Investors' sentiment measures

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Abstract

The Investors' sentiment can be defined as investors' attitude and opinion towards investing in the Stocks. The aim of this study is to analyse the individual investors' sentiment and analyses the influence of Market Specific Factors on investors' sentiment. The Investor's attitude towards investing is influenced by rumours, intuition, herd behaviour among investors and media coverage of the stock. A simple random sample of 375 Investors in Tamil Nadu were chosen for the study. The sample Investors were administered a structured Schedule containing pre-validated scales to measure the Investor Sentiment. Once the constructs were found to be both reliable and valid, the impact of Risk and Cost factors, performance factors and confidence level of Institutional Investors, Best Game in Town factors were tested using bootstrapping method. The Market Specific Factors had a significant impact on the Investors Sentiment.

Key Words: Investors' Sentiment, Boot Strapping, PLS Path Modeling, Performance Factors, Risk & Cost, Best Game in Town.

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Introduction

The Investors' sentiment has been a subject of interest in the finance literature for a number of years. However, the debate as to the effects and relevance continue unabated. One could broadly define investors' sentiment as the beliefs about future cash flows or discount rates that are not supported by the prevailing fundamentals (Lemmon and Portniaguina 2006 and Baker and Wurgler 2006).

The study of market or investors' sentiment has its basis in the theories of noise trader models. (Kyle 1985) and (Black 1986). Both experts suggested that, if some trader's trade on 'noisy' signals, unrelated to fundamental data, then the market prices can deviate from intrinsic value. The noise trader sentiment can persist in financial markets. They argue that *changes* in noise trader sentiment must be difficult to predict to avoid arbitrage. The assets that are disproportionally exposed to noise trader risk are both riskier and have to offer an extra return premium. (DeLong, Shleifer, Summers, and Waldmann, 1990)

The research in behavioural finance is comparatively less in India, when compared to other foreign countries. Behavioural finance is defined by Shleifer, A (1999), "a rapidly growing area that deals with the influence of Psychology on the behavior of financial practitioners". Within behavioural finance it is assumed that information structure and the characteristics of market participants systematically influence individuals' investment

decisions as well as market outcomes. The behavioral finance mainly focuses on how investors interpret and act on micro and macro information to make investment decisions. The globalization of financial markets has been increasing the retail investors' community over the past two decades by providing a wide variety of market and investment options. However, it makes much more complex in their investment decisions process.

The retail investors generally consider their investment needs, goals, objectives and constraints in making investment decisions, but it is not possible to make a successful investment decision at all times. Their attitude is influenced by variety of factors such as dividend, get rich quickly strategy, stories of successful investors, online trading, investor awareness programme, experience of other successful investors etc. A better understanding of behavioral processes and outcomes is important for financial planners because an understanding of how investors generally respond to market movements should help investment advisors in devising appropriate asset allocation strategies for clients. (Hussein et al 2006).

Are the Investors' Rational?

According to the traditional market theories, not only the markets do not behave neatly, but also the individual decision makers do not behave in accordance with the tenets of expected utility theory. **Allais Paradoxes** (1959) undertook the earliest works that neither the markets nor the individual decisional makers behave neatly. **Kahneman and Tversky** (1979), **Machina** (1982) and others have looked at how people make choices under uncertainty. They studied human behaviour traits that violate the axions of the expected utility maximizing model of financial economics.

It is to be noted that the investors also show sensitivity to reference points. When a certain purchased stock's price falls because of disappointing news, many investors are

averse to selling it at a loss. Here the reference point is the original cost of purchase. The investors have a tendency to hold on to their losses. But some investors wait in anticipation of the stock price would return to their purchase price before they decide to sell it without rationally evaluating the situation. The investors generally 'hate to lose'.

The various studies have been conducted in other countries but there is no comprehensive study covering Investors' Sentiment on Equity in India. Further the study of this nature should be conducted at periodical interval as investors attitude do change from time to time. Hence this study attempts to find out the Impact of Investors' Sentiment on the Equity Market.

Literature review

The following are the select earlier Research Studies conducted in the area of Behavioural Finance. The literature on investor's sentiment is still in its infancy, and much remains to be discovered and learnt about the roles of investor sentiment in financial markets. The first few papers develop proxies of sentiment and show that stocks become overpriced (underpriced) during periods of high (low) sentiment, which leads to predictable subsequent returns **(Baker and Wurgler (2006, 2007)**, **Lemmon and Portniaguina (2006)** and **Qiu and Welch (2006)**.

