Do Investor's Emotions Determine Their Investment Decisions?

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Abstract

Behavioural finance states that investor's investment decisions are influenced by psychological factors like mood, emotion and cognitive biases. Among these, emotions have a powerful impact on investor's investment behaviour. Though moods and emotions are practically considered to be the same, there is slight difference between them. Mood is considered to be less intense, whereas emotions are more intense. Emotions can get in the way of making prudent financial decisions. It is human nature that they react differently when they are in a different state of emotion. The aim of this paper is to study different emotional swing variables and its influence on investor's investment decisions. The research instrument was developed and administered at individual investors using multistage random sampling technique. The Cronbach's reliability of the emotional variables is 0.84. The data collected were analyzed quantitatively by using different statistical tools like chi-square analysis, factor analysis, cluster analysis, discriminant analysis, ANOVA and Cross tabulation. Findings suggest that based on the influence of emotions, investors are categorised as positive, negative and neutral. The characteristics of different emotional state are also discussed in this paper. An overall conclusion of this study reveals that investor's emotions become matured over a period of time on their investment life cycle.

Keywords: *Behavioural Finance, Emotions, Investment, Decision Making, Investor Category*

INTRODUCTION

Behavioural finance attempts to explain the irrational behaviour of investor's which can affect investment decisions and market prices. It

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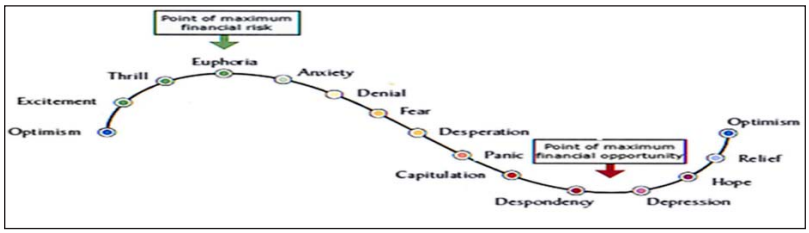
also explains how emotions and cognitive biases influence investor's decision-making process. The contribution of behavioural finance is not to reject the fundamental work that has been done by proponents of efficient market hypothesis. Rather, it is to examine the importance of relaxing unrealistic behavioural assumptions and make it more realistic. Mood and emotion are contributing more on investment decisions. The terms 'mood' and 'emotion' are often used interchangeably, when in fact they are closely related but distinct phenomena (Beedie, Terry, and Lane 2005). Both emotions and moods fall within the theoretical realm of 'affect', which can be defined as 'the specific quality of goodness or badness (1) It is experienced as a feeling state (with or without consciousness) and (2) It is demarcating a positive or negative quality of a stimulus' (Slovic et al. 2004). In general, affective states of both sorts can be categorized into positive (pleasant) and negative (unpleasant) feelings. However, emotions are feelings about a particular circumstance or event (someone or something) that arise from cognitive appraisals of circumstances, whereas moods are more generalized non-specific states that are not directed at any particular target (Bagozzi, Gopinath, and Nyer 1999; Siemer 2005; Sizer 2000; Watson and Clark 1997). In other words, emotions are in reaction to specific stimuli, whereas moods are free-floating feelings that need not be linked to anything specific. Emotional states include specific feelings like anger, jealousy, fear and envy, while moods are general states of mind such as happy and sad. The dispositional theory of mood suggests that a person's mood is temporary (Siemer, 2005), but the duration of mood is longer than that of emotion. Moreover, moods tend to be unaffected by personal beliefs and unlike emotions; moods are 'not intentional mental states' (Sizer 2000, 754). A lot of research work has been conducted about these issues. According to Kahneman and Tversky (1973, 1979), most investors do not respond equally to gain and losses. Investors feel positive emotions from a realized gain but relatively stronger negative emotions from a realized loss of the same size. As a result, some investors sell their winners prematurely while some of them hanging on to their losers (Shefrin and Statman 1985; Barber and Odean 1999). Some trade too much, others, too little (Barber and Odean 2000). In the past, behavioural finance research attributed these kinds of mistakes primarily to cognitive, heuristics biases (Gilovich, Griffin, and Kahneman 2002). Recently, psychologists and economists have shown increased interest in the role of emotions in economic behaviour and decision making (e.g., Hopfensitz and Wranik 2008; Loewenstein 2000; Thaler 2000). Indeed, ample

evidence now exists that feelings significantly influence decision making, especially when the decision involves risk and uncertainty (Schwarz 1990; Forgas 1995; Isen 2000; Lowenstein, Weber, Hsee, and Welch 2001). The primary objective of this paper is to study the different emotional swing variables and its influence on investor's investment decisions. Secondary objectives are to segment the investors based on the influence of their emotional state. The purpose of this paper is to provide a framework from which future research on emotion in capital markets can build.

REVIEW OF LITERATURE

Investor's different emotions explore their cognitions towards the market. Further emotions may be constructive or destructive in nature. How investors use their emotions will bring them a success or failure on their investment. (Source: Diversify to Take the Edge off Swings in Investor Sentiment, American Century Investments, 2012). These emotional swings are widely used by financial practitioners to educate their clients for successful investments. Here emotional swing variables are taken as the research variables in this study. There are 14 variables which influences the individual investment decisions over a period of time. It has been shown in figure-1:

Figure 1: Emotional Swings



The emotional cycle of investors starts and ends with optimism. In between these optimisms, investors are influenced by different emotions like Excitement, Thrill, Euphoria, Anxiety, Denial, Fear, Desperations, Capitulation, Despondency, Depression, Hope, Relief etc. Among these emotional swings Euphoria, Despondency and Depression play a vital role on the success of investors' investment decisions. Each emotion has its own positive and negative aspects. How investor's use these aspects will determine their investment success.

