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Behavioral Finance of an Inefficient Market

By Sohani Islam
Stamford University Bangladesh

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I. Introduction

Investment is a rational income generating decision which normally leads by investor's necessity of periodic income. Individual amateur investors want to invest their extra savings on the basis of their demand for income. Jeff Madura (Financial market and Institution, 8th Edition, Ch 8) mentioned it as "Matching principle" which is even responsible to affect price of securities. When fixed income earning people invest in the capital market, they will expect to earn something extra on a regular basis, to get compensation for the risk. The acceptance of compensation depends on that person's risk tolerance, financial back up the nearby social factors. Not all the investment is profitable, and not all the investment is loss-bearing. The key to a successful financial plan is to keep apart a larger amount of savings and invest it intelligently (Kabra et at, 2010). There are several parameters to determine which has influence upon investment decision such as return, flexibility, perception towards risk, etc. Investors' ideology regarding the parameter also depends upon that person's socio- economic and demographic condition, like, age, fender, profession, saving, rick adjustment etc. study of investor's such character will help to portrait investment attitude of any investors. This will be helpful to the stock brokers and portfolio managers so that they can offer better portfolios to their investment. This analysis will show the mentality of an investor and his preferences of investment concisely. On that light this study is taken place to identify the major influential factors which leads the investors to pick their desired stocks.

Many works and research s have been made upon what factors may affect investment decision of investors. It is found that, investment choice may vary from country to country, but, in most of the studies individual investors' choice of investment if taken quite emotionally rather than rationally. Srivastava (2012) surveyed between two different groups of Indian investors on the basis of theories of behavioral finance. According to his identification, people's experience leads them to take more rational decision than the inexperienced one. Individual investors are influenced by several biases. So if they can reduce or control the effect, rational decision is possible to make.

Baghdabab et al (2011) studied the behavior of Malaysian investors. They have identified 13 influential factors by surveying on the basis of literature review. According to their study firm's public information is the most influential factors. Financial ratios, and past information are ignored and not taken as consideration prior to investment by the potential and existing armature investors of the market. The study did not follow any particular theory; however, the basic behavioral theories were used to enlighten the selection of variables.

Kenneth A. Kim and John R. Nofsinger (2003) studied investors' behavior of Japan. It was found that individual investors make comparatively poor choice. They own stocks with high risk, large book-to-market (BM) ratios, high trading volume, and earn low returns.

Different findings are drawn from different case studies by researchers' of different countries. Behavioral finance theories were exploited to identify the factors. In this paper, theories were discussed at first assuming the market is inefficient. Then that basis, variables were used as option of 17 relevant questions. Factors were identified and justified on the basis of both theories and practical. Then some suggestion has been offered which can be applied by the legal enforcement authority o reduce the market information.

Author : Assistant Professor (Finance), Department of Business Administration, Stamford University Bangladesh, 51 Siddeswari Road, Dhaka Bangladesh. E-mail : sohaniislam@yahoo.com

a) Rationality and Objective

Efficient Market Hypothesis (EMH) is required by all type of stock market for having a steady growth and avoiding the tendency to become a bear market. However, economic condition and weak market regulation often let the market–planner to manipulate with investors common psychology and tendency. As a result the world economy face scammed crash on the stock market.

Market efficiency is a subject of discussion in Dhaka Stock Exchange (DSE). The general market index never has a steady upward trend except 2008-09 (See Appendix 2). After 1996, either the market had a sharp rise, or unpredictable fall. The major reason identified by the researchers is the failure of weak form of efficiency on the market.

Mollik and Bepari (2007) studied the daily trading index and the study found negative normal distribution pattern of return. That is the return has a seasonal rise and pick, however randomness is absent in the pattern. Using autoregressive test, they found that, the DSE return series is influenced heavily by various market anomaly.

Hussain et al (2008) applied technical trading rule upon DSE considering 22 years (1986-2008). The study purpose was to compare the market efficiency before and after the 1996 "market – crash". They have identified that, because of close monitoring system, circuit breaker, credit rating etc, improved the operational efficiency of the market after 1996. However the market cannot perform with efficiency because of lack of flow of quality information o all to all market participant. Proper rules and implication of those rules by the law enforcement authority and participation of new firm were suggested there.

Same line of findings observed by Mobarek at el (2008) which identified market may work inefficiently because of herding behavior of the market participant. Sometimes any firms sudden price rise or any price sensitive information overvalued by them. Over demand make Game planners easily access to the market and get in hand easily accessible money. Chaity and Sharmin (2012) proving the market inefficiency added lack of market supervision and ignorance of the participant increase the inefficiency of the market.

So evidently it can be assumed that DSE does not follow the weak form of efficiency and market participant either increase or crashed the market condition by recklessly and whimsically taking the decision.

The objective of this paper is to identify the factor responsible to mold the investors of stock market in taking investment decision. For this reason, investors' nature and socio – demographic condition has been discussed here. Theoretical behavioral finance and several relevant theories were discussed to identify the factors. Market condition of DSE is also discussed to prove inefficient market condition.

II. Overview Of Conceptual Framework

Behavioral finance is that part of academic finance which studies people's buying and selling behavior of stocks. There are emotion, assistance form people, lack of consciousness and information lacking, expectation of earning and so many anomalies which challenged traditional efficient market hypothesis. Efficient market where assumes investors must be rational, their behavioral finance thrown light on their irrational attitude in selecting stocks. According to the Traditional Expected theory of Economics, rational people always make decision putting weight on their maximum benefit and being rational is a constant assumption. In the over view part, at first, EMH and Behavioral Finance is focused¸ then on that light relevant theories and prior work on this sector has been reviewed. Along with the literature review, basis for the factors for this paper also has been selected.

a) Efficient Market hypothesis (EMH)

Fama (1971) introduced EMH which states that, stock *price* must reflect all the available information in an efficient market. The three state of efficiency is relevant to discuss here:-

- Weak form of efficiency: past price cannot be used to predict or earn abnormal profit.
- Semi strong form of efficiency: share price reflect all publicly available information diminishing the scope to earn abnormal return.
- Strong efficiency: even insider information is available through stock price.

EMH built on the basic assumption that; Investors will act rationally, the existing irrational investors either will cancel their trade or follow the market and market participant must have a well defined utility functions which will be expected to be maximized. (Fundamental of investment, C. P. Jones, 9th edition). Notion of efficient market depends on information availability of price and message of various events. The information discussed from several angel, like, Accounting information (Ball and Brown, 1968), block trades, new issues of securities, stock splits (FFJR, 1969), portfolio performance, sometimes divestitures and merger.

Price availability if adjusted by the rational investors then they can assess their expected earning with adjusted gain. In order to value the expected and unexpected earning Finance Theorist had provided some model such as:

CAPM model : Markowitz (1959) assumed rational investors mean variance efficient portfolio. "mean variance-efficient" portfolios, hold assumption

that portfolio will 1) minimize the variance of portfolio return, given expected return, and 2) maximize expected return, given variance. Sharpe (1964), Linter (1965) and Mossin (1966) developed the very useful CAPM model which considers only systematic risk as risk factors, providing premium for all other.

Expected return = Risk free rate + (Market factor in period t-risk free rate) $\beta+\epsilon_{it}$

Expected return model : Fama suggested the following model unexpected return valuation model due to inefficiency of market.

$Z_{i,t+1}= r_{i,t+1}-E(r_{i,t+1}/*t)+$ Systematic risk

In a efficient market $Z_{i,t+1} = 0$. fragine.

The abnormal performance index: in order to check the abnormal return from the market Sharpe, Treynor and Jensen introduced abnormal performance index. Sharpe dived the market premium with σ (Standard deviation form return) and Treynor divided with Systematic risk (β). Ball and Brown (1968) identified the abnormal return as return earn form any event rise per dollar return. 1 will be deducted from there to get par week value.

In presence of the market inefficiently and insider information Fama (1997) found that, long tern anomalies are fragile and influenced heavily by the market investors. The basic assumption of this model is the financial market is predictable.

In this paper, it is assumed that, the capital market is inefficient. Several prior studies and current stock market index were postulate for this purpose. (Appendix B)

b) Behavioral Finance

In 1936, Keynse state in the famous "The general theory" economy was well synchronized until investors "animal spirit" leads them from optimism to pessimism. In practical world, none of the capital market can be efficient so, above normal profit is possible to earn. However the investing decision is dominated by several econometric and psychological variables. The concept of behavioral finance argue with the rationality concept of traditional finance; and investors will not always be able to value their utility of decision alternatives, cannot estimate and update probability of events and do not diversify properly.

