Chapter 4
Review of Literature

4.1 Introduction

A large number of financial institutions and retail investors are still living under the threat of heavy losses suffered during global financial crisis 2008. Even though, these institutions used the best risk management tools to minimize losses, but somehow they ignored the most important risk element and that was the investor’s individual behavioral bias. Unfamiliarity of these behavioral biases generally results in irrational decisions and leads to misleading results and Financial Crisis 2008 has helped in drawing the attention of various researchers towards this area.

Although, a lot of researches has been done on behavioral finance in the last few decades but it has gained a lot of interest only after financial crisis 2008. Behavioral finance is of the opinion that markets are inefficient and investors do not behave rationally always. Moreover, it incorporates the psychological aspects of investors in traditional finance and studies how their behavior can affect decision making and leads to irrational and misleading financial decisions. Traditional finance is of the view that investors are rational and whatever information is there, it is available to all. Thus, no one can enjoy extra profits by having insider’s information. But, even after this, various anomalies, speculative bubbles can be seen in the market which suggests that the underlying principles of Efficient Market Hypothesis are not wholly correct. It ignores the behavioral aspect of investors that plays a major role in affecting financial decisions. Thus, there is a need to incorporate human behavior along with traditional finance to learn why investors sometimes behave irrationally or do not consider all of the available information while making financial decisions Razek (2011).
4.2 Calendar Effect

Agrawal (2012) presented a detailed conceptual framework of various behavioral biases by explaining how they occur, their consequences and how they are interrelated with each other. He found that these biases cannot be studied in isolation; as they tend to originate from other biases and are likely to be active simultaneously. Muhammad carried out his research to study the investor’s behavior i.e. whether they took rational decisions or just base their decisions on emotions or sentiments; their perceptions towards price movements and risk factor of a stock and their trading practices. He found that most of the investors do not participate in all the asset categories rather they tend to avoid losses and follow others while taking investment decisions. Moreover, they use past performance of a stock as an indicator of its future performance and trade too aggressively including only familiar stocks in their portfolio.

As, it has been observed that despite of strong principles of Efficient Market Hypothesis, market experiences a number of anomalies that causes unnecessary volatility and results in irrational decision-making. These anomalies can be seen in the form of calendar effects, stock splits, contagious effect, investment after performance evaluation period, Tax benefits and many more. Ahmed (2006) examined the Day-of-the-week effect anomaly in the Indian equity market during the period of July 1997 to March 2006. He found the Day-of-the-Week effect anomaly in both the movements of BSE and NSE indices. Chandra (2011) confirmed the presence of calendar effects in SENSEX for the period April 1998 to March 2008. He used daily logarithmic market returns to test the calendar effects and found an evidence of monthly pattern of market returns in the index. He was of the view that mean returns in early days of a month were higher than remaining days of the same month and also found that stock returns
in different segments of a month were significantly different from each other. On the other hand, Kaur (2011) found the evidence of month-of-the-year effect in BSE 500 and S&P CNX 500 indices from January 2002 to December 2009. Author used continuously compounded daily change in the share price index to test the anomaly, regression equations with dummy variables and t and F tests to test the significance of the results. The results of the study revealed that returns in the month of December were higher as compared to other months in the year, but did not found any significant results for day-of-the-week effect in the Indian Stock Market.

Ray and Kanti (2011) investigate the sensitivity of Indian market towards issue of bonus shares and stock splitting for the period 1996 to 2008. They conducted an event study using 61-day event window consisting of t=-30 to +30 days and firms who has witnessed puzzling events has been removed from the study. They found statistically significant above average positive returns during stock split event confirming the fact that stock split announcement lead to more liquidity changes and market players are more pronounced to stock split announcement than that of bonus issues. Hammami et.al (2011) explored relation between seasonal depression and market returns, known as Seasonal Affective Disorder effect (SAD) in the context of Tunisian Stock Exchange using daily return data for the period January 1998 to December 2008. But they did not found any significant results thus confirming that seasonal depression does not have any significant influence on the mood of Tunisian Stock market investors. It has been seen in India that people prefers to invest during Diwali as this day is found to be very auspicious. Kumar (2012) also conducted his study to examine the returns and volatility behavior during the period of Diwali in the Indian Stock Market for the period January 1997 till 2010 by using paired T-test and EGarch Model. Author found that during the post mahurat period, there is an increase in the
amount of trading volume, as a result of which, level of returns and volatility increases. He mentioned distribution of cash bonuses; various buy recommendation from brokers as the major cause for excessive trading activity as well as for stock volatility.

4.3 Effect of Speculative Bubbles

Cheung (2010) has undertaken three historical bubbles - Japanese bubble in the year 1990, Internet bubble in 2000 and subprime mortgage crisis in 2008 to investigate whether market is suffering from bipolar disorder or not. For this, he developed a Market Mood Model (MMM) and found that it has six phases- Normal, Hypomania, Mania, Moderate Depression, Major depression and normal and each phase has its respective characteristics that explains the behavior of market for that particular phase. He also considered interest rate policy as the major factor for handling asset bubbles and consumer prices. His model explains that stock market bubbles are the result of market fluctuations as it suffers from bipolar disorder. Finally, he was of the opinion that by sustaining interest rate policy, it is possible to stabilize asset and consumer prices. Garvey and Wu (2010) checked if the normal trading activity of the traders working in a company varies during performance appraisal period by using transaction data of 361 employed traders of United States, who were compensated entirely on the basis of profits they generated, for the period October 7, 1999 to August 1, 2003. The trading activities of employed traders were compared with the trading activities of 595 traders who are not working with any company and are not subject to any evaluation period. They found that the trading pattern of employed traders differs, during their performance assessment period but it rises steadily as this assessment period comes to an end, as compared to their counterparts. They also tested for the possibility of private information and trader’s cumulative income on
trading performance and they found that private information has no influence on trading whereas trader’s aggregate income is positively correlated with the trading activities of trader’s at the end of the evaluation period.

An important example of market anomalies is speculative bubbles. Speculative bubble starts with a sudden rise in stock prices which attracts the attention of investors to invest their money in stocks in the hope of earning high returns. This further involves moving of savings from less risky avenues to stock market or raising a loan in order to increase the stock holding level, thus, creating a suitable environment for the evolution of a bubble. Miller (2002) re-examined the results of various studies of stock market bubbles explaining that even in the presence of unbalanced information between buyers and sellers, how learning develops in the market. He was of the view that stock markets with unbalanced information are sketchy as they lack distinct product quality and under ordinary market conditions, it may be very difficult to curb stock market bubbles. With the help of futures or forwards market and enriching the market with the information that leads stock prices in the right direction, it is possible to avoid speculative bubbles.

A large number of studies had been carried out to analyse the effect of speculative bubble 2008 on investor’s behavior. This financial crisis has originated from US Sub-Prime crisis and spilled over to other countries and minimizing the diversification benefits of investors. Gulser et al. (2011) examined the impact of the financial crisis 2008 on the co-movements of Indian stock market with thirteen other foreign stock markets during 15th May 2006 - 05th Aug 2010. He confirmed the presence of correlation between Indian stock market with U.K, German, U.S, Japanese, Australian, Singapore and Hong-Kong markets suggesting minimal global portfolio diversification benefits. On the contrary, Malaysian, South Korean markets were
found to be less correlated with Indian market, thus, indicating the maximization of diversification benefits of Indian investors. **Sen (2011)** also investigates the short-run and long-run relationship of Indian Stock market with Australian, Hong Kong, Japan, Indonesia, Japan, Korea, Taiwan and Singapore stock Markets for the period July 1997 to June 2009. Author used cross-correlation method to measure co-movement of variables, unit root test to check stationarity, Granger Causality test to analyze the direction of short-run relationship and Johansen Cointegration test to detect the long-run relationship between sample indexes. He confirmed the results given by **Gulser et.al (2011)** that SENSEX is highly correlated with other stock indexes except Japanese stock market where the correlation coefficient is low as compare to other indexes. Moreover, He found unidirectional short run and long run relationship of index returns with that of SENSEX returns.

