

The effects of behavioural factors in investment decision making at Pakistan stock exchanges

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Muhammad Aslam Javed ^{1,*}, Saira Marghoob ²

¹ School of Business Management, Universiti Utara Malaysia, 06010 Sintok, Kedah, Malaysia

² Department of Management Science, University of Lahore (Islamabad Campus) Pakistan

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ABSTRACT

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The present study is an endeavour to investigate the effect of behavioural elements such as Market Factors, Overconfidence Factor, Prospect Factors, Anchoring Factor, and Behavioural Factors on individual investors and institutional managers in the stock exchanges of Pakistan. The study collected response from 50 equity managers of investment banks and investment companies that invest in Islamabad, Karachi and Lahore Stock Exchanges via adapted questionnaire. The individual investor plays a vital role in the stock market because of their good savings. The regulators of the stock market cannot ignore the behaviour of individual investors. Many individuals find investments to be fascinating because they can participate in the decision making process and see the results of their choice. Not all investments will be profitable, as investors' whims not always result in fruitful returns. Recent studies on the behaviour of individual investors' have shown that investors do not act in a rational manner. Several behavioural factors influence their investment decisions in stock markets. The current study practiced descriptive statistics, reliability, regression and correlation analysis. Investment triumph fits with best approach to investment decision making not with irrational investment behaviour on instant accessible information. Behavioural finance has given a unique opportunity to explore the effects of behavioural factors on investment decision-making process. The outcomes of the study exhibit that independent variables i.e. Market Factors, Overconfidence Factor, Prospect Factors, Anchoring Factor and Behavioural Factors is important for dependent variable Investment Decision Making.

Keywords:

Market factors, Overconfidence factor,
Prospect factors, Anchoring factor,
Behavioural factors, Investment decision
making

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* Corresponding author.

E-mail address: aslam.javed86@gmail.com (Muhammad Aslam Javed)

1. Introduction

1.1 Background of Study

Many scholars have discussed the investment behaviour and tried to develop the understanding of people managing investments in different ways. The nature of psychological factors and individuals behaviour at the time of investment decision making is under discussion. Various psychological factors like beliefs, preferences, and psychological biases have been found. The purpose of this study is to determine how the personal investment is affected by the level of knowledge an investor possesses about different investment instrument.

The link between various cognitive factors and individual investment behaviour has been one of the most explored issues among the applied finance researchers worldwide and most of them are undertaken in the developed stock markets of the US, UK and Europe and not numerous studies have been conducted in Asia.

1.2 Problem Statement

The field of behavioural finance attempts to observe the psychological and sociological issues that manipulate investment decision making process of individuals and institutions [1]. Investors on the other hand have responded positively as it is evidenced through frequent oversubscriptions of shares. Investors need to make rational decisions for maximizing their returns based on the information obtainable by taking judgments that are free from emotions [2]. Investor behaviour is characterized by overexcitement and overreaction in both rising and declining security markets and a variety of factors influences their decision making processes.

There is massive psychology text state that people make mistakes in the way they think in that they are overconfident and put too much influence on latest experience. This preference may create distortion. Researchers have however proved that due to the market inefficiencies the standard finance models employed by market practitioners have failed to account for the market anomalies. One can consequently presume that individuals are rational and therefore strictly observe and follow the standard finance models in decision making. It is emerging from the literature that individual investors have embraced heuristics or rule of thumb in their investment decision making. Local studies have not sufficiently addressed the effects of behavioural aspects of investment decisions at the Pakistan Stock Exchange.

1.3 Research Question

The research question for this study is “How can Individual investor manage behaviours to accomplish higher investment outcome in Pakistan Stock exchange?”

1.4 Research Objectives

The following are the objectives of the current study:

1. To explore that what behaviour factor that effect on individual investor in investment decision making in Pakistan stock exchange.
2. Analysing the factors that having impact on investment decision concern with the individual investor in Pakistan stock exchange.

1.5 Significance of the Study

This study will contribute to the general body of information in the field of finance and act as a reference material for prospect researchers who would like to move forward their information in behavioural finance and use the study to formulate their research problems.

For Policy makers; it will help them to organize suitable strategies that will help to minimize the injurious impact of such influences.