Tversky and Kaheman (1979) tried to develop inter dependency between psychological knowledge and economic decision of investors. Later on financial analysists and economists discussed about fundamental, industrial and technical anomalies (CP Jones, 9th edition). Tversky and Kaheman criticized traditional Expected Utility theory and developed the foundation of formal study of behavioral finance "Prospect theory". The theory focuses upon investors' basis evaluation of Cost-benefit analysis. In the revised version (1992), the authors introduced loss aversion and mental accounting biasness which leads to investors' regression theory. According to the empirical evidence the authors introduced loss aversion theory which asserts, risk aversion for gain and risk seeking for loss, and extremely reluctance to accept mixed prospect.

So, it is necessary to discuss the basis and elaboration of the major theories on several prior works.

i. *Cognitive Dissonance theory*

Most of the studies on investors' behavior emphasized on this major theory which related with investor's psychology. Cognitive dissonance is the state of mind when a person has mental conflict with already taken decision. If the feeling is regret the psychology and rationality conflict and the person claims someone else responsible for the unwanted outcome. However logic does not accept that. The theory (Festinger 1957), states that, in order to eliminate or reduce the impact of cognitive dissonance, people may take contradictory decision and may stand on the losing position just to prove own self right.

Milan Lovric et al (2008) introduced a conceptual model of investors' behavior with a general survey of investors. They have identified several variables through which investors' thinking process move on. The dual-process system starts thanking about the result and end up with the stage of perception-interaction and action. The interaction between investors' socio-cultural variables and investment environment found out as responsible to influence investor's decision.

Traditional finance asserts, investors must act rationally to earn profit. However if they are taking decision out of emotion, that may lead to a regret. Cognitive dissonance thereby is taken as a basis of new paradigm (Lucy F. Ackert et al; 2003).

In order to get out of regret stage investors must try to minimize risk. This elimination can be done by making proper portfolio. Portfolio construction efficiently is managed by professionals. The expected rate of return form a portfolio not only depends upon country's macro variable but also the international economy. For this reason, international portfolio and condition of strongly efficient foreign countries stock market may be considered as influential variable. Such findings were drawn by Ionescu et al (2009) from the stock market of Romania. The study was taken data from the market from August 2007, which was a starting of financial crisis time for USA stock market.

At this stage professional advice is necessary. Harlow and Brown (1990) identified that, people who are adventures or sensation–seeker, are more tending to take financial risk than the others. Though there are different standard of each investors risk –tolerance level, few variables go common for all category of investors. Improved method to assess individual's risk tolerance is suggested to be introduced by the market participants.

Callan and Johnson (2002) suggested some guideline to the professional financial advisors. They have understood that, along with questioning about the investors risk tolerance, some methodical and statistical tools can be used to assess, the psychology and attitude of the investors, which may be a better help to assess investors risk tolerance level.

Sevil et al (2007) asked their case respondents about the expected rate of return what they purchased within a year. 10%-20% were the maximum predicted return. The questioned was addressed to see, whether the investors have regret or whether they are facing any cognitive dissonance or not. The question is associated with a prior question asked whether they sale a s profit yielding or loss yielding stock in a financial slow down. The investors are expecting a negative or low return which is also realization of a past wrong decision.

E. Bennet et al (2011) surveyed upon Indian (Tamil Nadu) investors and self satisfaction of investors to invest in any particular firm, has been identified an influential factors of investment behavior.

Naveed Ahmed et al (2011) studied investors behavior of Lahore stock exchange. Investors' rationality and self confidence were asked with a set of questionnaire. For rationality, institutions contribution was also being asked. Most of the investors (46%) replied that, institutions contribution on their market order will depend on situation. Surprisingly, to test the cognitive dissonance, institutions' responsibility has been questioned. Investors own analysis was found to be more influential factor than professional advice.

On the basis of this prior studies approach and expectation towards the stock were questioned. The DSE investors were asked, in a "price-falling" condition which security they will sale. The option was Profit yielding stock and Loss yielding stock. Dummy variable was used as 0 for no and 1 for yes answer.

55% investors agreed to sale the Profit yielding stock. They thought about the current proceed. However the loss yielding stock holding will not be wiser at all and in long run hiding the profit yielding stock. Suppose to generate higher return. But amateur investors decide on the basis of their mental accounting.

The second relevant question of cognitive dissonance was their expected return within the case time-frame (2010-2011). The investors were asked what rate of return they were expecting from their last years transaction and investment. A 5 class of return range were given and the following result came out. The result was quite interesting as most of the investors (42%) are expecting quite higher rate of return (10%-25%). This is quite similar with Sevil (2007) for Turkish investors (56% of total sample) who are expecting up to 20% rate of return.

Two important variables are expected to be responsible for this trend. *First,* the market is segmented, but information is not sufficiently available, a clear weak form of market (Dr. Kishore, 2011). The *second* one is, investors' psychology to do whatever they think is well suited for him, rather than entirely depending on professional planners. Cost of service may be another reason behind the reasons.

Appendix A

Table 1 : Descriptive Statistics.

Below-10%	-10%-0	0-10%	10%-20%	20% to above
0.28	0.20	0.22	0.42	0.03

Table 2 : Descriptive Statistics

Which stock will you sale in a price falling situation?	Mean
Stock that yields a profit	0.55
Stock that yields a loss	0.45

Table 3 : Descriptive Statistics

	Good time to Buy	Patience holdings	Neutral	Get Worried about recent Portfolio	Decide to sell
Mean	.32	.26	.21	.13	.07
Sum	102	82	63	40	22

Among the 312 respondents, few did not answer the question because they are not ready to assess their investment by themselves. On the light of this mental state relevant variable found to ask the investors were, "why they are investing in this particular firm". Investors were asked to rank their preference among seven options on the basis of likert point. Among the other variables, 'Getting quick rich' identified as most influential variables. That is, when investors sensed or got know from the available information that, investment in this stock will return them quite higher capital gain, they invest on that particular stock without assessing so much about the firm's past performance ($V_{16,17,18,19,20,21}$).

The cognitive dissonance refers towards two basic psychological state–Prospect and Heuristics bias.

ii. *Prospect theory*

A well documented prior study supports the concept that, investors can make mistake and they have different perception regarding risk. The concept generally termed as Prospect theory. Tversky and Kaheman (1979) introduced the leading prospect theory which identified a person's intention to invest. The intention was segment into two major theme; editing them (how the stock will do) and judgment principle (evaluating loss and gain). The theory is introduced and technically explained by Kahneman and Tversky (1979) which was revised in 1992. The prospect theory was

focused and discussed from different context among which Loss aversion, Regret aversion and Mental accounting Bias are significant (Milan Lovric, Uzay Kaymak and Jaap Spronk; 2008). Other emotional and psychological biasness under prospect theory also rule as influential factors upon investment behavior. However, most of them ultimately ended up to these three biases. So this paper also focuses upon these three biases.

Guven Sevil et al (2007) studied the small investor's behavior in Istanbul. The study questioned roll of brokerage house in guiding the investors. 7.8% of the target sample denied the role of financial institutions. 34.8% respondents accepted the effectiveness of financial institutions to choose the stocks. Shareholders' reaction about share price rise and fall also considered here as they are expected to not to act rationally. The study shows most of the people (72.4%) will sale a profit yielding stock in a price-dropping situation. From this result it can be stated that, may be lack of in depth knowledge lead them to take such decision. These two variables are also tested by Naveed Ahmed et al (2011) for the investors of Lahore Stock Exchange. There were fifty–fifty response for profit yielding and loss yielding securities.

All the prior studies focused upon investors' emotional behavior. Elster (1998) used six features to explain emotion-which are Cognitive antecedents, intentional objects, psychological arousal, Physiological expression, and valence and action tendencies. His study explains why because of having the feeling of joy and regret, with all the sense of right and wrong, investors sometimes cannot take decision. Because of wrong action investors are very commonly regret (Gilovich and Medvec;1995).

In order to judge the influence of investors' psychology, on economic decision, investors' mental assessment about a particular security is another crucial point. Shefrin and Statman (2002) developed Behavioral portfolio theory in two versions to show that, this type of portfolio differ from typical Markwitz CAPM-portfolio theory. They developed BPT in two versions: a single mental account BPT version (BPT-SA) and a multiple mental account version (BPT-MA). Because of the intension to take risk even at a risky project, BOPT model securities are quite similar with real world securities as demonstrated by the authors.

On the basis of expected utility and investors risk-return analysis capability; several studies were organized were on the basis of theories of behavioral finance.

a. Loss aversion

Gilovich and Medvec (1995) studied the regret of investors and the reason behind their loss. Form the literature review it has been stated that, "it appears that people experience regret over negative outcomes that stem from actions taken than from equally negative outcomes that result from actions foregone". Kahneman, Knetsch, and Thaler (1990) stated it as, losing some amount will give double pain than pleasure to gain from double of that amount (Gaining $ 2= losing $1).