**Paskelian et.al (2011)** carried out their work to investigate the existence of speculative bubble in Chinese real estate market during period 2004-2010 by using duration dependence test, the variance ratio test, regime switching regression test and unit-root test. They found mixed evidence of bubble behavior using traditional econometrics techniques and no evidence of speculative bubbles was found using unit root test whereas duration dependence test confirmed its presence in Chinese real estate market. Moreover, the highly significant coefficients of regime switching model provide stronger indication of presence of speculative bubble in the Chinese realty market. On the other hand, **Ray (2009)** found the evidence that there was a difference in the behavior of student investors before and after market crash 2008. On the contrary, he also found that behavior of some market participants was irrational to a certain extent but most of the student investors were of the opinion that market was overvalued before such crash. For this purpose, he used the data of 120 management
students of divergent business schools in India, who were actively engaged in trading in Indian stock market during and after Financial crisis 2008 and analysed the same using paired-sampled T-test. He also found the presence of herd behavior among student investors as they all used information from the similar sources before making each investment and neither look at market conditions before crash nor after crash. Ali et al (2009) carried out his research to find the association between stock overreaction and financial bubbles for the Kuala Lumpur Stock Exchange from January 1987 to December 2006. The portfolios were divided into winner portfolio and loser portfolio and difference in their abnormal returns were found with the help of one sample t-test and independent sample t-test. For stock price bubbles, continuously compounded returns were used and analysed with the help of duration dependence test. The sample period was further divided into two sub-periods i.e. pre financial crisis 1997 and post financial crisis 1997 and found that stock overreaction was significant in the pre-crisis period whereas the same begin to diminish during post crisis period. Moreover, there was no sign of speculative bubble during pre-crisis period but the speculative bubble which was observed in post crisis period can be due to the presence of stock overreaction observed during pre-crisis period.

4.4 Impact of Foreign Institutional Investors on Share Market

Speculative bubble 2008 has adversely affected the FIIs contribution in India and also changed the behavior of retail investors. Various studies tried to capture investors’ behavior during financial crisis 2008 and provided alternative explanations for their irrational behavior. Recently, more researches and studies are carried out nationally as well as internationally which studied the behavior of Foreign Institutional investors (FIIs) and their impact on financial markets. But only few of the researches are there that studies the changes in the behavior of Indian retail investors. And whatever
studies are there, most of them are carried out internationally. Thus, there is a need to carry out extensive studies to study the behavior of Indian retail investors as Indian Stock Market is an emerging and developing market and like other international stock exchanges, and are also exposed to various investors’ behavioral biases. Srinivasan et.al (2010) has investigated the impact of trading patterns of Foreign Institutional investment (FIIs) on Indian stock market returns before and after Speculative bubble from July 1, 1999 to February 27, 2009. They used Phillips-Perron test and Augmented Dickey Fuller test to check the stationarity of the selected time series data, Schwartz Information Criteria and Akaike Final Predictor error criteria to test contemporaneous relationship of net FIIs flows and market return for both pre and post crisis. They found that foreign investors were actively engaged in negative and positive feedback trading before and after global financial crisis 2008. Can et.al (2004) has carried out his work on the same area and analysed the effect of foreign institutional investment on the Istanbul Stock Exchange in Turkish Stock market for the period February 1997 to September 2004 using both monthly and weekly returns. They found monthly synchronic relationship between Net Foreign Portfolio Investment (NFPI) and US dollar returns. They also coined the presence of negative feedback trading and suggested that retail investors adopted adversary strategies during trading and conclude that foreign investors cannot be held responsible for precipitating volatility in Turkish Stock market.

On one hand, increasing liquidity, strong political environment helps in attracting Foreign Institutional Investors but on the other hand, they also create unnecessary volatility and results in destabilizing the market. To confirm this, Swanson et.al (2004) investigated the relationship between equity returns of local country and capital flows from international markets for eight emerging Asian markets using three
kinds of equity market returns and 2 measures of flow. Volatility effects were tested by using GARCH process and crisis period effects by incorporating dummy variables. They found that the Information dissemination hypothesis provides stronger indication of momentous volatility effects and crisis period effects in comparison to feedback trading hypothesis. But their findings were contrary of the view that foreign investors destabilize and exaggerate emerging market crisis. H.Choe et al. (1999) also examined the effect of foreign investors trading on stock returns in Korea for the period 30th November 1996 to the end of 1997 by conducting two event studies- first by measuring extraordinary returns for the 11 five-minute intervals and second by measuring daily returns. They were of the view that foreign investors were engaged in positive feedback trading before crisis but during crisis, it disappears indicating that they did not have any destabilizing effect on Korean stock market.

Shankar et.al (2012) investigated the relationship between FIIs inflow and the Indian stock market returns for the period 2000-01 to 2010-11 using data percentage, compounded annual growth rate and correlation analysis. For analysis purpose, the entire period was subdivided in two periods 2000-01 to 2004-05 and 2005-06 to 2010-11. They found positive and statistically significant relationship between Indian stock market returns Foreign Institutional investors investment and were of the view that the FIIs net investment repercussion was higher in the eventual period. Chen carried out his study to investigate how the trading activities of domestic investors is affected by foreign investors trading during pre-and post- Asian financial crisis in Taiwan stock market for the period January 05, 1995 to November 28, 2000 using Grander VAR test. Author used daily data of 40 most regularly traded stocks by foreign investors during the selected period and divided the entire sample into 10 groups on the basis of: Taiwan stock market capitalization, average return, inconsistency of foreign
trading volume, and foreign investors’ holding percentage in 500 day and 100 day pre and post crisis periods. He found that during pre-crisis period, foreign trading had a significant impact on returns and vice-versa; whereas in case of post-crisis period results shows only significant impact of return to foreign trading. Anayochukwu (2012) examined the impact of foreign portfolio investment (FPI), exchange rate, interest rate and inflation on stock market returns and the direction of causation between FPI and stock market returns for the period 1990-2009. He applied Single linear regression equation model to test the impact of above mentioned variables on stock market returns and VAR test to check the direction of causality between returns and FPI. The results of the study revealed that stock market returns and foreign portfolio investment were co-integrated. He found positive and significant impact of FPI and exchange rate and negative impact of on Stock market returns and negative impact of inflation rate and interest rate on stock market returns. With the help of causality test it was found that there was a unidirectional causality between stock market returns and FPI.

