
AN EMPIRICAL ANALYSIS OF INFLUENTIAL FACTORS ON INVESTMENT BEHAVIOUR OF RETAIL INVESTORS' IN INDIAN STOCK MARKET: A BEHAVIOURAL PERSPECTIVE"

E.Vijaya

Research Scholar

Osmania University

Hyderabad

Telangana-500080

ABSTRACT

Traditional finance theories such as Capital Asset Pricing Model, Efficient Market Hypothesis and Modern portfolio theories presumes that markets are efficient, people make rational decisions to maximise profits. But recent studies on individual investors' behaviour have shown that people do not act in a rational manner, rather several factors influence their investment decisions in the stock market. This paper aims at identifying the factors influencing the retail investor's behaviour in Indian stock market. In this study, Principal Component analysis is used to find out the determinants of individual investment behaviour. The present study has identified five major factors that can influences retail investor's investment behaviour in Indian stock market. They are Overconfidence, Anchoring, Loss Aversion, Herd behaviour and Market factors. The findings will be useful for investors to understand common behaviours, from which justify their reactions for better returns and also helpful to the financial planners to device appropriate asset allocation strategies for their clients.

Key words: Behavioural Finance, Herd behaviour, Mental Accounting, Regret Aversion, Loss Aversion.

JEL Classification: G02, G11

1. Introduction

Studies of different types of investors over the past 20 years shows that equities have done exceedingly well with returns of 15%. Yet whenever we ask investors about their investment performance, the majority says that equity investments are risky and they have lost money in the stock market. They always curse the volatility and blame it for their losses. Even well-educated investors with an above average IQ do not do well in the stock market. It's a paradox that while equity investments have done well, investors have done poorly.

Recent studies on individual investor behaviour have shown that investors do not act in a rational manner, rather several factors influences their investment decisions in the stock

market. In this context, the main purpose of this paper is to analyse the determinants of individual investor behaviour in Indian stock market. An empirical study is conducted to analyse the factors influencing the investment behaviour of individual investors.

1.1 Statement of the problem

Due to the positive correlation between stock markets & economy, the rise of stock market will positively affect the development of the economy. The relationship between various cognitive and behavioural factors and individual investment behaviour has been one of the most discussed and explored issues among the financial economics and applied finance researchers worldwide. A large number of research studies were undertaken to understand the nature of individual behaviour in financial markets, but most of them were undertaken in the stock markets of USA, UK, Europe and some other developed economies. Not many studies were pursued in Asia especially in India.

Another research concern is the role and importance of individual investors & their trading behaviour in Indian stock market. The researchers in finance tend to give more importance to Institutional investors' behaviour rather than individual investor behaviour. It is believed that trading behaviour of individual investors rarely influences the stock prices. With this perception, majority of the trading strategies and stock market policies are designed & focused to Institutional investors, thereby ignoring the individual investors' interest to a large extent. Therefore the most important question that arises is:

- What factors will influence the investment behaviour of individual investors.
- Whether any psychological biases exist among Indian investors.
- What will be the impact levels of behavioural factors on investment decisions of individual investors?

1.2 Need for the study

Due to severe global crisis, there exist a huge volatility take place in the world financial markets and Indian markets have been no exception. Understanding the stock markets as how it works & what to expect from it, is a huge piece of armour that an individual entering in to the battlefield of stock market can take with him. Extreme moments in stock prices because of fear and anticipation made life tough for a rational investor. Understanding the irrational behaviour deserves more important that it has ever had. Today's investment decisions demand a better understanding of individual investors' behavioural biases. The study of Behavioural Finance shows how cognitive & emotional factors affect the investment decision of an investment & particularly how they affect the rationality in decision making.

1.3 Objectives of the study

1. To identify the broad behavioural factors that determines the retail investors' behaviour.
2. To confirm whether any behavioural factors exist among Indian investors.
3. To study the impact levels of behavioural factors on investment decisions of retail investors.