Peter Roger Eiving (1970) carried out a study to identify those factors which motivate (or) guide the investment decisions of the common stock investors. The study identified the factors (i) Income from dividends (ii) rapid growth (iii) purposeful investment as a protective outlet of savings (iv) Professional investment management. **Shanmugam** (1990) studied a group of 90 investors to examine the factors affecting investment decision. The study focused its analysis on the investment objective and the extent of awareness on factors affecting investment decision. The study found that the Indian investors are high risk takers. Investors

possessed adequate knowledge of government regulations, monetary and fiscal policy. **Warren, et. al., (1996)** attempted to develop lifestyle and demographic profiles of investors based on the value and types of investment holding. **Krishnan and Booker** (2002) analyzed the factors influencing the decisions of investors' who basically used analysts' recommendations to arrive at a short-term decision to hold or to sell a stock. **Merikas et. al.,** (2003) analyzed the factors influencing Greek investor behaviour on the Athens Stock Exchange. The results indicated that individuals base their stock purchase decision on economic criteria combined with diverse other variables. **Glaser, et. al.,** (2009) tested whether individual investor sentiment was related to daily stock returns by using vector auto regressive models and Granger causality tests. According to this study, there exists a mutual influence between sentiment and stock market returns, but only in the very short-run (one and two trading days). The returns have a negative influence on sentiment, while the influence of sentiment on returns is positive for the next trading day. The influence of stock market returns on sentiment is stronger than vice versa. **Iihara, Kato and Tokunaga (2001)** document herding behaviour in various investors' classes on the Tokyo Stock Exchange. The money-flow instruments allow the separation of the measurement of sentiment from measurement of asset returns**. Barberis and Shleifer (2001)** argued that herding may take place in subsectors of the equity universe, not simply with respect to the stock market as a whole. It is found that flows into and out of foreign mutual funds is negatively correlated with flows to domestic equity funds. **Elton et al. (1998)** indicates that investor sentiment does not exist even in a market whose environment was expected to be more prone to investors' sentiment than in other developed markets. **Sachithanantham et al. (2007)** studied the relationship between capital market reforms and amount of money invested by the investors. It was found that the educative reforms and attractive reforms were statistically

significant but they had negative influence over money invested by the investors at the Indian Capital Market.

The primary objective of this paper is to collect and analyze data on individual equity investor and identify the Market specific factors that influence investors' sentiment.

Theoretical framework and hypothesis

According to E. Bennet and M. Selvam, 2010 SPERTEL Risks had influence on the Value of Equity Shares. The Market Factors had influence over the Stock Selection Decision of Retail Investors (E. Bennet, M. Selvam and G.Indhumathi, 2010). The Market Factors had influence over the Attitude of Retail Investors towards investing in the Equity Stocks (E. Bennet and M. Selvam et al 2010).

Most of the Investors expect the stock prices to go up to a degree greater than most of their investments. If the market has gone down, they think it will rebound. If the market is up, they think it will go further. In either case they make investment decision on account of the assumption that the stock market will give better returns. Hence the following hypothesis is formulated.

Risk and Cost factor: The individual investors identified two factors as most important for cutting down the cost and to improve the efficiency at the corporate level. The first one is cost cutting at the operations level and the second being technological advancement. Similarly they also identified two aspects of risk that influenced the investor's attitude. First investors believe that higher the risk higher the return. Hence they admit that they are taking more risk than ever before and secondly investor's view the stability and the able governance of the Government as an important factor influencing their faith in the Stock market.

Performance Factor and Confidence Level of Institutional Investors: The overall performance of the Indian Economy, Indian Stock Market and the corporate world were identified one of the important factor that would influence the Individual Investors to invest in the Stock market. The overall confidence level of the Institutional investor was also considered as another factor.

Best Game in Town: Almost all investors felt that among all the investment avenues available like Post office savings, Life Insurance, Treasury Bills, Chit Funds etc, is very low when compared to equity investment. Hence this is one of the reasons for mass participation in stock investing. This makes stock market as the only place attractive to invest and for some investors it has become a national pastime.

> **H_1:** The Investor's expectation of stock prices rising for the next 12 months is likely to be influenced by Risk and Cost factor, Performance Factor and Confidence Level of Institutional Investors, Best Game in Town.

Methodology of the study

Data collection and instrument administered

The instrument used for this study consists of four constructs namely Herd Behaviour of Investors, Internet Led Access to Information and Trading, Macro Economic Factors and Stock Prices rising for the next twelve months. These four constructs are measured using an already validated instrument developed by Shiller's (1999) and Vandana Singhvi (2001).

Sources of Data: The research design for the study is descriptive in nature. The researcher depended heavily on primary data. The required data were collected from the retail

investors living in Tamil Nadu through a structured Interview Schedule. The study was conducted during the period between May and September, 2010.