Hamao and Mei (2001) examined the effect of foreign investment and persisting behavior of foreign investors on the Japanese stock market for the period 1974 to June 1992. They used purchases and sales trading volume and found that Japanese individuals decreased their trading during the sample period, while Japanese institutions and foreigners increased their trading. They also found positive correlation among Japanese institutional investors trading, while negative correlations with other investor groups. To check how the volatility of the market is affected by the trading activities of foreign investors, they used three stages least square estimation and found insufficient evidence that foreign investors trading tend to destabilize the market as compared to trading by domestic traders. By using market
timing test of Merton and Henriksson they found that Japanese individual investors were very bad market predictors during the selected sample period whereas foreign investors did well during the beginning sample period even though there were certain checks on foreign investment. By using Campbell and Shiller present value model, they found that purchases of insurance firms, individuals were negatively correlated with future dividend growth whereas it was positively related in case of purchases by foreign investors. On the other hand, Dahlquist et al. (2004) analyzed how the opening of Swedish share market for foreign investors has affected their trading patterns and the cost of equity share capital of Swedish individual firms for the period 1993-1998 using Vector Autoregressive method. They used portfolio investment’s monthly data of Swedish listed stocks in addition to all flows except direct investments by foreign investors. They found that foreign investors prefer investment in large and well-known firms who have recently performed well. Moreover, they were of the view that foreign investors were uninformed feedback traders and risk sharing was the only reason for the diminution of cost of equity capital. Jagwani (2012) undertook his study to examine the effect of foreign ownership on the performance of Indian listed companies specially focusing on Reliance Industries Ltd (RIL) and Tata Steel Ltd for the period April 1,2000 to March 31,2011 using Financial Ratio Analysis. They found that foreign equity was positively correlated with cost of debt and negatively with Cash earnings per share in case if RIL. They also found that foreign equity ownership has no significant association with management effectiveness and capital structure of both the companies.

4.5 Risk-seeking behavior of Males and Females

This is generally seen that when it comes to trading, females are more risk averse as compared to male investors. Female investors tends to trade less frequently and thus,
results in fewer losses as compared to their male counterparts. Thus, Mittal et.al (2011) carried out their work to see whether any gender differences exists when it comes to risk taking attitude, allocation of funds, choices for various investment avenues, overconfidence level, and information accumulation and processing style. They analysed data by using mean values, ANOVA, Mann-Whitney U-Test and chi-square test to investigate which trait is more prominent in which group. They found that women prefer low risk-low return investments whereas men show preference for high risk-high return investment. They also confirmed that men are more confident in their investment decisions but does not found any statistically significant result confirming that males and females collects information and process them differently.

Whereas, Dwyer et.al (2002) analysed the risk-seeking behavior of males and females in mutual fund investments using a data of 2000 investors investing in mutual funds. They collected information on the kinds of mutual funds in which investors parked their majority of the savings, their most contemporary LAST investment, and their SPECULATIVE investment. They used ordinal ranking system for coding of the riskiness of the fund. The result of the study confirmed the fact that women were more risk-averse than men while making investment in mutual fund and this effect can be reduced by controlling the investor’s financial investment knowledge.

Working on the same ground, Olsen and Cox (2001) too checked if any differences exist among gender professional investors regarding their investment risk taking. They took two professional groups: one consists of chartered Financial Analysts (CFA) and another consists of certified financial planners (CFP). However, they did not found any significant difference between these two groups; thus, these groups were pooled for further analysis. Using 6-point Likert scale, they found that women puts more stress on risk and uncertainty associated with an investment avenue as
compare to their male counterparts. And, by using 7-point Likert scale to rate the risk level of ten unnamed company stocks, they found that women give less preference to return variability and more to risk of loss and uncertainty as compare to men. Further, using 5-point Likert scale to investigate the perception of risk for various assets, they found that women investors shows more risk-averse attitude towards savings accounts, IPOs and long term treasury bonds and consider all these as risky investments than male colleagues. They were of the view that gender based differences arises only when portfolio contains either extreme low or extreme high-risk financial assets involved greater emphasis on traditionally low or very high-risk financial assets and women investors generally fix a target of returns and attempt to reduce risk than men. Kathuria et.al (2012) examined how the knowledge of different investment avenues, sources of information of investment avenues influences investment decision-making of investors. For this, they choose 150 respondents of private sector banks in Ludhiana city and analysed their responses by using mean score, T-test, spearman’s rank correlation coefficient test. They observed that both male and female respondents invest majorly in safe and risk-free investment avenues and collects their major information from finance magazines, internet and business TV channels. Further, they found that despite being employees of bank, respondents consider Life insurance policy as a safe investment tool rather as an insurance cover. Again, confirming their results with Selvakumar et.al that investors, majorly females, prefer risk-free investments to park their money.
4.6 Impact of demographic characteristics

Apart from all these psychological biases, investor’s demographic characteristic plays an important role in influencing their investment decisions. They always look for those investment avenues where their overall risk is minimized and return is maximized. There are a number of factors that can affect their behavior like quantum of risk involved, tax benefits, Knowledge of various investment avenues, marital status, etc. There are various cognitive biases that affect the decision-making process of not only laymen but also of experienced researchers when they think intuitively. While making judgments under uncertainty, investors came across – (a) **Representativeness bias** - when investors tend to compares that one event is associated with another event (b) **Availability**- when people identify the frequency of a situation with the ease when such events comes to their mind. (c) **Adjustment**-when people estimate final answer by considering starting point value (**Tversky and Kahneman**). Considering these demographic factors, **Selvakumar et.al (2011)** analysed the savings and investment pattern of Government and aided school teachers in Sivakasi Taluk, Tamil Nadu using weighted average, chi-square test, t-test, f-test and correlation analysis. They found the evidence that majority of the investors save money for their children’s higher education which is followed by their marriage and other welfare expenses. The major factor that influenced their investment decision was safety which was followed by tax benefits and high returns. They didn’t found any significant relationship between sex, marital status, savings and expected rate of return, and between annual income and preference of investments. On the other hand, **Uppal (2011)** carried out his research in Punjab and study the behavior of respondents behind their saving. He found that respondents save primarily for the purpose of security of their funds which is followed by tax benefits. Investors give equal
preference to all the factors such as company’s name, return, risk profile, expense structure, date of incorporation of fund while selecting a mutual fund and observed that they got all the relevant information through intermediary agents and commercial advertisements.