Optimisms: The feeling of optimism explains individual's expectations towards the future. This expectancy was analyzed in many psychological

theories of motivation, called expectancy-value theories. These theories advocate that optimism influence individual's behaviour and emotions. Expectancy-value models posit that individual behaviour is explored to attain the preferred goals (Carver & Scheier, 1998). Individuals seek to shape their behaviour in order to achieve the desired goal. Sometimes they wish to stay away from changing the behaviour (pessimism). The central part of expectancies is a sense of confidence or a hesitation of accomplishing the goal. If a person lacks confidence, again there is no action (Scheier, Carver, & Bridges, 2001). Optimists individual always expect good outcomes, they wish to experience a more positive feelings. At the same time, pessimists expect bad outcomes, they supposed to be experience more negative feelings-anxiety, sadness, and despair. (Scheier et al., 2001).

Hope: It is a construct which resembles the feeling of optimism, (Snyder, 1994, 2002). Hope is comprised of two components. They are individual's perception and level of confidence. These two attributes drive the individuals to choose a specific path to attain their goals. Thus hope reflects perception, confidence and the pathway they choose to attain the goal. (e.g., Snyder et al., 1991). The confidence component is akin to optimism, but the pathway chosen by an individual determines their perception. This may vary from individual to individual.

Anxiety: It is a repulsive state of inner confusion, often accompanied by nervous behaviour (Seligman, M.E.P.; Walker, E.F.; Rosenhan, D.L, 2002). Simultaneously anxiety is not like fear, which observe from an appropriate response to a perceived threat; (Henig & Robin Marantz, 2012). It is a feeling of fear, worry, and uneasiness, usually generalized and unfocused as an overreaction to a situation that is only subjectively seen as menacing, (Bouras, N.; Holt, G., 2007). Emotional anxiety costs the average investor around 3 per cent a year, and some much more, because of the way they react to fluctuations in market cycles. Eisenberg, Baron, and Seligman (1998) state that risk aversive behaviour is closely associated with anxiety of the investors. Caplin & Leahy (2001) illustrates those individuals anticipatory anxiety may arise due to inconsistency of time. Wu (1999) correlates the psychic cost of investor's anxiety with their uncertainty environment.

Excitement: It is defined as an intense and pleasant emotional experience. Research evidence suggests that there is a significant relationship between anticipatory excitement and risk taking behaviour (Knutson et al 2005, Kuhnen and Knutson 2005, Isen and Patrick 1983). Excitement is a positive affect which changes the information process

of a people and also affects their heuristics (Bless, Bohner, Schwarz, and Stack, 1990; Schwarz, 1990; Ruder and Bless, 2003). Further it may change their belief and risk assessments (Hogarth et al 2011; Johnson and Tversky 1983). It increases people's optimism, may induce them to hold the already owned asset to forecast hitherto increased prices. If beliefs in higher prices lead them to buy, their forecasts can become in the short run. Eduardo B. Andrade, Terrance Odean and Shengle Lin (2012), advocates that excited investors wish to forecast higher prices. Thus the excitement generated by rapidly rising prices may trigger beliefs that lead to larger asset pricing bubbles.

Fear: The markets insistent fall brings confusion. It is the stage in which individuals doubt about their investments whether the investments will be increase in value or not. This is called as fear of investors. Lucey and Dowling (2005) assumed that investor's emotional decisions making is associated with their fear of avoiding the risky decisions. Sometimes they presumed that limited market information may be the reason behind the unfavourable judgment and decisions, (Cohen, J.B., M.T. Pham and E.B. Andrade, 2008). Lee and Andrade (2011) also had a same opinion that negative emotion like a fear influence investors risk perceptions which directly affect their rational decisions making. Fear makes the investors to stay away from uncertainty events prevailing in the market. Investors who have moderate fear will take rational decisions, while if it is high, then they automatically influenced by high emotions which make them to be an irrational investors, (Coget, J.F., C. Haag and D.E. Gibson, 2011). Though fear is looked as a negative emotion, yet it has had positive side. It makes the individual to deliberatively make decisions, (Lerner, J.S. and D. Keltner, 2001, Lerner, J.S. and L.Z. Tiedens, 2006, Katkin, E.S., S. Wiens and A. Ohman, 2001).

