

INVESTOR'S BEHAVIOR IN PAKISTAN MERCANTILE EXCHANGE (PMEX)

Aamir Sarwar, Zainab Mansoor, Nadeem Shafique Butt*

Institute of Business and Information Technology, University of the Punjab, Lahore, Pakistan

*Department of Statistics, COMSATS Institute of Information Technology, Lahore, Pakistan

Tel: +92321-8483804 E-mail: asarwar@gmail.com

Tel: 92-042-36303641 E-mail: zainab.zmlhr@gmail.com

Tel: +92312-4441234 E-mail: nadeemshafique@ciitlahore.edu.pk

**Corresponding Author Dr. Aamir Sarwar: asarwar@gmail.com

ABSTRACT: *This study is conducted to study the investor's behavior in Pakistan Mercantile Exchange. Primary data was collected from a sample of 224 investors of PMEX through a structured questionnaire. Cronbach's Alpha value confirmed reliability of the questionnaire (Cronbach's Alpha=0.8). Descriptive analysis was performed for data screening and distribution assessment of the study variables. Major components that explained the behavior of investors in PMEX were identified through Exploratory Factor Analysis. Group differences were tested through t-Tests and ANOVA based on profile of investors and their behavior in Pakistan Mercantile Exchange. The major components that explained 70.865% of the total variance in investor behavior in PMEX were: 'overconfident behavior', 'herd behavior', 'price anchoring behavior', 'representativeness bias', 'loss averse behavior', 'panic attitude' and 'risk tolerance'. No significant relationship was found between different elements of investor's profile and their behavior in PMEX.*

Keywords: *Commodity Market of Pakistan, Investor Behavior, Investor's Profile, Pakistan Mercantile Exchange*

1. INTRODUCTION:

Regulated Commodities Market is relatively a new investment avenue for the investors in Pakistan. Pakistan Mercantile Exchange is the only regulated medium in Pakistan to invest and trade in commodities, which was created in April 2002 but started its operations in 2007 with Gold Futures Contracts. The study of behavior of investors in Pakistan Mercantile Exchange is important to understand the behavior of different type of investors in PMEX which will help to improve the performance of PMEX. Despite its importance, this area of research has been ignored in Pakistan as majority of the researches are conducted on the Stock Exchanges. This research study has been conducted to fill the gap in the research on investor's behavior in Pakistan Mercantile Exchange.

2. LITERATURE REVIEW:

The participation of individual investors in financial markets has increased with an increase in the number of investment avenues available to the investors and due to the financial market's globalization, which has made it vital to understand the behavior of these individual investors[1]. Moreover, the behavior of the investors is actually what drives the market movements and thus it becomes critical to evaluate the attitude of the investors in order to furnish correct strategies and policies according to them [1].

Sultana, S. T., & Pardhasaradhi, S. [2] believed that study of behavior of investors is necessary because it directs the investment choices of the investors which can be very crucial for the financial wellbeing of the investor in the later years.

Investor behavior is assumed to be a function of the 'psychology' of the investors that drives them to buy and sell the securities in the market [3]. Investor behavior of individuals has no strictly defined dimensions and thus it can be studied in a number of ways. Different researchers have studied investor attitudes using different facets of investor

behavior and many have made an effort to identify the facets of investor behavior through factor analysis. Identification of the components of behavior of investors is essential as it would help the financial planners and the brokers to better understand the investors in the market [4].

There are a number of researches conducted by the advocates of efficient market hypothesis on investor's behavior with consideration of only risk and return but the behavior of individual investors in the actual world are somewhat dissimilar to the investors that are explained by the models of efficient market as investors in real world indulge in a number of irrational behavior like 'active trading', 'speculation' and 'under-diversification' which means that there are a number of factors that have an impact on how investors behave [5].

Investors are humans and humans are subject to a number of biases, errors and illusions when it comes to decision making due to their inadequacy in processing the information available to them[6]. The basic human behavior is the base that drives errors in the investor's behavior so it can be said that it is the nature of human being that explains the errors in investor's behavior in the financial markets[7].

