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An Empirical Study of the United Nilgiris Stock Market

KEY WORDS: Behavioral finance; efficient market; psychological biases; United Nilgiris stock market; multiple correspondence analyses

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ABSTRACT

Behavioral finance attempts to give some explanations to the psychological and emotional factors involved in the stock market and the affect on behavior of investors and the market efficiency. In this paper we study the influence of these psychological and emotional factors on the behavior of United Nilgiris stock market investors. Based on a questionnaire distributed to the investors in the stock market, and by using the Multiple Correspondence analysis, we focus to explain how the behavioral finance can affect stock market. We conclude that persons having a high level of education are subject to behavioral biases, and agents who invest amounts between 1,000 and 20,000 are most vulnerable to behavioral biases.

1. INTRODUCTION

The efficient market hypothesis (EMH) implies that stock prices should fully reflect all the information in the market. Since 1980s, many studies have raised some problems leading to over or under reaction of the market, and then imply the rejection of the efficient market hypothesis. These critics have contributed to the development of the behavioral finance theory.

As the financial economist were assuming that people(investors) behaved rationally when making financial decisions, psychologists have found that economic decision are made in an irrational manner, so they challenge this assumption of standard finance. Cognitive error and extreme emotional bias can cause investors to make bad investment decisions, thereby meaning that they act in irrational manner. Over the past decade, field of behavioral finance has evolved to consider how personal and social psychology influence financial decisions and behavior of investors in general.

This paper is interested in the study of behavioral finance in the United Nilgiris Financial Market. According to the classical financial theory, economic agents are rational and stock market prices are close to the intrinsic value. Investor's decision making depend on many parameters such as utility maximization, return, socioeconomic, age, education, and capital invested, profession, etc. These parameters are helpful to determine biases rising from the investor's behavioral finance. In this study and taking into account these factors and others specific ones to investors, we tend to analyze the mentality of United Nilgiris investors and their preferences. On that light, this study is taken place to identify the major influential factors which leads the investors to make decisions and to do transactions on the stocks following their desires.

In this paper we attempt to explain the irrational factors which affect investment decisions and portfolio selection in the United Nilgiris financial market. Also, we present some explanations of behavioral model based on frameworks of behavioral finance.

2. LITERATURE REVIEW

Particularly in recently, various, books, articles and thesis projects were written in the field of behavioral finance and the issue gained increasing popularity. When the works related to Behavioral finance are analyzed, it is possible to have an idea about the background of this field of finance as well. As indicated at the beginning of the article, it is known that humans have certain modes of behaviors for finance and economy since they have investment and consumption preferences. However, it wasn't before a certain period of time that these issues were handled from a scientific perspective. Even though behavioral finance became popular during the last 10-20 years, most of the works written in the last few centuries emphasize the fact that individuals' behaviors influence their financial investments.

Jay R Ranjith (2003), has given a brief introduction of behavioral

finance published in Pacific Basin Finance Journal. In his research article, he rejected the traditional assumption of expected utility maximization with rational investors in efficient market. The two building blocks of behavioral finance are cognitive psychology (How People Think) and the limit of arbitrage (when market will be inefficient). The article further highlights many empirical patterns like stock markets.

M. Kannadhasan (2006) in his paper wrote that decision-making is a complex activity. Decisions can never be made in a vacuum by relying on the personal resources and complex models, which do not take into consideration the situation. The investor rationality concept has also been criticized by many scholars. Behavioral finance is a new approach to financial markets that has emerged, at least in part, in response to the difficulties faced by the traditional paradigm. In broad terms, it argues that some financial phenomena can be better understood using models in which some agents are not fully rational

According to **Sudhir Singh (2012:116)** and **Ranjit Singh (2009:89)** an illogical tendency on keeping value-losing securities is to be interpreted via Regret Theory. According to Regret Aversion, investors avoid the painful feeling of making losses. Therefore, they try to hold their value losing securities in order to avoid converting their assets into cash. After making poor investment decisions investors may avoid certain industries that have performed poorly or caused them losses in the past.

