Journal of Positive School Psychology http://journalppw.com
2022, Vol. 6, No. 10, 3379-3384

# Investor Mood Index And Investor Sentiment Index: A Study Of Indian Individual Investors

**Dr. Sarni Jain[1]*, Prof. (Dr.) Sanjeev P Sahni[2]**

***Corresponding Author:** Dr. Sarni Jain, sarnijain@gmail.com

**Abstract**
Behavioural finance is a field that combines the knowledge from the field of finance and psychology to explain the investors and their decision-making process. Traditionally, humans are believed to be rational decision makers, but the propagators of behavioural finance establish that human being are irrational or less than rational in their decision- making. The study uses the human decision making skills and applies it on investors to explore the irrationality aspect in the investment decision making of individual investors. The researchers developed Investor Mood and Investor Sentiment Index to measure the effect of feelings i.e., Moods and Sentiments on the investment decision making. The study uses principal component analysis, correlation analysis, regression analysis and concludes that moods effect the investor's decision making but the study was unable to verify the effect of sentiments on investor's decision making. This study thus establishes the fact that the irrationality in the investor decision making is because of presence of moods which influences the decision making of Indian investors.

**Keywords:** Behavioural Finance, Mood, India, Individual investors, Regression

## INTRODUCTION

Financial markets are not just influenced by economic and political processes but also by the investor's reaction, feeling and their perception. Behavioural finance studies investment decisions of investor which are influenced by investor's feelings often called as affect. Affect which includes, moods and sentiments influence the investment decisions of an investor.
Behavioural finance focuses on the investor's decision making by explaining the role of affect that influences the investor's decision making. By studying affects i.e., moods and sentiments of an investor, the stock market anomalies and the investors strategy to select certain investment avenues over others can be studied in detail. Thus, behavioural finance focuses on behavioural and cognitive psychology to explain the anomalies in the standard economic models. This field supports the research from cognitive psychology that explains the influence of affect i.e., moods and sentiments of an investor (Boda & Sunitha, 2018).

We know investment decision making is a comprehensive field and the behavioural theorist suggests that it should be studied considering the rational as well as the emotional component of decision making. The rational component in the investment decision making is explained by Markowitz portfolio theory which revolves around the idea of market efficiency, full information of share prices and rational investor who always tries to maximize his profits (Barua & Srinivasan, 1991). He suggested that an investor always tries to balance market portfolio by having considerable amount of information about the securities. But along with the rational investors Markowitz portfolio theory also highlights the presence of some irrational investors. The emotional component is explained in terms of irrationality which is characterized by intuition, learned behaviour, moods and feelings (Amsel, Close, Sadler, & Klaczynski, 2009).

Moods play a significant role in forming a decision. Cognitive psychology claims that moods are short-lived, and they influence the way information is processed about a common event. Researchers have focused on incidental and integral emotions which influences the decision making of an individual. Incidental emotions are believed to influences the investment decision making because the feelings produced by these moods creates certain mental mindset which make it difficult for a decision maker to separate these feelings from the actual decision itself.

Investor Sentiment is an important aspect of individual investment decision making. The importance of sentiments in the investment decision making process of an investor was introduced in the late 90's. Sentiments are an individual's estimates about future economic conditions. These expectations affect the way an individual perceives risk and return from a given investment avenue. Sentiments can cause optimism or pessimism in an investor. Optimism (pessimism) causes investors to overestimate (underestimate) their probability of success and underestimate

(overestimate) the risk attached to their investment decision. Humans are social beings and interaction among them is called social interactions and these social interactions are often influenced by social moods or social emotions. An individual's beliefs, ideas and decisions are highly correlated with that of the environment around him. Nofsinger (2005) suggests that economic optimism is highly dependent on social optimism. Thus, the sentiments of an investor effect the investment decision making of an investor.

The moods and sentiments of an investor establishes the irrationality in the decision- making process of an investor. The less than rational concept and the emotional concept i.e., irrationality in the investor decision making are well explained by the risk-as-feelinghypothesis. This theory states that the affect which constitutes of feelings, determines the decision making of an investor. The feelings are as a result of moods and sentiments that effect the investment decision making (Loewenstein, Weber, Hsee, & Welch, 2001).