Aggarwal et.al (2011) also does not found any association between age, gender, their occupation with the investment period and percentage of income to be saved for future requirements. They investigated the association between above mentioned demographic variables and the investment traits of 120 respondents residing in Jammu for the period December 2008 to March 2009 using Chi-square test. They found convincing difference in the investment behavior of males and females; while males were found to be more aggressive in investing as compared to their counterparts; confirming the results of earlier studies. However, they do not found any association between age, gender, occupation with investment period and percentage of income to be saved for future requirements. Conservative, medium conservative and moderate investors prefer investments in PPF, post office while medium aggressive and aggressive goes for equity shares and mutual funds (Verma, 2008). He investigated the impact of demographic variables and investment traits on the choice of financial assets. He took a sample of 500 respondents which includes businessmen, servicemen, professionals, students, housewives and others residing in Jaipur. Results of the study revealed that males, young investors, high income group investors and business class investors prefers investment in real estate, equity shares and bullions while females, old age investors, low income group investors and service class investors shows an inclination towards low risk investments like PPF and NSC. But, the study of Sitlani et.al (2011) did not found any significant relationship between demographic factors like gender, age, marital status, occupation and household
income and investment choice. But, they found significant relationship between qualification and investment choice made by people working in financial services industry as these people act rationally and choose best investments on the basis of their financial knowledge and experience. They carried out the present study to explore the impact of demographic variables on the investment choice made by 177 respondents working in banks, insurance, mutual funds, CA firms, investment and tax consultants residing in Indore. Mittal and Vyas (2008) investigated the relationship between the various demographic variables and personality types of investors on the risk tolerance and the choice of investment avenues and found that casual investors prefer high risk investment; technical and cautious investors prefer low risk investment while informed investors prefer moderate return investment. The data was collected from 428 respondents residing in Indore during 2006 and the entire sample was divided into various clusters on the basis of their demographic variables. Further, they segregated investors in four personalities- Informed, casual, technical and Cautious. The result of the study shows significant difference among investors of different personality regarding equity, real estate and post office deposits and insignificant for mutual funds, debentures/bonds and derivatives. Mittal (2010) examines how the investment decision making choice is different in business and salaried class investors. He took the data of 330 respondents residing in Indore having more than 3 years of investment experience for the period July to October 2006. They found that business class investors were more confident, more prone to cognitive and self-attrition bias and have shown larger tendency to overreact shown by the way they receive and perceive the information than salaried class investors. While salaried class investors were more affected by framing effect biases and have shown a larger tendency to use purchase price as reference point and regret avoidance. Kiyilar and
Acar (2009)\textsuperscript{89} checked the effect of demographic factors such as gender, age, marital status, employment status and public-private sector difference on the choice of colours and frames of credit cards that various banks used to sell to customers. The data was collected from active customers of Istanbul banks who were using credit cards and analysed using chi-square test and frequency tables. They found difference in the choice of colour preferences between men and women. But they do not found any relation between other demographic variables and colour or shape of the card. Whereas, Grable et.al (2010)\textsuperscript{79} is of the view that gender, family income and preceding week closing price have an important impact whereas age, education level, and marital status does not show any impact on the financial risk tolerance of investors. They carried out their study for the period of September to December 2002 on 421 respondents to explore the impact of changes in stock market prices along with demographic variables on financial risk tolerance of investors. They used summated score of 13-items of risk tolerance evaluation tool as dependent variable and weekly closing prices of NASDAQ, S&P 500 index and Dow Jones as independent variables. Moreover, they added six additional independent variables which includes, age, gender, marital status, educational qualification and family income of investors. Results of Dow Jones, NASDAQ and S&P 500 were similar to each other and they concluded that females and investors with low family income were more risk-averse as compared to others.

4.7 Impact of Behavioral Biases on investor’s decision making

Generally, while making a choice, all the gains and losses are combined to see whether that choice is desirable or not. But in reality, investors do not process information in such a manner. Rather, gains and losses are perceived differently. This is mainly because of the reason that losses has more hysterical jolt than an equal
amount of profits. Thus, there is a tendency of investors to strongly avoid those investments where there is a possibility of losses to acquire gains. For example, if an investor has two identical alternatives, one disclosed in the form of probable gains and the other in probable loss plus sure gain, people would chooses the earlier one even though both of them will give the same result. This type of behavior is called as loss aversion bias. This concept was first introduced by Kahneman and Tversky. Moreover, the risk tolerance level of an investor do affect their decision making process. To confirm this statement, Cavalheiro Anger et al. (2011) investigate how the changes in emotion can influence the risk tolerance level of individuals which can affect their financial decisions. They collected data from 1016 individuals residing in two Brazilian cities and used confirmatory factor analysis test and KMO and Bartlett’s Sphericity test for investigation. They found that women were more influenced by emotions as far as their risk tolerance is concerned. Moreover, they also found that decision-making process of investors was affected by misattribution bias, confirming that those with a positive emotion tend to be more optimistic and more receptive to risk than people in bad mood. Whereas, Boujelbene et.al (2012) tests the effect of risk seeking behavior of banks on the basis of their operation below or above target level. For this, they examined the behavioral perspective for a panel of 10 commercial banks listed on Tunisia Stock Exchange over the period of 1999-2008. They calculated each bank’s various return measures- ROA, ROE and CAP, their standard deviation and median values (target return) and ranked them according to these values. Further, they divide the firms into two groups- those with below target returns and those with above target returns and calculated Kendall’s correlation coefficient between risk and return. They found positive correlation coefficient for banks operating above target and negative in case of banks operating below target.
Their result suggest that banks operating below target level tend to exhibit risk-seeking behavior, while those above target exhibit risk-averse behavior. This suggests that achievement of targets brings a positive attitude towards risk and investors tend to take more risk to earn more profit.

Higher educational and income level tend to decrease risk aversion level among investors (Dungore, 2011). He analysed the role of psychological factors (risk aversion, disposition, framing, and endowment) in decision making process and resource allocation pattern of 500 investors residing in Nagpur using Likert scale, chi-square test, Kruskal-Wallis H-test and Kappa test. For identifying the level of risk aversion, author grouped investors on the basis of gender, age group and educational qualification. He found low risk aversion level in women as compared to men. To test other psychological factor, investors were segregated as risk averse and risk seekers. They found that risk-averse investors do not show any endowment effect, disposition effect, framing effect but affected by risk aversion bias as compared to their counterparts. Weber and Hsee (1998) examined the perception and preference for risky options for four different countries: P.R.C, U.S.A, Germany and Poland. The sample consist 86 students from United States, 85 students from china, 81 students from P.R.C and 31 students from Germany. They found that investors from different cultures differs in risk preference as Chinese investors quotes maximal purchase prices than other three countries members. Thus, it was concluded that Chinese are the least risk-averse whereas American and German investors shows risk-averse attitude towards investment making among the four countries. Moreover, it was found that attitude towards anticipated risk was same in all four countries. The results of the study also found that Americans tend to have strong and Chinese likely to have least tendency of anticipated risk-aversion. Filbeck et.al (2010) investigated the
relationship between range of Myers-Briggs Type Indicator and individual investor ex ante expected utility theory as a basis of risk tolerance. To explore reluctance towards risk in terms of MBTI personality type, they collected primary data of 68 college students and grown-ups from an array of demographic factors with different levels of investment background. They hypothesized that greater levels of EUT risk tolerance are related to MBTI preferences for extraversion, insight, thinking and observing. The results of the study found that individuals have stronger preferences for feeling and judging have a lower tolerance level for risk as compared to those having strong preference for thinking and perceiving. They also found that anticipation or intuition has no forthright relationship with the level of risk. Lastly, authors concluded that individuals likely to behave normal rather than rational while taking investment decisions. On the other hand, Mayfield et.al (2008) examined the behavioral conation accompanying to personal investment and portfolio management with a special focus on Big Five Personality. They conducted a survey of 194 business school undergraduates located in an urban community. Authors used structural equation modelling using AMOS 7.0 for concurrent estimation and verification of the relationship between risk reluctance, scrupulousness and receptiveness to experience and investment intentions. They also used the NEO-FFI which is a 60-item reserve, a minimized version of the Big Five. The result of the study doesn’t indicate any significant association between gender and risk aversion but found that males prefer both short-term and long-term investment as compared to females. They also found convincing negative correlation between the personality trait of scrupulousness and investment specific risk reluctance. Finally, they concluded that inexperienced individuals tend to invest in risky investments as compared to the experience investors who indulged themselves in both short-term and long-term investment.
The net wealth invested in risky assets increases with the age. To test this statement, Wang and Hanna (1997) examined the effect of age on risk tolerance level of investors for the period of 1983-89 using Survey of Consumer Finances data. Various other data related to life expectancy estimates, projected labour force participation rates and poverty thresholds were collected from Vital statistics and Statistical Abstract of United States and Population Survey report of 1989. They used heteroscedastic Tobit model to investigate the effect of net wealth, age, education, and other socio demographic variables on amount parked in risky assets such as mutual funds, corporate stocks and precious metals. They found that proportion in risky assets increases with age for retired as well as for households who has not retired. Thus, they rejected the life-cycle risk aversion hypothesis which proposed that risk tolerance decreases with age. Whereas, Seiler and Seiler (2010) proposed an enlargement of the prospect theory suggesting that investors are so reluctant to risk that even in major downfall of markets they tend to become more acceptable to risk by acquainting a false citation price. They conducted an experiment on 345 MBA students for a period of 3 years in Western United States to test if incorporation of a false citation point alters the investor’s mind to dispose of their loss making investment in real estate. The respondents were presented with six scenarios – wherein real estate was the only investment in the first three scenarios and in the last three scenarios real estate was considered as an element of the portfolio along with stock and bonds. The result of the study confirmed that demographic characteristics of investor’s did not have any influence on their decision-making but their psychology can be changed by incorporating a false citation point and it was strongest for married, males and internationals that belonged to Asia. Chou et.al (2010) found in his study that both males and females have same attitude towards risk. For this, they
developed a model to assess investors risk attitude towards various investment avenues and implication of various sources of financial information using a data of 327 Taiwanese investors (173 female and 154 male). Data was collected through a questionnaire containing questions to various investment avenues moving from less risk to high risk financial instruments accompanied by various economic signals. They segregated the sample data to form various groups on the basis of gender, their investment experience, and marital status and tested the existence of relationships and their strengths through the model. They found that experience investors are likely to engage in riskier behavior as compared to their low experience counterparts. But they did not found any convincing difference in the risk attitude of married and unmarried groups except in case of mutual funds. Through their model, they found negative correlation between investor risk perception and returns expectations and positive correlation between experiences and return expectations. Vlaev and Chater (2009) conducted two studies to investigate how the financial risk understanding of the investors is affected. The first study was conducted to investigate investor’s ability to interpret investment risk related to retirement investment. In this study 56 adult participated and they were asked to mention those factors that flashes to their mind as soon as they anticipate the risk corresponding to an investment, and give ratings to those factors that can affect their risk attitude towards financial products and retirement investment. The second study was conducted to check if the risk framing helps in stabilizing risk preferences over a period of 3 month as compared to regular measures of risk aversion. In this study 88 respondents were recruited and they give 10 contrasting measures of risk reluctance to calculate the constancy of choices for a period of 3-month. The results of the study revealed that investors can have poised preference for risk provided they were asked the right question. Uri and Yagil (2003)
carried out their study to check how different wealth levels and assets risk changes the investment to be made in risky assets and how this risk perception is affected by personal characteristics of investors. Data was collected from 245 students doing executive MBA from New York University and 203 students from economics field from Haifa University in Israel on the arrangement of risk proportion throughout different wealth levels and on five personality traits: EMPL, SEX, OPT, RSKR, LTRY. Respondents were asked to fill the amount they are willing to invest in two portfolio compositions- C1 (stocks and risk free asset) and C2 (options and risk free asset) with different levels of wealth levels. They found that assets risk and risky proportion are negatively related to each other which were confirmed by the results where investors invest 3 times of their money in common traded stocks rather than in options (derivatives). They also found that personal characteristics were statistically and significantly related to the risky proportion.