Sampling Size and Procedure: In order to collect information from the retail investors, the sampling design has been carefully decided and properly chosen for the study. The sample size covered 400 retail investors who were spread through ten different investment centres in Tamil Nadu. The important places where large investors are available are identified as Investment Centres for this study using purposive sampling method. The ten important places in Tamil Nadu include Chennai, Coimbatore, Trichy, Madurai, Karaikudi, Kumbakonam, Hosur, Tirunelveli, Erode and Tiruppur. From each identified investment centre, five approved stock brokers were chosen and eight investors were contacted with the help of brokers. However, on a detailed scrutiny of the filled in Schedules, it was found that 25 of them had given incomplete information and hence the responses could not be used for further analysis. Thus, this study is based on 375 selected respondents of the retail investors.

Variables

a. This study consists of the following dependent variables

   i. Stock prices in India will rise in the next 12 months.

   ii. I will stay invested in the Indian Stock Market even during Crisis.

   iii. I plan to increase my investment in the Indian Stock market in the next 12 months.

b. ***Independent Variables****:* Identifying the Market Specific Factors influencing Investor Sentiment

   The in-depth interviews and secondary research identified three multi-item market specific factors that possibly influence on investor's attitude towards investing. In the

survey, the sample respondents were asked to rate each item on a one (not important) to seven (very important) point scale indicating the extent to which they thought each of the item is likely to influence the individual investor's attitude towards investing. The idea was to get the relative importance of market factors likely to influence investors' sentiment. This rating was used to list the independent market variables that could impact investors' sentiment. The three multi-item market specific factors are Herd Behaviour of Investors', Internet led access to information and Trading and Macroeconomic factors

Risk and Cost factor: Investors' believe that higher the risk higher the return. Hence they admit that they are taking more risk. (Alpha = 0.841)

Performance Factor and Confidence Level of Institutional Investors: The overall confidence level of the Institutional investor was also considered as another factor. (Alpha = 0.769)

Best Game in Town: Almost all investors felt that among all the investment avenues stock investment has considered to be the best avenue. (Alpha = 0.821)

It is to be noted that after data collection, the scales are analyzed to test purification of scales, reliability of scales, unidimensionality of scales and validity of the scales. The purification is done using Corrected Item Total Correlation (CITC), reliability is tested using Cronbach's alpha while validity and unidimensionality are tested using PLS path modeling.

Before any type of factor analysis is done (Exploratory Factor Analysis, EFA or Confirmatory Factor Analysis, CFA), it is essential to purify the measuring instruments of variables that do not correlate to the constructs (Churchill, 1979). The purification is carried

out by inspecting the CITC values of each variable with respect to the construct to which it belongs. CITC indicates whether the variable actually belongs to the construct or not. Variables showing scores lower than 0.5 are deleted, unless there is a compelling reason to keep them in the construct. Some items with CITC values over 0.5 can also be removed if the overall reliability of the construct in question improves as a result of the deletion (obtained by checking the 'alpha if deleted' scores). Reliability of constructs refers to the accuracy with which the constructs repeatedly measure the same phenomenon without much variation. The reliability of each construct in question is examined using Cronbach's alpha (Cronbach, 1951). An alpha score larger than 0.7 is generally acceptable as sufficient accuracy for a construct (Nunnally**,** 1978). After purifying the constructs one by one, we arrive at the purified scales for the constructs, each of which is sufficiently reliable.

Unidimensionality is a common trait exhibited by all the indicator variables of any given construct (McDonald, 1981; and Hattie, 1985). Unidimensionality is best measured by CFA. A combination of CFA and path analysis is structural equation modeling. This is the best method of measuring the unidimensionality of any construct. In this research we use structural equation modeling to test the unidimensionality of the constructs. There are two approaches to structural equation modeling— covariance methods and PLS path modeling. Covariance methods make rigid assumptions about the distribution of variables (multivariate normality) and the sample size (at least 200). Another criterion is the degrees of freedom, which means that each construct should have at least three indicators for it to be identified. This makes them unsuitable for use in this research. The PLS methods, on the other hand, are nonparametric in nature. They do not make any assumptions about the distribution of the data, and the sample size needed for model validation and testing (5-10 times the largest number of indicators/construct in the model) is much smaller. The convergent validity of

each construct is checked by examining the Average Variance Extracted' (AVE) values. Constructs which have AVE values greater than 0.5 are said to have convergent validity or unidimensionality. In some cases, values up to 0.4 are also considered if they are central to the model (Chin, 1995 and 1998; Chin and Newsted, 1999; and Chin *et al.*, 2003). Discriminant validity of constructs is ascertained by comparing the AVE scores of the two constructs with the square of the correlation between the two constructs. If both the AVE values are larger than the square of the correlation, the constructs can be considered to show discriminant validity (Fornell and Larcker, 1981). The large-scale validation results on each of the constructs - Risk and Cost factors, performance level and confidence level of Institutional Investors, Best Game in Town and Stock Prices rising for the next twelve months. For each construct the instrument assessment methodology described above has been applied.

