors and this greed makes it difficult to stick to a portfolio strategy based on long term.

There is generally the fear of losing out on good deals, fear of holding too long, fear of incurring losses, fear of market crashes, fear of getting in or out too early or too late, etc. On the other hand, minds also get gripped with greed for more profits, greed of incurring quick profits, etc. Fear is generated at a point in the cycle when the price stops going up and greed at the point when the price stops going down.

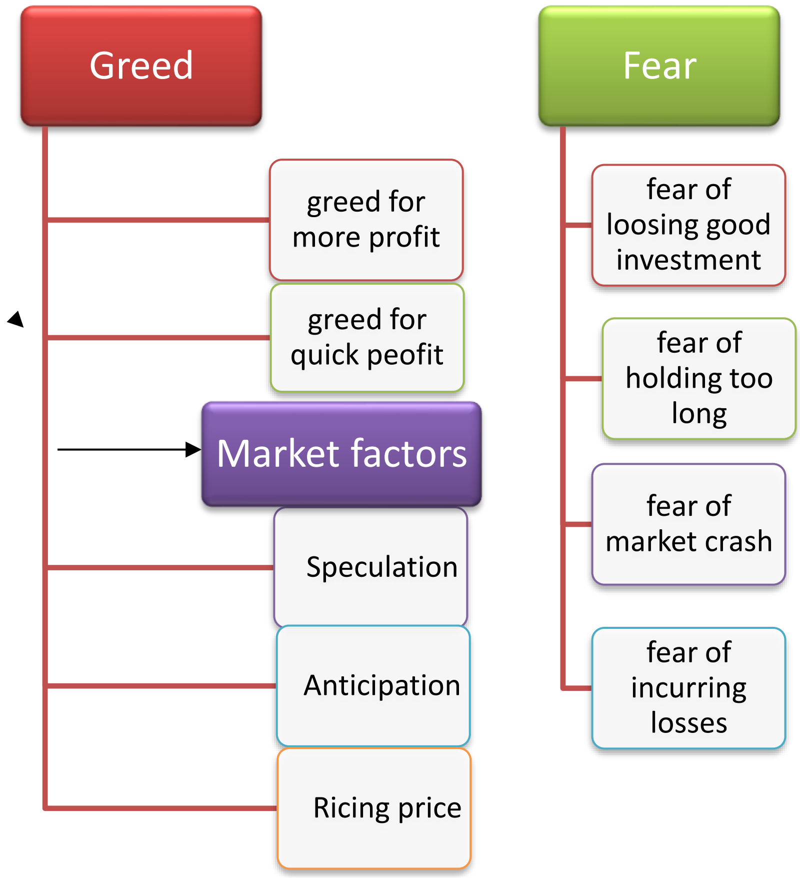


Figure1: Causes of FEAR and GREED

Impact of greed and fear psychology

Fear and greed psychology play vital role due to the volatility in the stock market. When investors lose their comfort level due to losses or market instability, they become vulnerable to these emotions, often resulting in very costly mistakes.

Investor profit is swept up in the dominant market sentiment, which is driven by a mentality of fear and/or greed. It is also important to choose a suitable asset allocation mix. For example, an extremely risk averse person, will be more susceptible to being overrun by the fear dominating the market, and therefore exposure to equity securities in the stock market.

Stock market is controlled by two very powerful human emotions should not be as great as those who can tolerate more risk. The stock market players are all human beings and very much susceptible to these two very strong human emotions. It is the fear and greed psychosis that are instrumental in creating bull and bear markets and is also the cause of all stock market bubbles. Playing directly into the hands of these two profound emotions can be extremely detrimental for the individual investor's portfolio and also for the market in general.

Stock price bubble

When a stock gets hyped in the market, greed compels general investors to pitch in money for those particular shares. Further as the hype gets pronounced the prices soar and greed also increases. More and more people fall into this trap and start buying these shares thus pushing the prices further up. And then while the bull market is being created, greed makes the investors hold on to the shares and then when smart money starts selling after the stock market has reached the peak, the market tumbles. This is the point when fear comes into the scene. This fear can easily create a panic situation in the market and in the panic that is triggered investors start selling, thereby causing the stock market to tumble or crash or sometimes the bubble to burst.