To investors; the conclusions of the study are usual to assist investors and investment managers in accepting the contribution of psychological and affecting factors towards their investment decisions.

2. Literature Review

In their experiential study on risk and return preferences of investors found that investors behave rationally taking into account the investment's risk/return trade off. A comparatively new financial sub-discipline, behavioural finance, has achieved impressive strides in explaining the behavioural aspects of investment decisions [3].

Younes Boujelbene [4] said the study reveals that Tunisian investors do not forever act wisely while making investment decisions. The study concluded that herding attitude, representativeness, anchoring, loss aversion and mental accounting all influence the Tunisian investors' perception of their decision making processes but there is an absence of overconfidence bias in the Tunisian Stock Market.

Tabassum and Pardhasaradhi [5] Investment decision process is calculated critical decision for every investor, especially when investing in equities as it involves high risk and the income are not certain. While choosing a particular stock to make an investment, 40 attributes have been recognized that influence the investor exchange decision process. The generally influencing attributes were identified and ranked based on the frequency of highly important ranking given by the investor.

Aregbeyen and Mbadiugha [6] in their study in Nigeria found that the ten most influencing factors on investor's decision in order of importance are: motivation by people who have attained financial security through share investment, future financial security, recommendations by sound and trusted stock brokers, management side of the company, awareness of the prospects of investing in shares, composition of the board of directors of companies, current financial performance of the business, ownership structure of the corporation, reputable predictions of future addition in share value and bonus payments.

Hussein Hassan Al-Tamimi [7] investigated the factors influencing the UAE investor behaviour where it was found that Six factors were the most influencing factors for example expected corporate earnings, get rich quick, stock marketability, past performance of the firm's stock, government holdings, the creation of the organized financial market (i.e. Dubai Financial Market & Abu Dhabi Securities Markets). Five factors were found the least influencing factors which are expected losses in other local investments minimizing risk, expected losses in international financial markets, family member opinions and gut feeling on the economy.

Volpe [8] explained that online investors should have more information than normal investors to succeed in the securities markets, because they are more expected to be bounded by financial misinformation and manipulation. Therefore, the authors examined investment literacy of 530 online investors and the dissimilarity in the literacy level amongst various groups of participants using age, income, gender, education, and previous online trading knowledge as variables.

Epstein [9] examined and reported the demand for social information by individual results also specify a strong demand for information about product safety and quality and about the company's environmental activities. Furthermore, a majority of the shareholders surveyed also want the company to report on corporate ethics, employee relations and community involvement.

Behavioural finance is a study which has progressive the role of behavioural aspects of investment decisions. In behavioural finance, financial markets are analysed using models which are less slight than those given by Neumann and Morgenstern [10].

Kahneman and Tversky [11] stated that Anchoring is a phenomenon used in the circumstances when people use some original values to make judgment. Anchoring is a bias in which the investor relies too greatly on limited known factors or points of reference as they cannot integrate new information into their thinking since they are too "anchored" to their existing views (Shefrin, 2002).

According to Statman [12] mental accounting is consistent with some investors' irrational preference for stocks with high cash dividends (they feel free to spend dividend income but do not dip into capital by selling a few shares of another stock with the same total rate of return) and with a tendency to ride losing stocks position for too long (because "behavioural investors" are reluctant to realize losses).

Barber and Odean [13] emphasized that investors are impacted by events in the stock market which grab their attention, even when they do not know if these events can result good future investment performance.

2.1 The Prospect Theory

Kahneman and Tversky [14] is the one who greatest describes the prospect theory in the phenomena of financial psychology and they state that the people have an illogical tendency to be less willing to gamble with profits than with losses. People tend to under consider feasible outcomes compared with positive ones and people response differently to the comparable situations depending on the situation of losses or gains in which they are presented.

2.2 Heuristics Theory

Heuristics are defined as the rules of thumb, which makes decision making easier, especially in composite and doubtful environments [15]. Subrahmanyam [16] explained that in general, these heuristics are rather useful; particularly when time is limited. Sometimes they lead to biases [15, 17]. Kahneman and Tversky, appear to be ones of the first writers who studied the factors belonging to heuristics by introducing three factors namely representativeness, availability bias, and anchoring [17].