There are cases where investors not only perceive risk differently; but they also let previous gains and losses to affect their financial decisions. Working on the same ground, Thaler and Johnson (1990) too found that investors segregate gains and cancel losses against larger gains, but they do not integrate losses. They confirmed this view by investigating the effect of prior gains and losses on decision making of investors. For this, they conducted four experiments to test hedonic editing hypothesis, temporal spacing and editing rules. The respondents were given various alternatives of sure gain, probable gain, sure loss and probable loss and were asked to choose between them. From experiment 1 they confirmed the presence of hedonic editing as a majority of respondents selected the basic frame already predicted by the theory. Further, they conducted an experiment, where respondents were supposed to make actual choices for money, using two methods to test editing rules: (1)
presentation format does not influence choices, and (2) various editing hypothesis make different predictions regarding the role of previous events outcomes on risky choice. They found that respondents adopt the same frame regardless of the presentation format. On the other hand, Shefrin and Statman (1986) examined if investors considers the feeling of realized losses distinctively as compared to realized profits. They developed a theory of realized capital gains and losses, a continuation of the psychological model that they used in their previous work for dividends, wherein investors used to sell rising stocks too early and hold on to losers too long. Their model had three main elements: mental accounting bias; regret aversion bias and self-control bias. For this they collected data from two sources. First, from a research done by Schlarbaum dealing with the stock trading activity of individual investors between 1964 to 1970, where transaction costs exist and found that most of the trades were stimulated by the liquidity consideration whereas only a minor part was hold by tax-induced trades. The second is related to the accumulated data on mutual fund trades, where transaction costs were insignificant and from this they found that average ratio of selling of the positions with profits was much more than the average ratio related to losses.

Sometimes, people only look for that information which supports their point of view. This leads to limited information search and inappropriate financial decisions. To check the effect of limited information processing, Mishra et.al (2012) conducted their study to investigate the impact of purchase decision involvement (PDI) on investment decision-making behavior of 268 Mutual Fund investors located in Jammu region of J& K, India. They hypothesized the impact of PDI on the information search and information processing behavior and used bivariate regression analysis and independent sample T-test to measure the impact of PDI and to find the difference in
the investment behavior of high PDI & low PDI Mutual Fund investors. The results revealed convincing distinction in the investment behavior of high PDI and low PDI MF investors and they found that level of PDI impacts the information search and information processing behavior of investors. This was validated by the evidence that low PDI Mutual Fund investors tend to use less information sources and use information on fewer numbers of attributes as compared to high PDI MF investors. 