Thrill: Thrill comes after an excitement. It is an output of success. If one who has realized the success on an event, then the prior success stimulate the investors to more actively participate in the next events. This active participation is known as thrill. It provokes the individuals to cherish the wins and congratulates themselves for their smart decisions. Thrilling always associated with risk seeking attributes of an investor. A risk seeking investor will constantly choose the investment with the highest risk apart from return. It includes cognitive and emotional bias. Evidence from Fischhoff, Slovic, Lichtenstein, Read, & Combs, (1978) show that risk is a type of feeling which directly affect individual's decisions. There is evidence that investors who have come across fear and anger, tend to be risk averse rather than risk seeking attributes (Lerner &

Keltner, 2001; Lerner, Small, & Loewenstein, 2004). simultaneously the outcome of their results directly attach with their emotions (Gray, 1999). Overall, positive affect tends to be associated with optimistic decision making, and negative affect with pessimistic choices (Isen, Shalker, Clark, & Karp, 1978; Johnson & Tversky, 1983; Kavanaugh & Bower, 1985; Mayer & Hanson, 1995; Schwarz & Clore, 1983; Wright & Bower, 1992). Since investors at this stage or a previous stage of investments don't have any fear or anger or any initial failure then, it concludes that thrill is an outcome of positive affect. At the same time, one cannot say that the outcome of thrill will bring the positive results.

Euphoria: It is the stage of maximum financial risk. The confidence level of investors is very high at this stage. Many researchers study the influence of overconfidence on individuals biased investment decisions, (Moore and Healy, 2008 & Odean, 1999). It is a belief that one who knows more than actual reality. It is sometimes denoted as "miscalibration" or "overprecision". Miscalibration is type of overconfidence which make the individuals trade too much. Too much trading or investments lead them to be losing more rather than gain on any investments, (Benos, 1998; Caballe and Sakovics, 2003; Daniel, Hirshleifer, and Subrahmanyam, 1998; Gervais and Odean, 2001; Hong, Scheinkman, and Xiong, 2006; Kyle and Wang, 1997; Odean, 1998; Peng and Xiong, 2006; Scheinkman and Xiong, 2003; and Wang, 2001). Graham, Harvey, and Huang (2009) confirmed the previous findings that people tend to bet on more by giving more importance to their own judgments and also think that they are skilful or knowledgeable".

Denial: It is a stage of an investor who watches the price of his/her drops. He/she may be reluctant to sell and recognize a loss. Selling a depreciated price goes against an emotional tendency not to admit failure. In this stage, investors stared at a market that had corrected 20%, with no sign of going back to the earlier peak. However, stories about how things could improve prevailed as investors reassured one another. **Denial** is probably one of the best known defence mechanism, used often to describe situations in which people seem unable to face reality or admit an obvious truth (i.e. "He's in denial."). Kahneman (2000) describe this stage as the period of "experiencing self" and the "remembering self". It is the period of stress and coping tradition, this type of emotion regulation is referred to as "problem-focused coping" (Lazarus & Folkman, 1984) or "primary control" (Rothbaum, Weisz, & Snyder, 1982).

Panic: Keynes (1936) explores financial panic as "animal spirits". He added that Panic is an outcome of consumer confidence, which necessary

to be motivated in to an acceptable action. Panic is an emotion which affects individual's decisions under risk and uncertainty, (Holtgrave and Weber ,1993; Loewenstein et al,2001; Weber, Siebenmorgen, 2005). It is a "sudden fright without a cause that may occur in asset markets" (Kindleberger and Aliber 2005, Ch. 5). From these, it is noted that panics is an emotional reaction of an individual or the market with undesirable consequences that is not fully vindicated by the prevailing market information**.**

Capitulations: When any investor surrender any earlier gains of their stock price by selling equities in an effort to get out of the market and into less risky investments. True capitulation involves extremely high volume and sharp declines. It is indicated by panic selling. This panic selling is called as capitulations. It is the stage almost similar to reference point which is explained in prospect theory given by Kahneman and Tversky (1979). It explains that investors set some reference point of accepting the losses. After that, they sell all their stocks to avoid further losses. Prospect theory calls this attitude as loss aversion. Furthermore, it suggests that investors who experience losses inflict roughly double the psychological effect of equal.

Despondence: Despondency is a stage of individual's distractive mind set. In this stage, individual explore two attributes. They may either shift the attention from emotional aspects of the situation or fully stay away from the situation altogether (Stifter & Moyer, 1991). Distraction may also involve a change in internal focus, such as when an individual invokes thoughts or memories that are inconsistent with the undesirable emotional state. Distraction has also often studied in the milieu of pain, where it leads to increased activation of brain regions associated with cognitive control and diminished activation of brain regions associated with pain generation (Ochsner & Gross, 2005).

Depressions: Depression is an outcome of intense negative emotional state. A sad or angry event increases the duration and intensity of negative emotion (Bushman, 2002; Morrow & Nolen-Hoeksema, 1990; Ray, Wilhelm, & Gross, in press) and is connected with greater levels of depressive symptoms (Nolen-Hoeksema, Morrow, & Fredrickson, 1993; Spasojevic & Alloy, 2001). This intense emotional state is called as rumination. Rumination refers to a preservative focus on thoughts and feelings associated with an emotion-eliciting event.

Desperations: In this stage, investors who have losing the majority of his/her portfolio to a market decline. This stage can be detrimental

because his/her emotions will likely take over. It is the period of re-think whether the approach towards the investments is right or wrong. If one who allows negative emotions at this stage, then it will ultimately erode their investments. Benartzi and Thaler, (1995) opined that sometimes mild negative emotions that do not result in a loss of self-control can play a counterproductive role in some situations. If investors try to chase the market, then they will be automatically influenced by gambling attributes. Behavioural finance calls this attitude as gamblers fallacy. Robert J Shiller (2002) explores the attributes of gamblers fallacies are over confidence and over reactions.