2.3 Hypothesis

The following hypotheses were formulated based on the above discussion.

- H1: Behavioural Factors has substantial and optimistic effect on investment decision making.
- H2: Market Factors has significant and positive effect on investment decision making.
- H3: Overconfidence Factor has significant and positive effect on investment decision making.
- H4: Anchoring Factor has significant and positive effect on investment decision making.
- H5: Prospect Factors has significant and positive effect on investment decision making.

Table 1
Construct Table

Variable	Concept Operational Definition	Construct	items	Reference Pioneer of this concept
Financial Literacy	The set of skills and knowledge that allows an individual to make informed and effective decisions through their understanding of finances	Financial literacy information is very important for investor in decision making.	Dennis and Strickland (2002) institutional investors sell more than individuals when the stock market has crashed.	[18,19]
Cognitive Biases	Systematic pattern of deviation from norm or rationality in judgment, whereby inferences about other people and situations may be drawn in an illogical fashion. Individuals create their own "subjective social reality" from their perception of the input.	A cognitive bias is a pattern of deviation in judgment.	heart of error Management theory – a theory that applies evolutionary logic to signal detection theory	[11,15,20,21]
Irrational Thinking	Irrationality is cognition, thinking, talking or acting without inclusion of rationality. It is more specifically described as an action or opinion given through inadequate use of reason, emotional distress, or cognitive efficiency.	The Philosophy of Sensualism (John Locke, among others) underlined the importance of the senses as the source of human perception and cognition.	REBT's ABC(DE) Technique	[22]
Information Asymmetry	Information Asymmetry Deals with the study of decisions in transactions where one party has more or better information than the other.	Better option than the other	Game theory is "the study of mathematical models of conflict	[23]
Gamblers' fallacy	When people inappropriately predict that a trend will reverse. This tendency may lead investors to anticipate the end of a run of good (or Poor) market returns.		Gambler's fallacy occurred in a game of roulette at the Monte Carlo Casino on August 18, 1913	[25]
Accounting Information	The Accounting information factor includes factors like, Financial Statements, Annual Reports, Prospectuses, Valuation Techniques, and Expected Earnings [24].	Stock marketability Dividends paid with high rankings.	What are the bases for ascertaining the future corporate earnings?	[26]
Neutral Information	The information received from unbiased sources that helps in managing the portfolio	Information from Investment Advisory Services	Level of competency of the person who is disseminating the information.	[24]
Advocate Recommendation	It is an expert opinion/suggestion for selection of optimal portfolio.	Individual Stock Broker and Friends/Co-worker	What is their opinion about shares?	[24]
Social Relevance	This denotes environmental factors both local and foreign that influence decision making process in stock investment	International Operations	Expected Impact of social factors on decisions.	[24]