Chen (2011) explains various aspects of entropy theory of mind and develops a theory of information- explaining psychological patterns as a means to reduce the cost of information processing and theory of judgment explaining how investor’s judgments determine their trading decisions and the returns of their portfolios. For this purpose, he classified investors into three groups- large, mid-sized and small investors according to their wealth. He found that learning results in better encoding of words and reduces the cost of communication and information processing. Furthermore, from the theory of judgment, he concluded that it is more valuable to generate bubbles than to realize immediate profits. He also found that informed investors tend to sell their holdings while uninformed investors buy after the release of information showing the heterogeneity of trading volumes and trading behaviors among investors over a period of time. Steinbacher (2008) presented a theoretical overview where he presented that the psychology of people plays a significant role in pricing of assets. He describes how educational awareness of investors affects their behavior towards market, giving recognition to the prospect theory. He included Markov process which explains that past returns do not confirm future returns and martingales measure to answer why people are most likely to sell a stock in “t” time period, even though they are aware that they can get higher return in “t+1”period. Moreover, investors have their particular way of getting and handling the required
information, and making anticipations and decisions out of it. He further added that investors ordinarily do not behave persistent in time and generally use divergent ways of thinking, which further complicates the understanding of price movements. **David (2008)** proposed an index to investigate the level of internalization of analysts’ forecasts in recommended stock prices for different time period after the announcement of the analysts forecast for Tel-Aviv stock exchange. For analysis, they used 40 stocks prices recommended by the experts as ‘buy’ or ‘strong buy’ during the year 2004 and 2005 and excluded all those stocks which were traded in foreign stock markets and carrying majority recommendations by analysts. The results of the study found that investors in Tel-Aviv stock exchange internalize new information in 14 days after the publication. They also found that recommended stock index increases gradually and reaches its peak 30 days after the recommendation day and after 30 days, it shows larger improvement. **Ashton and Cianci (2007)** examined the evidence of both inspirational and emotional differences between sell-side analysts (SSAs) and buy-side analysts (BSAs) earnings forecasts when they were provided with earnings information that differs in trend, recency and variability. They conducted their experiment with 70 SSAs and 101 BSAs having an experience of 11.2 years and they were asked to predict earnings per share for current-year, one year ahead, and two year ahead horizons and make a stock recommendation for eight fictitious companies. They found evidence of differences in earnings forecast and SSAs were of view that it is more important to make favourable and accurate forecasts than BSAs. They also found that forecast revisions of BSAs and SSAs were not influenced differently by trend, recency, variability, or horizon. They also mentioned that there are no significant differences in either raw forecasts or forecast revisions across national, regional, and local firms.
Investors quote higher target prices and willing to invest more in those stocks whose charts characterize high prices and they tend to sell those shares whose chart characterize low price (Mussweiller and Schneller, 2003). They investigated the impact of charts representing past stock prices on investment decision-making. They conducted five experiments in which the respondents were given the authentic information related to the financial situation of the economy and specific companies. Half of the participants were given charts depicting a low and other half were given charts depicting a high and they were asked to make the investment decision. These participants were asked to provide a target price for a stock for a period of 12 month and to decide if they were interested in buying or selling that stock and at what price. They also found that professional investor’s investment decisions were influenced by the charts and they tend to park their money more in those stocks whose chart depicted a high rather than a low. De Long et.al (1990) examined the existence of positive feedback trading in stock markets by developing a model with four periods (in 3rd period there is no trading, in 2nd period stock’s fundamental values were disclosed, in 1st period informed rational speculators receive fundamental news and in period 0 no signal is to be received) and two assets (cash and stock). Their model includes 3 kinds of investors – knowledgeable rational gamblers, non-violent investors and positive feedback traders. They found that there is a cycle which deviates assets value from their fundamental values. In the companionship of positive feedback traders, knowledgeable gamblers too plunge on the latest trend and rational gamblers in an expectation that noise traders will buy these stocks and exaggerate the prices, buy these stocks to sell them at higher price. Further, a purchase by rational gamblers induces positive feedback traders to trade more and further move the prices far away from their fundamental values. Thus, they concluded that the sign of
arbitrage position is contrary of what is needed to shift share prices towards its fundamental values. Hirshleifer et al. (1998) worked on overconfidence and developed a theory based on changes in investor confidence arising from biased self-attribution. They found that overconfident investors have a tendency to overweigh their private information as compared to available public information, thus exaggerating the stock prices. Moreover, it was found that investors tend to become overconfident when their private information reconcile with the available public information, but when these information contradicts, it does not have any impact on their confidence level. The basic noise trading approach to securities market in the theory found that most of the mistakes are committed by investors that are based on misinterpretation of new private information.

Generally, it is seen that investors tend to believe that they have better knowledge than others while choosing stocks. Just because of this they end up trading more frequently and losing their investment value. Qian (2009) investigates the time varying optimism of analysts related to time-varying investor emotions after regulating macroeconomic factors (GDP) and skewness in the cross-sectional distribution of forecast errors for the period of 1984-2002 with the help of data collected from Institutional Brokers Estimate Systems Database. The entire sample was divided into two sub periods to test the analyst confidence before and after the transformation of regulations. He conducted two subsample analyses by- (a) ranking the size of the firm and average analyst optimism across these groups (b) ranking the firms according to their book-to-market ratios for each quarter. The results of the study found that analysts were highly optimistic for small firms as compared to the large firms. He also found that when economy expands, it reduces analyst confidence and increases in case of low book-to-market firms as earnings for these firms are hard
to predict by investors then in the case of firms having high book-to-market values.

**Barber and Odean (2000)** conducted their study to examine the performance of investments in stocks held by households at a brokerage firm excluding mutual funds, ADR and options. For this, they collected a data of 78,000 households for the period January 1991 to December 1996. They found that investor’s likes to trade only in those stocks with which they were familiar and average households change more than 75% of their portfolio stocks every year. They found a slight difference in the mean returns of households trading frequently and earning 11.4% returns with those who trade less frequently and earning a return of 18.5%. Moreover, the gross returns earned by household and individual investors were almost similar to an investment return earned in value-weighted index of NYSE. They also found households park their money in small and high-risk stock and their poor performance can be associated with the costs linked with excessive trading. Thus, they concluded that despite of high cost of trading, investors trade excessively as they are more confident about their trading skills and knowledge.

**Bondt and Thaler (1986)** confirmed in his study that stocks with high Price/Earnings ratio were overestimated whereas stock with low P/E ratio were undervalued. They tested overreaction hypothesis using monthly return data of NYSE for the period of January 1926 to December 1982. They focused on those stocks which over a period of 5 years has gained either intense capital gains or intense capital losses and checked whether systematic residual return after portfolio formation was associated with that of the preformation stage. Their results were similar to that of overreaction hypothesis. They found asymmetric overreaction effect as effect was much larger for loser portfolio which earned a return of 19.36% than for winner portfolios which earned a return of 5% during the same period. They also found increase in cumulative
average residuals of winner and loser portfolio were followed by price reversals. On the other hand, Barber and Odean (2001) tests if overconfidence causes excessive trading and low returns. They hypothesize that men use to trade more often than women and due to excessive trading, men incurs more losses than women. They used a data of 35,000 households for six years from February 1991 to January 1997 and partitioned them on the basis of gender and demographic characteristics. They found difference in trading patterns of single men and single women and married women were less experienced than married men. They also found that men trades 45% more than women and thereby reduce their returns by 2.65% a year than women who reduce their returns by 1.72%. They also provide a distinction between rational investors and overconfidence investors by mentioning that it is the tendency of rational investors to trade only when anticipated profits are more than transaction costs whereas overconfidence investors trade even when the true expected net gains are negative. Spurgin and Tamarkin (2005) investigated the reasons for, and results of, active trading by market participants. They used Parrando paradox with financial assets having probabilistic outcomes. This paradox uses 2 loss making gambling games, and when these games are played alternatively they lead to a profitable result. They used five assets- one being the S&P index and other four being the individual stocks. The respondents were free to trade in any of these assets, the selection of which relies on respondent’s recent profits or losses. They found that individual investment in asset A or other four assets, without any shifting results in a profitable strategy. But when the investor shifts between asset A and other four assets, losses began to increase and it is concluded that more the switches more will be the losses.

Investors who trade in an interactive environment are more confident and optimistic and as a result of which their performance generally falls than investors who trade in a
lonely environment (Cheng, 2007). He confirmed this statement by conducting his study to see the impact of overconfidence in context of miscalibration (adjustment), above average effect, market tenacity and risk perspective on the trading performance. He also investigated whether interactions between traders influence their trading performance. He collected a sample of 159 students from academic institutions that do not have any trading experience. He conducted two games: an electronic stock trading game (in which 50 students participated) and an open outcry futures trading game (in which 109 students participated) and used T-test, correlation analysis and multiple linear regression model for analysis. The results of the study revealed that stock traders reflect higher degree of overconfidence in case of miscalibration and trading as compared to future traders. De Bondt (1998) also conducted their study to examine the trading activity of retail investors and their thinking about their equity holdings. They collected a sample of 45 investors residing in Fox Valley in Wisconsin during October 1994 and March 1995. The respondents were requested to project the last trading level of Dow Jones for Fridays that will fall in the next two and four weeks to project a range of price levels which they think that have a very low chance that Dow Jones will go up and a very low change that the Dow Jones will come down. They found that investors were overconfident for the shares they own and believed that they will perform well but showed a negative attitude regarding the Dow Jones performance. It was also found that the average 2 week returns of individual companies were higher than the anticipated returns of Dow Jones Index of America. The majority of the subjects denied a positive break-even between risk and return and was of the opinion that in order to manage risk effectively, it is necessary to have a good knowledge about the fundamentals of the small firms instead of diversifying their portfolios every time. Nagy and Obenberger (1994) conducted an empirical
study of 137 experienced investors to examine the factors influencing individual investor stock investment decision and tests whether these variables can be grouped into homogenous groups which investors use while making equity investment decisions. Participants were told to analyse the importance of 34 variables, consisting of traditional and contemporary variable. The results of the study revealed that classical wealth-maximization criteria were of great importance and the new-fangled concerns such as global operations, environmental imprint record were given only an eye view consideration by experienced stock investors. Local operations and recommendations of stock broking houses and individual share brokers were not important as they relied mostly on their own judgment. Further they divided 34 variables into 7 homogenous groups and concluded that investors did not use limited information to make their investment decisions, rather they use diverse criteria. 