Barbeir and Huang (2001) studied stock return of portfolio basis and individual stock returns and their impact upon investors. Their evidence suggests that the loss aversion level depends on prior gains and losses: that is, if investors already gained to overcome a loss then that is less painful, than a prior gain less loss. This is a mental set back of the investors.

Khoshnood and Khoshnood (2011) investigate significance of behavioral biasness among investors of Iran. On the basis of theory they studied the practical capital market investors. They defined loss aversion as investors' strong desire to avoid loss than to acquiring gains. Because of this loss averting tendency, amateur investors, most of the time forget about the common rule of stock market that,-buy when the price is lowest and vice versa. Loss aversion is investors avoiding tendency from any sort of possible loss project. They are not that much egger to assess the prospectus gain at the same time if that is not much bigger than the loss.

In order to check the condition of Dhaka stock exchange, in the survey question, it was asked that, in a price falling trend which stock they will sale. The choice was –The stock that yield a profit or the stock that yield a loss. The 55% of the respondents were affirmative to sale the stocks that yield a profit. And 40% were interested to sale the loss yielding stocks. That means the investors are not aware that they are losing the profitable one. They are only thinking about the short term capital gain. This phenomena leads to a basic factor: whether the investors understand the Market analysis or not (V_7, V_{10}). The question was do they think market analysis affect their investment behavior or not and Sevil at al (2007) captured the same trend for Istanbul stock exchange investors (74% of sample wants to sale profit yielding stocks).

b. Regret Aversion

On the basis ex-post loss, when investors even did not dare to take decision on the basis of correct information ex-ante, because the loss they suffered was regrettable, that mental state is called Regret aversion. Suppose, an investor loose Tk 0.25 million by holding stocks of a particular firm, which he expected to rise at the middle of the year. Because of some technical mistake in analysis, and because of total loss in economy, the firm may not be able to pay cash dividend on that year. As a result stock-price did not rise prior to expected dividend declaration date. Ultimately, it was a loss year so price was fallen sharply and investors was bound to hold the stocks without making any profit rather holding capital loss. On the next time whenever

he has the correct dividend declaration new on any other stocks, he will not take any prompt selling decision, as he will have the Regret of past loss. His other influential variables if give if the same signal, then he will place the market order.

Loomes and Sugden (1982) introduce regret in a theory of rational choice under uncertainty. On the basis of above situation, they have derive Modified Utility function. Which assumes, a person's rejoice and regret both depends on *choice less utility* and the sensation is *what occurred* and *what might have occurred*. On this assumption the authors hypothesized, if what occurred and what might have occurred can give equal pleasure or regret then, there will be no Regret. In this theory Loomes and Sugden offer a wider range of prediction which investors may consider and which are relevant with practical world. Michenaud and Solnik (2008) applied this model in currency hedging choices to have an optimal solution.

Tehrani and Gharehkoolchian (2012) applied the regret aversion theory to test what factors affect disposition effect of investors at Tehran stock exchange. Regret aversion found to have a positive relationship with disposition effect while self control was negatively associated. They also found that a well educated participant has lower disposition rate then low educated participants. The information leads to a conclusion that, education gives confidence to a person which leads to regret less and disposed less even after a loss experience. Mahmood Yahyazadehfar et al (2010) studied the regret aversion condition of investors in Tehran Stock exchange. Their conclusion was investors sorrow or grief after making a wrong investment leads him /her to take such decision.

In order to judge this scenario, investors were asked what will be their reaction if the price rise extremely or fall extremely. 63% of the respondents felt extremely bad with a sudden price fall of stocks (36% were neutral). Whereas 54% of the respondent feel extremely happy with arise of a stock (40% were neutral). Dr. Nick Maheran et al (2009) studied rational behavior of Malaysian investors and speculative decision identified as a major factor which influences the investors.

On the basis of this mental state investors were asked about the market price movement (V_4), current economic indicator, (V_6) and stock market declaration regarding certain stock (V_3). Investors applied affirmatively about the influence.

Sayed Rasol Masomi et al (2011) asked similar type of question to the investors of Tehran stock exchange. They asked respondents whether they avoid to sale the stock which has a fall in price and 14% of the total sample were affirmative.

c. Mental accounting biasness

This mental state leads investors to calculate mentally about the expected profit of the investment. One major problem is because of lesser experience and knowledge; investors fail to recognize the original value of portfolio. They calculated separately on each stock, however that certainly will not match with total portfolio return.

Chandra et al (2011) tested factors influencing investor's behavior of India. Their study found that most of the respondent investors consider loss on stocks separately. Portfolio calculation did not come in mind when they calculate by themselves.

Nik Meheran (2009) stated comparison of behavioral and traditional finance. According to him, many people are unable to distinguish between good stock and good companies. Common people judge the good advertisement or commercial presence of any company as their standard. Conclusion can be drawn as good status represents good companies leaving others unattractive.

Naveed Ahmed et al (2011) studied investment behavior of Pakistani investors. With the same line of thinking, they used question like, credibility of well known companies are more than small companies.

Sayed Rasol Masomi and Sara Ghayekhloo (2011) studied the behavior of investors in Tehran. They also used these factors like Sevil (2007) for Greece.

This paper treated this situation from different angle. 312 investors were asked their decision when stock price is going down. They have given the following options (1 for response, 0 as dummy on the other options). 32 % investors consider it as good time to buy. That means investors are now a days well known about the basic rule of stock market.

They do *Mental accounting,* like, if return lower price or unexpected downturn of regular income like dividend, investors will regret on the buy or sale decision. Investors should interpret analysts' recommendation and then forecast about their earning as recommended by Bin Ke and Young You (2007). They also recommend investor's should not consider the projected price and earning are as equivalent to the analysts' and to themselves. So projection basis may vary. Relevant variable regarding this metal state for this paper was what mental assessment they do regarding dividend earning ($V_{11,}$ V_{14}).

Institutions are one of the major intermediaries on the stock market. There is option to trade on margin which is easy to pay off if, there are events to get a uprising or boom market. Gain at stock market if convincing to earn quickly, then margin trade seems to be the most logical source of financing (V_{22}). Relevantly, instead of depositing money in a fixed deposit account, a regular stock market investment, suppose to return expected gain, along with regular anomalies. Surplus unit of the economy, think about the expected rate of return in terms of time and cost. A favorable capital market is expected to return higher rate than an FDR account (V_{24}). A lower bank rate must mould investors to

invest more in the capital market directly, rather than keeping the money with a saving account. Current FDR rate of Bangladesh is 12 % (2012). Prior to the stock market depression since 2010, it was quite interesting to the potential investors to put their money into the capital market. Even a long term investor also can think about purchasing more stock as the market has a down turn.

iii. *Heuristics Theory*

This psychological states explains that, people have tendency to take decision or make judgment on the basis of nearest available information, Because the act occurred quickly, there are lots of possibilities to capture the wrong decision. In a capital market, amateur investors act on the bias of their own thinking. Most of them place market order (Buy or sale order) following the others. Four major angel is judged under this theory. (Chandra et al, 2011).

Investors are may be over confident. While choosing security or putting any order, they may take decision by themselves. If they gain unexpected profit form one gambling, then that will give them intensive to take more self-assumed decision. Ultimate result may raise the regret according to the cognitive dissonance. However, if they learn to control their temptation and follow the market rule, this may help them to avoid unexpected loss.

Sun and Hsiao (2006) studied the investment nature of Taiwanese investors in a pilot test. According to the Confirmatory factors analysis, where overconfidence occurs when investors do not assess the privately received information and take decision accordingly. This tendency is avoidable by practicing self –confidence and statistical tool.

The heuristics theory leads to the question about Technical consciousness. Investors were asked how much they know about industry and firm analysis. On the basis of three choice investors answered that they understand moderately about the market index. However they are not conscious at all how the analyses do were run (V_{27}).

Representative bias was identified as another responsible variable. Investors can invest on the basis of their past experience. That investment may not return them their desired result. However this scenario is difficult for them to accept, and it is equally difficult to accept their own assessment fault. Following the past information keenly and take the expert advice can be major tools if the investors want to follow their own past trends.

Chandra and Kumar (2011) studied the representative biasness of investors and found their majority of them invest on "popular stocks" considering past data, however rest of the investors ignored the recent past data while making investment decision.

Merikas et al (2011) analyzed factors affecting Greek investors' behavior. They asked the investors whether they follow the past information of the companies before making investment decision or not. 30.7% investors are affirmative about following the past information

Li and McDowell (2009) studied the effect of analysists' report on companies upon amateur investors. They researcher found that, investors feel more positive to get good report than to get a bad report. After controlling the cognitive feelings of investors' it will influence their investment decision.