Abhijeet Chandra and Ravinder Kumar in a study attempting to investigate the factors influencing individual investor behavior in Indian Stock Market found that there are five underlying psychological axes that appear to be driving the Indian individual investor behavior. These five pertinent axes on the basis of the underlying variables are named as prudence and precautionous attitude, conservatism, under confidence, informational asymmetry, and financial addiction. The results reveal some psychological axes, such as conservatism and under confidence, which are consistent with the prior literature to some extent; but there are some contrary behavioral axes reported by the multivariate analysis such as prudence and precautionous attitude and informational asymmetry which are not yet considered in prior literature in growing economies, particularly in Indian context. Thus there are many studies available some of which support the traditional finance and some are against the theory. Those critics have given birth to the new discipline named behavioral finance.

Behavioral Finance is the field which studies the investors' behavior not only from the point of view of rationality but also incorporating different other irrational psychological investment biases which are overlooked by the conventional finance completely. This new field incorporated the theories of psychology, sociology and also neurology in the study of investor behavior. It may be noted that the behavioral finance is itself is not a pure and original

development. It is due to the shortcomings of the efficient market hypothesis and other conventional finance developments that the growth of behavioral finance is accelerated. As **Subash Rahul (2012)** pointed out in his thesis The science does not try to label traditional financial theories as obsolete, but seeks to supplement the theories by relaxing on its assumptions on rationality and taking into consideration the premise that human behavior can be understood better if the effects of cognitive and psychological biases could be studied in context where decisions are made.

3. Behavioral Finance: Cognitive Illusions

Under the traditional financial theory, the decisions makers are rational. In contrast, modern theory suggests that Investors financial decision-making are not driven by due considerations. The decisions are taken by them are also often inconsistent. Put in another way, human decisions are subject to several cognitive illusions. These are grouped into two and have been depicted

3.1 Heuristic Decision Process

The decision process by which the investors find things out for themselves, usually by trial and error, lead to the development of rules of thumb. In other words, it refers to rules of thumb which humans use to make decisions in complex, uncertain environments. The reality, the investor's decision making process is not strictly rational one. Thought the investors have collected the relevant information and objectively evaluated, in which the mental and emotional factors are involved. It is very difficult to separate. Sometimes it may be good, but many times it may result in poorer decision outcomes.

3.1.1. Representativeness: The investors' recent success; tend to continue into the future also. The tendency of decisions of the investors to make based on past experiences is known as stereotype. Debont (1998) concluded that analyses are biased in the direction of recent success or failure in their earnings forecasts, the characteristic of stereotype decisions.

3.1.2. Overconfidence: There are several dimensions to confidence. It can give more courage, and is often viewed as a key to success. Although confidence is often encouraged and celebrated, it is not the only factor to success. The investors who are cautious and analytical can achieve success and others have to withdraw. Yet, confidence, especially self-confidence, is often viewed as a positive trait. Sometimes, the investors overestimate their predictive skills or assuming more knowledge then they have many times it leads excessive trading.

3.1.3. Anchoring: It describes the common human tendency to rely too heavily, or 'anchor' on one trait or piece of information when making decisions. When presented with new information, the investors tend to be slow to change or the value scale is fixed or anchored by recent observations. They are expecting the trend of earning is to remain with historical trend, which may lead to possible under reactions to trend changes.

3.1.4. Gamblers fallacy: It arises when the investors inappropriately predict that tend will reverse, It may result in anticipation of good or poor end.

3.1.5. Availability bias: The investors place undue weight for making decisions on the most available information. This happens quite commonly, It leads less return and sometimes poor results

3.2. Prospect theory

This theory is developed by Kahneman and Tversky. The second groups of illusions which may impact the decision process are grouped in prospect theory. He discussed several states of mind which may influence an investor's decision making process. The key concepts which he discussed are as follows:

3.2.1. Loss aversion: Loss aversion is an important psychological concept which receives increasing attention in economic analysis. The investor is a risk-seeker when faced with the prospect of losses, but is risk-averse when faced with the prospects of enjoying gains; this phenomenon is called loss aversion.