Chang (2008) in his study highlights that traditional finance theories lack an explanation on irrational investment decisions of an investor. The irrational investment decisions are caused because of the behavioural biases which occur when an investor is not fully rational (Bondt & Thaler, 1985). The irrationality in the decision-making can be narrowed to the moods and sentiments of an investor.

The mood of an individual and the economic sentiments limit the choices available to an individual, which helps them to reach to a decision quickly (Loewenstein, Weber, Hsee, & Welch, 2001). Hence, the decision of an investor is guided by their feelings i.e. moods and sentiments. Thus, the affect of an investor can either help them to choose investment avenues with high (low) returns and high (low) risk.

Researchers of neuroeconomics also suggests that information relating to risk and reward is processed and the feelings are also stipulated at one common area in the brain. This signifies that affect i.e., feeling state do influence the financial decisions making of an individual (Kuhnen & Knutson, 2011).

The measurement of moods and sentiments are complex (Grable & Roszkowski, 2008). The Mood Congruent Judgement effect assess mood state based on different judgement tasks (Mayer & Salovey, 1995). Scholars have recommended ways to regulate mood by moderating the feelings resultant from a situation (Thayer, 1996). Mood regulation is recommended so that the decisions of individuals are not coloured and hence prevents them from forming a biased opinion.

The literature on financial behaviour of investors describes certain situations that affect the decision making of an investor. So, it becomes important to understand the mood through the feelings attached to the situation. In Indian settings, the relevant situations that are found from literature are the general feelings state, how an individual perceives weather, feel of sports result and the festival feel (Kaplanski, Levy, Veld, & Merkouova, 2012).

The role of affect i.e., moods and sentiments on decision making has been carried out by researchers who conclude that positive affect induce people to take risks and they boost confidence in their ability and underestimate the risk attached to the investment decisions (Loewenstein, Weber, Hsee, & Welch, 2001).

Thus, to understand an investor's decision-making process it is necessary to understand the risk perception of investors along with the effect of moods and sentiments on the decision making of an investor. As Loewenstein et al. (2001) studied risk taking behaviour of individuals and their emotions and concludes that emotions hold a central role in the risk-taking behaviour of individuals. Thus, investment decisions under risk is determined by the influence of emotions (Solvic, Finucane, peters, & Macgregor, 2002).

India has the highest percentage of people in the age group of 15-24, which indicates that the labour force in the country is increasing. This increase in labour force also signifies a large amount of disposable income at the hands of youth. And if the savings of these youth can be channelized properly, they can accelerate India's growth. The youth will only have confidence in the financial savings when they know how investors take right decisions. The decision of investors is not just affected by the knowledge of investment avenues but also about the psychological factors that affect the investment decision. There are very few studies that studies the moods and sentiments of Indian investors. So, this study will explore in detail the moods and economic sentiments of Indian investors which affect the investment decision of Indian investors.

## METHODS

To capture the effect of mood and sentiments on the investment decisions of Indian individual investors, Investors' Mood Index and Investors' Sentiment Index has been developed. The sample of the study are the individual investors who have invested in stocks or mutual funds in the last 30 days. The data

was collected through close-ended structured self-administered questionnaire. The Investors' Mood Index has been calculated by using Principal Component Analysis and the Investors Sentiments Index has been calculated using the modified version of Consumer Sentiments Index. The logistics regression is then run to find out the effect of risk perception, moods and sentiments on the buying and selling behaviour of investors.

## RESULT

### Estimation of Investors Mood Index

We employ the four variables i.e. the general feeling state, perceived weather, sports result feel and festival feel to capture the moods of an individual. In all the cases, the available choices were ordered from 1 which represent bad mood to 5 which represents good mood. Thus, the higher the value of the individual from the questions on mood, the better the mood of the investor. Kaplanski et al. (2013) in their study to predicts the stock expectations of Happy investors versus Unhappy investors, non- economic factors were used to measure the moods of the investors like Sports result and Winter Blue effect to predict stock expectation of an investor. We modified some statements to make it relevant in Indian context. To check whether all the four statements predict the mood of an investor, we use Principal Component Analysis (PCA) on these four statements.