Relief: Investors often look for relief from market uncertainty by getting out. But being out of the market can create lost opportunity. Relief may be called as a stage of confidence development. Normally, investors who are more confident stick on their personal beliefs (Graham, Harvey, and Huang 2009; Deaves, Lüders, and Luo 2009). Confident investors rely on intuition which is closely associated with cognitive shortcuts and heuristics. While updating their beliefs, investors extrapolate recent return experiences. Specifically, they attach on naïve reinforcement learning (also named the extrapolation heuristic (Chen et al. 2007; Kaustia and Knüpfer 2008; Choi et al. 2009; Chiang et al. 2012). Accordingly, confidence about an investment belief (return expectations) is a feeling that reflects investors' mental construction of a rational story that is not based on lengthy processes of reasoning, but instead is driven by quick and intuitive shortcuts, Kahneman (2011: 212, 217).

RESEARCH METHODOLOGY

The present study has used descriptive method to analyze and interpret the data. Here investors are quoted as retail investors who are making investments in Indian stock market. The retail investors who are accessing Indian stock market from Tamilnadu are the population elements. Since the population elements are vast, multistage sampling technique is used to collect the sample data. A sample size of one thousand questionnaires was targeted to collect the data from various cities located in Tamilnadu. They are Chennai, Coimbatore, Trichy, Erode and Salem. Top five broking firm was identified in each place to collect a target of 200 questionnaires from each location. The questionnaires were distributed through E-mail, manually to investors; with the help of managers of broker's office to investors etc. Totally one thousand questionnaires were distributed, out of

which 742 responses were received on error free. This added an effective response rate of 75 percent of the total sample.

FACTORISATION OF EMOTIONS

For the purpose of this study, 14 emotional swing variables are taken. Each variable is given in the form of statement related to investment in a five point likert scale starting from strongly disagree to strongly agree. The factor analysis is used to reduce the data collected on 14 variables into smaller number of manageable variables by exploring common dimensions available among the variables. Before conducting factor analysis the sampling adequacy should be tested by using Kaiser-Meyer-Olkin Measure of Sampling Adequacy. It measures the proportion of variance in the variables which might be caused by deducted factors.

Table 1: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		**0.828**
Bartlett's Test of Sphericity	Approx. Chi-Square	4.504E3
	Df	91
	Sig.	.000

The table-1 shows that the KMO value is 0.828 which indicates that the factor analysis is useful with the data. The chi-square value for Bartlett's test of Sphericity is 4.504E3 and the significant value is 0.000 which is significant at more than 99 percent level of confidence.

DETERMINATION OF FACTORS

The variables which are having Eigen values greater than one were taken for further analysis. For the purpose of extraction, Principal Component Analysis is used and for the rotation Varimax rotation is used, which is the standard rotation method. Table-2 gives the complete information of deducted factors and the percentage of variance explained by them.

The total variance explained by the five components with Eigen value greater than 1 is 73 percent; remaining variance is explained by other variables. The variables which are included in each factor are given in table-3.

Table 2: Variance Explained by Factors

S. No	Factors	Eigen Value	Percent of Variance Explained	Cumulative %
1	Component 1	2.850	20.355	20.355
2	Component 2	2.448	17.482	37.837
3	Component 3	1.846	13.183	51.020
4	Component 4	1.624	11.602	62.622
5	Component 5	1.515	10.823	73.445

Table 3: Rotated Component Matrix

	1	2	3	4	5
Capitulation	0.828				
Anxiety	0.785				
Desperation	0.765				
Denial	0.61				
Euphoria		0.847			
Panic		0.845			
Despondency		0.832			
Fear			0.898		
Depression			0.842		
Excitement				0.749	
Relief				0.691	
Thrill				0.629	
Hope					.832
Optimism					.817

Rotated component matrix reveals that five factors are extracted. They are named as indecisiveness, clueless, paranoid, enthusiastic and dogmatic emotions. Factor loadings of these variables are shown in table-4

FREQUENCY ANALYSIS OF EMOTIONAL FACTORS

Based on the convenience, the five point scale of investor's emotional factors can be classified into three groups for simple interpretations of data. Number of factors falling under each category and its mean frequencies are shown in table-5.

Table 4: Frequency Analysis

Scale	1-2.5		2.5-3.5		3.5-5	
Factors	**Frequency**	**Percentage**	**Frequency**	**Percentage**	**Frequency**	**Percentage**
Indecisiveness	219	30	321	43	202	27
Clueless	255	35	245	34	242	33
Paranoid	184	25	245	33	383	42
Enthusiastic	296	40	182	24	264	36
Dogmatic	57	8	233	31	452	61
Total	742	100	742	100	742	100

Table 5: Factor Loading of Emotional Variables

	Factors	Descriptions of the Factor Statement	Factor Loadings
Indecisiveness emotions	Capitulations	If loss happens in my investment, I'll sell all my stocks to avoid further loss	0.828
	Anxiety	If the market moves against me. I tell my selves I am a long-term investor's and that all my ideas will eventually work	0.785
	Desperations	During bearish market, I'll approach the market with the intention to recover my losses	0.765
	Denial	When markets have not rebounded, I begin denying that I made poor choices or that things will not improve shortly	0.610