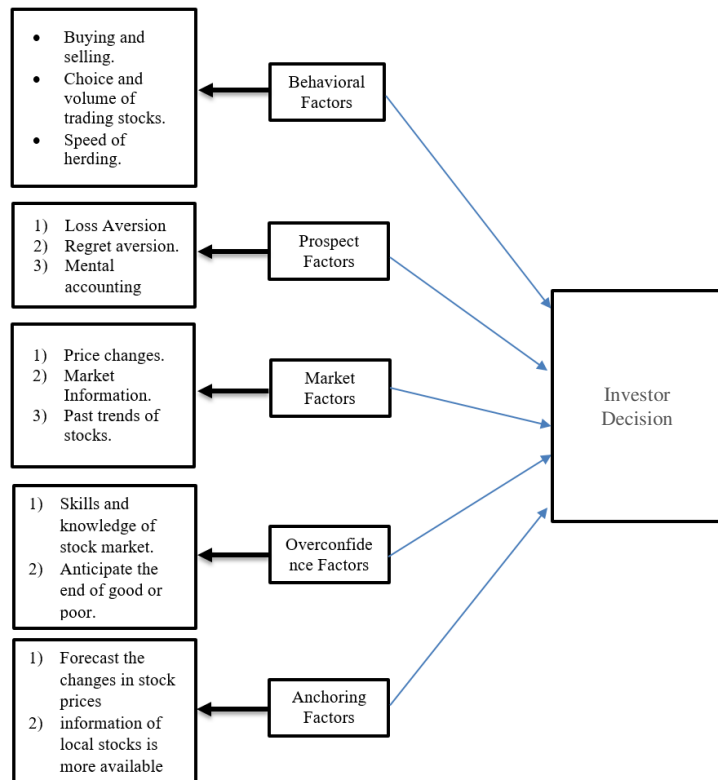


Fig. 1 Theoretical Framework

3. Research Methodology

The effect of these variables like behavioural factors influencing investment decision in the market, prospect factors (loss aversion, regret aversion, and mental accounting), interest rate, market factors (price changes, market information, past trends of stocks), overconfidence and gambler's fallacy factors, and anchoring and ability bias factors affect the decision of investors. Pakistan was investigated by using a regression analysis technique. Primary data was collected using an exploratory survey method where a standard questionnaire with both closed and open-ended questions was administered to capture the important information about the population. The selected individuals were given the questionnaire to fill where those with any difficulties were guided by a research assistant who also assisted in disseminating and collecting the questionnaires.

The questionnaire incorporated two sections with the first section enquiring respondent's background information, while the second part consisted of the firm's image, market information, financial needs, and other economic scenarios. This research was based on the theories of behavioural finance: heuristic theory, prospect theory, and other theories about the impacts of behavioural factors on investors' decision making, which are mentioned by. A 5-point Likert scale, which is a rating scale widely used for asking respondents' opinions and attitudes, was utilized to ask the individual investors to evaluate the degrees of their agreement with the impacts of behavioural factors on their investment decision. The 5 points in the scale are respectively from 1 to 5. Reliability and validity are salient because constructs in social theory are often ambiguous, diffuse and not directly observable.

3.1. Instruments

Likert scales are to be use in that research. The format of a typical five-level Likert item, for example, could be Strongly disagree, Disagree, Neither agree nor disagree, Agree and Strongly agree.

3.2 Econometric Model

$$IDM = \alpha + \beta_1 (BF) + \beta_2 (PF) + \beta_3 (MF) + \beta_4 (GF) + \beta_5 (AAB)$$

where:

IDM= Investor Decision Making.

α = Y-Intercept

β_1 = Coefficient of BF

β_2 = Coefficient of PF

β_3 = Coefficient of MF

β_4 = Coefficient of GF

β_5 = Coefficient of AAB

3.3 Respondent Age

There were 25 (50%) of the respondents belongs to age group 33-38, while 14 (28%) of the respondents belongs to age group 39-44. Furthermore, out of the respondents there were 11 (22%) of the respondents belongs to age group 44-50. Majority of the respondents belongs to age group 33-38. The details are shown in Table 2.

Table 2

Respondents' Age

Age Group	Frequency	Percentage
33-38	25	50%
39-44	14	28%
45-50	11	22%
Total	50	100%

3.4 Respondent Gender

There were 33 (66%) male respondents who fill the questionnaire and there were 17 (34%) females respondents who fill up the questionnaire. The majority of the respondents were male. The detail is given in table 3.

Table 3

Respondents' Gender

Gender	Frequency	Percentage
Male	33	66%
Female	17	34%
Total	50	100%

4. Data Analysis

The data of the current study was analysed using descriptive and inferential statistics. In descriptive statistics the mean, median, maximum, minimum, skewness, kurtosis and normality statistics were calculated. In the inferential statistics, the correlation and regression analysis were used to analyse the data. The hypothesis testing was done using the regression analysis run using SPSS 22.0.