Fear can impact the market strongly. Fear as is unpleasant and strong emotion as greed. When stocks have already sustained losses for prolonged time, investors might get fearful of sustaining further losses. Just as greed dominated the market during any bubble, similarly, fear may also prove to be equally costly for the market. When the market is plunging, in an attempt to cut off further losses, investors try to move out of stock markets quickly to shift to less risky buys. They start transferring their investment capital to low-risk low-return securities. The market goes fully awry where the market fundamentals of even long-term investment plans are completely disregarded after the investors' minds get overrun with fear of sustaining further losses.

Access fear we drastically decrease the price and over greed will continuously increase the price. Strong psychology of fear will force to exit the market in slit correction in price whereas, greed will force to be in the market in the expectation of extra returns. When greed psychology investors are more in the market will move in the upward direction but when fear psychology is dominating the market continuously correct and move in downward direction. These two forces of greed and fear contribute immensely to market volatility. Investors lose their comfort level and the market loses its stability.

Greed and Fear Index

The CNN Business index is derived on the concept of excessive fear tends to drive down share prices, and extreme greed push up the market price. The index is calculated based on market momentum, put and call options stock price strength, stock price breadth, , stock and bond demand, volatility of market, and demand of safe investment. The index score is from 0 to 100. Greed and fear index for Indian financial market is derived based on following parameter with reference to t CNN is derived

Greed /Fear	Factor determining Index	Calculation of index	Interpretation
Fear	market momentum	Nifty and its 100 days moving average	If nifty is higher than 100 days moving average, it is agreed and below than 100 days moving average it is fear.
Extreme Greed	stock price strength,	Ratio of 52 weeks high and low	The number of stocks on the hitting 52-week highs relative to those hitting 52-week lows. Number in double digit than extreme greed / fear
Extreme Fear	stock price breadth	RSI	RSI above 70 is greed and below 30 is fear
Greed	Option	Put/call ratio.	PCR is less than 1 extreme greed

Fear	Stock and bond return	Difference in 20 days average bond and stock return	Stock demand is less than bond demand , it shows fear
Extreme greed	Volatility of market	India VIX	Extreme values show extreme greed
Extreme fear	Demand of safe investment	Yield spread: Junk bond and FD return	Higher spread means high fear

Greed and fear index value from live market data *: 01.09.2022*

Factor determining Index	Calculation of index			
market momentum	Nifty and its 100 days moving average	17539.27>16631.04	Nifty is more than 100 days moving average but Not significantly high So moderate greed	50+5.5/12.12*50=72 .69
stock price strength,	Ratio of 52 weeks high and low	52 weeks high :4 52 weeks low :0	High is more than low but not significant no moderate greed.	50+2/20*50=55
stock price breadth	RSI	56	Slightly in greed range	50+(50-56)/30*50=60
Option	Put/call ratio.	0.81	1.2 to 1 derivatives below 1 to .7 greed, 1.2 to 1.5 fear	50+(1-.81)/(1-0.7)*50= 81.67
Stock and bond return	Difference in 20 days average bond and stock return	Stock return: 2.40 % monthly Bond return 1% monthly	Maximum monthly return is 9.23%	50+ (0.014/0.0823*50)=5 8.50
Volatility of market	India VIX	19.87. 52 weeks high 34 and 52 weeks low is 9	Not significant greed . 9-19 is fear and 19-34 greed.	0 -100 scale (19.87-9)/(34-9)*50=43.48

Demand of safe investment	Yield spread: non-investment bond and investment bonds	10%-8%	Long term impact	Moderate =50
Total Index value				72.27+60+60+31.67 +58.50+43.48+50 =375.92/7=53.70

02.09.22

Factor determining Index	Calculation of index			
market momentum	Nifty and its 100 days moving average	17546>16630	Nifty is more than 100 days moving average but Not significantly high So moderate greed	50+5.4/12.12*50=72 .27
stock price strength,	Ratio of 52 weeks high and low	52 weeks high :2 52 weeks low :0	High is more than low but not significant no moderate greed.	50+2/20*50=55
stock price breadth	RSI	56	Slightly in greed range	50+(50-56)/30*50=60
Option	Put/call ratio.	1.39	1.2 to 1 derivative below 1 to .7 greed, 1.2 to 1.5 fear	50-{(1.39-1.2)/(1.5-1.2)*50}=50- 31.67
Stock and bond return	Difference in 20 days average bond and stock return	Stock return: 2.40 % monthly Bond return 1% monthly	Maximum monthly return is 9.23%	50+ (0.014/0.0823*50)=5 8.50
Volatility of market	India VIX	25.47. 52 weeks high 34 and 52 weeks low is 9	Not significant greed . 9-19 is fear and 19-34 greed.	0 -100 scale (34-25.47)/(34-9)*50=67.6