Analysis of investor's sentiment

The Dependent Variable construct is purified using the CITC Values which is shown in **Table 1**. All the indicators have CITC values are larger than 0.5, so no indicators are removed from the analysis. The reliability score of 0.732 indicates good reliability of the construct. The Unidimensionality of the construct is measured using Visual PLS Software. The AVE Value of 0.545 (shown in Table 5) indicates good convergent validity and hence Unidimensionality.

The Risk and Cost factors construct is also purified using the CITC Values (shown in **Table - 2**). All the indicators have CITC values larger than 0.5, so no indicators are removed from the analysis. The reliability score of 0.841 indicates good reliability of the construct. The Unidimensionality of the construct is measured using Visual PLS Software.

The AVE Value of 0.643237 (shown in **Table - 5**) indicates good convergent validity and hence Unidimensionality. **The performance level and confidence level of Institutional Investors** construct is purified using the CITC Values (shown in **Table - 3**). All the indicators have CITC values larger than 0.5, so no indicators are removed from the analysis. The reliability score of 0.769 indicates good reliability of the construct. The Unidimensionality of the construct is measured using Visual PLS Software. The AVE Value of 0.726525 (shown in **Table - 5**) indicates good convergent validity and hence Unidimensionality. **The Best Game in Town factors** construct is purified using the CITC Values (shown in Table 4). All the indicators have CITC values are larger than 0.5, so no indicators are removed from the analysis. The reliability score of 0.821 indicates good reliability of the construct. The Unidimensionality of the construct is measured using Visual PLS Software. The AVE Value of 0.640461 (shown in **Table - 5**) indicates good convergent validity and hence Unidimensionality.

Causal model and hypothesis testing

The causal effect of Risk and Cost factor, Performance factor and Confidence Level of Institutional Investors and Best Game in Town Factors on Stock Prices rising for the next twelve months is tested using Visual PLS path modeling software. A rigorous test of the significance of various proposed relations can be tested using the bootstrap function in Visual PLS. PLS path modeling is a nonparametric method, and as such cannot be used for performing a *t*-test. But it is possible to use resampling methods (bootstrap and jack knife) to obtain the significance of the various paths in the model. Bootstrap is more reliable in estimating the significance of paths (Chin, 1995). So, this research has considered and used bootstrap for the purpose of determining causal relations proposed in the model. In the

bootstrap used in this research, random samples comprising 375 respondents were taken, and 500 such samples were taken into consideration (to get the best estimates, a resample number of 500 is recommended although in theory an infinite resample is needed for the purpose). The results were examined for significance. At 5% level of significance the cut off *t*-statistic is 1.96. In general, we assume that if the *t*-statistic is more than two, the path is significant.

> *H_1: Investor's expectation of stock prices rising for the next 12 months is likely to be influenced by Risk and Cost factors, Performance factors and Confidence level of Institutional Investors and Best Game in Town factors.*

The hypothesis was found not to be significant for Risk and Cost Factors (beta = 0.278, *t* = 5.180) and significant in the case of Performance factors and Confidence Level of Institutional Investors (beta = 0.364, *t* = 7.260), Best Game in Town Factors (beta = 0.378, *t* = 7.392)

This proves that Investor's expectation of stock prices rising for the next 12 months is likely to be influenced by both Performance factors & Confidence Level of Institutional Investors and the Best Game in Town factors.

Conclusion

This research paper tested the reliability and validity of four constructs. The constructs were found to be both reliable and valid. It was found that Investor's expectation of stock prices rising for the next 12 months is likely to be influenced by influenced by both Performance factors & Confidence Level of Institutional Investors and the Best Game in Town factors.