2. Review of literature

2.1 Behavioural Finance

Behaviour of investor is a part of behavioural finance which seeks to understand and predict systematic financial market implications of psychological decision process. Behavioural

finance closely combines individual behaviour and market phenomenon and uses knowledge taken from both the psychological field and finance theory. (Fromlet, 2001)

2.2 Theories and factors influencing investor behaviour

2.2.1. Heuristic theory

Heuristics are defined as the rule of thumb, which makes decision making easier, especially in complex and uncertain environments (Ritter, 2003, p431) by reducing the complexity of assessing probabilities and predicting values to simpler judgments (Kahneman&Tversky, 1974, p1124). In general, these heuristics are quite useful, particularly when time is limited (Waweru *et.al.*, 2008, p.27), but sometimes they lead to biases (Kahneman& Tversky, 1974, p.1124; Ritter, 2003, p.431). Kahneman and Tversky seem to be one of the first writers studying the factors belonging to heuristics when introducing three factors namely Representativeness, Availability bias and Anchoring. Waweru *et, al.* (2008) also list two factors named Gambler's fallacy and Overconfidence into Heuristic theory.

2.2.1.1 Representativeness

Representativeness refers to the degree of similarity that an event has its parent population (DeBondt &Thaler, 1995, p.390) or the degree to which an event resembles its population (Kahneman&Tversky, 1974, p.1124). Representativeness may results in some biases such as people put too much weight on recent experience and ignore the average long term rate (Ritter, 2003, p.432). A typical example for this bias is that investors often infer a company's high long term growth rate after some quarters of increasing (Waweru *etal.*, 2008, p.27).

2.2.1.2 Anchoring

In financial markets, Anchoring arises when a value scale is fixed by recent observations. Investors always prefer to the initial purchase price when selling or analysing. Thus, today prices are often determined by those of the past. Anchoring has some connection with representativeness as it also reflects that people often focus on recent experience and tend to be more optimistic when the market rises and more pessimistic when the market falls(Waweru *et al.*,2008,p.28)

2.2.1.3 Overconfidence

When people over estimate the reliability of their knowledge and skills, it is the manifestation of overconfidence (DeBondt& Thaler, 1995, p.389). Many studies show that excessive trading is one effect of investors. There is evidence showing that financial analysts revise their assessment of a company slowly, even in case there is a strong indication proving that assessment is no longer correct. Investors and analysts are often overconfident in areas that they have knowledge (Evans, 2006, p.20)

2.2.1.4 Availability bias

Availability bias happens when people make use of easily available information excessively. In stock trading area, this bias manifest itself through the preference of investing in local companies which investors are familiar with or easily obtain information, despite the fundamental principles so-called diversification of portfolio management for optimization(Waweru *et al.*,2003,p.28).

2.2.2 Prospect theory

Prospect theory, which was developed by Kahneman and Tversky (1979), is one of the most often quoted and best documented phenomenon in economic psychology. The theory states that we have an irrational tendency to be less willing to gamble with profits than with losses. Prospect theory showed human behaviour when they face with risk& uncertainty. Prospect

theory describes some states of mind affecting an individual's decision-making processes including Regret Aversion, Loss Aversion and Mental Accounting.

2.2.2.1 Regret Aversion

Regret is an emotion occurs after people make mistakes. Investors avoid regret by refusing to sell decreasing shares and willing to sell increasing ones. Moreover, investors tend to be more regretful about holding losing stocks too long than selling winning ones too soon (Forgel& Berry, 2006, p.107)

2.2.2.2 Loss Aversion

Loss Aversion refers to the different levels of mental penalty people have from a similar size loss or gain (Barberis& Huang, 2001, p.1248). There is evidence showing that people are more distressed at the prospect of losses than they are pleased by equivalent gains (Barberis&Thaler, 2003, p.1077). Moreover, a loss coming after prior gain is proved less painful than usual, while a loss arriving after a loss seems to be more painful than usual (Barberis&Huang, 2001, p.1248). Lehenkari and Pertinent (2004, p.116) find that both positive and negative returns in the past can boost the negative relationship between the selling trend and capital losses of investors, suggesting that investors are loss averse.

2.2.2.3 Mental Accounting

Mental Accounting was coined by Richard Thaler and defined by Thaler (1999) as the "set of cognitive operations used by individuals and households to organize, evaluate, and keep track of financial activities." This result in a tendency for people to separate their money into separate accounts based on a variety of subjective reasons. From own empirical study, Rockenbach (2004, p.524) suggests that connection between different investment possibilities is often not made as it is useful for arbitrage free pricing.