For this study, the following options were asked to investors to rank among factors what they prefer to judge before pecking any stock. From the target sample 63% people responded that they follow the past information (Financial statement). We can draw a conclusion that major investors of DSE are quite conscious and they can control their temptation and overconfidence. Remaining of the investors ignore the past data. On the light of representative bias, investors were asked to rank the source information. Not only the company's annual report, but also the international economic depression also has influence upon the stock market. These variables were also asked to the investors to rank ($V_{7,}$ $V_{23,}$ $V_{24,}$).

Anchoring Bias is a mental state, when the investors set a target and judge their future return nearer to that point. The target point is referred by the socio-economist and financial behavior analysist's as "Anchor". Kannadhasan (2010) found that, with new information, investors expect that, their investment will be as same as like the past return trend. Anchoring bias often referred as adjustment bias (Dr. Kishore, 2011). According to the theory, capital market armature investors often set a target and even after the arrival of a new information, investors denied to adjust according to that.

Milan Lovric et al (2008) developed a conceptual model of investor's behavior. On the basis of theories of behavior finance and prior empirical studies the authors summarized several conceptual basis upon which investors attitude can build up. Adjustment and anchoring bias described as a dimension of social bias. According o them insufficient data makes the market value heavily dependable on initial value. Investors target a future value on this basis, however because of absence of numerical data, often subjective probability influences their decision and confidence level lead them to a wrong judgement in a price falling situation.

Chaarlas and Lawrence (2012) studied effect of anchoring biasness upon independent investors of India. Achoring bias is discussed initially as investors' tendency to overestimate any stock price on the basis of not so relevant information. However, later on, the authors identified this biasness as a fundamental feature of successful investment strategy. Successful investors are expected to judge every relevant company's information and not to take decision on a basis of one or two of them.

Hsiao and Sun (2006), observed 290 Taiwanese investors. They focused their discussion on investor's mentality on disposition effect. According to their factors analysis, self –developed measurement scale has a positive but significant relationship on investors' disposition act.

For this paper, several factors were asked to the investors, regarding their selection and judgment about stock. For the selection process, the rational investors are expected to watch and analysis past performance of the firm and the market index. In the questionnaire understanding about market index was questioned with five options from well understanding to negative understanding. Major shareholders of the sample care about market index. However, they understand a moderate level. ($V_{25,}$ V_{26}).

Availability Bias: Most of the amateur investors heavily rely upon commonly available data. Without questioning and querying too much they place a market order which in return may give poor result. But availability of hot stocks (Chandra and Kumar; 2011) influence them to take such action. Trading brings pride when decisions made are profitable, but it brings regrets when they are not. Investors avoid selling losing stocks and blamed the professional intermediaries for not making a profitable portfolio. Information can be collected through many ways.

Merikas et al (2010) studied the investment behavior of Greek investors and classified the different source of information into 5 major factors. For this reason, all the five factors contain 26 different source of information and social pursuance. Among all, Accounting information explained the maximum variables which contains the Expected earning form the firm (72%). So Dividend related information makes investors attracted to invest. They are also presumed by relatives, friends and institutions to invest in some particular portfolio. (Kabra, 2010; Sevil, 2008; Veeraraghavan, 2011 and so on).

Not only the information provided by the near bys but also the environment and other source provide scenario which represent that an investment will raise the regular income bar. The information may raise the cost of investment (Gilovich and Griffin; 2001). The critiques of heuristics and biases often identified that, Bad News draw more attention than any positive news. So if the media or press is biased about any firm, negatively, that may give a turn to the investment schedule.

Peng and Xiong (200) studied on investors' attention overconfidence and process of learning to peck the necessary information. They have used Bellman equation to build investors optimal portfolio. They have identified that, investors mental accounting based optimal portfolio is different than CAPM based optimal portfolio (Shefrin and Statman, 2000). Availability and use of information is playing a major role here. Use of correct information is expected to reduce the level of risk associated with portfolio. However they also identified that, several variables found in the financial statement s are not necessary. Those variables do not influence future share price.

This paper is aimed to identify different influential variables for investor's behavior and it was identified that information from the professionals are the most influential variables among the options (V_1).

Gambler's fallacy: Gambling is the game which depends on target and luck. Not any certain technique is used in playing gamble. Luck and following the others rather quite used term in case of gambling. Luck and following the others rather quite used term in case of gambling. Suppose, you wore a black shirt to seat for a test and got a A+ on that test. If you area person who depends on luck a lot, then you may want to wear that shirt afterwards each exam considering it your lucky shirt. Even though, you did not get good grades in some exams, you will overlook that, thinking the positive effect on your good grades. At maximum time it is not about the cloth, but it is about the confidence it gives to you. A gambler's fallacy, theoretically, identified human nature to develop a reason behind any decision, out of some illogical concept. On the happening of event A is not depending upon event B, however under this heuristics, people think that, it depends.

Amin, Shoukat and Khan (2009), studied the influence of Gambler's fallacy upon the investors of Lahore, Pakistan. At sample investors were asked four question to draw out investors attitude towards the market and the presence of Gambler's fallacy into their nature. A testing question targeting the objective was, investors believe about trend. 75.1 % investors believe that, the current trend occurs because of happening of some series of event. However this was not always right, there are some other consequences as well as.

Masomi and Ghayekhloo (2010) put some light on the behavioral pattern of investors of Tehran. They have asked about their ability to predict the end of a good market or bad market. 78.5% investors were affirmative about their credibility to predict the market. The study supports and identified that gambler's fallacy exist among the investors and this lead them to act over confidently.

This paper asked the investors about their knowledge to understand market index with a five point likert scale about their knowledge and understanding level about market index. 34% investors were agreed about following the index sometimes and get a moderate knowledge how index works. Though only 6% investors showed a negative response about index, the survey response is not clearing the exact picture. The respondents may understand that, index presents the price trend, but suppose not be sound enough to know the index is prepared.

Table 4 : Descriptive Statistics : Understanding Level of market index

Very Much	Moderate	Neutral	Little	Negative
.26	.34	.17	.24	.06

In traditional finance, investors must have the capacity to analyze what is right for him and what is wrong. However, the traditional finance did not give the platform to discuss about socio-economic and psychological factor (V_2, V_5, V_8, V_9). Lucy Ackert et al (2003) discussed the influence of emotion on the financial market. They discussed mainly on individual investors. A paradigm is suggested by them, that, though investors take decision being biased by their sentiment, however this did not contaminate rationality of the investors. Self –control may work to take effective decision.

This paper will study the behavioral influence of the market by deploying the above literature review. Factor was selected on the basis of discussed theory.

III. Methodology

A survey research method was used to collect primary data for this analysis. A total of 17 questions were asked to 400 investors who are not professional investors and mainly who are investing to earn something more than regular. Other than investment preferences variables, all the questions have 5 options to choose. Dummy variables was used as, if responded than1, if not then 0. However, some options of same were chosen at a times. In order to maintain quality of response, a personal interview method has been used. Five point likert scales has been used in only two questions. A total of 27 variables were tested to check their viability or influence upon investor's decision.

a) Data set

The data set contains questions about their socio economic factors, their concept about investment and most importantly, the factors influencing their investment decision. Form the total collected responses, only 312 replies has been sorted out as they are complete. This represents 78% of total data set. The sample has been selected focusing the investors of urban area, who located inside of South Dhaka permanently and have some other profession. The target sample is not professional and none of the investors has investment ranged above Tk 20 lakh. For the soc after socio economic factors a set question has been served. In order to judge the relevant theories selected variables has been used in the questioners.

IV. Descriptive Analysis Of Demographic Variables

Jasim Y Al-Ajmi (2008) while studied risk tolerance of individual investors Of Bahrain stock exchange, he listed the socio economic variables to judge the investment attitude of armature investors. Age, gender, education and wealth were his primary variables. Profession is another relevant variable with wealth as used in the study of investors of Tamil Nadu. (E. Bennet, Dr M.Selvam, Eva Ebenezer, V. Karpagam and S. vanitha; 2011).

In the psychological based research investment decision model all the psychological variables are graded in to two section Risk Propensity and Risk perception. (Iqbal Mahmood et al, 2011). Gender has been considered one of the most significant factors to assess investors risk perception.

For the knowledge of prospectus investors of USA, NASD Investor Education Foundation granted and researched on a sample of 911 US households in 2006-2007. In their Demographic and Economic variables, age, education, employment status and occupation are 4 of 11 selected variables.

On the light of discussed literature review and from the perception of amateur stockholders of Dhaka Stock exchange the following three variables were queried to the respondent-Age, Education and Profession.

Age

The question has answer of five class intervals. It is found that, among the 312 responded 29% belongs to medium age group that is 36 y - 40 Y.