4.1 Descriptive Statistics

The descriptive statistics of the variables (Behavioural Factor, Prospect Factor, Market Factor, Over confidence Factor and Anchoring Factor) are made in order to check the normality of variables. Descriptive statistics are distinguished from inferential statistics (or inductive statistics), in that descriptive statistics aim to summarize a sample, rather than use the data to learn about the population that the sample of data is thought to represent. The descriptive statistics shows that all the four variables i.e. Investor decision (IDM) Dependent variable and Independent Variables BF, PF, MF, OF and AF has lot of variability in terms of minimum and maximum values. Due to the difference between minimum and maximum values the range statistics parameter "Skewness" exceed beyond 1 for IDM which further shows that the data is skewed and not normally distributed. However, for rest of the parameters, the values for skewness between -1 to +1 which is an indication of normal distribution of data for BF, PF, MF, OF and AF. The mean value of AF is 2.700000 with a standard deviation of 0.630840 and its distribution is positively skewed. The mean of BF is 2.812000 with standard deviation of 0.538190 and its distribution is also positively skewed and leptokurtic. Similarly the mean of MF, DB, OF and PF is 2.953333, 0.580000, 2.880000 and 2.980000 respectively with standard deviation 0.642451, 0.498569, 0.739277 and 0.526958 positively skewed and leptokurtic distribution. Table 4 shows the detailed descriptive analysis.

Table 4
Descriptive Statistics

	AF	BF	DB	MF	OF	PF
Mean	2.700000	2.812000	0.580000	2.953333	2.880000	2.980000
Median	2.500000	2.800000	1.000000	3.000000	2.500000	3.000000
Maximum	4.000000	3.800000	1.000000	4.666667	4.000000	4.000000
Minimum	1.500000	1.600000	0.000000	1.666667	2.000000	2.000000
Std. Dev.	0.630840	0.538190	0.498569	0.642451	0.739277	0.526928
Skewness	0.012318	-0.375450	-0.324176	0.511345	0.113639	0.013802
Kurtosis	2.333333	2.854910	1.105090	3.001730	1.437591	2.413913
Jarque-Bera	0.927190	1.218547	8.356342	2.178955	5.193287	0.717209
Probability	0.629018	0.543746	0.015327	0.336392	0.074523	0.698651
Sum	135.0000	140.6000	29.00000	147.6667	144.0000	149.0000
Sum Sq. Dev.	19.50000	14.19280	12.18000	20.22444	26.78000	13.60500
Observations	50	50	50	50	50	50

4.2 Correlation

To check the relationship among the variables, correlation analysis was conducted. The correlation results showed that the three variables were negatively correlated with dependent variable IDM. AF shows negative and strong relationship with BF, Market Factor show positive relationship with Prospect Factor, there is a positive relationship with overconfidence factor and

Market Factor. Market factor show positive relationship with prospect factor and show negative correlation with overconfidence factor. The details of the correlation analysis are given in Table 5.

Table 5
Correlation Table

	AF	BF	DB	MF	OF	PF
AF	1.000000	-0.097379	-0.084353	0.107424	-0.308508	0.165767
BF	-0.097379	1.000000	-0.072103	0.131505	-0.001436	0.087221
DB	-0.084353	-0.072103	1.000000	0.064989	-0.277955	0.181002
MF	0.107424	0.131505	0.064989	1.000000	0.009453	-0.043004
OF	-0.308508	-0.001436	-0.277955	0.009453	1.000000	-0.078323
PF	0.165767	0.087221	0.181002	-0.043004	-0.078323	1.000000

4.3 Regression Analyses

Regression analysis is a statistical process for estimating the relationships among variables. It includes many techniques for modelling and analysing several variables, when the focus is on the relationship between a dependent variable and one or more independent variable. Our observation include 50 and r-square is 0.118535, adjusted R square is 0.040183 and Durbin Watson stat is 2.050633. The details can be seen in Table 6.

Table 6
Regression Analysis

Dependent Variable: DB					
Method: Least Squares					
Sample: 1 50					
Included observations: 50					
Variable	Coefficient	Std. Error	t-Statistic	Prob.	
BF	-0.025968	0.119105	-0.218028	0.8284	
AF	-0.107351	0.106222	-1.010637	0.3176	
MF	0.152749	0.104999	1.454762	0.1527	
OF	-0.144265	0.084942	-1.698385	0.0963	
PF	0.300951	0.121102	2.485109	0.0167	
R-squared	0.118535	Mean dependent var	0.118535		
Adjusted R-squared	0.040183	S.D. dependent var	0.040183		
S.E. of regression	0.488450	Akaike info criterion	0.488450		
Sum squared resid	10.73624	Schwarz criterion	10.73624		
Log likelihood	-32.48698	Hannan-Quinn criter.	-32.48698		
Durbin-Watson stat	2.050633	2.050633			

The overall accuracy of regression model can further be investigated by observing the adjusted R² values. This adjusted R²0.118535 the variation in IDM is explained by all independent variables included in the model is 95%. The higher value shows greater strength of model. R Square is a coefficient of determination show strength of model. F-test means model fit test they are equal to 0%. The value of R-square (0.95) shows that 95 % variation in dependent variable IDM is explained by the independent variables and show strong relationship.