Kartasova[8] tried to recognize the factors that build the irrational behavior of individual investors in the stock market of Lithuania through factor analysis and the association between the 'personal characteristics' of the investors and the behavior of Lithuanian stock market investor in which she identified 'Herd Behavior', 'Mental Accounting', 'Overconfidence' and 'Price Anchoring Behavior' to be the major factors that explain the irrationality in the behavior of Lithuanian investors. Kartasova[8] also concluded that investor's experience, education and gender had an association with the overconfidence in the investors and age and marital status of the Lithuanian stock market investors influenced their risk attitudes in investing.

Bashir et al. [9] conducted a research to study how the biases in the behavior of investors impact the ‘financial decision making’ of investors in Pakistan and found a strong impact of ‘Overconfidence’ and ‘Excessive Optimism’ on the financial decision making of the Pakistani investors.

Chen et al. [10] found three important biases in the behavior of Chinese investors which included ‘overconfident behavior’, loss averseness which led them to ‘disposition effect’ and investors were found to rely on the returns generated by securities in the past as a reference for generating profit in future which is referred as representativeness bias.

Elankumaran & Ananth [4] conducted a research study for the identification of the factors that have an impact on the commodity market’s investors behavior in India and discovered through their research that most important factors that had the greater impact on commodity market’s investors were ‘low risk’, ‘high return’, ‘informational asymmetry’ and ‘objective knowledge’.

Rakesh[11] also conducted a research to devise the major factors that form the investor’s behavior in the Indian commodities market and found three important factors that explained 95% of the variance in the behavior of commodity market investors in India and those three factors are ‘information asymmetry’, ‘low risk’, ‘high return’ and ‘objective knowledge’.

Estesa & Hosseinib [12] studied various characteristics that can influence the investor’s confidence in investment decisions and found that gender, financial knowledge had a significant impact on the confidence level of investors while relationship between investor’s confidence, age and business experience were not found to be significant. Moreover it was found in the research study that female investors had lower level of confidence in their investment decisions as compared to male investors.

Shaikh & Kalkundarikar [13] found in their research related to retail investor behavior that knowledge level positively affected the returns whereas the occupation of the retail investors had a negative correlation with the risk level of the investors.

3. RESEARCH OBJECTIVES:

- ✓ To provide an understanding of investor’s behavior in Pakistan Mercantile Exchange.
- ✓ To identify the major components that explained the behavior of investors in Pakistan Mercantile Exchange.
- ✓ To understand the difference in the behavior of investors with different profiles in PMEX

4. SIGNIFICANCE OF THE RESEARCH:

There are a number of researches that have been conducted in Pakistan to study the behavior of investors and the biases in their behavior in Stock Exchanges but unfortunately there has been no research study conducted on the investor’s behavior in Commodities Exchange. The research findings can help the brokers in a number of ways to better understand their client’s behavior and to suggest better investment options to different investors in PMEX.

5. MATERIALS AND METHODS:

This was an exploratory research study conducted with minimal interference by the researcher in a ‘non-contrived’ study setting to measure the much ignored area of investor behavior in Commodities Exchange of Pakistan. A detailed questionnaire was designed to be used as an instrument to collect primary data from a sample of 224 investors of PMEX. Responses on the variables of this research study were measured on likert scale (1 for strongly disagree and 5 for strongly agree).

Questionnaire used in this research had two parts. First Part of the questionnaire was related to the profile to investors and the second part included 27 questions related to the behavior of investors in Pakistan Mercantile Exchange. The study was conducted during October 2013 to May 2014. This research study on the investor behavior in PMEX was a cross sectional study as it did not intend to gather data from the sample another time. Data was collected from PMEX’s investors all over Pakistan through 10 registered brokerage houses.