Clueless emotions	Euphoria	If profit on my investment continues, I began to ignore risk to think of every move would give profits.	0.847
	Panic	I am at a loss for what to do next, after using all my ideas	0.845
	Despondency	If losses continues, I don't want to buy stock ever again	0.832
Paranoid emotions	Fear	I believe the stocks that I own will never move in favor because of confused market movements.	0.898
	Depression	If loss continues in my investment, I am confused to make a decision about further investments.	0.842
Enthusiastic emotions	Excitement	I am very excited to approach the market ,if my market strategy works and pass the information to others that the equity market is the best investment options	0.749
	Relief	If I bought a stock that becomes profitable, I renew my faith that there is a future in investing	0.691
	Thrill	I am very much thrilled to invest during booming or recovery stage of the market	0.621
Dogmatic emotions	Hope	I am looking forward my next opportunity to invest after a deep fall in the market	0.832
	Optimism	My positive outlook encourages me to invest in the market	0.817

INDECISIVENESS EMOTION

First factor is named as Indecisiveness emotion. It contains anxiety, capitulation desperation and denial. Because of anxiety, capitulation, desperation and denial, the decision making may often fluctuate. It contributes 20 percent of the total variance explained. The variables included under this type along with their respective loadings are given in the table-4.

Anxiety, capitulations, desperations and denial explain the investor's attitude towards the losses. Here capitulations emotions occupy the higher factor loading in the table. Based on the convenience, five point likert scales is converted in to three points for easy interpretations of data. The reduced scales are shown in table-5. From the frequency analysis table-4, it is interpreted that 30 percent of investors are not influenced by indecisiveness emotions, 43 percent are neutral and 27 percent of investors are influenced by this emotion. This illustrates that majority of the investors are neutrally influenced. Investors who are influenced by these emotions may wait and watch the market situations to make decisions. The time lag between the intervals of making decisions determines their success. So this is called as indecisiveness emotion. If the investors are highly influenced by this emotion, they are called as indecisiveness emotional state investors.

CLUELESS OR CONFUSED EMOTION

Second factor contains panic, euphoria and despondency. These three factors explain investor's clueless or confused emotional state. It contributes 17 percent of the total variance explained. The factor loadings of this emotion are shown in table-4. Panic, Euphoria and Despondency explain the investor's perception towards the market. Here factor loadings of all these emotions are almost same. This shows that investors are equally influenced by these factors. Based on the intensity of these emotional influences, investors may perceive the market as optimistic and pessimistic. Optimistic investors may hold or wait and watch the situations whereas pessimistic can terminate their investments from the equity market.

Frequency table-5 informs that around 35 percent are equally influenced, not influenced and neutrally influenced category. This shows that one third of investors are confused emotional state investors. They

may have the confusion of entering or exiting the market. How investors make use of this stage will determine their success and failure. Since all these variables explain individual's confusion state, then they are called as clueless or confused emotion. Investors who are highly influenced by this emotion labeled as clueless or confused emotional state investors.

PARANOID EMOTION

Fear and depression explain individual's paranoid emotions. Paranoid means irrationality and delusion state of decision making. It contributes 13 percent of total variance explained. Paranoid is a negative emotion which explains two extreme phases of the investor's emotions. It determines high profitability or huge loss to the investors. Fear and depression explain negative emotional attributes of the investors. Fear and depressions occupy higher factor loadings. High influence of these factors makes the investors to make wrong decisions by taking offensive strategy. At the same time low influence of these factors make the investors to take correct decisions by adopting defensive strategy. About 42 percent of the investors are influenced by this emotion. They may be a trader. Around 25 percent are not influenced by this emotion. So they may be called as investors. Remaining 33 percent comes under neutral category. They may use both the trading and investment pattern to optimize their return or they may confuse on making correct decisions. If the investors are highly influenced by paranoid emotion, they are called as paranoid emotional state investors.

ENTHUSIASTIC EMOTION

Fourth component is taken as enthusiastic emotion. It is a state of positive approach towards the market. It contains excitement, thrill and relief. It contributes around 11 percent of total variance explained. Investors tend to look the market as positive. So this is called as positive emotions. Excitement occupies higher factor loadings on the table-4. These three emotions explain investor's enthusiasm towards the market. Enthusiasm is a psychological factor which motivates the investors to make aggressive behaviour. Aggressive behaviour may be given positive or negative results. Frequency table 5 reveals that 40 percent of the investors are not enthusiastic, 36 percent are enthusiastic and remaining 24 percent are neutrally enthusiastic investors. This shows that most of the investors are

not enthusiastic when the market becomes bullish or bearish stage. Since rational investors are non enthusiastic, then it suggests that majority of investors are rational investors. Excitement emotion is a negative stimulus which motivates the investors to approach the market very emotionally. High enthusiastic people may be influenced by intuitions while others are not.

DOGMATIC EMOTION

Fifth component is explored as dogmatic emotion. It is a positive emotion of high confident state. It contains optimism and hope emotions. Optimism and hope have almost equal factor loadings. They are considered to be two sides of a coin. Hence it concludes that they are interdependent factors. Dogmatic emotions make the investors to adopt herd or contrarian behaviour. More than 60 percent of investors are dogmatic emotional state investors. This shows that most of the investors are optimistic when they are approaching the market and hope that the market will give them good return.