Demand of safe investment	Yield spread non-investment bond and investment bonds	10%-8%	Long term impact	Moderate =50
Total Index value				72.27+55+60+18.33 +58.50+67.6+50 =381.7/7=54.52
Factor determining Index	Calculation of index			
market momentum	Nifty and its 100 days moving average	17883>16639	Nifty is more than 100 days moving average but Not significantly high So moderate greed	50+(6.95/12.12)*50 =78.67
stock price strength,	Ratio of 52 weeks high and low	52 weeks high :10 52 weeks low :0	High is more than low but not significant no moderate greed.	50+10/20*50=75
stock price breadth	RSI	56	Slightly in greed range	50+(63-50)/30*50=71.66
Option	Put/call ratio.	1.27	1.2 to 1 derivative below 1 to .7 greed, 1.2 to 1.5 fear	50-{(1.27-1.2)/(1.5-1.2)*50}= 50-11.67=38.33
Stock and bond return	Difference in 20 days average bond and stock return	Stock return: 2.70 % monthly Bond return 1% monthly	Maximum monthly return is 9.23%	50+ (0.017/0.0823*50)=60.32
Volatility of market	India VIX	17.72. 52 weeks high 34 and 52 weeks low is 9	Not significant greed . 9-19 is fear and 19-34 greed.	0 -100 scale (34-17.72)/(34-9)*50=32.56

Demand of safe investment	Yield spread non-investment bond and investment bonds	10%-8%	Long term impact	Moderate =50
Total Index value				78.67+75+71.66+38.33+60.32+32.56+50 =406.54/7=58.07

Similarly, investors can calculate the Greed and Fear Index on the day of trade and one week prior to that day , and take the decision accordingly. Explanation of each parameter is as follows:

1. Stock Price Strength
The number of stocks hitting 52-week highs with mostly maximum no hit 52 weeks high gives greed indicator value whereas, 52-weeks low with mostly maximum no hit the 52 weeks low indicates greed.(1 to 50 fear and 51 to 100 greed)
2. Stock Price Breadth
The Relative strength index for nifty index to know about price and volume relation. If value is above 50 it is greed zone and if above 70 extreme greed, Similarly, if RSI is below 50 fear zone but below 30 is extreme fear. stocks indicate greed and vice versa.
3. Market Momentum
The performance of the Nifty 50 relative to its 100-day moving average. If nifty price is above moving average, then it shows greed and if below, shows fear. Greater the gap higher the sentiment in the market.
4. Put and Call Options
Derivative of nifty is considered for put/call ratio. A higher put/call ratio indicates fear and vice versa.
5. Safe Haven Demand
The performance of stocks relative to bonds. Greater relative performance indicates greed and vice versa.
6. Market Volatility
The India "VIX". IT is in the range of 9 to 34 which indicates extreme greed and fear respectively.
7. Junk Bond Demand
The yield spread between investment-grade bonds and non-investment bond bonds. A greater yield spread indicates fear and vice versa.
Using the Fear and Greed Index
The Fear and Greed Index is commonly used to choose the right time of entry in the market. This index interprets the investor's sentiments in terms of greed and fear. As stated by Warren Buffet, "Be fearful when others are greedy, and greedy when others are fearful." It means when market greed and fear index is above 80 investor should plan to exit from the market and reduce greed from the market and should wait for the index to be around 20 than reenter in market and reducing fear from the market.
For example, when the index hits a value of 90 (extreme greed), it may signal that stocks are overvalued. It may prompt investors who follow the index to sell their stock holdings. Similarly, if index value is very low that is below 20 than market in a grip of fear sentiment and wait till index value goes above 20 then enter in the market.

Investors caught in the grip of these overwhelming and powerful emotions often commit costly mistakes. Greed and fear index indicates gives alarming bell for exit and entry in the market not the specific shares. They are therefore always advised never to succumb to greed and fear emotions and stick to the fundamentals of investing. Controlling your emotions, revaluating your investment strategies, allowing a bit of flexibility to the premeditated investment plans, being rational, not following the market sentiments blindly and sticking to the long-term investment strategies are some ways to be a successful investor.