The sampling technique used in this research for studying investors of PMEX is convenience sampling technique which involved multiple stages. First the registered brokers of PMEX were randomly selected and approached for getting questionnaires filled by their clients in PMEX. Then the brokers who were willing to provide assistance in filling the questionnaires from their clients in PMEX were provided with questionnaires. And finally the data was collected through brokers, from the clients of the brokers. **6. RESULTS & DISCUSSION:**

6.1. Reliability Analysis:

Cronbach’s Alpha was used in order to test the reliability and internal consistency of the questionnaire used in this research. As shown in **Table 1**, Cronbach’s Alpha value for the questionnaire came out to be 0.8 which is greater than 0.7 and thus considered to be a reliable scale for behavioral studies

Table 1: Reliability Analysis

Reliability Statistics	
Cronbach’s Alpha	N of Items
.800	27

6.2. Descriptive Analysis:

6.2.1. Profile of Investors:

Table 2 shows the frequency table with percentages that depicts the profile of the respondents. It can be interpreted from **Table 2** that there was a low representation of female respondents; majority of respondents were educated; Private Employees and Business People were more represented as compared to Government Employee; majority of the respondents had monthly income below Rs 100,000. According to **Table 2**, Majority (59.8%) of the respondents invested less than 25% of their total investment in PMEX. Majority (75.4%) of the respondents had less than two years of experience of trading in commodities with Pakistan Mercantile Exchange. Majority (36.6%) of the respondents had an investment objective of High Income when they invest in PMEX.

Table 2: Profile of Respondents

Category		Frequency (%)
Gender	Male	184 (82.1)
	Female	40 (17.9)
Age	Below 25	31 (13.8)
	25 to 35	73 (32.6)
	36 to 45	67 (29.9)
	46 to 60	41 (18.3)
	Above 60	12 (5.4)
Education	Under Matric	1 (0.4)
	Matric	12 (5.4)
	Inter	9 (4.0)
	Graduate	91 (40.6)
	Post Graduate	100 (44.6)
Occupation	Other	11 (4.9)
	Business/Self Employed	80 (35.7)
	Government Employee	26 (11.6)
	Private Employee	106 (47.3)
Monthly Income	Other	12 (5.4)
	Below 50,000	70 (31.3)
	50,001 to 100,000	73 (32.6)
	100,001 to 300,000	45 (20.1)
	300,001 to 500,000	11 (4.9)
	500,001 to 700,000	15 (6.7)
Investment Proportion in PMEX	700,001 to 1000,000	4 (1.8)
	Above 1000,000	6 (2.7)
	Below 25%	134 (59.8)
	26% to 50%	54 (24.1)
Years of Experience in PMEX	51% to 75%	22 (9.8)
	76% to 100%	14 (6.3)
	Less than a Year	81 (36.2)
Investment Objective	1 to 2 Years	88 (39.3)
	Above 2 Years	55 (24.6)
	High Income	82 (36.6)
	Reasonable Income	78 (32.8)
Investment Objective	Reasonable Income & Safety	39 (17.4)
	Future Welfare	16 (7.1)
	Retirement Protection	9 (4.0)

6.2.2. Investor Behavior

Table 3 shows the frequency and percentages of responses from the respondents on the various questions related to the investor’s behavior in Pakistan Mercantile Exchange.

6.3. Factor Analysis:

6.3.1. Adequacy Test for Factor Analysis:

Table 4 shows the results of KMO and Bartlett’s Test which were used to check whether the sample meets the assumptions for applying the Factor Analysis. KMO value is 0.777 which is greater than 0.5 and thus shows that the sample was adequate for the Factor Analysis. In the Bartlett’s Test of Sphericity, $p < 0.05$ which shows there was sufficient correlation between the variables thus making it adequate for the Factor Analysis.

6.3.2. Factor Loading and Total Variance Explained:

Table 5 shows the factor loadings of the various components of investor’s behavior in PMEX and the percentage variance

contributed by each component to the total variance in Investor Behavior. Table 5 demonstrates that a total number of eight components were identified for the investor behavior with a contribution of 70.865% of the total variance in Investor Behavior. The eight major components of investor’s behavior in PMEX are explained below:

6.3.2.1. Component 1: Overconfident Behavior:

Component 1 was labeled as Overconfident Behavior. Table 5 shows that this component of Investor Behavior in PMEX accounted for 11.94% of the total variance in Investor Behavior which made it the most important component of investor behavior. The five important elements with their respective factor loadings are shown in the Table 5. According to Jayaraj [1], when investors are overconfident, they believe that their abilities and skills are better than they actually are and thus they become over positive about their abilities and skills in investment decisions and consider themselves better than other investors.