SEGMENTATION OF INVESTORS

Using factor analysis the variables or statements are grouped. By using cluster analysis the investors can be grouped based on the level of emotional characteristics. For the purpose of grouping, K-means cluster analysis is used.

Table 6: Final Cluster Centers and ANOVA Table

Factors	Cluster			F	Sig
	1	2	3		
Indecisiveness	1.95(I)	2.94(II)	3.78(III)	323.116	.000
Clueless	1.74(I)	2.86(II)	3.84(III)	378.837	.000
Paranoid	4.09(II)	2.55(I)	4.21(III)	394.605	.000
Enthusiastic	2.84(I)	3.09(II)	4.31(III)	292.734	.000
Dogmatic	4.33(III)	3.33(I)	4.21(II)	155.552	.000
No of cases in each cluster	163	321	257		
Total percentage	22	43	35		

The Final Cluster Center table-6 depicts the mean values for the three clusters which reflect the attributes of each cluster. The rank of the factors on each cluster is shown in brackets. Based on the results of k-means cluster, the clusters are categorised as positive, negative and neutral emotional state investors. The ANOVA table explains the mean square value of the clusters, f-statistics and its significant values. Paranoid emotions have higher f values and dogmatic emotions have lower statistics. This indicates that factors which have higher f statistics contribute more on categorising the cluster while lower f statistics have less contributed. The significant value of all the five emotional factors is 0.000. This means that all these factors have shown a significant contribution of dividing investor's into three segments based on the influence of emotions.

Table 6 reveals that around 163 out of 742 investors belong to cluster I which is named as positive emotional state investor, 321 investors belong to second cluster who are named as neutral emotional state investors and finally 257 investors in cluster 3 are negative emotional state investors. This indicates that around 22 percent of investors are positive emotional state investors, 43 percent are neutral emotional state investors and 35 percent are negative emotional state investors. This leads to the conclusion that most of the investors are neutral emotional state investors. They are neither rational nor irrational investors. The brief explanation about the characteristics of each cluster category is shown below.

Table 7: Emotional Cluster Classification

Emotional factors	Clusters		
	Positive	Neutral	Negative
Indecisiveness	Less	Moderate	High
Clueless	Less	Moderate	High
Paranoid	Moderate	Moderate	High
Enthusiastic	Less	Moderate	High
Dogmatic	High	Moderate	High

POSITIVE EMOTIONAL STATE INVESTORS

Investors who represents cluster one have the following attributes: High dogmatic, moderate paranoid and less influenced by other emotions. Since the influence of indecisiveness, clueless and enthusiastic emotions are very less, then one can conclude that investors of this category are emotionally

stable. Further moderate influence of paranoid and high influence of dogmatic emotions confirms that investors of this class are optimistic and cognitive. Investors who have these attributes will evaluate all the risk and return towards the investment before making any investment decisions. This shows that investors of this group are rational. Positive emotions (rational) associate with long term outcomes, while negative emotions (irrational) associate with short term outcomes (Gray, 1999). From this finding, it is revealed that investors of this category are long term deliberative decision makers. Hence they are labelled as positive emotional state investors.

NEUTRAL EMOTIONAL STATE INVESTORS

Investors of cluster two are moderately influenced by all the emotions. This shows that they are influenced by both rational and irrational behaviour. i.e. mixed emotional state. Therefore investors of this class are called as neutral emotional state investors. Investor's investment success will be determined by the behaviours of both deliberativeness and intuitiveness. Simon (2008) pointed that intuitive investors are cognitive; rule breakers, emotionally stable expects optimum return from their investments. Our findings suggest that intuitive investors who are cognitive, emotionally stable are called as intuitive-deliberative or neutral emotional state investors.

NEGATIVE EMOTIONAL STATE INVESTORS

Investors of this type are high influenced by all the emotional variables. As this people have all emotions, they may approach the market frequently. So they should be a short term investors. Frequency of trading explain individuals emotionally unstable state, less cognitive of evaluating all the risk and return towards the investment. This resembles the behaviour of irrational investors. Thus investors of this group are named as irrational investors. Irrational investors are like momentum stocks. If the market moves positive, their approach would also be positive and if it becomes negative, they tend to be negative i.e. herd behaviour. Generally investors of this type are emotionally approach the market and also very excited when the market gives them good return and upset if they are getting losses. Negative emotional state investors are intuitively approach the market. But the question is whether their intuitions is matured intuitions or

impulsive (damasio, 1994; dijksterhuisnordgren, 2006; Gigerenzer, 2007; 2008; plessner & czenna, 2008; Wilson, 2002). Our findings reveal that negative emotional state investors have explored immature intuitiveness or impulsiveness.

RELIABILITY OF CLASSIFICATION

Discriminant analysis is used to test the reliability of classification of emotional clusters. For that purpose five emotional factors are taken as independent variables and investor's emotional states are taken as grouping variable.

Table 8: Tests of Equality of Group Means

Emotional factors	Wilks' Lambda	F	df1	df2	Sig.
Indecisiveness	.533	323.116	2	739	.000
Clueless	.494	378.837	2	739	.000
Paranoid	.484	394.605	2	739	.000
Enthusiastic	.558	292.734	2	739	.000
Dogmatic	.704	155.552	2	739	.000

The table-8 contains Wilks' lambda, the F statistic, its degrees of freedom and significance level. Wilks' lambda is the ratio of within-groups sum of squares to the total sum of squares. Wilks' lambda in this case ranges from 0.5 to 0.7. The small values of Wilks' lambda indicate that there exists a strong group differences among the mean values of five emotional factors. Here paranoid emotions have low wilks' lambda value. Mostly paranoid emotional factor determines the classification of other cluster. The F statistic is a ratio of between-groups variability to the within-groups variability. The significance value of all five emotional factors is 0.000. This indicates that the group differences are significant.