**Table 1:** KMO and Bartlett's Test for moods of investors

| | | |
|---|---|---|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .729 |
| Bartlett's Test of Sphericity | Approx. Chi-Square df | 568.9336 |

Table 1 represents the Kaiser Meyer Olkin (KMO) measure of sampling adequacy for measuring moods of the investor. The KMO value for measuring the mood of investors for this study is 0.72 which indicates that factor analysis will be useful with data. The chi-square value for Bartlett's test of Sphericity is 568.933 which is significant at 1%.

**Table 2:** Descriptive statistics and statements describing the mood of an investor

| | Mean | Std. Deviation | Communalities |
|---|---|---|---|
| General feeling | 3.41 | 1.416 | 0.683 |
| Perceived weather | 2.77 | 1.352 | 0.279 |
| Game result feel | 3.32 | 1.692 | 0.626 |
| Festival Feel | 3.50 | 1.572 | 0.584 |

Table 2 presents the descriptive statistics: the mean, the standard deviation and the communalities for the responses of the individuals for the statements.

Principal Component Analysis (PCA) is done by using all the four statements which measure the mood of an individual. We obtain one component with an eigenvalue greater than one. Table 3 explains the information deduced by that one component and percentage of the variance as explained by that factor. This one component explains 54.31 % of the total variance in the model. Table 4 shows the factor loading of each of the variable under one component labelled as mood.

**Table 3:** Total variance explained for mood component

| S. No | Factors | Eigen Value | Percent of Variance Explained | Cumulative % |
|---|---|---|---|---|
| 1 | Mood | 2.172 | 54.305 | 54.305 |

**Table 4:** Component matrix for moods

| | Component |
|---|---|
| | 1 |
| General feeling | .826 |
| Perceived weather | .528 |
| Games result feel | .791 |
| Festival Feel | .764 |

The loading of all four statements on the one component reconfirms that all the statements that are general feeling, perceived weather, game result feel and festival feel measure the same construct that is mood.

The Investors Mood Index is constructed using the first principal component correlation matrix of the original mood creating variables which are explained in equation *(i).*

$$IMI = 0.826\ General\ feeling + 0.528\ Perceived\ weather + 0.791\ Game\ result + 0.764\ Festival\ feel. \quad \ldots\ldots(i)$$

To account for the fact, that mood in all probability is pretentiously affected by all other variables like general feeling, perceived weather, sports result and festive feel, then we use only one mood variable i.e., Investors Mood Index and will not then use each mood creating factor separately. We also find the correlation among each statement to justify that they are interrelated. If the statements are interrelated, then every time using the mood creating factors separately will reduce the significance of the result.

***Correlation between various constructs of mood.***

**Table 5:** Correlation between various constructs of mood and IMI

| | | IMI |
|---|---|---|
| General feeling | Pearson Correlation<br>Sig. (2-tailed) | 0.814<br>.000** |
| | N | 702 |
| Perceived weather | Pearson Correlation<br>Sig. (2-tailed) | 0.503<br>.000** |
| | N | 702 |
| Game result feel | Pearson Correlation<br>Sig. (2-tailed) | 0.783<br>.000** |
| | N | 702 |
| Festival feel | Pearson Correlation<br>Sig. (2-tailed) | 0.800<br>.000** |
| | N | 702 |

**Significant at 1 % level (Two- tailed)

As can be seen in Table 5, a positive correlation between the four constructs of mood and with Investors Mood Index. General feelings and perceived weather, game result feel, festival feel significantly correlated with each other. The correlation of each construct with other ranges from weak to strong correlation meaning that each one has some effect on an individual's mood.

Furthermore, the general feelings and IMI are very strongly positively correlated, $r$ (15) = 0.81, $p$ <0.01, weather and IMI are moderately correlated, $r$ (25)= 0.50, $p < 0.01$, *game* result and IMI are strongly correlated, $r$ (25) = 0.78, $p < 0.01$, festive feel and IMI are strongly correlated, $r$ (45) = 0.80, $p < 0.01$. This shows that all mood generating variables are correlated significantly at 1% level. Thus, the association between the mood creating variables and the individual mood is not a relic but is a result of the correlation between the mood creating variables.