In investing, it is the tendency of investors to segregate their finances between a protected portfolio and a gambling portfolio. To see whether it affects the financial decision making, Shavit et.al (2010) used an eye detector to investigate the rule behind mental accounting bias and loss aversion bias on 27 students of major university by recording their eye movements using an infrared pupil refection system and used Wilcoxon signed ranks test to analyse the outcomes. The time spent by the participants while noticing the information (gain, loss, change in values, and change in shares final values) as the dependent variable. They hypothesized if participants expressed their reluctance towards negative information by watching positive information or at negative information for the extended period of time. The existence of mental accounting was tested by analysing that whether investors are spending extra time in noticing the portfolio’s individual stocks or at the portfolio’s total value. For this purpose, the respondents were presented with four different conditions (high
loss-high gain, high loss-low gain, high gain-high loss and high gain- low loss) and found that time used in monitoring loss-making and profit making assets in terms of returns in percentage were same. They also found that investors’ spent extra time in observing profit making shares than on loss making shares only for change in value. Furthermore, they found that time spent in observing final values of each share in a portfolio was more than on the final value of the portfolio. Keller and Siegrist (2010) segmented current and potential investors based on eight cognitive variables of their attitude towards money which includes approach toward protection of their money, perception towards investment in shares, delusion towards money, anticipated corruption of the stock market, mind-set for speculation, curiosity in financial matters, their view towards saving and sincerity in taking about finances. The data was collected from Switzerland. The various money attitudes were further grouped into four clusters (protected players, open books, money dummies and risk-followers) on the basis of their scores. They found that risk-seekers cluster consist more men as compared to open books cluster which was over presented by women. They found that money dummies and open books showed low acceptance towards risk and little curiosity in finance matters whereas money dummies showed favourable attitude toward the share market than open books. They also found that protected players and open books were more inclined towards for social investing; whereas, Siddiqui (2008) focused his study to investigate the impact of disposition bias on investment decision making process. He analysed the behavior of 300 individual investors residing in Delhi for the month of January and February 2008 using percentage method. He found that investors considered security of the investment as first priority and they believe that whatever profits they made, it is because of their own analysis and evaluation and held other persons responsible for the losses. He also found that
investors show disposition effect and prefer selling profitable stocks and buying only those shares that have done well in past at the time of uncertainty. However, he does not found any difference between emotions of joy of gratification and regret of loss felt by investors but found that investors’ believe that stocks of big companies are less risky than smaller companies.

In familiarity bias, investors prefer to buy only those stocks with which they are familiar and avoid unfamiliar stocks. Boyd (2001) tests the impact of recognition heuristic on the selection of stock portfolios in a study conducted in June 2000 using data from two groups- first consisted of undergraduate business major’s students and other non-business majors. Students were provided with the names of 111 U.S stocks selected from S&P index and asked to recognize their names and choose shares of 8 companies, which according to them, would beat the market over a period of 3 months. Author created a portfolio with the shares of 23 companies names whose names were recognized by at least 90% students and another two portfolios containing stocks which were selected as best performers and other containing stocks which were most frequently selected by participants. Returns were calculated firstly on June 15, 2000, repeated again on September 15 and finally on December 15. The return of market portfolio showed positive returns (1.65%) whereas highly-acknowledged portfolio falls (9.06%) between June and September as well as the test portfolio tends to underperform the benchmark for both 3 and 6 month periods. Participants tend to pick high-recognition stocks as potential best performers which showed negative returns; and stocks which were not selected appears to be best performers during the sample period. They also found that highly acknowledged company name leads to unsatisfactory results in bear market, and complete ignorance is better than minimal knowledge.
Generally, it is seen that investors hurt themselves by keeping losers for too long in the hope of selling them at profit than selling profitable stocks too soon. Investors associate regret more with holding losers than with selling winners too soon. Moreover, investors does not show any regret on negative outcomes when it involves advices from brokers, across both buying and selling (Fogel and Berry, 2006). They examined the effect of past investment decisions on satisfaction/regret level of investor decision making by conducting two experiments using data of 176 respondents from the representative of American Association of Individual investors. The first experiment, using a three way ANOVA, examined the part of omission/exclusion vs. commission/fault regarding keeping losers for too long and selling winners too soon. The respondents were asked which investment decision hurts them more- (a) selling a profitable share too soon or (b) not selling a loss making share soon; as well as to rank the significance of various factors that affects their financial decision making. They found that majority of the respondents’ regrets for holding on to loss making shares, which is considered as an act of omission and broker recommendation, followed by the need for liquidity showed strongest influence on selling. The second survey used 106 MBA students from Mid-western University. In this experiment, they found that both the attributes of advice and their outcome has powerful impact on the satisfaction level of respondents who receives broker’s advice as compared to their counterparts who did not take the advice. Moreover, the respondents who receive broker’s advice assigned negligible responsibility to themselves for profits than for losses. There are various studies that focused on the impact of racial differences on financial decision making of investors. Xiao (1995) used the data of consumer finances survey consisting 3143 observations for the year 1989. He examined the patterns of financial asset ownership and
investigated the reasons why households are more likely to own certain types of assets. He conducted descriptive statistics, multivariate (logit analysis) and bivariate analysis to investigate the interactions amongst variables of financial asset ownership. The ownership of nine financial assets (current accounts, savings bank accounts, Certificate of Deposits, money market accounts, retirement accounts, saving plans, life insurance, bonds and stocks) were taken as dependent variables whereas variables that affect the ownership were taken as independent variables. The results of bivariate analysis revealed that majority of pair of assets had positive effects on each other when demographic factors were controlled. Eight pairs did not affect each other, while four pairs affected the ownership of assets negatively, and the remaining two pairs represent uneven results. Result from logit analysis (without controlling demographic variables) shows that income and education had positive effects whereas household size had negative effect on financial asset ownership. Households with white heads, credit cards and married heads were likely to hold more risky assets as compared to their respective counterparts.