Table 9: Eigen Values

Function	Eigen value	% of Variance	Cumulative %	Canonical Correlation
1	2.279	56.5	56.5	.834
2	1.757	43.5	100.0	.798

The Eigen value is the ratio of between-groups sum of squares to the within-groups sum of squares. The largest Eigen value of function one explains maximum spread of the group's means. Small Eigen of function two contributes very little of the total dispersion. Since three clusters are formed, then two Discriminant functions can be formed if it is three clusters. The Eigen value is high for function one. This shows that function one contributes more on categorising different clusters. The canonical correlation measures the relationship between two functions and five factors. The co-efficient of canonical correlation of both the functions are greater than 60 percent which is a satisfying value. This indicates that there exists strong relation between the two functions and five emotional factors.

Table 10: Wilks' Lambda Values

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1 through 2	.111	1622.526	10	.000
2	.363	747.348	4	.000

Table 10 explains Wilks' lambda value of the two functions. It explains the proportion of variance in the Discriminant score which is not explained by dissimilarity among the groups. Function one has lower Wilks' lambda. This suggests that function one contributes more on discriminating the group means. The significant values of the functions are derived by taking the chi-square and degrees of freedom value. The significance value for both the functions is 0.000. This informs that both the functions are valuable to explain the characteristics of the population.

Table 11: Structure Matrix

Emotional factors	Function	
	1	2
Enthusiastic	.565*	-.191
Paranoid	.529*	.495
Clueless	.505*	-.502
Indecisiveness	.462	-.470*
Dogmatic	.286	.365*

The structure matrix contains within-group correlations of each predictor variable with the canonical function. Structure matrix is an

essential part to study the usefulness of each variable in the Discriminant function. For each variable, an asterisk indicates its largest absolute correlation with one of the canonical functions. With each function, these marked variables are then ordered by the size of the correlation. The strongest correlations existed in function one which comprises of enthusiastic, paranoid, clueless while indecisiveness and dogmatic emotions appeared in function 2. These two functions are expressed in equations as follows:

Z1=0.565*Enthusiastic + 0.529*Paranoid + 0.505*Clueless and

Z2 = -.470* Indecisiveness + 0.365*Dogmatic.

Functions one and two are significant discriminant functions which will explain the characteristics of investor's.

Fig 2: Discriminant Plot for Classification of Emotional Groups

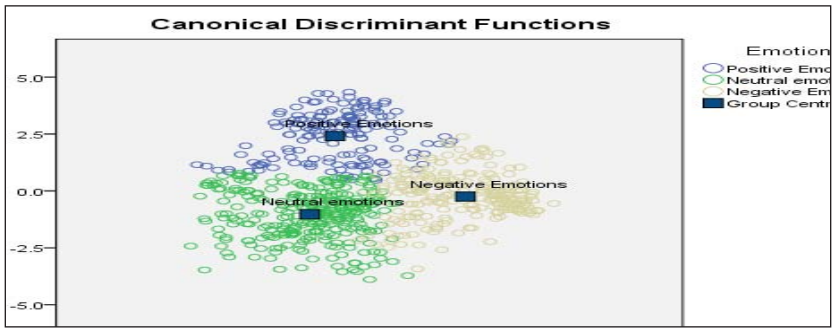


Table 12: Cluster Classification of Predicted Group Membership

Emotions			Predicted Group Membership			Total
			Positive Emotions	Neutral Emotions	Negative Emotions	
Original	Count	Positive Emotions	151	7	5	163
		Neutral Emotions	3	315	3	321
		Negative Emotions	4	14	240	258
	%	Positive Emotions	92.6	4.3	3.1	100.0
		Neutral Emotions	.9	98.1	.9	100.0
		Negative Emotions	1.6	5.4	93.0	100.0
95.1% of original grouped cases correctly classified.						

Fig-2 explains the association of three emotional cluster groups and its centroids. Centroids are the mean discriminant scores for each emotional group. The centroids of the three groups are far away from one another. This indicates that the given discriminant classification is error free and also exists a fine dissimilarity among the three discriminant groups.

Table 12 explains the predicted group membership of the emotional classifications. 93 percent of positive emotions, 93 percent of negative emotions and 98 percent of neutral emotions are correctly classified in different emotional groups. An overall of 95.1 percent of the emotional groupings are correctly classified.