3.2.2. Regret Aversion: It arises from the investors' desire to avoid pain of regret arising from a poor investment decision. This aversion encourages investors to hold poorly performing shares as avoiding their sale also avoids the recognition of the associated loss and bad investment decision. Regret aversion creates a tax inefficient investment strategy because investors can reduce their taxable income by realizing capital losses.

3.2.3. Mental Accounting: Mental accounting is the set of cognitive operations used by the investors to organize, evaluate and keep track of investment activities. Three components of mental accounting receive the most attention. This first captures how outcomes are perceived and experienced, and how decisions are made and subsequently evaluated. A second component of mental accounting involves the assignment of activities to specific accounts. Both the sources and uses of funds are labeled in real as well as in mental accounting systems. The third component of mental accounting concerns the frequency with which accounts are evaluated and 'choice bracketing'. Accounts can be balanced daily, weekly, yearly, and so on, and can be defined narrowly or broadly. Each of the components of mental accounting violates the economic principle of fungibility.

3.2.4. Self Control: It requires for all the investors to avoid the losses and protect the investments. By mentally separating their financial resources into capital and 'available for expenditure' pools, investors can control their urge to over consume.

4. Methodology and Data Collection

4.1 Data collection

This study targets the United Nilgiris Stock market. Our survey is based on a sample of investors in this market through structured questionnaires. In general, works treating behavioral finance are based on questionnaire. In fact, this technique can be considered as a good tool through which we interpret the psychology of investors which is related to their thinking and beliefs.

4.2 Data Analysis

The data was analyzed by using the following statistical tools: percentage analysis, means, factor analysis, and Multiple Correspondence analysis. The data set contains questions about socio-economic factors (Age, Profession, education, employment status, etc.), investment factors (amount invested, etc.) and factors that influence the investment decision (take risk or not, possess stocks for long/medium/short term, number of sources considered, etc). Some questions are related to the psychological factors (overconfidence, mental accounting, etc.

4.3 Descriptive Statistics

The following tables (Table 1 and 2) show the descriptive statistics obtained from this study.

Table 1. Descriptive statistics for socio-economic factors

Age	Less than 25 years	26-35 years	36-50 years	51-65 years	65 above
Frequency	17.7	33.3	26.1	18.2	4.7
Education	Without diploma	Diploma	Ug	Pg	Doctorate
Frequency	12.9	10.4	39.9	28	8.8
Profession	Students , house wife	Executive employer	Manager	Academic researcher	Retired
Frequency	10.6	62.3	5.7	17.3	4.1

This table concludes that the majority of individual investors are young. Also, we found that 33.3% of investors have a range of age between 25 and 35 years. Individuals older than 65 years represent the smallest percentage of investors. We can show also that the majority of people who answered the questionnaire have relatively a high level of education. Individuals having a master's degree or a doctorate degree represent 36.6% of all persons interviewed. This can be considered as an advantageous factor for our study since having a certain level of education enables the people involved to make rigorous choices in the sense that their

actions are not totally haphazard. This result implies that investors must have good skills to make individual optimal decisions.

Table 2. Descriptive statistics for investment factors

Amount invested	Less than 1000	1000-5000	5000-20000	20000-50000	More than 50000
frequency	2.5	30.1	26.4	16.1	24.9
Ownership duration	<3months	3-6 months	6-12 months	>1year	
frequency	15.3	1.8	52.5	30.4	
Chance of losing	30%	50%	75%		
frequency	21.1	59.5	20.4		

This table shows that the majority of individual investors on the United Nilgiris market hold securities or portfolios for medium-term horizons. Indeed, we found that 52.5% of investors hold portfolios for medium terms and 30.4% for long-terms. According to these results, stocks cannot be considered as a speculative investment for most investors. However, it is clear that some investors confused between investment in the stock market and holding a portfolio, That the majority of investments are between 1,000 and 20,000 with a cumulative percentage of 56.5% of the total number of persons interviewed. 24.9% of our sample devoted more than 50,000 to their investments in the stock market. Finally, we can conclude that the acquisition of securities is essentially made by investors having a high level of education.