2.2.3 Herd behaviour

Herding in financial markets can be defined as mutual imitation leading to a convergence of action (Hirshleifer and Teoh, 2003). This is the most common mistake where investors tend to follow the investment decisions taken by the majority. The main reason for this is pressure from or influence by peers. The Reliance Power IPO, 2008 is an example of an instance where many investors subscribed without having full information on the issue. Investors apply to herd behaviour because they are concerned of what others think of their investment decisions (Scharfstein and Stein, 1990).

2.2.4 Market factors

DeBondt and Thaler (1995, p.396) state that financial markets can be affected by investors' behaviour in the way of Behavioural finance. If the perspectives of behavioural finance are correct, it is believed that the investors may have over-or under-reaction to price changes or news; extrapolation of past trends into the future; a lack of attention to fundamentals underlying a stock; the focus on popular stocks and seasonal price cycles. These market factors, in turn, influence the decision making of investors in the stock market. Waweru et al., (2008, p.36) identifies the factors of market that have impact on investors' decision making: price changes, market information, past trends of stocks, customer preference, over and under reaction to price changes and fundamentals of underlying stocks.

In general, market factors are not included in behavioural factors because they are external factors influencing investors' behaviour. However, the market factors influence the behavioural investors and rational investors in different ways, so that it is not adequate if

market factors are not listed when considering the behavioural factors impacting the investment decisions.

Behavioural finance is relatively new field that seeks to combine behavioural and cognitive psychological theory with conventional economics and finance to provide explanations for why people make irrational financial decisions. There are large number of researches in behavioural finance covering the issue of dynamic relationship between individual investor behaviour, trading volume, movement in stock prices, returns and volatility.

A critical analysis of the literature prevailing in the subject clearly depicts that individual investor behaviour acts as an important determinants of movements in stock prices and subsequent returns. This may help in revising the asset pricing theories by incorporating behavioural factors in to the existing theories.

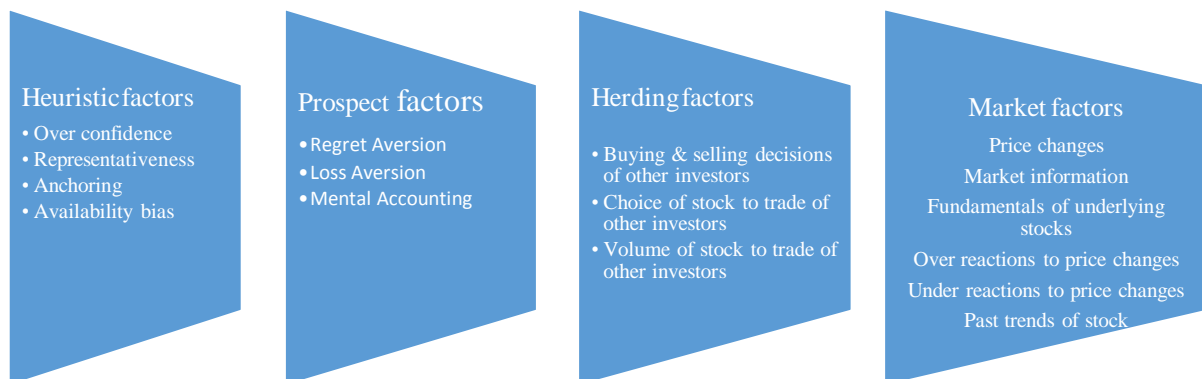
Assessing individual behaviour through Questionnaire survey is a well adopted approach in behavioural sciences research. A large number of researchers adopt this approach to identify the significance of several cognitive, emotional and other factors on individual behaviour.

Nagy and Obenberger(1994), Tomola Marshal obamuyi(2013) have identified 34 contextual factors grouped into 5 categories such as Personal and Financial needs, Accounting information, Neutral information, Firm image and Advocate recommendations have an influence on individual investor behaviour. Dimitrios I. Maditinos, Zeljko Sevic, Nikolas G. Theriou(2007) concluded that individual investors rely more on news papers/ media and noise in the market when making their investment decisions, while professional investors rely more on fundamental and technical analysis and less on portfolio analysis.