5. Summary of Findings and Discussions

The findings show that behavioural factors do influence the investment decision-making process. Market factor and prospect theory were evident, with market factor strongly dominating prospect theory in explaining the behaviour of institutional investors operating at the PSE. This study supports the view that the behaviour of the institutional investors operating at the PSE is affected by various factors.

The impact of these factors on the institutional investor decision-making behaviour is in varying degrees from very high impact to little or no impact. Market information and the fundamentals of the underlying stocks had the highest impact on investment decision-making. Most of the findings are consistent with those of studies carried out in the major economies. Factors such as cultural differences the issues around emerging economies, varying levels of governance, and size of the markets may have been expected to influence the findings.

6. Conclusion

There are five behavioural factors that impact the investment decisions of individual investors at the Pakistan stock exchange; Market Factors, Overconfidence Factor, Prospect Factors, Anchoring Factor, Behavioural Factors. The Behaviour factor includes (buying and selling; choice of trading stocks; volume of trading stocks; speed of herding). This means that investors believed that their skills and knowledge of stock market could help them to outperform the market and also they were able to anticipate the end of good or poor market returns at Pakistan stock exchange and that they normally have the ability to anticipate the ends of good or poor market. The market factor consists of three variables: price changes, market information, and past trends of stocks. The very high influences of market variables can be linked to the respondents' profiles, which show that most of them have not attended training courses about stocks.

However, they understand the importance of market information to the price movement as well as the importance of technical analysis in forecasting. The prospect factor possesses four variables that have significant impacts on the investment decision making: loss aversion, regret aversion, and mental accounting. Loss aversion ranks as the variable having the highest impact on the decision making of the investors, thus investors tend to seek more risk after a prior gain and consequently after a loss, they tend to be more risk averse. Since overconfidence had positive impacts on the investment decision, individual investors at the Pakistan stock exchange should only be overconfident at an acceptable level to utilize their skills and knowledge to improve the investment results. In the uncertainty, the overconfidence is useful for the investors to do difficult tasks and help them to forecast the future trends and should be used in clever and suitable way.

7. Limitations of the Study

This research is limited to only for individual behaviour of Pakistan stock exchange. For further research it is necessary for investor is that to acquire total picture of Pakistan stock exchange. Institutional investors should also investigate the behavioural factors which influence the Pakistan Stock exchange.

8. Suggestions for Further Research

A future study could account for more variables that potentially influence individual investor decisions. Further researches are recommended to pertain behavioural finance to explore the behaviours influencing the decisions of institutional investors at the PSE. These researches can help to test the fitness of applying behavioural finance for all kinds of securities markets with all components of investors.

