

Effect of Overconfidence on Investment Decisions: A Behavioural Finance Approach

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ABSTRACT

Behavioural finance speaks about the irrational behaviour of investor. Markowitz, Fama and Samuelson pioneered thinking in traditional finance in the fifties and sixties. Later on, objections were raised on the assumption of rationality of investors. One actual behavioural trait exhibited by investors, which is far from being rational, is overconfidence. The present paper investigates into the existence of overconfidence among investors, and its effect on investment decisions taken by them. This paper focused on the investors overconfidence and effect of over confidence on their investment decisions and reported significant levels of overconfidence that can affect investment decision. The study was conducted in Bangalore, India. Sample for this study consists of informed individuals, who trade or monitor the stock market regularly. The study showed that investors are over confident and overconfidence hasan effect on their investment decisions.

Keywords: Behavioural Finance, Over Confidence, Investment Decisions.

INTRODUCTION

Behavioural finance has been emerging as a significant discipline in academia as it speaks about the irrational behaviour of investors. In October 2002, the Nobel Prize in economics was awarded to Daniel Kahneman and Vernon Smith (both are considered as behavioural finance pioneers), for their work in experimental economics and psychology from the area of decision-making. Although the validity and acceptability of behavioural finance is increasing, there is still difference of opinion among the scholars regarding the validity of behavioural finance theory.

During the 1960s the foundation of standard finance evolved from the concepts known as Modern Portfolio Theory (MPT) and the Efficient Market Hypothesis (EMH). For the historical perspective of standard finance, the major two works which could be considered are "The History of Finance: An Eyewitness Account" by Merton Miller (1999) and "The Legacy of Modern Portfolio Theory" by Frank Fabozzi, Francis Gupta and Harry Markowitz [2002].

Behavioural finance attempts to explain and increase understanding of the reasoning patterns of investors, including the emotional processes involved and the degree to which they influence the decision-making process. Essentially, behavioural finance attempts to explain the what, why, and how of finance and investing, from a human perspective (Ricciardi and Simon, 2000). Prospect theory hypothesised that an investor will assess outcomes in terms of gains or losses in relation to a specific reference point instead of the final value within their overall investment portfolio (Schwartz, 1998).

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Behavioural finance is a scientific enterprise trying to understand how markets work. Behavioural models rely on

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actual behaviour found in the lab, tested in the lab, and being true(Thaler, 1999) emphasized the stipulation that behavioural finance scholars develop laboratory experiments in order to test (accept or reject) a specific financial theory.

The central principle of behavioural finance is that an investor makes decisions according to the principles of prospect theory (Kahneman and Tversky, 1979). The major assumption of prospect theory is that investors are more concerned with losses than with gains and as a result a person will assign more significance to avoiding loss than to achieving gain (known as loss aversion) as pointed out by Ricciardi and Simon (2000). Another significant principle of prospect theory is that individuals are concerned more with changes in wealth instead of adjustments in levels of wealth. Further, people weigh probabilities in a non-linear manner; in which small probabilities are overvalued (over-weighted) while changes in middle range probabilities are undervalued (under-weighted). Schwartz (1998) asserts that prospect theory makes the assumption that an investor will assess outcomes in terms of gains or losses in relation to a specific reference point instead of the final value within their overall investment portfolio (Ricciardi and Simon, 2000).

OVERCONFIDENCE BIAS

Overconfidence can be explained as an unwarranted faith in one's perceptive reasoning, judgments and cognitive abilities. The concept of overconfidence has derives from a large body of cognitive psychological experiments and surveys in which subjects overestimate both their own predictive abilities and the precision of the information they've been given.

Most of the investors believe and rate themselves as above average in their investment decisions. Individuals generally tend to overestimate that they are above average in their abilities and they can perform their work very well and have unrealistic high self evaluation.

Research in psychology have identified two major bias that lead to over confidence, self attribution bias and Hindsight bias

REVIEW OF LITERATURE

Ricciardi and Simon (2000)pointedout that behavioural finance attempts to explain and increase understanding of the reasoning patterns of investors, including the emotional processes involved and the degree to which they influence the decision-making process .Behavioural finance attempts to explain the what, why, and how of finance and investing, from a human perspective" In his paper, Ricciardi and Simon has brought various review of existing research, to give an idea to the new research scholar in the area of finance.