Table 5 : Descriptive Statistics of Age

Age-range	25Y-30Y	31Y-35Y	36Y-40Y	41Y-45Y	46Y-50Y
Mean	.25	.25	.29	.13	.10

This scenario lead us to an explanation that, people who has the maturity and understanding about investment in capital market , are the most significant investor's class. The result of above table also shows, lower the range higher the tendency to take risk in the stock market.

Education

People who depend on safe and regular kind of earning and not associated with capital market, may have a wrong perception about Investment in stock market. Many people take such investment as Gambling rather than calculative choice. The knowledge of

business, economics and feelings to put money on a risky venture need some institutional backup. So the observation shows people who has completed their graduation are more tend to invest in capital market than the people who didn't complete their graduation. Post-graduated class of people is coming to the second in this level. However, the rate of higher education is lower in the country. So, the statics shows only 26% of the observed investors finished their post graduation, which represents the true picture.

Table 6 : Descriptive Statistics of Education

Education Level	School	College	Graduation	Post graduation	Above post graduation
Frequency	4	38	175	82	13
Mean	0.012821	0.121795	0.560897	0.262821	0.041667

The findings matched with investors of Taiwan studied by Yu-Je Lee et al (2010) which also showed college going individual investors are 71.1% of total sample. The gender difference report of American investors, prepared by Taheera Hira and Cazilia Loibl (2006) showed even the higher rate (76%) of educated investors.

Profession

As stated earlier, the target group of investors has investment not more than Tk 20 Lakh and not less than Tk 5 lakh. In order to get the shape of profession of these investors five class of profession has been selected, the only similarity among the professions were, they have a regular income level.

Table 7 : Descriptive statistics of Profession

Profession	Govt Employee	Service holder (B/NBFI)	Service holder (Others)	Small Business Man (Less than Tk 60000)	Others (Specify)
Sum	34	59	52	60	78
Mean	0.109677	0.190323	0.168285	0.193548	0.275618

The above table shows fixed income group people has tendency to join the stock market than the people who have comparatively higher income. If we follow the table it clearly showed that, total number of employed people is 282. Among the rest of the 28 people 7 were students and 21 were housewife. Govt. service holders are the lowest fixed income group of people as their cash benefit is quite lower. Because of lower amount of excess cash in hand, general govt. service holders are holding only 11% of total investment among 310 people. Private Service holders, either at financial or non financial institutions, are comparatively more intense to the market because of their higher earning bracket. The most significant involvement of the group which has people of multiple incomes and has income more than Tk 60000 and saving is not stuck with any Fixed Deposit Account.

Same kind of findings was supported by Jasim Y Al-Ajmi 2008, for Bahrain (55.9% investors belong to Private sector), Kabra et al for India (46.5% investors belong to private sector) and there are many more.

The study captures a significant point, which is not discussed in many of the prior studies. Most of the investors have fixed income job and at the same time they also have a separate business or involvement. That also means double income source boost up potential investors' investment decision. The above study showed people who earned from other than the conventional middle profession, have more involvement in the stock market (28%). Housewives are come up as a significant class to put their saved money into the capital market. Either they are directly investing or the form may be indirect investment that is loan to the friends and family.

a) Testing Reliability

With an objective to determine the suitability of data for factor analysis, the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (MSA) and the Bartlett's Test of Sphericity were applied. The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy is a statistic that indicates the proportion of variance in the variables that might be caused by the reduced factors. Kaiser (1974) recommends that a bare minimum of 0.5. The data table showed KMO value 0.883 which represents, the data used in factor analysis are quite satisfactory and the analysis is quite useful. Bartlett's test of Sphericity provides Chi-square value of 6328.243. The significance value showed 0.000 which means the variables are quite significant factors on the test basis.

The Cronbach alpha is the most widely used index for determining internal consistency (Kerlinger 1986). It has been generally accepted that in the early stages of the research on hypothesized measure of construct, reliabilities of 0.50 or higher are needed, while for widely used scales, the reliabilities should not be below 0.6 (Nunnally, 1978). In the current survey, all

subscale alpha coefficients exceed(0.89) with an overall alpha value The high alpha value in all five subscales confirms the homogeneity of the items comprising them, and indicates acceptable level of reliability.

b) Factor Analysis

The factor analysis is a data reduction technique. The following contains the results by the Principal Component Analysis (PCA) under Varimax with Kaiser Normalization method. The PCA technique goes to reveal that there are indeed three significant factors (as revealed by their respective Eigen values which are all greater than 1.0).

27 factors were asked to the sample in order to check their influence upon investor's behavior. On the basis of theory, these factors were selected which are classified as sub question under 16 question. The PCA (Principal Component Analysis) graded the variables under 7 factors as mentioned above. It is evidenced as Psychological factors alone explained 34.433% of total variance. Selection factors explained 17% of total variance. Rest five factors (Investment, Institutional, Economic Index, Technical consciousness) explained the 48% of the total variance.

Table 8 : Eigen value of Factors.

Component	Total initial Eigen values	% of Variance	Cumulative %
1. Psychological Factor	9.297	34.433	34.433
2. Micro Economic factor	4.824	17.868	52.301
3. Social Factor	1.518	5.622	57.923
4. Institutional Factor	1.37	5.073	62.995
5. Macro Economic Factor	1.208	4.474	67.469
6. Influence of Index	1.148	4.25	71.719
7. Technical consciousness	1.008	3.734	75.453

Extraction Method: Principal Component Analysis

Psychology is expected to dominant investment decision of amateur investors. The question asked which person or source influence their investment decision most. Professional advice, that institutional advisors are the most influential factor to advice the investors. They also followed media which states market news, recent price change price sensitive information. Following the friend's and relative's suggestion is another dominating forces. This can be termed as investor's irrational attitude. Investors of DSE agreed that price indicator, market index and their own analysis help them to decide about the market order. Information is also available at internet which is practiced to be followed by most of the amateur investors.

In order to select a firm several variables are preferred by the investors among which expected dividend is the most influential force. Price performance, financial statement, market value of the firm and affordability to purchase the stock are identified as the other influential variable. All of them are able to explain more than 80% of total influence under this factor.

Table 9 : Rotated Components Matrix

Variables	Component						
	Psychological Factor	Micro Economic factor	Social Factor	Institutional Factor	Macro Economic Factor	Influence of Index	Technical consciousness
Media's Suggestion	.866						
Professional's advice	.821						
Stock market declaration	.788						
Recent Price Movement	.764						
Friend's Advice	.748						
Current Economic Indicator	.731						
Own analysis	.723						
Index	.722						
Market follower	.707						
Internet basis information	.669						

Expected Dividend		.891					
Past performance		.883					
Financial Statement		.867					
Market value of the firm		.848					
Price Affordability		.810					
Ethics			.859				
Financial Strength			.836				
Product and Service			.770				
Status			.768				
Quick Rich			.740				
Diversification			.483				
Benefit of Margin Trade				.893			
International Depression					.819		
Low deposit rate					.413		
Moderate						.852	
Neutral						.605	
Negative							.869
Initial Eigen Value	9.9297	4.824	1.518	1.370	1.208	1.148	1.008
% of variance	34.433	17.868	5.622	5.073	4.474	4.250	3.734
Cumulative % of variance	34.433	52.3	57.923	62.995	67.469	71.719	75.453

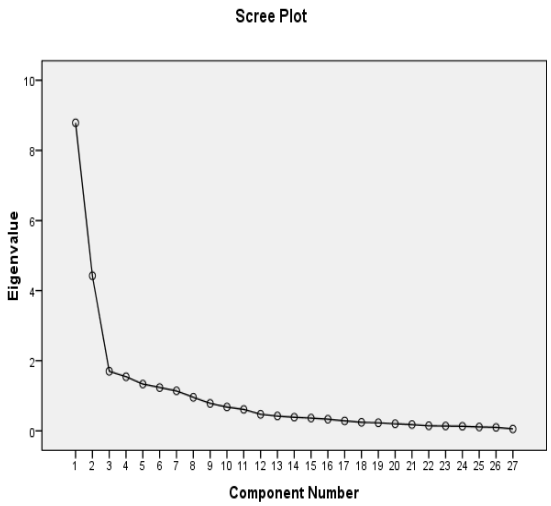
Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser normalization
Rotation converged in 7 iteration

The scree plot extracted from the PCA output showed it clearly that, the initial factor that is the psychological factor, is dominating the whole result with Eigen value of 9.9297. This factors contains 10 variables. The later factor is selection factor which has Eigen value, and, has the next influential impact upon investor investment decision. In fact after the third factor all the other 4 factors has less or more same extend of influence upon individual's investment behave. To interpret and to give a title to each behavioral component, the initial variables' definitions were examined carefully along with their respective correlations with the concerned factors. Multiple questions are asked under one factor. Values of variable under 0.4 were deducted by the system. Then, common interpretation for each variable was arrived at for further interpretation.

c) Discussion about the factors

Psychological factors : The PCA loaded 10 variables under this factor and each of the factors is related with investors' emotion and gut-feelings. This factor capture two basic question asked about their investment with five subsections. One is: who is the most influential one to give suggestion about investment, another one is what variables investor judge and follow prior to make any kind of investment. On the basis of their influence variables are discussed here:

1. *Media's suggestion:* Investors rank, Media's suggestion as one of the most influential variables. In Bangladesh none of the brokerage house provides any advisory service. So people follow both the print and paper media to get to know the condition of the market and then they take decision. The benefit of this condition is, if information hit the market, it will be available to all and the economist may discuss the market's condition through media and people who are aware will collect the necessary data. The problem is the extravagance news, either positive or negative; badly affect the market and investors cannot take decision. Investor's got confused after a certain fall and as the paper or electronic media, even cannot express any motivational information, investors will stop transaction. This happened in DSE market soon



after the declaration of Stock Exchange Commission (SEC) to survive the market from big fall (The Daily Prothom Alo, 30 May 2012).