Geoffrey Gitau Mwangi (2011) had found that heuristic factors such as Anchoring, Representativeness and Availability bias had more influence on property investment decisions. Lephuc Doan Thi Ha (2011) had conclude that there are five behavioural factors affecting the investment decisions of individual investors such as Herding, Prospect, Overconfidence- Gambler fallacy, and Anchoring and market factors. Abhijeet Chandra and Ravinder Kumar (2011) from their research found that there are some psychological axes such as conservatism, under confidence, prudence, precautious attitude and information asymmetry have an influence on investor decision making. Sohani Islam (2012) had found that psychological factor is the most dominating influence upon investor's decision making process and micro economic factor also have influence on selecting investment securities.

From the above existing literature, it was found that behavioural factors had an influence on the investment decisions of individual investors in the financial markets, especially stock markets. The present study has identify the influence of 9 behavioural factors on investment decisions of individual investors which has shown below:

Table1. Shows Behavioural factors influencing investment decisions of individual investors:



3. Research methodology

3.1 Survey instrument

The study is based on primary data collected through a Questionnaire. Questionnaire consists of simple and direct questions in order to avoid any confusion on the part of the respondents. Each question is based on some specific scenario relating to stock market investing and equity investment decision making. The survey questionnaire consists of 2 parts, first part covers personal information and second part covers the behavioural factors influencing investment decisions of retail investors.

The study adopted the five point Likert scales which is appropriate and ideal for survey instrument. The respondents were furnished with scenario based questions to which they were asked to mark their response in a range from 1(strongly disagree) to 5 (strongly agree).The survey questionnaire was finalised after consulting 5 experts, three from academics and two from industry professionals.

3.2 Sample data

Data was collected through a survey of about 200 individual retail investors who were residing in twin cities i.e. Hyderabad and Secunderabad in India. The study was conducted during the period January 2014 to June 2014. The sample was drawn from the clientele, one of the leading stock brokerage houses, friends and relatives. In order to collect information from retail investors, the present study adopted convenient random sampling technique.

3.3 Data analysis

In the present study, the data collected was processed and analysed by SPSS software. At first, the data was cleaned by removing the questionnaire with poor quality such as including too many missing values or bias ratings. Then statistical techniques include Factor analysis and Cronbach's Alpha test were applied to the data. The reliability of each constraint and its specific dimension was appraised using Cronbach's coefficient. The cronbach's Alpha method allows us to measure the reliability of different categories. The Principal Component Analysis method suggests that the number of components extracted is equal to number of variables analysed, necessitating that it is to be decided just how many of these components are truly meaningful and worthy of being retained for rotation and interpretation. In general

the first few components will account for meaningful amounts of variance and that later components will tend to account for only trivial variance. The next step of analysis is therefore, to determine how many meaningful components should be retained for interpretation. The following criteria are generally used for the purpose:

- a) Eigen value
- b) The Scree test
- c) The proportion of variance accounted for.

The Eigen value which is also known as Kaiser Criterion is one of the most commonly used criterion to retain the number of components for rotation and interpretation. Secondly, with Scree test, the Eigen value associated with each component are plotted in a graph and observe for a break between components with relatively large Eigen values. The components that appear before the break are assumed to be meaningful and retained for interpretation. According to the third criterion, the components that accounted for a specified proportion of variance in the data set. On the basis of the criteria mentioned above, the component matrix is formed for further Orthogonal rotation using Varimax rotation algorithm which is standard rotation method. Descriptive statistics (mean, median, mode, variance, standard deviation) are used to describe the influence level of behavioural factors on investment decisions of investors. However only behavioural variables that remain after the exploratory factor analysis and Cronbach's Alpha test are put into consideration.

4. Results of the study

4.1 Factor Analysis of Behavioural variables influencing the individual investors

The questions from 14 to 50 of the questionnaire, which are coded from X1 to X37 are designed to explore the influence levels of behavioural factors on individual investment decisions. The exploratory factor analysis is used for the behavioural variables(X1 to X37) to identify the factors which these variables belong to. The requirement of Factor Analysis is to reduce the variables. After some rounds of removing the unsuitable variables, the analysis results that the remaining variables are grouped in to 5 factors at the Eigen value = 1.426, KMO =0.724(Sig=0.000), % of total variance explained = 61% and all the factor loadings are more than 0.5. These indexes prove that Factor Analysis for these variables is totally suitable and accepted.