Role of greed and fear in investment decision

True value of any asset is its fundamental value but market price of an asset is determined thru demand and supply of asset in the market. Rational investors invest when the market price is less than fundamental value and exit from investment as market price is equal to fundamental value, but when market price is more than fundamental value greed factor influence investor behavior and irrational investor invest and starts bubble formation process. A bubble occurs when investors put so much demand on a stock that they drive the price beyond any accurate or rational reflection of its actual worth, which should be determined by the performance of the underlying company. Follow-up Investing increases the size of bubbles and often appear as though they will rise forever, but since they are not formed on fundamentals, they eventually pop as investors who are holding short positions in the market are becoming panic and fear psychology is forcing them to do panic buy. And when fund managers start selling and the market price starts decreasing all of a sudden due to fear every investor starts to panic sell, and the money that was invested into them dissipates into the wind.

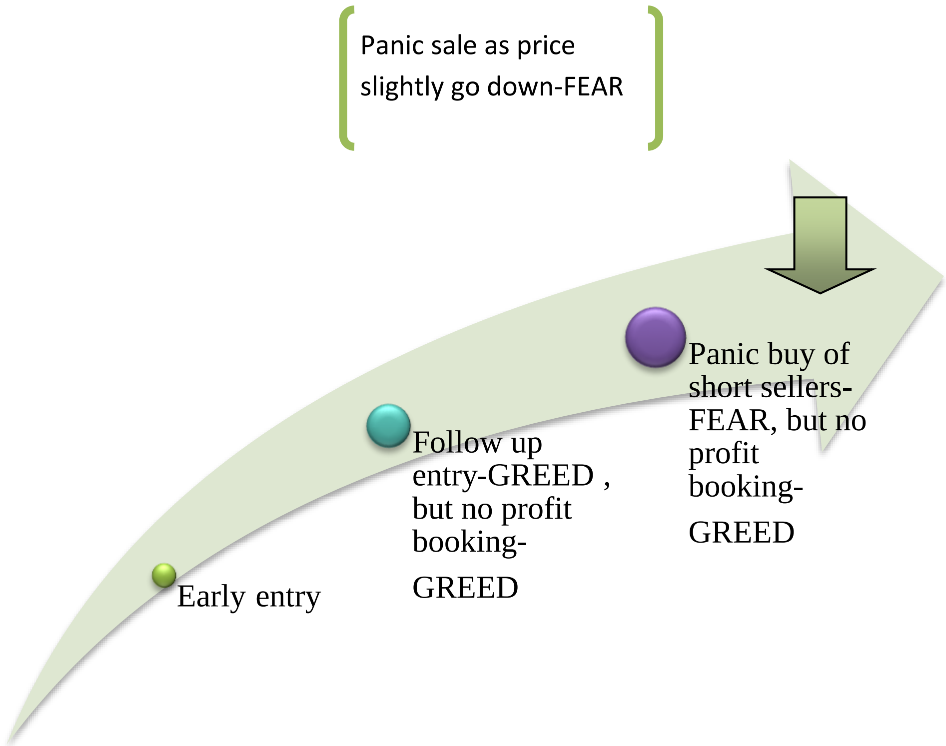
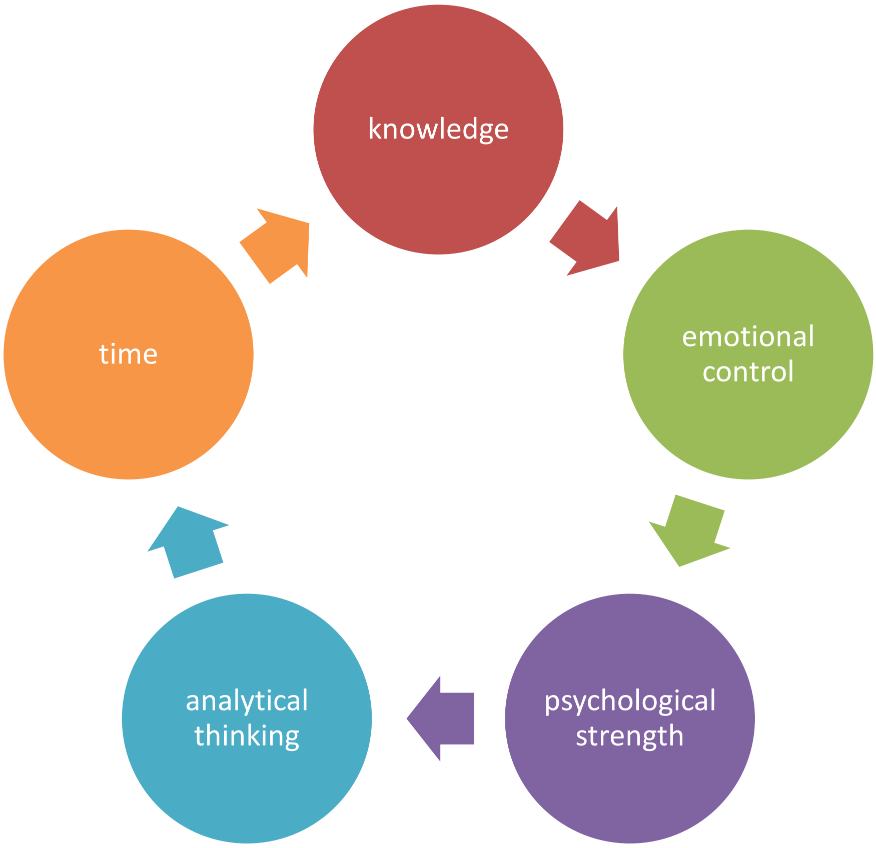