6.3.2.2. Component 2: Risk Tolerance

Component 2 was labeled as Risk Tolerance. Table 5 shows that this component of Investor Behavior in PMEX accounted for 10.474% of the total variance in Investor Behavior. The four important elements under the factor of Risk Tolerance with their respective factor loadings are shown in Table 5. According to Ricciardi & Rice [14], risk tolerance can be defined by the extent to which an investor is ready to take risk for achieving objective of his investment.

6.3.2.3. Component 3: Optimistic Behavior

Component 3 was labeled as Optimistic Behavior. Table 5 shows that this component accounted for 10.340% of the total variance in Investor Behavior. The four important elements under the factor of Optimistic Behavior with their respective factor loadings are shown in Table 5. Investors are said to be optimistic in their behavior when they perceive that the future of their security picks and the market is good enough that nothing bad can happen to them [15].

6.3.2.4. Component 4: Herd Behavior

Component 4 was labeled as Herd Behavior. Table 5 shows that this component accounted for 8.531% of the total variance in Investor Behavior. The three important elements under this factor with their respective factor loadings are shown in Table 5. According to Bikhchandani & Sharma[16] investors are showing herd behavior when their decisions are controlled by other investors decisions which means that changes in the investing decisions of investors are influenced by other investors.

6.3.2.5. Component 5: Loss Averse Behavior

Component 5 was labeled as Loss Averse Behavior. Table 5 shows that this component accounted for 8.102% of the total variance in Investor Behavior. The three important elements under this factor with their respective factor loadings are shown in Table 5. Investors are said to have a loss averse behavior when they act irrationally to safeguard their gains from investment and to safeguard their investment from potential losses [17].

Table 3: Investor Behavior in PMEX

No.	Category	Frequency (%)				
		SD	D	N	A	SA
1	I have complete knowledge of Commodities Exchange.	11 (4.9)	42 (18.8)	76 (33.9)	79 (35.3)	16 (7.1)
2	I am sure I can make correct investment decisions.	5 (2.2)	38 (17.0)	85 (37.9)	81 (36.2)	15 (6.7)
3	My past profitable investments were mainly due to my specific investment skills.	8 (3.6)	43 (19.2)	66 (29.5)	96 (42.9)	11 (4.9)
4	My investments can mostly earn higher than average return in the market.	4 (1.8)	48 (21.4)	77 (34.4)	79 (35.3)	16 (7.1)
5	Relative to others, my ability to predict future prices is better.	11 (4.9)	32 (14.3)	76 (33.9)	87 (38.8)	18 (8.0)
6	If the aggregate trading volume in the commodity market was higher than usual, I would increase the sum of my commodity market holdings.	22 (9.8)	80 (35.7)	62 (27.7)	55 (24.6)	5 (2.2)
7	My investment decisions are influenced by other investors' decisions of trading volume.	20 (8.9)	75 (33.5)	63 (28.1)	61 (27.2)	5 (2.2)
8	I often imitate decisions of others when making investment decisions.	20 (8.9)	74 (33.0)	56 (25.0)	66 (29.5)	8 (3.6)
9	I see a bright future of commodities trading in Pakistan.	13 (5.8)	31 (13.8)	43 (19.2)	111 (49.6)	26 (11.6)
10	I see more investment coming into commodities trading in coming years in Pakistan.	9 (4.0)	20 (8.9)	58 (25.9)	104 (46.4)	33 (14.7)
11	The future of my investment portfolio looks good.	5 (2.2)	28 (12.5)	60 (26.8)	115 (51.3)	16 (7.1)
12	I plan to increase my investment in the Commodities market because of its potential growth in Pakistan.	9 (4.0)	34 (15.2)	59 (26.3)	97 (43.3)	25 (11.2)
13	I judge the value of a commodities contract based on the recent high/low price of the contract in PMEX.	6 (2.7)	36 (16.1)	69 (30.8)	94 (42.0)	19 (8.5)
14	I fix a target price for trading of commodities contract before start of trading in PMEX.	7 (3.1)	35 (15.6)	56 (25.0)	107 (47.8)	19 (8.5)
15	I often use stop losses in my trades while trading in Pakistan Mercantile Exchange.	9 (4.0)	19 (8.5)	61 (27.2)	104 (46.4)	31 (13.8)
16	I consider the past performance of the commodities contract before investing in it.	6 (2.7)	30 (13.4)	61 (27.2)	102 (45.5)	25 (11.2)
17	I believe that future value of a contract in commodities market can be determined through detailed analysis of its past performance.	7 (3.1)	37 (16.5)	55 (24.6)	102 (45.5)	23 (10.3)
18	I avoid investments in commodities contracts that have a history of poor earnings	8 (3.6)	35 (15.6)	60 (26.8)	99 (44.2)	22 (9.8)
19	I become more cautious in investing after a prior loss.	12 (5.4)	40 (17.9)	46 (20.5)	92 (41.1)	34 (15.2)
20	I invest in commodities where there are less chances of loss.	6 (2.7)	40 (17.9)	52 (23.2)	92 (41.1)	34 (15.2)
21	I believe when it comes to investment, no loss of capital is more important than small profits.	10 (4.5)	32 (14.3)	59 (26.3)	86 (38.4)	37 (16.5)
22	In case of a terrorist attack/political unrest that cause market to crash, I will sell my investments.	20 (8.9)	41 (18.3)	58 (25.9)	76 (33.9)	29 (12.9)
23	In case of adverse price changes in commodities market, usually I take my money out of investments.	9 (4.0)	43 (19.2)	69 (30.8)	76 (33.9)	27 (12.1)
24	I consider myself as a high risk taker.	13 (5.8)	47 (21.0)	64 (28.6)	84 (37.5)	16 (7.1)
25	I am willing to experience the ups and downs of the market for the potential of greater returns.	9 (4.0)	37 (16.5)	52 (23.3)	106 (47.3)	20 (8.9)
26	I reject investments that have high returns but higher risk as well.	11 (4.9)	63 (28.1)	61 (27.3)	74 (33.0)	15 (6.7)
27	I consider risk in investments as an opportunity.	10 (4.5)	38 (17.0)	44 (19.6)	103 (46.0)	29 (12.9)