References

- [1] Chordia, Tarun, Sahn-Wook Huh, and Avanidhar Subrahmanyam. "The cross-section of expected trading activity." *Review of Financial Studies* 20, no. 3 (2007): 709-740.
- [2] Brabazon, Tony. "Behavioural Finance: A new sunrise or a false dawn." 28th August (2000).
- [3] Baker, H. Kent, Michael B. Hargrove, and John A. Haslem. "An empirical analysis of the risk-return preferences of individual investors." *Journal of Financial and Quantitative Analysis* 12, no. 03 (1977): 377-389.
- [4] Rekik, Yosra Mefteh, and Younes Boujelbene. "Determinants of Individual Investors' Behaviors: Evidence from Tunisian Stock Market." *IOSR Journal of Business and Management* 8, no. 2 (2013): 109-119.
- [5] Tabassum.S.S. and S.Pardhasaradhi "An Empirical Analysis of Factors Influencing Indian Individual Equity Investors" Decision Making and Behavior. *European Journal of Business and Management*. ISSN 2222-1905 (Paper) ISSN 2222-2839 (Online) 4, No.18, 2012.
- [6] Aregbeyen, Omo, and Stanley Ogochukwu Mbadiugha. "Factors Influencing Investors Decisions in Shares of Quoted Companies in Nigeria." *The Social Sciences* 6, no. 3 (2011): 205-212.
- [7] Hossain, Md Faruk, and Shelina Nasrin. "Factors Affecting Selection of Equity Shares: The Case of Retail Investors in Bangladesh." *European Journal of Business and Management* 4, no. 20 (2012): 110-124.
- [8] Volpe, Ronald P., Joseph E. Kotel, and Haiyang Chen. "A survey of investment literacy among online investors." *Journal of Financial Counseling and Planning* 13, no. 1 (2002): 1.
- [9] Epstein, Marc J., and Martin Freedman. "Social disclosure and the individual investor." *Accounting, Auditing & Accountability Journal* 7, no. 4 (1994): 94-109.
- [10] Neumann, V. J. & Morgenstern, O. *Theory of Games and Economic Behavior*. Princeton: Princeton University Press, 1947.
- [11] Tversky, A., and D. Kahneman. "Judgement under Uncertainty: Heuristics and Biases. *Science, New Series*, 185 (4157): 1124-1131." (1974).
- [12] Statman, Meir. "Behaviorial finance: Past battles and future engagements." *Financial Analysts Journal* (1999): 18-27.
- [13] Barber, Brad M., and Terrance Odean. "Boys will be boys: Gender, overconfidence, and common stock investment." *The quarterly journal of economics* 116, no. 1 (2001): 261-292.
- [14] Kahneman, Daniel, and Amos Tversky. "Prospect theory: An analysis of decision under risk." *Econometrica: Journal of the econometric society* (1979): 263-291.
- [15] Ritter, Jay R. "Behavioral finance." *Pacific-Basin finance journal* 11, no. 4 (2003): 429-437.
- [16] Subrahmanyam, Avanidhar. "Behavioural finance: A review and synthesis." *European Financial Management* 14, no. 1 (2008): 12-29.
- [17] Tversky, Amos, and Daniel Kahneman. "*Judgment under uncertainty: Heuristics and biases*." In *Utility, probability, and human decision making*, pp. 141-162. Springer Netherlands, 1975.
- [18] Modigliani, Franco, and Richard Brumberg. "Utility analysis and the consumption function: An interpretation of cross-section data." *Franco Modigliani* 1 (1954).
- [19] Jappelli, Tullio, and Mario Padula. "Investment in financial literacy and saving decisions." *Journal of Banking & Finance* 37, no. 8 (2013): 2779-2792.
- [20] Waweru, Nelson Maina, Evelyne Munyoki, and Enrico Uliana. "The effects of behavioural factors in investment decision-making: A survey of institutional investors operating at the Nairobi Stock Exchange." *International Journal of Business and Emerging Markets* 1, no. 1 (2008): 24-41.
- [21] Kahneman, Daniel, and Mark W. Riepe. "Aspects of investor psychology." *The Journal of Portfolio Management* 24, no. 4 (1998): 52-65.
- [22] Sutherland, Stuart. *Irrationality: The enemy within*. Constable and Company, 1992.
- [23] kerlof, George, A. Spence, and Joseph Stiglitz. Interview with the 2001 Laureates in Economics, George A. Akerlof, A. Michael Spence and Joseph E. Stiglitz. No. 2001-9. Nobel Prize Committee, 2001.

-
- [24] Nagy, Robert A., and Robert W. Obenberger. "Factors influencing individual investor behavior." *Financial Analysts Journal* (1994): 63-68.
- [25] Wikipedia contributors, "Gambler's fallacy," Wikipedia, The Free Encyclopedia, https://en.wikipedia.org/w/index.php?title=Gambler%27s_fallacy&oldid=774268883 (accessed April 18, 2017).
- [26] Renu Isidore and Christie. P "Review of the individual equity investor's behavior in the Indian context" 3, no 6, (2015): 71-91.