Table 2. Shows the results of KMO and Bartlett's Test of Sphericity

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.611
Approx. Chi-Square	1504.399
Bartlett's Test of Sphericity	Df
	666
	Sig.
	.000

Table 3. Shows Factor loadings of Behavioural Factors

Factor	Variables	Factor Loadings			
		F1	F2	F3	F4
Herding	X23:My selection of stock type depends on others investment decisions	.834			
	X24:Other investors' decisions of stock volume have an impact on my investment decisions	.849			
	X25:Other investors' decisions of buying and selling stocks have an impact on my investment decisions	.797			
	X26:I usually react quickly to the changes of other investors' decisions	.818			
Heuristic Overconfidence Anchoring	X1: Knowledge of stocks is important to make investments in stock market		.844		
	X3:Confidence investors select stocks appropriately		.635		
	X6:I can forecast the change in stock prices based on recent stock prices	.740			
	X8:I will choose the target price for buying/selling before commencing a transaction		.622		
Prospect Factors Loss Aversion	X27:A positive return in the past leads to high risk taking attitude towards stock investments			.649	
	X28:A negative return in the past leads to more risk averse attitude towards stock investments			.795	
Market factors	X34: I overreact to price changes of stocks that I propose to invest in	.835			
	X35: I underreact to price changes of stocks that I expect to invest in	.797			

(Extraction Method: Principal component Analysis) (Rotation method: Varimax with Kaiser Normalization)

Table 3 shows that the variables of Herding, Prospect and Market are grouped in to only one respectively related factor; whereas, the Heuristic variables belongs to two factors: Overconfidence and Anchoring. Therefore the study shows that there are five behavioural factors that have an influence on investment decisions of retail investors in Indian stock market. In Herding, all four original variables are kept after the factor analysis. Only two of eight original Prospect items are accepted by factor analysis. In Heuristic, only four of nineteen original items are remained after factor analysis.

4.2 Reliability measurement test using Cronbach's Alpha

Cronbach's Alpha is used to test the reliability of items included in the factors. This test is conducted to ensure that the measurements are reliable for further use.

The results of Cronbach's Alpha test are shown in Table 4:

Factors	Variables	Cronbach's Alpha	Corrected Item total Correlation	Cronbach's Alpha if item deleted	F(sig)
Overconfidence	X1	.61	.39	-	0.012
	X3		.37	-	
Anchoring	X6	.612	.445	-	0.000
	X8		.445	-	
Loss Aversion	X27	.633	.47	-	0.048
	X28		.47	-	
Market factors	X34	.782	.642	-	0.04
	X35		.642	-	
Herding	X23	.872	.753	.828	0.013
	X24		.773	.818	
	X25		.680	.855	
	X26		.714	.841	

(Source: Survey data)

Table 4 shows that Cronbach’s Alpha values of all factors are greater than 0.6 and the corrected item total correlation of all factors are more than 0.3. Besides, Cronbach’s Alpha of each factor if it’s any item deleted is less than the factor’s Cronbach’s Alpha, as well as the significant of F test for each factor is conducted to make sure the suitability of using Cronbach’s Alpha technique for the data is less than 0.05. These indexes shows that items included in the factors: Herding, Overconfidence, Anchoring, Loss Aversion and Market are reliable enough for further use.

4.3 Impact levels of Behavioural factors on individual investment decisions

To evaluate the impact of behavioural factors, their mean value are taken as the basis which can decide their impact levels on investment decisions of investors with following rules:

- Mean values are from 2 - 3 shows that the variables have low impact
- Mean values are from 3 – 4 shows that the variables have moderate impact
- Mean values are more than 4 show that the variables have high impact

4.3.1 Impact of Heuristic variables on investment decision making

Factors	Variables	Mean	Standard deviation
Overconfidence	X1: Knowledge of stocks is important to make investments in stock market	4.66	.588
	X3: Confidence investors select stocks appropriately	3.81	.717
Anchoring	X6: I can forecast the change in stock prices based on recent stock prices	3.97	.943
	X8: I will choose the target price for buying/selling before commencing a transaction	3.48	1.083

(Source: Survey data)