Table 4: KMO and Bartlett's Test for Investor Behavior

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.777
Bartlett's Test of Sphericity	Approx. Chi-Square	2743.89
	Df	351
	Sig.	0.000

6.3.2.6. Component 6: Representativeness Bias

Component 6 was labeled as Representativeness Bias in Investor's Behavior. **Table 5** shows that this component accounted for 7.844% of the total variance in Investor Behavior. The three important elements under this factor with their respective factor loadings are shown in **Table 5**. **Boussaidi [18]** defined representativeness bias in the behavior of investors as their overdependence on the past

6.4. Confirmatory Factor Analysis:

The same is further substantiated using Confirmatory Factor Analysis Fig.1.

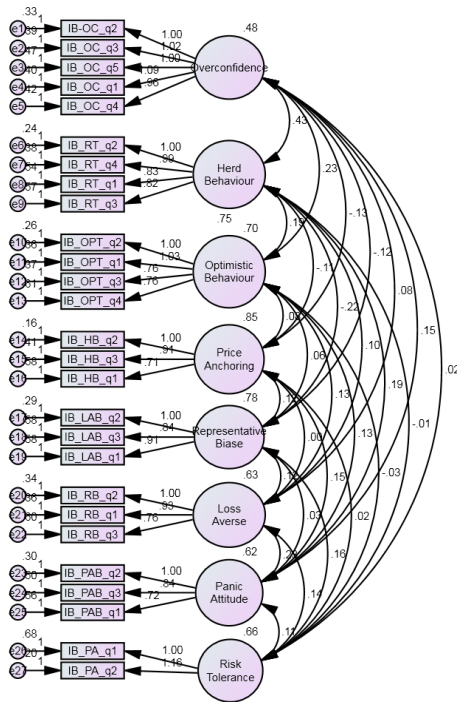


Figure 1: Confirmatory Factor Analysis (CFA)

Values for the goodness of fit of the model are given in **Table 6.**

6.5. Hypothesis Testing:

Table 7 shows the results of the T-tests & ANOVA that were applied to test a number of hypotheses for the relationship between different elements of profile of investors and investor’s behavior in Pakistan Mercantile Exchange. P Value is required to be greater than 0.05 for the acceptance of the null hypothesis. **Table 7** shows that there was no significant relationship between different elements of the profile of investors and the overall investor behavior in Pakistan Mercantile Exchange as P Value for all the relationships tested was greater than 0.05.