2. *Professional advice*: the expert of the economy analyzes the stock market condition of any economy. From their analysis investors get some information about what are the goods and bad of the market. The econometric analysis is not to be done by the investors themselves and so they depend on professional advice.
3. *Stock market declaration :* any news coming from the stock exchange and SEC affect immediately to the market. For example, from the beginning of 2011, DSE index started to fall significantly which started to spread rumor. In the prior year, 2009 market index was increasing significantly. According to the Dhaka stock exchange, In August 2010 the general index of DSE stood at 6657.97 which reached in the peak and became 8602.44 at November. After this general index has started to fall down and in February 2011 it reached to 5203.08. Sensing the trend of a bull market to become a bear one, the Security Exchange Commission made request to the stockholders through media, to invest according to proper knowledge and no to pay attention to rumors. The declaration was:

   Investors are requested to consider the following facts at the time of making investment decision in the Capital Market: 1. without acquiring proper knowledge, information and experience regarding different aspects and matters of Capital Market, one should not invest in the Capital Market. 2. the gain or loss, whichever comes from the investment, it belongs to you. So, well-thought of investment decision based on knowledge and fundamentals of the securities may be real assistance to you. 3. Don't pay any heed to rumors at the time of trading shares; it may cause loss to you. Even spreading rumor is legally prohibited. (SEC letter no. SEC/SRMIC/2010/726 dated November 23, 2010).

   The news was published to make the investors aware about the reckless trading, and who paid attention to the note could be able to avoid huge risk.
4. *Recent price movement :* investors themselves follow the market trend. The psychology of the investors lead them to sale the holdings when they found a down turn. When altogether investors will sale their holding, the joint act will make the market bear. However, there is no logic to sale the profit yielding stock at financial downturn instead of keeping them.
5. *Friend's advice :* it is another very common psychological variable which influenced the investors' investment decision. The investors bracket which belongs to fixed income group enters in to the stock market with a hope to asserts additional gain and most of them are inexperienced about the market. This variable covers 74.8% (Mean=0.99, St. Devi=1.308) variance percentage.
6. *Current economic indicator :* this variable mainly understootable by a little bit experienced investor. For understanding Consumer price index (CPI), exchange rate, Interest rate etc has been referred. CPI did not find significant association with stock price fluctuation. However, exchange rate evidenced to be found as influential factor for stock price. The variable (mean =23.7%, St. Dev= 0.02431) quite explanatory as it represents highest among the options. However the PCS identified it as second among the options.
7. *Own analysis and index understanding :* these variables are content under mental accounting and representative bias heuristics. They loaded almost same weight. Investors sometime do not take any selling buying) decision as only s/he has any past regret. So he computed by himself about future profit and loss. In the basis of available information, the investors take decision even though the other suggestion may be reverse of their own. 20.3% of the investors (mean= 0.98, St. Dev= 1.558) invest by analyzing themselves (loaded at 0.723). Investors often do this out of overconfidence (Lin, 2011).
8. Another variable loaded just after this variable is Understanding of Index (0.722). 18.96% investors demand that, they do follow the stock market index wither on the daily news paper or on the television.
9. *Market Follower :* 19.5 % investors simply follow the market trend. That is, they do not pay attention to the technical details of the market, just follow that the others are buying and selling. These types of investors are most vulnerable in the market. None of the market declaration or any corrective measure taken by the security exchange commission is properly applicable with large number of such investors. However they play a major role in holding an active market.

10. *Internet :* improvement of information technology makes the investors more interested about the market trend. According to this analysis, almost 18% of total investors simply follow the market trend and DSE webpage for placing market order. The more days will pass, the more investors will learn to follow the information from net.

Micro economic Factor *:* this factor explains 17.862% of variance by itself and 52.3% in cumulative variance along with psychological factor. The factor contains five variables; Expected dividend among them got the highest load of 0.891. Then gradually comes; Past performance (0.883-explains previous market trend), Financial statement (0.8671 - explain the financial report which shows firm's profitability and growth), Market value of the firm (0.848- from this data, a person can set an anchor which he wants to reach) and Price (0.810- the purchase price need to suit with the target budget, otherwise margin trade will rise).

Social factors : This factor explains 5.622 % of total variance. The loaded variables are actually explaining social condition of the selecting firms and investors intention to invest in that particular stock. To explain the first content factor loaded is, Ethics (0.859) of particular firm which is indentified by the investors as the most responsible attitude of the firm. Investors also grade financial strength (0.836) as second to see the financial condition of any firm prior to investment along with their vision. Product and service (0.770) loaded quite lower than the prior two and that revels investors do not follow any particular product barrier like, rejecting Tobacco product etc. Status (0.768) of the selecting firm is also considered but as equally as the product and service. That means if a firm is financially strong and is well reputed then investor will buy their stock by preference.

The factor also loaded another two variables which belongs to the question, what is the reason behind investors' investment into the stock market. Suppressing another three variables, investors intention to Get rich quickly (0.740) and Diversification (0.483) loaded as responsible variables. However investors do not peck stock only to think that, the return will make them rich quickly. The stocks intrinsic value matters for them to take decision. Lastly diversification comes with lowest weight which actually goes beyond the thinking of rational investors. Rational investors construct portfolio to diversify their risk. However, the investors are not receiving any professional help, so their portfolio is quite emotion based.

Institutional and Macroeconomic factor *:* both the factor loads one and two variables. They have loaded almost same weight. Institutional factor explained 5.073% variance loading single variable – Benefit of margin trade. This nature comes from there Availability biasness which leads them to brokerage house. Investors' dependency upon institution or professional expertise also explains the purposive nature of investors. On the other hand Macro economic factors identified that, International money market depression creates a downward pressure upon exchange rate and international trade. These downward seize effect the capital market. The local market trade sometimes gets a negative trend. Similar effect observed upon the depository rate with the bank. The Fixed deposit rate and savings scheme rate is so low at these days (12% on 1 year's FDR: 2012), that conservative surplus unit even got interest to invest in stock market thinking about some extra gain. The factor explained 4.474% of total variance.

Index and technical consciousness *:* Index preparation is a part of technical analysis. All the general investors understand from this is, the graphical representation. And the down ward sloppy trend. It was expected that, most of them will be negative about the understanding, to the surprise, most of them identified that they do understand index (34%). Rather lesser of them expressed neutral reaction about understanding of index (26%) the factor in total expressed 4.250% of total variance. On the other hand technical knowledge and consciousness was expected to be absent among investors and this factor suppressed the other variable as it has weight less than 0.45 explaining 3.734% of the total variance.