J.R. Ritter (2003), provides a brief introduction to Behavioural financein his paper Behavioural finance. The paper focused on research that drops traditional assumptions of expected utility maximisation with rational investors in efficient market. The paper also focused on two building blocks of behavioural finance such as how people think i.e. cognitive psychology and limit to arbitrage. This paper focused more on explaining Cognitive Bias such as Heuristics, overconfidence, mental accounting, framing, repetitiveness, conservatism, disposition effect and limits of arbitrage. The study also focused on the practical application of behavioural finance. The study revealed that behavioural finance is not a separate discipline instead increasingly will become part of the mainstream of finance.

RalucaBighiuQawi (2010)has done an empirical study to understand the investor behaviour bias and effect of irrational decision bias on market performance. This study focuses on the research findings in the area of behavioural finance associated to herding behaviour, thought contagion, risk aversion,and investor sentiments among others. This research involves several investor surveys conducted during 1998 (bullish market) to 2001when there was a sudden fall in the market. The surveys yielded results that were mostly counter-intuitive to the above-thinking and showed that the investors were holding similar attitudes towards long-term investing, the asset allocation between stocks and bonds, buying on down markets and views on risk, willing to take. The result obtained has been analysed by age, gender and income and several differences were observed. This paper concludes that the disparity between

rational approach and behavioural approach can be bridged if the elegant formulas in finance can be tweaked to account for the human factor.

Thaler (1980) argues that there are circumstances when consumers act in a manner that is inconsistent with economic theory and he proposes that Kahneman and Tversky's prospect theory be used as the basis for an alternative descriptive theory. Topics discussed are: underweighting of opportunity costs, failure to ignore sunk costs, search behaviour, choosing not to choose and regret, and recommitment and self-control.

Daniel Kahneman, Jack L. Knetsch, and Richard H. Thaler (2007) in their research paper *Anomalies: discuss three anomalies: the endowment effect, loss aversion and status quo bias*. The Endowment Effect, Loss Aversion, and Status Quo Bias report several experiments that demonstrate that loss aversion and the endowment effect persist even in market settings with opportunities to learn and conclude that they are fundamental characteristics of preferences.

Tversky and Kahneman (1991) in their study *Loss Aversion in Riskless Choice: A Reference-dependent Model*, indicates that choice depends on the status quo or reference level: changes of reference point often lead to reversals of preference. Authors presented a reference-dependent theory of consumer choice, which explains such effects by a deformation of indifference curves about the reference point. The central assumption of the theory is that losses and disadvantages have greater impact on preferences than gains and advantages. Implications of loss aversion for economic behaviour are considered.

Tversky and Kahneman (1992) developed a new version of prospect theory, which they called cumulative prospect theory. It employs cumulative rather than separable decision weights, applies to uncertainties as well as to risky prospects with any number of outcomes and it allows different weighting functions for gains and for losses. The theory which they confirmed by experiment predicts a distinctive fourfold pattern of risk attitudes: risk aversion for gains and risk seeking for losses of high probability; risk seeking for gains and risk aversion for losses of low probability.

Sushil Bikhchandani, David Hirshleifer, and Ivo Welch (1998) in their research "Learning from the Behaviour of Others" have focused on focuses mainly on the case where individuals learn by observing the actions of others. They have proved that Herding may arise when payoffs are similar even if initial information is not. In this case people communicate with each other or observe the actions of others - or the consequences of these actions. The key issue is how individuals determine which alternative is better. Each individual could decide by direct analysis of the alternatives. However, this can be costly and time-consuming, so a reasonable alternative is to rely on the information of others. Such influence may take the form of direct communication and discussion with, or observation of others Conformity, Fads, and Informational Cascades.

Sushil Bikhchandani and Sunil Sharma (2001) *herd Behaviour in Financial Markets overview of the theoretical and empirical research on herd behaviour in financial markets*. It looks at what precisely is meant by herding, the causes of herd behaviour, the success of existing studies in identifying the phenomenon, and the effect that herding has on financial markets.