As shown in **Table 7**, no significant difference in the behavior of male and female investors in PMEX was found as P-value of T test for relationship between gender and investor behavior is 0.213 which is greater than 0.05 leading to acceptance of null hypothesis. In terms of relationship between age and investor behavior, **Table 7** shows a P value of 0.403 which is greater than 0.05 depicting no significant difference in the behavior of investors belonging to different age groups in PMEX.

According to **Table 7**, no significant difference in the behavior of investors from different educational backgrounds in PMEX was found as P-value is 0.840 which is greater than 0.05 thus leading to the acceptance of null hypothesis. In terms of relationship between occupation and investor behavior, **Table 7** shows a P-value of 0.525 which is greater than 0.05 and thus depicting no significant difference in the behavior of investors belonging to different occupations in PMEX. No significant difference in the behavior of investors belonging to different income groups

Table 6: Goodness of Fit

Model	GFI	NFI Delta1	IFI Delta2	TLI rho2	CFI	RMR	RMSEA	CMIN/DF
Default model	.90	.912	.934	.920	.932	0.50	.051	1.578

Table 7: Results of ANOVA & T-Test

Dependent Variable	Hypothesis	Grouping Variable	Test Applied	P*	Result
Overall Investor's Behavior	There is no significant difference in the behavior of male and female investors in Pakistan Mercantile Exchange	Gender	T- Test	0.213*	Failed to Reject
	There is no significant difference in the behavior of investors from different age groups in Pakistan Mercantile Exchange.	Age	ANOVA	0.403*	Failed to Reject
	There is no significant difference in the behavior of investors with different educational backgrounds in Pakistan Mercantile Exchange.	Education	ANOVA	0.840*	Failed to Reject
	There is no significant difference in the behavior of investors with different occupations in Pakistan Mercantile Exchange.	Occupation	ANOVA	0.525*	Failed to Reject
	There is no significant difference in the behavior of investors belonging to different income groups in Pakistan Mercantile Exchange.	Income Group	ANOVA	0.494*	Failed to Reject
	There is no significant difference in the behavior of investors with different proportions of investment in PMEX.	Investment Proportion in PMEX	ANOVA	0.980*	Failed to Reject
	There is no significant difference in the behavior of investors with different years of experience in PMEX.	Investment Experience	ANOVA	0.073*	Failed to Reject
	There is no significant difference in the behavior of investors with different investment objective in PMEX.	Investment Objective	ANOVA	0.725*	Failed to Reject

*Significance level is 0.05

in PMEX was found as P-value shown in **Table 7** for relationship between income group and investor behavior is 0.494 which is greater than 0.05 . In terms of relationship between proportion of investment in PMEX and investor behavior, **Table 7** shows a P-value of 0.980 which is greater than 0.05 and thus no significant difference in the behavior of investors with different investment proportions in PMEX was found.

No significant relationship between investment experience and investor behavior was found as P-Value according to **Table 7** is 0.073 which is greater than 0.05. For testing relationship between investment objective and investor behavior, **Table 7** shows a P-value of 0.725 which is greater than 0.05 and thus depicting no significant difference in the behavior of investors with investment objective in PMEX.