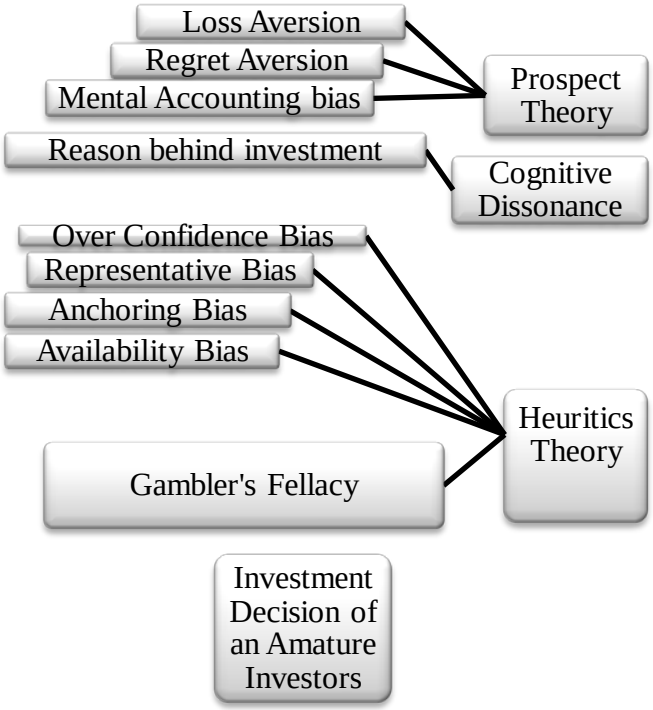
V. Model Of Behavior

The behavior of amateur investors is discussed on the light of theory of behavioral finance. The general approach towards investment generated through the behavioral and psychological process. If we see the traditional approach we will capture it in the following way as used by many researchers:

According to the analysis of this paper, investors' decision has been influenced by several factors. Those factors are selected on the basis of the theory. (See chart 1-Theoritical varibales)

From the above chart it is clear that, Prospect theory dominates investors' decision to maximum extent. The major dominating factors are picked up on the basis of this theory. Cognitive dissonance is manipulated by the psychological factor. Investors select particular firm and go through the brokerage house for making bigger investment. Past experience give him either over confidence or suppressing the past wrong decision, an anchor to set his target. Because of lack of technical soundness he may take a wrong decision, however on the other hand may be proven lucky enough to have a jack pot return. The win situation will lead him to step for the next investment. If he yields a big loss, investors will want to suppress that, and come out to recover.

Chart 1 : Theoritical Behavioral ground from the same market. Or will be completely out of the market.



The other variables on the basis of the two major theories influence investors to select firm and to set up mind about investment. Any gain of investment raises their heuristics behavior. On the basis of overconfidence and representative bias, investors set up an anchor and set their next investment plan. Any loss situation there, lead them to act according to the behavior pattern suggested in prospect theory.

a) Findings

Amateur investors of DSE, as par sample are mainly of semi middle aged (36-40y). Most of the investors belong to fixed income group; however non-govt. employees have more tendencies to join the market. Students and housewives are also participating in the market now- a days as the return trend attract the people. Education has vast impact upon capital market investment. A low- educated person is less intense to the market than a graduated person.

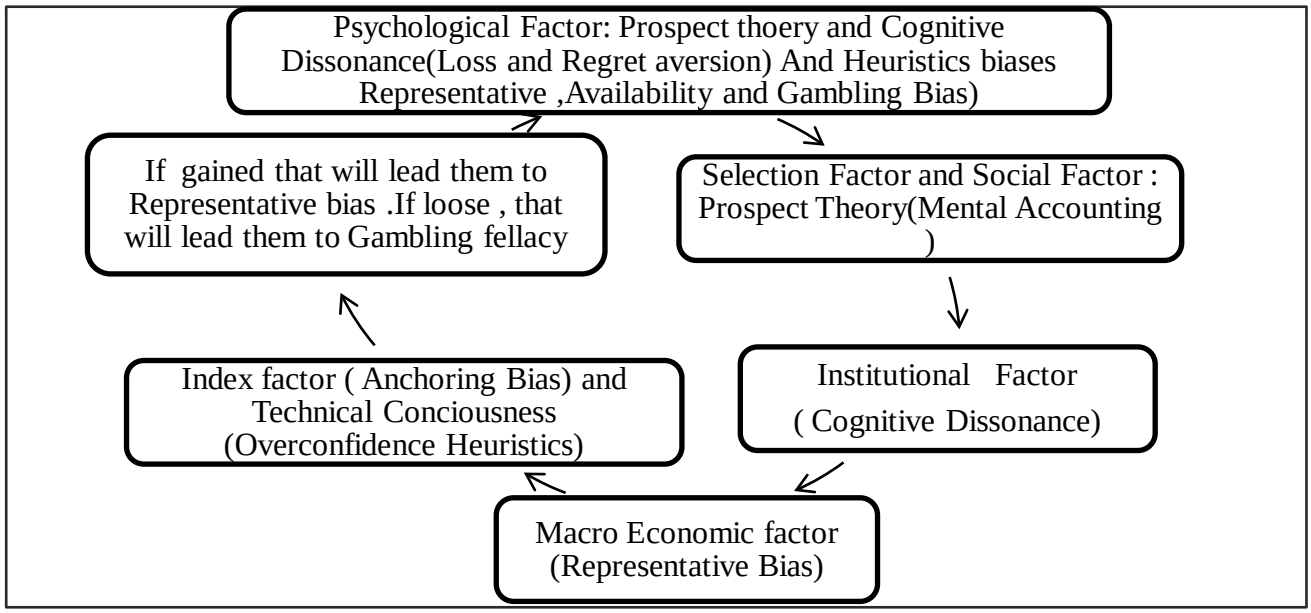


Chart 2 : Continues Cycle of investor's behavior

Principle components analysis carried out to find the influential factors which affect decision making process of the investors. 27 variables were taken under consideration. Suppressing the lowest value 0.4, the rotate components matrix identified and categorized them in to 7 factors.

Among the 7 factors, Psychological factors alone contain 10 variable explaining 34.433% of total variables.

While thinking about selection of any firm, the investors put emphasis upon five major variables graded under selection variable which explains17.868% of total variance. Dividend income there by found as major motivation for the investors to select any variables (0.891). This matched with the prior demographic finding- fixed income group comes to the market to have some extra earnings. The reason behind coming to the stock market and selecting any particular company

categorized as the third influential factors which contains, Ethics (0.859) for company selection and Quick Rich (0.740) and other four variables. So investors ethically choose to invest into stock market. Institutional factor, Macro Economic factor, Index and Technical consciousness evidenced as other four factors which carry Eigen value more than 1 but less than 1.5, that is have lower rate of influence.

b) Suggestion

The demographic analysis and factor analysis both lead us towards the following suggestion:

1. Media (electronic and print) is one of the most influential variables upon investors' behavior. Most of the investors are educated and they are of middle aged that is they are matured enough. So investor's should pay more attention towards what the Security Exchange Commission is advising through the media. There will be negativity, however being matured persons; they must have to take more decision with more sensitivity. Investors at first must remember – stock market is not a gambler's board, it is a rational risk taking sector with desirable return.
2. The law and regulatory authority of stock market in Bangladesh repeatedly advising people not to follow the market randomly by just listening form others. Rumor is followed in every stock market. But the investment trend is quite newer in this country. The highest pick we had at 1996 with a great depression. (Appendix B, Market Crash). This lesson taught us to be careful about so–called bull market. However the market "game planner" also learned to play with investor's psychology and DSE faced another big fall at November 2011. The SEC or DSE/CSE can introduce investor's learning guide like NASD Investors' Education foundation. This is an organization which does research upon several demography, psychology and decision procedure of American investors. Such knowledge based investment surely will increase understanding level to avoid fraudulence.
3. Govt. has taken several corrective measures to stable the stock market. However the market is still having the downward trend. Investors' anchoring biasness along with representative bias is responsible for this. Govt. has offered tax-rebate, exemption of credit on margin etc. however investors are now acting unpredictably as the entire market participant got shock. The dividend payment procedure can be another measure to ring the potential investors back into the market most of the investors invest in order to get quick return. So if it becomes rule for the firm to pay at least a nominal amount of dividend in cash, then it may draw attention of the investors.
4. More information should be declared by the firm. Whereas checking information about the firm and collecting economic information along with international market should be practiced by the investors.
5. The more the investors will practice to control avoiding overconfidence and will act rationally, the less wrong investment decision they will take. Investors must practice some mechanism to avoid irrational behavior.

VI. Conclusion

This research is an attempt to access the small investor behavior of Dhaka stock exchange with the bound of rationality. Behavioral finance is the basis of this research to find out the variables influencing investor irrational behavior. Assuming the market is imperfect, 312 investors were questioned about their investment behavior. It is found that, the investors of DSE are less rational and more emotional. Factor analysis shown investors' psychology has maximum influence upon the behavior by loading 10 variables. The study result provides suggestion that investors are aware about their behavior and the result. However there is lack of practice of some mechanism which is necessary to control the irrational behavior.

Prospect, cognitive, and heuristics bias theories were discussed to determine options of questionnaire. Market efficiency was pre-assumed on the basis of prior literature review (Rahman et al 2008). Traditional finance expected to be practiced in an efficient market to hold a Markowitz's portfolio. However in a real world it is not possible for the mature investors. Market inefficiency is another anomaly against rational investment. Once the investors will be mature, and the market will be quite stable, then information will minimize the gap between expectation and reality of return.