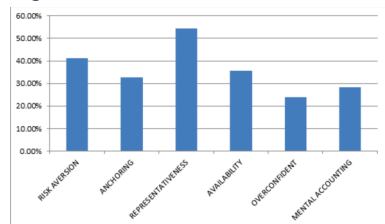
Table 3. Descriptive statistics for factors influencing investment

Risk aversion	Weight of behavior 41.05%
Anchoring	Weight of behavior 32.55%
Representativeness	Weight of behavior 54.4%
Availability	Weight of behavior 35.6%
Overconfidence	Weight of behavior 23.8%
Mental accounting	Weight of behavior 28.32%

In this table that the various biases considered in this study affect the behavior of individual investors but with different proportions. Our empirical study highlights the existence of all these psychological biases and our assumption is also confirmed. Representativeness is the most important bias present in our sample with a weight behavior of 54.4%.The investors in the United Nilgiris stock market prefer to choose in their portfolio securities that perform better during the last 12 months and sell the other type of securities. Availability bias is present with a weight of 35.6%. The presence of such behavior in the market implies that speculators are sure that 35.6% of the investors will follow the new trends in the market and therefore have some advantages from these situations. They will be able to reap substantial gains in comparison with to the followers. 41.05% of individual investors are subject to the bias of risk aversion, implying that investors are heavily influenced by this bias. This means that investors are much more careful in avoiding losses than making gains.

Finally, we conclude that the various biases that affect the behavior of United Nilgiris investors all occur but with different proportions. Our empirical study highlighting the existence of all these psychological biases and our assumption is also confirmed.

Graph 1. Weights of different behavioral biases



4.4 Multivariate Analysis: Multiple Correspondence Analyses

Multiple correspondence analyses, which are considered as a

generalization of principal component analysis, are a technical statistical method that allows analyzing the pattern of relationships of several categorical dependent variables. Also, it gives us a summary to a set of data in a dimensional graphical form. Multiple correspondence analyses are similar to the principal component analysis. In our analysis, we are interested in the following factors: education (level of study) and profession criteria (socio-professional category). Risk aversion to the education study gives us the following results

The two factorial axes corresponding to the category 4 Concerning the criteria profession (which includes university researchers, managers and doctors) has a negative contribution. This category is correlated with the good targeting of securities and that the decision of selling the security when they judge its price becomes high. Such behavior makes the risk aversion bias a very persistent factor in the United Nilgiris market.

4.4.1 Overconfidence analysis, Socio-Professional criteria

According to the socio-professional category4 and category 5 and which represent executives and retirees, contribute most to the persistence of overconfidence bias and these types of investors represent a large part of the agents involved in the United Nilgiris market. Then, we can say that the overconfidence bias has an important influence on the behavior of the investors and it contributes to affect the price of the stocks.

4.4.2 Overconfidence analysis, age criteria

The factorial analysis corresponding to identify the choices of investors according to their age groups and socio-professional category. We conclude the rationale for the persistence of behavioral biases.

5. CONCLUSION

In this paper, we study the behavior of the investors in the United Nilgiris stock market. In other words, we tried to study the influence of psychology on the behavior of United Nilgiris investors and determine the most important factors that affect the stock market, and explain the anomalies that persist in this market. In fact, univariate analysis has enabled us to determine the biases that mostly affect the behavior of investors. We found that the bias of loss aversion, representativeness, availability and anchoring are the most important that affect the stock market. The multivariate analysis, we have tried to identify the most important biases that affect strongly the behavior of investors. We have concluded that person having a high level of education (Bachelor and more) and which represent more than 70% investors are subject to behavioral biases. In the same way, agents who invest amounts between 1,000 and 20,000 and that represent more than 50% of our sample are most vulnerable to behavioral biases.

This means that the presence of behavioral biases is not due to cyclical factors but to the structural factors closely related to a specific range of individuals. In this research we found the presence of stock market anomalies, a lack of investor behavior rationality in the United Nilgiris stock market. Also, subjective judgments and persistence of behavioral biases can give an explanation to the market inefficiency. Furthermore, analyzing the evolution of stock market and the presence of over or under reactions in the market should normally be found in the behavior of investors.

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