7. CONCLUSION:

This research study aimed to identify the major components that explained the behavior of investors in PMEX and the difference in the behavior of investors with different profiles in PMEX. The results of the factor analysis identified 8 important factors that explained 70.865% of the total variance in the behavior of investors in Pakistan Mercantile Exchange which included 'Overconfident Behavior', 'Herd Behavior', 'Optimistic Behavior', 'Price Anchoring Behavior', 'Representativeness Bias', 'Loss Averse Behavior', 'Panic Attitude' and 'Risk Tolerance' of investors in PMEX. According to the finding of this research, there was no significant relationship between different elements of the profile of investors and the overall investor behavior in Pakistan Mercantile Exchange. Majority of the respondents were found to be overconfident, optimistic, risk tolerant in terms of their behavior in Pakistan Mercantile Exchange. Majority of the respondents showed price anchoring behavior, representativeness bias, panic attitude, loss averse behavior while herd behavior was not found in majority of the respondents.

REFERENCES:

- Jayaraj, D. S. The Factor Model for Determining the Individual Investment Behavior in India. *IOSR Journal of Economics and Finance (IOSR-JEF)*, **1 (4)**, 21-32. (2013)
- Sultana, S. T., & Pardhasaradhi, S. An Empirical Analysis of Factors Influencing Indian Individual Equity Investors' Decision Making and Behavior. *European Journal of Business and Management*, **4(18)**, 50-61.(2012)
- Gnani Dharmaja .V, Ganesh .J, Dr. Santhi .V. A Study on the Individual Investor Behavior with Special Reference to Geojit BNP Paribas Financial Service Ltd, Coimbatore. *IRACST- International Journal of Research in Management & Technology (IJRMT)* , **2(2)**, 243-252.(2012)
- Elankumaran, A., & Ananth, A. Impacting factors on Individual Investors' Behaviour. *The International Journal's Research Journal of Social Science & Management*, **2 (12)**, 147-151.(2012)
- Barber, B. M., & Odean, T. The Behavior of Individual Investors. *Handbook of the Economics of Finance*, **2**, 1533-1570.(2011)
- Shefrin, H. *Beyond greed and fear: Understanding behavioral finance and the psychology of investing*. Oxford University Press, (2002)
- Damodaran, A. *Investment Philosophies: Successful Strategies and the Investors who Made them Work* (Second ed.). John Wiley & Sons, (2012)
- Kartasova, J. *Factors forming Irrational Lithuanian Individual Investor's Behavior*. *BUSINESS SYSTEMS and ECONOMICS*, **3 (1)**, 70 -78.(2013)
- Bashir, T., Javed, A., Ali, U., Meer, U. I., & Naseem, M. M. Empirical Testing of Heuristics interrupting the Investor's Rational Decision Making. *European Scientific Journal*, **9 (28)**, 432-444.(2013)
- Chen, G., Kim, K. A., Nofsinger, J. R., & Rui, O. M. Trading performance, disposition effect, overconfidence, representativeness bias, and experience of emerging market investors. *Journal of Behavioral Decision Making*, **20 (4)**, 425-451.(2007)
- Rakesh, H. M. Individuals Investors Behavior: A study of Commodity Market. *International Journal of Management Reviews*, **2 (1)**, 106-113. (2014)
- Estesa, R., & Hosseinib, J. The Gender Gap on Wall Street: An Empirical Analysis of Confidence in Investment Decision Making. *The Journal of Psychology: Interdisciplinary and Applied*, **122 (6)**, 577-590.(1988)
- Shaikh, D. A., & Kalkundarikar, D. A. Analysis of Retail Investor's Behaviour in Belgaum District, Karnataka State. *International Journal for Management Research*, **1(2)**, 22-39.(2011)
- Ricciardi, V., & Rice, D. *Risk Perception and Risk Tolerance. Investor Behavior: The Psychology of Financial Planning and Investing* , 327-345.(2014)
- Baker, H. K., & Nofsinger, J. R. *Psychological biases of investors. Financial Services Review*, **11 (2)**, 97-116.(2002)
- Bikhchandani, S., & Sharma, S. *Herd behavior in financial markets: A review*, (2000)
- Matson, B., & Hardy, M. R. *Data Driven Investing. Cognition Capital Management*, (2004)
- Boussaidi, R. *Representativeness Heuristic, Investor Sentiment and Overreaction to Accounting Earnings: The Case of Tunisian Stock Market. Procedia-Social and Behavioral Sciences*, **81** , 20.(2013)