Te future researchers have lots of scope in this field. The survey can be organized on the basis particular brokerage house. Investors can be selected from them who are in the market for last 10 years or more. Research also can be focused upon the reason of using the common theories upon the emerging market. Investors risk absorbing capability and investment range may give me different answer than the present survey. So the concentration of variables can be changed with different set of question.

Table 10 : Component Score Coefficient Matrix

	Component						
	1	2	3	4	5	6	7
Diversification	.028	.013	.127	-.107	-.024	-.202	.252
Trade on Margin	-.043	.005	-.017	.049	.015	-.038	.661
Downturned International market	.019	-.011	-.071	.059	.117	.490	-.181
Low deposit rate	-.100	.194	.098	.063	.014	-.040	-.312
Product and Service	-.129	.097	.316	.075	.026	-.014	-.122
Status	-.007	-.012	.228	-.011	-.002	.025	.008
Ethics	-.067	.061	.312	-.083	-.006	.003	-.058
Financial Strength	-.064	.040	.307	-.104	.096	.007	.053
Professional Advice	.133	-.032	-.063	.112	-.009	-.004	.018
Friends' Advice	.208	-.110	-.126	-.156	.010	-.045	.052
Own analysis	.099	-.055	-.026	.223	.008	.066	.044
Media's Suggestion	.200	-.098	-.094	-.049	-.038	.047	-.047
Market follower	.102	.026	-.024	.004	.068	-.010	.047
Marketability	-.074	.205	.013	.125	-.039	-.050	.018
Price Affordability	-.016	.205	.019	-.128	.029	.125	-.104
Past performance	-.028	.219	.021	-.038	.005	-.052	.040
Expected Dividend	-.073	.255	.060	.007	-.065	.020	.009
Market value of the firm	-.048	.224	.055	-.134	.022	.054	.109
Current Economic Indicator	.150	.015	-.071	-.086	.022	-.050	-.231
Press release	.170	-.065	-.078	-.070	-.021	-.094	.087
Index	.111	-.045	.019	.080	-.027	.054	-.062
Internet	.078	.087	.038	-.039	-.043	.038	-.169
Recent Price Movement	.108	-.033	.037	.054	.024	.020	.005
Very Much	.019	.017	-.031	-.296	-.450	-.194	-.004
Moderate	-.009	.002	.037	-.166	.643	-.153	.010
Neutral	-.040	.045	.082	-.122	-.228	.604	.171
Little bit	-.021	-.036	-.052	.589	-.050	-.073	.015

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
Component Scores.

Appendix B

Condition and Efficiency of Dhaka Stock Exchange

Bangladesh stock market is composed of two stock exchanges Dhaka Stock Exchange (DSE) and Chittagong Stock Exchange (CSE). DSE established in 28 April, 1954 at then East Pakistan. It started operation soon after two years which resumed at 1971 due to liberation war. During 1976, there were only 9 listed companies. CSE was established at 1995. Security exchange commission (SEC) was established at 1993 with a target to regulate the market under SEC act 1993. Stock trading goes online from 1998, whereas DSE 20 index was in affect at 2001. Market is open in a week since Sunday to Thursday from 10: 30 am- 2:30 pm. Five groups of listed instruments are available on the market: - Public, Spot, Block, Odd Lot and Auction. In the following table annual advancement of DSE has shown. It showed a sharp growth of trade after 2008.

Table 11 : Advancement Rate Of DSE

Year	2007	2008	2009	2010	2011
No. Of issues	350	412	415	445	501
Turnover of listed securities (Tk mn)	322867.07	667964	1475300.88	4009912.67	156091.09
% Of Annual Growth	396.11	106.89	120.87	171.8	-61.07
Total trade (Tk mn)	36222	92350	144907	153000	731906.5

Source : Assembled from DSE annual report

Significant market crash at 1996

During the second half of 1996, the DSE all share index increased by 139 percent. During June to November 1996, the DSE all share price index increased more than three folds from 959 to 3065 or by 220%. In November 1996, the DSE general index collapsed to its post-peak lowest level of 957 in April 1997 by almost 70% from its peak of November 1996. The govt and the regulatory authority introduced online trading and monitoring the market afterwards. As a result a significant change in total market capitalization has been observed.

The raise of trade represents investors' intensity with the market. More investor entered into the market, however there is no prior evidence that the investors are being matured. So it can be said that most of the investors come to the market whimsically. The impact of rational investors on the market can be viwed as like this:_

Table 12 : Market Performance From 2010 -2011 :

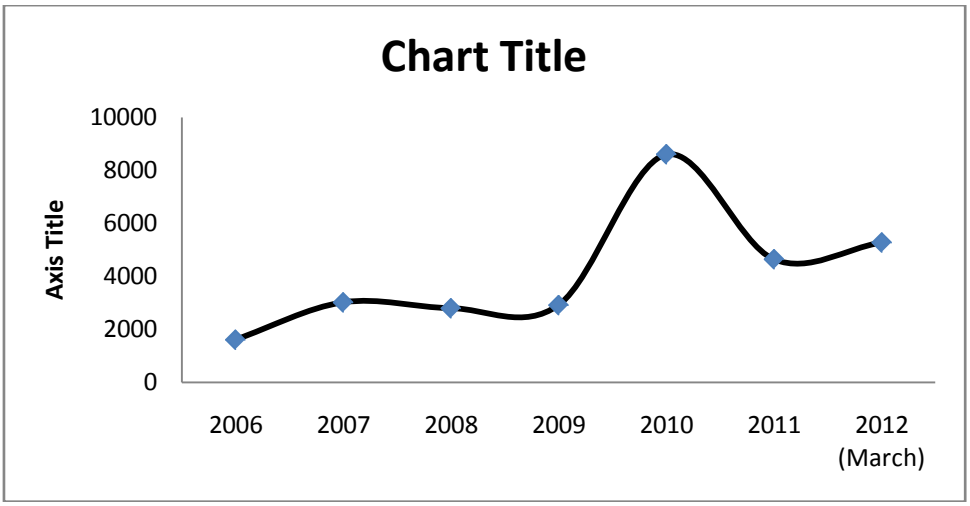
Market Performance	Total Issued Capital (Million Tk)	Market Capitalization (Million Tk)	Turn Over (Tk Million)
2011	239272.51	2719220.22	518981.5
2010	216487.00	3472502.00	4431

Source : Assembled from SEC quatrely report

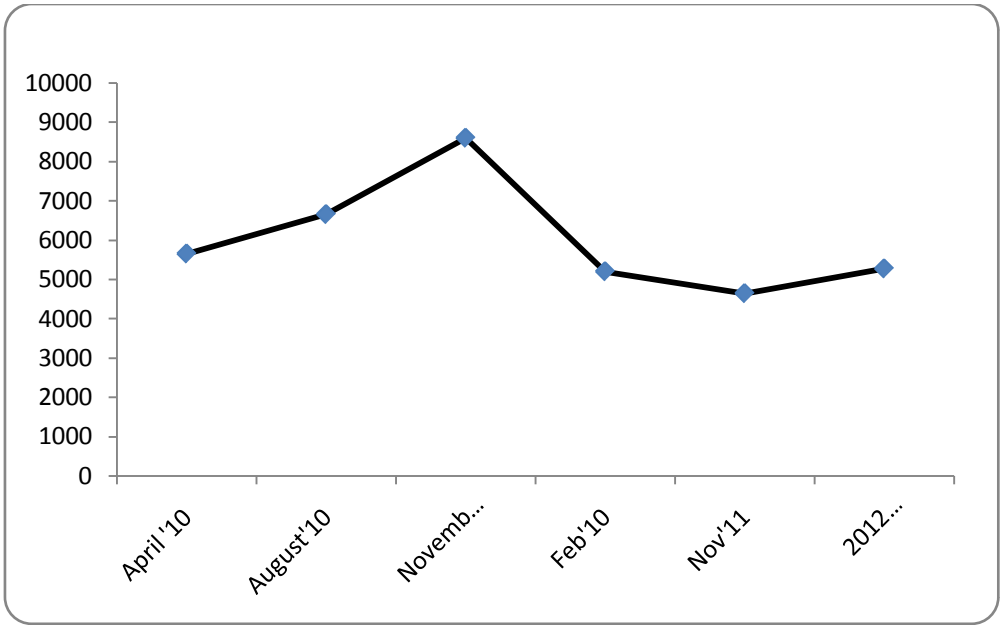
Table 13 : General index of Dhaka Stock Exchange

2006	2007	2008	2009	2010(April-Aug-Nov)	2011(Feb-Nov)	2012 (March)
1609.51	3017.51	2795.34	2914.53	5654.88-6657.97-8602.44	5203-4645	5275.13

Source : Assembled from SEC quatrely report



Graph 1 : General Index of DSE (Annual basis)



Graph 2 : General index of DSE (Quarter basis)

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