For further analysis, we will use single variable IMI to study the effect of mood on investors' choice. The IMI ranges from 2.00 to 14.00. The moods of an investor are categorised as Happy, Sad and Neutral. If an individual score between 2.00-6.00 we categorise them as Sad, between 6.01- 11.00 we categorise them as Neutral and if the score is more than 11.01, we categorise them as Happy. Thus, higher the IMI, the happier the individual.

## Investor Sentiment Index

The Investor's Sentiment Index (ISI) is calculated using the Michigan Consumer Sentiment Index. The statements from the Consumer Sentiment Index (CSI) are used as a reference to form ISI. The CSI measures the optimism or pessimism that is prevalent in the economy. This ISI measures sentiment at the individual level.

**Table 6:** Descriptive statistics and statements describing sentiments of an investor

| Statements | Mean | Std. Deviation |
|---|---|---|
| Compared to a year ago, how is your family faring financially these days? | 1.54 | 0.610 |
| Do you think that a year from now your family would be faring financially? | 2.58 | 0.551 |
| How would you describe the next 12 months' financial and business conditions in our country? | 1.75 | 0.651 |
| What do you think would be the next 5 years' financial and business conditions in our country be? | 1.51 | 0.577 |
| Do you think that this is generally a good or bad time to buy things like furniture, refrigerator, television, two- wheeler, car? | 1.66 | 0.623 |

The respondent whose index score is above 100 is categorized as optimist otherwise as a pessimist (Sulaiman, 2018). An optimist is a person who has confidence in the economy and is ready to invest money expecting a high future return.

## Association between Investors Mood Index and Investors Sentiment Index

It is known that moods and sentiments affect the decision making of an individual. Here we try to find out whether investment decisions are affected by the moods and sentiments of an investor. We run the correlation test to find out the association and strength of Investors Mood Index and the Investors Sentiment Index.

**Table 7:** Correlations between Investors Mood Index and Investors Sentiment Index

| | | Investor Sentiment Index |
|---|---|---|
| Investors Mood Index | Pearson Correlation<br>Sig. (2-tailed) | .299<br>.000** |
| | N | 702 |

**Significant at 1% level (Two-tailed)

From Table 7, it is clear that investors mood index and investors sentiment index are correlated, thus, stating the moods of an individual may impact the sentiments of an individual which in turn affect the decision making of an investor. There is moderately positive correlation between Investors Mood Index and Investors Sentiment Index, $r$ (12) = .0.29, $p < 0.01$. This association of the two variables do not depict just the strength and the

direction but also the significance of the relationship. From Table 7 it is evident that the correlation coefficient between the two variables is significant at 1%. But the correlation coefficients do not give any information about the movement in one variable is in response to others or not. Hence, we cannot establish the dependent and the independent variable through this analysis. Through this analysis, we only get to know that there is an association between Investors mood and Investors sentiment.

A further analysis using this IMI and ISI as independent factors is carried out to find out their effect on investment decision making.

### Effect of risk perception, moods and sentiments on the buying and selling behaviour of individual investors.

Logistics regression model is run to establish a relationship between independent and dependent variables. The independent variable here is the last month buying/ selling behaviour of an investor and risk perception, Investor Mood Index and Investor Sentiment Index are the dependent variables which affect the individual investor decision making.

$$= ln\left[\frac{pi}{[1-pi]}\right] = ln(odds) = b_0 + b_1 RP_1 + b_2 IMI_1 + b_3 IMI_2 + b_4 S_1 + \varepsilon i. \quad \ldots. (i)$$

**Table 8:** Logistic regression on investors buying and selling behaviour

| | | B | S.E. | Wald | Df | Sig. | Exp(B) |
|---|---|---|---|---|---|---|---|
| Risk Perception | Risk Seeker | 0.616 | 0.270 | 5.188 | 1 | 0.022* | 1.851 |
| | Happy Mood | 2.416 | 0.370 | 42.568 | 1 | 0.00* | 11.198 |
| IMI | Sad Mood | -2.939 | 0.291 | 102.199 | 1 | 0.00* | 0.53 |
| ISI | Optimist | 0.160 | 0.263 | 0.370 | 1 | 0.543 | 1.174 |
| | Constant | 0.507 | 0.263 | 3.715 | 1 | 0.54 | 1.660 |

*Significant at 5% level (Two- Tailed)

From Table 8 it is clear that that happy mood influences the buying behaviour of an investor. An investor who is a risk seeker will buy 1.85 time more of stocks than an investor who is a risk aversive. An investor in happy mood buys 11.19 time more stock than when he is in neutral mood.