Overconfidence and Anchoring are the Heuristic variables. Results shows that the variable of Overconfidence: Knowledge of stock market is important to make investments in stock market has high impact (mean= 4.66) on individual investment decision making. This findings strongly support the studies of Allen and Evans (2005, p.108), Gervais, Simon and Odean (2001, p.1) which suggest that people usually believe in their skills and knowledge to outperform the market. Another variable of Overconfidence: Confidence investors select stocks appropriately has moderate impact (mean= 3.81) on individual investment decisions. It can be explained that Indian stock market is an emerging financial market & its trend fluctuate complexly. It can go up or down regardless the performance of the listed companies that issue the stocks. For example, during 2006-2008 and the present study period Jan 2014 – June 2014, prices of all stocks increased although some companies were not profitable, whereas, stocks of profitable companies continues to decrease. This makes the investors less confident of their decisions. Variable of Anchoring: I can forecast the change in stock prices based on recent stock prices has moderate impact (mean= 3.97) on individual investment decisions, shows that individuals depends on recent prices to forecast future prices. Another variable of Anchoring: I will choose the target price for buying/ selling before commencing a transaction has moderate impact(mean= 3.48) on individual investment decisions.

4.3.2 Impact of Prospect variables on investment decision making

Factors	Variables	Mean	Standard deviation
Loss Aversion	X27:A positive return in the past leads to high risk taking attitude towards stock investments	3.88	.898
	X28:A negative return in the past leads to more risk averse attitude towards stock investments	3.87	.744

(Source: Survey data)

The variables of Loss Aversion has moderate impact on individual investment decisions. The results shows that to some extent, after a gain, the investors at Indian stock market become more risk seeking whereas after a loss, they tend to be more risk averse. These are normal reactions of investors because the previous investment success encourage them so much whereas the failure surely depresses them a lot. However, loss aversion is not always a good strategy because of the principle “high risk-high return”. Odean (1998, p.1899) also argue that loss aversion may produce bad decisions, which may influences investors’ wealth.

4.3.3 Impact of Herding on Investment decision making

Factors	Variables	Mean	Standard deviation
Herding	X23:My selection of stock type depends on others investment decisions	3.5	1.368
	X24:Other investors’ decisions of stock volume have an impact on my investment decisions	3.24	1.201
	X25:Other investors’ decisions of buying and selling stocks have an impact on my investment decisions	3.5	1.092
	X26:I usually react quickly to the changes of other investors’ decisions	3.54	1.204

Variables of Herding has moderate impact on individual investment decisions. Investors are more or less tend to consider the other’s behaviour of choosing type of stock (mean= 3.5), stock volume for trading (mean=3.24) as well as others’ decisions of buying and selling stocks (mean= 3.5).It shows that investors react moderately to the changes of other investors’ decisions (mean= 3.54).

4.3.4 Impact of Market factors on investment decisions

Factors	Variables	Mean	Standard deviation
Market	X34: I overreact to price changes of stocks that I propose to invest in	3.64	1.128
	X35: I underreact to price changes of stocks that I expect to invest in	3.52	1.145

Variables of market factor have moderate impact on individual investment decisions. Both the variables: Overreaction to price changes has moderate impact (mean= 3.64) & under reaction to stock price changes also has moderate impact (mean=3.52) on individual investors’ investment decisions.

5. Conclusions

The results of Principal Component Analysis reveals that there are five behavioural factors influencing the investment decisions of individual investors in Indian stock market: Overconfidence, Anchoring, Loss Aversion, Herding and Market factors. Among the 5 behavioural factors variable of Overconfidence: Knowledge of stocks is important to make investment in stock market has high impact and variables of other factors have moderate impact on retail investors' investment decision in Indian stock market. The findings shows that individual investors should be overconfident at an acceptable levels to utilize their skills and knowledge in certain circumstances to improve the investment results. Under uncertainty situation, knowledge of the market can be useful for the investors to do difficult tasks and help them to forecast the future trends.

The present study is an investigation into individual equity investors and not institutional investors. The study chose a small sample randomly for a specific region, it is necessary to have further research studies to confirm the findings of this research with large sample size and more diversity of respondents. The further research studies are also suggested to apply behavioural finance to explore the behavioural factors of institutional investors at the Indian stock exchange. Behaviour of institutional investors, as an important stakeholder group can also create sense of urgency for higher level of organizational change.

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