Figure 1

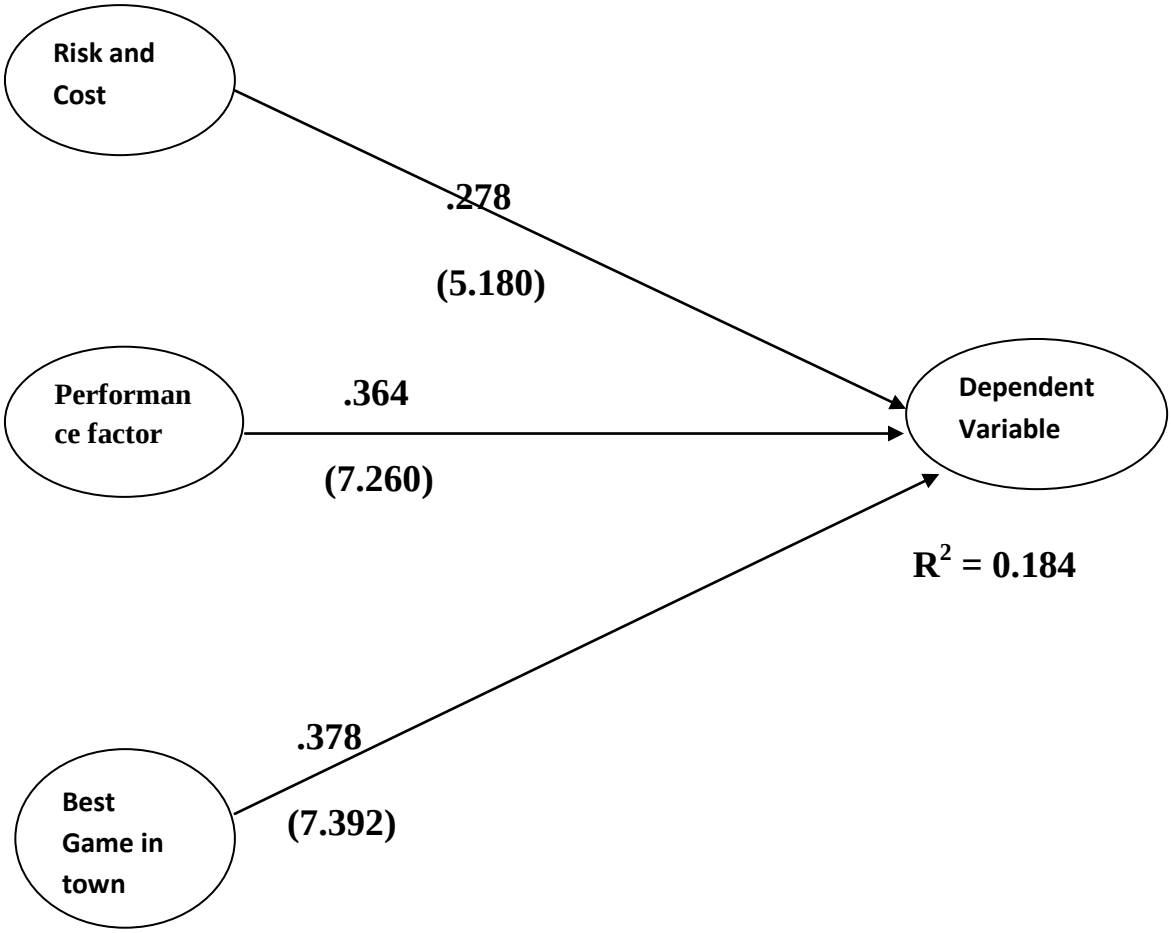

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Table 1 - Dependent Variables	**Corrected Item-Total Correlation 1**
Stock prices in India will rise in the next 12 months	.832
I will stay invested in the Indian Stock Market even during Crisis.	.716
I plan to increase my investment in the Indian Stock market in the next 12 months.	.762
Cronbach's alpha	**.732**

Table 2- Risk and Cost Factors	**Corrected Item-Total Correlation**
Political Stability	.714
Investors' tolerance for risk	.724
Technological advancement at Company Level	.819
Cost cutting at the operations level	.769
Cronbach's alpha	**.841**

Table - 3 Performance factors and Confidence Level of Institutional Investors	**Corrected Item-Total Correlation**
Confidence level of Institutional Investors	.714

Strength of Indian Economy vs major economies	.648
Performance of the Indian Stock Market	.724
Confidence level of Institutional Investors	.665
Cronbach's alpha	**.769**

Table - 4 Best Game in Town	**Corrected Item-Total Correlation**
Can't depend on Provident Fund / Gratuity/ Post Office Savings etc	.778
Low rate of return in Government Bonds	.683
Target Savings Rate	.892
Cronbach's alpha	**.821**

Table - 5 Validity of Constructs (AVE Scores)	
Dependent Variable	**.545061**
Risk and Cost factors	**.643237**
Performance Factors and Confidence Level of Investors	**.726525**
Best Game in Town	**.640461**
Cronbach's alpha	**.821**