An investor who is in sad mood will buys 5.3 times less stock that an investor who is in neutral mood.

Thus, it is clear from the regression and the theory also supports that when an investor is in happy mood, he will be a risk seeker, will underestimate the risk, overestimate the return and will buy more stocks. In this study we could not establish the effect of individual sentiments on the buying behaviour of an investor.

## DISCUSSION

An investment decision involves the mixture of rational decision which are by influenced of moods and sentiments of an investors. The individual moods and sentiments of an investor is not studied in detail like it has been studied outside India. Many of the Indian studies focus on risk return profile of the investment avenues and ignore the way risk is perceived by the investor. In this study we focus on the risk perception of an investors, the moods experienced by them and the influence of sentiments on the buying and selling behaviour of an investors. Through this study we can establish that when an investor is in happy mood, they underestimate the risk attached to the investment avenues and buys stocks more as compared to when he is in neutral or sad mood. The sentiments do also influence the decision making of an investor but through this study we are unable to determine the effect of sentiments on the individual investor's decision making. We still do not know if the decision was good or bad but feelings, i.e. moods do influence the decision making power of investors. (Solvic, Finucane, peters, & Macgregor, 2002). But what we can conclude is that an investor is not always rational in making his decision and his investment decision making is affected by their moods.

## REFERENCES


[1]. Amsel, E., Close, J., Sadler, E., & Klaczynski, P. A. (2009). College students' awarness of irrational judgements on Gampling task: A dual- process account. The Journal of Psychology, 143(3), 293-317.

[2]. Barua, S. K., & Srinivasan, G. (1991). Experiment on individual investment decision making process. The Indian Journal of Statistics, 53(1), 74-88.

[3]. Boda, J. R., & Sunitha, G. (2018). Investor's psychology in investment decision making: A behavioral finance approach. International Journal of Pure and Applied Mathematics, 119(7).

[4]. Bondt, W. F., & Thaler, R. (1985). Doest the stock market overreact? The Journal of Finance, 40(3), 793-805.

[5]. Chang, C. (2008). The impact of behavioral pitfalls on investor's decisions: The dispositional effect in the Taiwanese warrant market. Social Behavior and Personality: An international journal, 36(5).

[6]. Grable, J. E., & Roszkowski, M. J. (2008). The influence of mood on the willingness to

take financial risk. Journal of Risk and Research, 11(7), 905-923.
[7]. Kaplanski, G., Levy, H., Veld, C., & Merkouova, Y. (2012). Do happy people make optimistic investors? Journal of Finance and Quantitative Analysis. doi:10.2469/dig. v45.n11.1
[8]. Kuhnen, C. M., & Knutson, B. (2011). The influence of Affect on beliefs, preferences and financial decisions. Journal of Financial and Quantitative Analysis, 46(3), 605-626.
[9]. Loewenstein, G. F., Weber, E. U., Hsee, C. K., & Welch, N. (2001). Risk as feelings. Psychological Bulletin, 127(2), 267-286.
[10]. Mayer, J. D., & Salovey, P. (1995). Emotional Intelligence and the construction and regulation of feelings. Applied and Preventive Psychology, 4(3), 197-208.
[11]. Nagarajan, H. (2011). How households save and invest. Evidence from NCAER household survey.
[12]. Nofsinger, J. R. (2005). Social mood and financial economics. The Journal of Behavioural Finance, 6(3), 144-160.
[13]. Solvic, P., Finucane, M., peters, E., & Macgregor, D. G. (2002). The affect heuristic. In T. Gilovich, D. Griffin, & D. Kahneman (Ed.), The psychology of intuitive judgement (pp. 397-420). New York: Cambridge University Press.
[14]. Thayer, F. (1996). Balanced Budget and Depressions. American Journal of Economics and Sociology, 55(2).