CANONICAL CORRELATIONS OF INVESTOR'S DEMOGRAHIC AND INVESTMENTS VARIABLES WITH THEIR DIFFERENT EMOTIONAL STATES

Canonical correlation is a statistics tool employed to discover the relationship of investor's demographic and investment variables with their different emotional state. In order to find out this relationship, demographic and investment variables are taken as independent variables. Simultaneously, dependent variables are taken as investor's different emotional state

Table 13: Linear Combination for Canonical Correlations

Linear combinations for canonical correlations — Number of obs = 742

	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
u1						
age	.1470053	.0403084	3.65	0.000	.0678731	.2261375
educatio	-.4566976	.0673213	-6.78	0.000	-.5888608	-.3245343
maritals	-.0711973	.0690274	-1.03	0.303	-.2067098	.0643153
occupati	-.1636136	.0531301	-3.08	0.002	-.2679171	-.0593101
professi	.1159093	.0215241	5.39	0.000	.0736538	.1581648
financia	.022802	.0176182	1.29	0.196	-.0117854	.0573895
incomes	.3468885	.0470248	7.38	0.000	.2545708	.4392061
attracti	.0688342	.0229916	2.99	0.003	.0236977	.1139707
reasonsf	-.1337553	.0177907	-7.52	0.000	-.1686816	-.0988291
traderin	.0954875	.0541067	1.76	0.078	-.0107331	.2017081
yearoftr	.2079311	.0433605	4.80	0.000	.1228071	.293055
approach	.0281188	.0532764	0.53	0.598	-.0764717	.1327094
totalinv	.0676003	.0370761	1.82	0.069	-.0051863	.140387
equityin	-.104072	.0410531	-2.54	0.011	-.1846663	-.0234777
portfolio	-.0520684	.0325778	-1.60	0.110	-.1160242	.0118874
inducest	-.0220184	.0229742	-0.96	0.338	-.0671207	.0230839
sourceso	-.1676213	.0637818	-2.63	0.009	-.2928359	-.0424068
kindsofs	-.0360588	.0228067	-1.58	0.114	-.0808322	.0087146
patterno	.025596	.0308896	0.83	0.408	-.0350455	.0862376
preferen	-.0013296	.009251	-0.14	0.886	-.0194908	.0168316
riskprof	.0059623	.0391167	0.15	0.879	-.0708305	.0827551
v1						
indecisi	-.2680657	.0335459	-7.99	0.000	-.3339221	-.2022093
clueless	-.3641832	.028861	-12.62	0.000	-.4208423	-.307524
paranoid	-.1881147	.024289	-7.74	0.000	-.2357982	-.1404312
enthusia	-.4577576	.032485	-14.09	0.000	-.5215311	-.3939841
dogmatic	-.1687362	.0305815	-5.52	0.000	-.2287729	-.1086994

Table 13 reveals that demographic variables of investors age, education, occupation, profession, income and investment variables of attractions of equity market, reasons for equity investments, investment awareness variables of Reasons for equity investments, investment pattern, Equity Experience, proportions of investments in equity market, Sources of fund utilized and Risk profile of the investors have shown significant correlation with their different emotional states.

Table 14: Tests of Significance of all Canonical Correlations

Canonical correlations:
0.8301 0.6859 0.3620 0.3094 0.1522

Tests of significance of all canonical correlations

	Statistic	df1	df2	F	Prob>F
Wilks' lambda	.126381	105	3505.58	17.5813	0.0000 a
Pillai's trace	1.40946	105	3600	13.4589	0.0000 a
Lawley-Hotelling trace	3.38496	105	3572	23.0306	0.0000 a
Roy's largest root	2.21618	21	720	75.9832	0.0000 u

e = exact, a = approximate, u = upper bound on F

An overall correlation between first pair of variates is 83 percent. This is a good sign of strong correlation existed between this pairs. Table- concludes that Wilks' lambda, Pillai's trace, Lawley-Hotelling trace and Roy's largest root are statistical significant at 0.05. This indicates that investor's different demographic and investment variables are strongly correlated with their emotional state.

CONCLUSION

Each emotional state has its both positive and negative side. How investors use their emotions will make them to be a successful or failure investor in the stock market. This study identified the various emotional swings often crossed by the investors on making investments in the equity market. How these emotional swings influence individual's investment decisions is taken as the primary aim of this study. Around 742 samples were chosen to carry out this study. Findings of this study reveal that investors can be classified based on the influence of emotions are positive, negative and neutral emotional states. There are more number of neutral emotional state investors. Further, this study has found that lack of cognition, inexperience's, impulsiveness determines individual's emotional instability. Results of canonical correlations reveal that certain demographic and investment variables influence individual's investment

decisions. This study has restricted to some limitations. Firstly, investors in this study are limited to retail investors who access Indian secondary market from Tamilnadu region only. Secondly, the research data was restrained to collect from the five major cities of Tamilnadu state only. At last, emotion is the only psychological factor taken to find out its influences of determining individual's investment decisions. The major implications of this study will be useful to retail investors to understand the influence of emotions on determining their investment personality, investment success etc. Further, this study is also useful to investment analysts, broking firm, and investment managers to create awareness among their clients on successful investments in equity market. At the same time, fund managers can use this study to design a suitable product to meet their clients' needs. An overall conclusion of this study explores that emotion based heuristics is a best tool for quick and fast decisions, if it is properly used. Besides individual's emotions become matured over a period of time on their investment cycles. In order to overcome the problem of unsuccessful investment decisions, individual's should use their emotions in a productive way to optimize their investment return.

DIRECTIONS OF FUTURE RESEARCH

This study has focused on emotional factors and its influence on investor's investment decisions. Certain psychological factors like mood, heuristics and investment personality are excluded in this study. How these factors contribute the development of individual's emotions is the promising area of future research related to this study.

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