Eugene F. Fama (1998) in his article *Market efficiency, long-term returns, and behavioural finance* defends the efficient market hypothesis that he famously defined in his first, and claims that apparent overreaction of stock prices to information is about as common as under reaction. This arguments unconvincing, because under- and overreactions appear to occur under different circumstances and/or at different time intervals.

Terrance Odean (1999) *Do Investors Trade Too Much?* Has done an empirical study and demonstrated that overall trading volume in equity markets is excessive, and one possible explanation is overconfidence. He also found evidence of the disposition effect which leads to profitable stocks being sold too soon and losing stocks being held for too long. This paper demonstrated that overall trading volume in equity markets is excessive by showing that it is excessive for a particular group of investors' those with discount brokerage accounts. These investors trade excessively in the sense that their returns are, on average, reduced through trading. Even after eliminating most trades that might be motivated by liquidity demands, tax-loss selling, portfolio rebalancing, or a move to lower-risk securities, trading still

lowers re-turns. Overconfident investors may trade even when their expected gains through trading are not enough to offset trading costs. In fact, even when trading costs are ignored, these investors actually lower their returns through trading. This result is more extreme than is predicted by overconfidence alone.

Paul De Grauwe and Marianna Grimaldi (May 2004) Bubbles and Crashes in a Behavioural Finance Model, simple model of the exchange rate in which agents optimize their portfolio and use different forecasting rules. They check the profitability of these rules ex post and select the more profitable one. In this paper the authors tries to prove that all agents are rational. Paradoxically, assuming bounded rationality for all agents turns out to be less ad-hoc than assuming that some agents are rational and others are not. The assumption of bounded rationality generates a simpler and, therefore, more powerful model.

Livio Stracca (May 2002) In the paper Behavioural finance and aggregate market behaviour: where do we stand? Advocates of behavioural economics and finance argue that economic agents behave in a way which departs significantly and systematically from the axioms of expected utility theory. The paper surveys the main "anomalies" identified by this literature in the light of their possible implications on aggregate market behaviour. In particular, the anomalies are categorised into (i) those derived from cognitive limitations (bounded rationality), (ii) those determined by the interference of agents' emotional state, (iii) those determined by choice bracketing, and (iv) those which suggest that a pre-determined set of preferences does not exist altogether. Moreover, prospect theory is surveyed in particular detail, as it has become a serious challenger to expected utility in economics and finance due to the empirical support, its mathematical tractability and its being consistent with rational expectations. Finally, the paper claims that while convincing evidence against market rationality in the breathe-market sense is yet to be provided, many indications are now available that financial markets may indeed be "irrational" in other reasonable and relevant earnings.

Brad M. Barber Terrance Odean (1999) in their study Boys will be boys, has mainly focused on gender and confidence level of investors. Using account data for over 35,000 households from a large discount brokerage firm, authors analyzed that the common stock investments of men and women from February 1991 through January 1997. Consistent with the predictions of the overconfidence models, it was document that men trade 45 percent more than women thereby reducing their net returns by 0.94 percentage points more a year than do women.

Anwer S Ahamed, Xio-hu Zhang, Greald J Lobo (2000) in their study Do Analysts Overreact Good News and Under react Bad News? A Hazard Model Approach, paper contributes to the analyst recommendation literature in three ways. First, incentive- and cognitive-based processing biases (i.e., cognitive dissonance and conservatism), affect analysts' timing of recommendation revisions. Authors used duration analysis to test directly analysts' under reaction to new information by isolating the effects of incentives and cognitive biases on the timing of their recommendation updates. As a result, this paper is a first step in empirically linking analyst recommendations with information processing biases. Thus, this study identifies factors that may, at least partially, explain the outstanding performance of value portfolios relative to glamour stocks-an anomaly that is pronounced even among stocks that are heavily followed by security analysts. Second, evidence corroborates both incentive-based and behaviour-based hypotheses on analysts' under reaction to new information when issuing recommendations. Specifically, this study focuses on analysts' processing of information to account for reorganization of the representativeness (high or low) of information. Authors adopt Cox proportional hazard model to investigate the timeliness of analysts' responses to new information (O'Brien et al., 2005). Using duration analyses, they have tested whether analysts convey good news through recommendation revisions in a more timely fashion than they convey bad news. The notion of delayed response to the bad news of the incentive-based explanation is not supported. Authors found that analysts delay conveying bad news if they have previously issued favourable recommendations, but they do not delay conveying bad news if they have previously issued unfavourable recommendations.