Figure: Role of greed and fear (Prepared by author)

Rational decision making

It is the emotional control that is the key component which an investor must exhibit while investing. True success depends on this psychological strength of the investor. Thus fear and greed have to be dealt to

maintain focus and not to get swept away by illusions. Balance of emotions like fear and greed is required to know which stocks to buy, what to avoid and when to protect your winnings.
The following skills and inputs are required for rational decision-making



Fegure3: Decision making: Inputs (Prepared by author)

Process of rational decision-making thru emotional control
Knowledge building-first step before investment is:
- Study the Indian and global economy
- collect facts about the financial market
- Choose companies that have established track records of business performance and ethics based on fundamentals of company

Emotional control- second step is to control emotions while making the decision of investment:
- Don't make decisions based solely on emotions
- don’t buy stocks just because they have gone up
- don’t avoid or stop considering buying asset because it has gone down

Psychological strength – third step is to be firm on your decision:
- Don’t worry about agreeing with crowds or not. Worry about being wrong. Better to be alone but right
- don’t be in trap of succumb to juicy stories that capture their imagination and compel them to make wrong choices

Analytical thinking: forth step is deep analysis and out of box thinking is requires for correct investment decision
- Keep in mind to buy a business and not a stock. A good business' stock price will increase if the performance is solid

Time- long term perspective is require

- Don’t speculate. Once you buy a good business, give enough time for the results to come
- Every decision needs time to be proved right.

Role of Greed and fear Index in decision making:

Fundamental analysis or equity research analysis helps investor to decide the best company of the sectors which will give you the best returns in the current economic conditions but does not talk about the market sentiments and other investor behavior in current conditions. Greed and Fear Index used 7 parameters to evaluate investor as a group psychology and concluded that if the index value is les then 50 it means investor are afraid and market has gone down. If index value is index value more than 50 it shows greed sentiment of existing investors and market has gone up. If values are extreme, which means below 20 and above 80, It shows that the buying opportunity and the sale opportunity respectively.

Conclusion

The entire stock market fluctuations can simply be summed up in two words: fear and greed Investor psychology, emotions and confidence play a powerful role in driving market returns often at the expense of objectivity and logic.

The fear and greed within the stock market are essentially caused by investors that do not stick to their long term investment plans but rather base their decisions on ever changing price levels. Greed within the market is created when prices of particular stock increase rapidly whereas fear within the market is created when prices of a particular stock decrease rapidly.

Most investors are not rational and often make decisions based on emotions, past experiences and pre-conceived ideas, with the constant fear of incurring a loss or the prospect of making an easy gain omnipresent.

Fear and greed always drive the market and influence investors in volatile and rising markets. The key is to remain constant and conscious of your thoughts, beliefs, and control your emotions especially while investing.

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