Xiao (1996) again carried out his research in 1996 using the same data to examine the impact of life cycle variables, education, colour of the group, acceptability to take risk and income on the purchasing of 11 financial asset (checking accounts, saving accounts, Certificate of Deposits, money market accounts, saving bonds, retirement accounts, savings plans, life insurance, bonds, stocks and trusts). He divided the sample into five sets of data and used logistic regression for analysis. The dependent variables consisted of eleven financial assets and independent variables comprised of life cycle related, income and control variables. Using Logit results, he found that younger families, married investors with a child were less likely to hold CD, insurance, life insurance, bonds and stocks as compared to middle age group families.
He also found that household’s head age, his marital status, employment status and presence of a child were the important factor that affects the purchasing of financial assets. Respondents with Earned income and a college degree were more likely to have a number of assets. Finally, author was of the view that whites hold more financial assets as compared to other racial groups. On the contrary, Gutter and Fontes (2006) found in their study that racial differences does not have any significant impact on the way household’s allocate their money in risky assets. They conducted their study to examine the difference in the ownership of risky asset between black and white households using data from the 2004 survey of consumer finances with the help of probit model and OLS regression. They used two stage models to determine the differences present in the purchase decision and distribution decision of white and black households. Stage 1 examined the risky asset purchasing and stage 2 examined the allocation of wealth in a portfolio using likelihood of risky asset purchasing and allocation of finances to risky assets as dependent variables and demographic, economic, and preference shifting variables as independent variables. Using probit model, they found that presence of children, liquidity (3 months), education and income increased the likelihood of owning risky assets whereas addition of family members, non-married and non-working households negatively impact the ownership of risky asset and this escalation was larger for black households as compared to the white households. Using OLS regression, they found that once household purchase risky assets, there is no difference in the preference for investment in these assets between black and white households. He conducted another in 1999 using 1995 consumer finances survey data consisting of 3939 households with a black or white household head. Gutter et.al (1999) developed a model to investigate the racial differences in risky asset ownership by incorporating
socioeconomic, financial, and attitudinal variables. They used interaction model and the reduced model with logistic regression to investigate the combined effect of the signal variable and the set of interaction variables. The results of the study revealed that the distribution of asset ownership differs between racial groups as black households were less interested in buying risky stocks and making small business investments. Using logistic regression for interaction model, they found that socioeconomic, financial and attitudinal variables differ significantly between black and white households. They also found that Net worth, presence of children and household size also affects the risky asset ownership between the two racial groups. Moreover, White households were willing to take above average risk and hold more risky assets as compared to their black counterparts. Thus, they concluded that differences in risky asset ownerships were because of the racial differences in selecting the personal sources of risky asset ownership and not because of the race.

**He and Shen (2010)** carried out their study to investigate if investors use prior share returns while forecasting for future returns. They estimated share prices, book equity values and analysts’ earnings expectations for the sample of stocks for the year 1981 to 2007 and found that there is a positive relationship between anticipated returns and prior returns for both market based portfolios and single stocks. They also found that expected returns of investors were totally different from the actual returns in the subsequent year. They used Residual income valuation model to calculate the anticipated returns and the anticipated earnings progress rates. They included shares traded on NYSE, AMEX and NASDAQ for the period from 1981 to 2007. They found that investors become overoptimistic for stocks which earned high returns in the preceding years. The relationship between anticipated and prior returns prospered
when they controlled analyst optimism and risk measures. They finally conclude that investors anticipate from prior stock returns and prior earnings growth rates.

4.8 Herd Behavior

This speculative bubble 2008 is not the first time that events like this happened in the markets. One of the reasons that can be attributed to this may be the propensity of individuals to mimic the actions of a larger group known as herd behavior. This happens because people do not want to stand alone with their decision and regret of not following the decision of the group as they believe that group knows something that they don’t. Kim et.al (2002) confirmed the presence of herd behavior in Korean stock market and the main reason for this difference in behavior occurs as foreign investors living outside Korea were informationally disadvantaged as compared to those having a physical presence in Korea. They investigated this behavior for both before and during the Asian currency crisis 1997. The results of the study revealed that foreign institutions or individual investors living outside Korea were engaged in positive feedback trading strategies and more likely to exhibit herding behavior than their counterparts in Korea. Thin trading can be a cause of evolution of herding behavior Kallinterakis (2009). He carried out his study in Vietnamese stock market using the Index data of Ho Chi Minh Stock Exchange which includes 112 listed stocks for the period March 1, 2002 to February 28, 2007. He chose particularly this sample time period because from March 1, 2002, Vietnam Stock market shifts from non-continuous to continuous trading system. Thin trading cause delayed execution and accumulation of buy/sell trades resulting in herd behavior. He found that herding behavior not only becomes insignificant but also disappears once the returns are adjusted for thin trading.
Shiller (1990) investigated the presence of herding in Japanese stock market crash of October 1987, real estate booms and U.S stock market crash of October 1987 and recurring under-pricing of IPOs. In case of stock market crash 1987, herding was found to be the major cause as people were acknowledging each other’s decision with great consideration and emotion. In case of real estate boom, speculative considerations were found to be the main reason for buying houses in boom cities. With regard to under-pricing of IPO’s, wealthy individuals and institutional investors were found to be more concerned about the underwriter’s and stockbroker’s reputation. Moreover, he does not found any difference in answers of people residing in sample cities rather they were influenced by recent experience and local market experience. Shyu and Sun (2010) carried out his study to investigate whether institutional investors (mutual fund investors, FII and domestic securities dealers) were engaged in herding behavior in Taiwan’s stock market for the period January 1999 to December 2004. They included two extraordinary episodes- the SARS crash and Taiwan presidential-election collapse in 2004 but does not found any convincing difference between herding behavior of institutional investors all along these two events whereas FIIIs shows herding during presidential election. For FIIIs and domestic mutual fund investors, they found the presence of herding behavior whereas it was missing in the case of domestic securities dealers. The results further confirmed that herding behavior was strong in smaller firms as compared to larger firms. Lakonishok et.al (1992) investigated the presence of herding and positive feedback trading in institutional money manager’s behavior using a sample of 769 tax-free equity oriented funds handled by 341 institutional money managers for the period 1985 to 1989. The results of the study suggested that herding was more in small stocks and better performing stocks than in large stocks whereas it was completely
missing in case of individual stocks. They found that herding was more prominent amongst managers handling small portfolios than in managers handling large portfolios. Further, they found that except for small stocks, institutional money managers do not change their portfolio holdings on the basis of contemporaneous excess returns.

Aggregate human interpersonal dynamics continues to remain inflexible until and unless a change emerges in the working of the triune brain that completes the human mind (Prechter, 2001). He investigated whether herding arises from spontaneous mental activity of individuals who respond to the signals from the behavior of others. He used the real world result of public trading and shows that the retail investors invests more money in share market when it goes up and lesser when it comes down which was in contrary to the behavior which generate profits. He also mentions that majority of the professionals were engaged in herding just like young investors and mentions institutional portfolio managers herds with the public in the way market moves. There is equilibrium in the market where one manager infuse their money only when he got good signal and other manages constantly mimic the other ones regardless of his own signal Scharfstein et.al (1990). They developed assuming that supply of investment is perfectly elastic at a given price and managers to be in charge of capital investment, each considering investment in a cost-saving technology. The managers were divided into two categories: intelligent ones, who got informational cues regarding value of an investment, and other ones mousy, who got to receive only clamorous cues. They found that managers who are concerned about their reputation, mimics the investment pattern of the other co-managers and completely neglect their own information.
4.9 Summary

The review of literature brings out the following:

- Most studies on behavioral biases have maintained a general focus across investor’s category. In view of the mounting speculative bubbles, there is a persistent need to study investor’s behavior based on specific characteristics.
- Most of studies focused their attention on identifying the presence of a specific behavioral bias on a particular class of investors.
- Majority of the studies on investor’s behavior has been carried out overseas that may not be considered as a base for studying Indian investor’s behavior.

In light of the above, the present research makes an attempt to:

- Examine whether the investors as a whole are influenced by behavioral biases.
- Examine the presence of various behavioral biases among investor groups created based on specific characteristic.
- Analyze the role of demographic variables in influencing an investor from a behavioral bias.

The present study additionally contributes by segregating the sample in two groups, based on certain characteristics (investment experience, age, marital status and percentage of savings invested in stock market), and studying which investor group is more influenced by a particular bias.