Chip Heath, Steven Huddart, Mark Lang (1999) in their paper Psychological factors and stock option exercise, have investigated stock option exercise decisions by over 50,000 employees at seven corporations. Controlling for economic factors, psychological factors influence exercise. Consistent with psychological models of beliefs, employees exercise in response to stock price trends-exercise is positively related to stock returns during the preceding month and

negatively related to returns over longer horizons. Consistent with psychological models of values that include reference points, employee exercise activity roughly doubles when the stock price exceeds the maximum price attained during the previous year.

STATEMENT OF THE PROBLEM

Irrational behaviour of investors plays a significant role in their decision making. It is noticeable from the stock market that during January 2008 it has reached to the highest value of 21,000 points and from there it had fallen down to 8300 points in October 2008. Again on November 2010 it further reached 21000 points and from there again came down to 15848.83 points. This study focuses on the reasons for such investment behaviour during and after speculative bubble of 2008 and also the impact of news media, overconfidence and fear of loss in making decisions. Behavioural finance is the unpredictable factor in the otherwise rational system of the sector of finance. The present study attempts to find out the behavioural factors that have caused these changes.

Scope of the Study

This study was conducted among investors from different demographic sections in Bangalore city. The sample consisted of informed investors from divergent groups including IT professionals and business people who are active buyers and sellers in the equity market. Consequently, investors of lock-in period bound mutual funds, passive investors, etc. are excluded.

Significance of the Study

The sector of finance has come to occupy a very prominent position in the current century. Any research in this sector, hence, has a direct bearing on the society. Behavioural finance is the unpredictable factor in the otherwise rational system of the sector of finance. Overconfidence is one of the behavioural bias that can influence the investment decision of the investors. This paper makes an attempt to understand whether overconfidence exists among investors and effect of overconfidence on the investment decisions.

OBJECTIVES OF THE STUDY

1. To identify the existence of the behaviour anomaly, overconfidence among investors
2. To analyze the effect of overconfidence, on the investment decision of informed individual investors

Hypotheses

1. Investors are not overconfident about their investment decisions
2. Overconfidence does not affect the investment decisions of informed individual investors

RESEARCH METHODOLOGY

Stock investors of different age group and gender, from different demographic sections in Bangalore city formed the population under the present study. The sample consisted of informed investors from divergent groups including IT professionals and business people who are active buyers and sellers in the equity market. A sample of 242 investors, who had at least one year of previous investment experience were selected as the sample.

Table-1: Sample Profile

Age	Male	Female	Total
Below 25	8	7	15
26 - 35	46	43	89
36 - 45	68	38	106
46 - 60	9	7	16
Above 60	7	9	16
Total	138	104	242

Independent Variable

Over confidence is taken as independent variable for this study

Dependant Variable

The dependent variable in this study is investment decision.

Sample details

Sample for this study consists of informed individual, who trade or monitor the stock market regularly. Questionnaires were given to 350 respondents out of which 242 questionnaires were considered for the study.

Sampling Technique

Only those investors who trade and monitor the market fluctuations are considered for this study. Data is collected only from such informed investors. Sampling technique used is convenience sampling

Data collection

Primary data were collected through a structured questionnaire. The questionnaire administered to investor respondents consisted of two parts - part one, aimed to evaluate investors' level of overconfidence; part two, to evaluate their investment decisions. The questionnaire was developed based on the variables - overconfidence and investment decisions - identified from previous studies, contextualized into Indian scenario and finalized after discussion with investment and behavioural finance experts.

Tools for Analysis

The data collected were analysed using correlation, regression, and one sample T test

Reliability and validity of estimates were tested using different statistical tools. Chronbach's alpha estimate showed a value of 0.77 indicating high reliability. A pilot study was conducted among 25 per cent of the sample.

RESULTS AND DISCUSSION

Results of the study are presented in two parts: Part One - Overconfidence among investors and Part Two - Effect of overconfidence on investment decision

Part One: Overconfidence among Investors

Levels of overconfidence were evaluated through various questions, attempted to reveal whether the investors were far from being rational. Questions include: efficiency in predicting the stock market, control in selecting the investment, investment sophistication, ignoring negative news, high investment skill, luck, reinvestment of money immediately etc.

One sample t-test was employed to evaluate whether there existed statistically significant levels of overconfidence among the investors. Test value was set as zero, denoting the absence of overconfidence. The results are summarised in Table 1.

Table-1: Levels of Overconfidence among Respondents - One Sample t-test

Overconfidence	Test value = 0					
	t	DF	Significance (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Easy to Predict	42.969	241	0.000	3.186	3.04	3.33
Control in selecting investment	71.135	241	0.000	3.620	3.52	3.72
Investment sophistication	42.561	241	0.000	3.302	3.15	3.45
Negative news report	44.112	241	0.000	3.355	3.21	3.51
High investment skill	59.997	241	0.000	3.562	3.45	3.68
Luck	43.307	241	0.000	3.302	3.15	3.45
Good investor	55.521	241	0.000	3.740	3.61	3.87
Ignore information	40.461	241	0.000	2.810	2.67	2.95

The t-test reveals that the mean response in all the cases was significantly different from the test value at 95 per cent confidence level (Table 1). This shows that there existed statistically significant levels of overconfidence among investors. The finding does raise objections over rationality of investors, as is assumed in traditional finance theories. Investors may take decisions on investments that are far from rational.

Part Two: Effect of Overconfidence on Investment Decision

Attempt was also made to find out whether the levels of overconfidence among investors affect their investment decisions or not. A regression analysis was performed to statistically test the effect of overconfidence on investment decisions of informed individual investors. The results are given below.

Table-1: Descriptive Statistics

	Mean	Standard Deviation	N
Investmentdecision	18.8926	2.81166	242
Overconfidence	22.4380	3.31948	242

Table-2 : Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.455 ^a	.207	.203	2.50950

Table-3: Correlations

		Investment decision	Overconfidence
Pearson Correlation	Investmentdecision	1.000	-.455
	Overconfidence	-.455	1.000
Sig. (1-tailed)	Investmentdecision	.	.000
	Overconfidence	.000	.
N	Investmentdecision	242	242
	Overconfidence	242	242

Table-4 : Coefficientsa

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	Constant	27.533	1.105		24.928	.000	25.357	29.709
	Overconfidence	-.385	.049	-.455	-7.908	.000	-.481	-.289

a. Dependent Variable: Investment decision

Table-5: ANOVAb

Model		Sum of Squares	DF	Mean square	F	Significance
1	Regression	393.789	1	393.789	62.530	0.000 ^a
	Residual	1511.418	240	6.298		
	Total	1905.207	241			

a. Predictors: (Constant).Overconfidence

b. Dependent variable: Investment Decision

The R Square value is 0.207, which means that investors are overconfident with respect to their investment decisions. The relationship between overconfidence and investment decision is found to be statistically significant at 5 per cent level of significance. So, it is concluded that overconfidence of investors did significantly affect the investment decisions of informed individual investors.

Thus, the researchers failed to accept both the null hypotheses. Hence it is concluded that investors are overconfident about their investment decisions and overconfidence do have an effect on the investment decisions of informed individual investors.

FINDINGS AND CONCLUSION

The present study attempted to evaluate the levels of overconfidence among investors. It was also attempted to identify whether overconfidence affect the investment decisions. The findings emerged from the study are as follows. First, investors need not necessarily be rational when it comes to their investments. There existed significant levels of overconfidence in their behaviour that can impact their investment activities. This is against the postulations of traditional finance theories. Second, overconfidence do have an effect on the investment decisions of informed individual investors

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