

Influence of Investors Psychological Biases in Stock Market Investment Pattern: A Study for Understanding Investors Psychology in Lucknow

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ABSTRACT

This study aims to determine the significant impact of overconfidence bias, Loss Aversion Bias, Cognitive Bias, Optimistic Bias and Bounded Rationality on stock market investment patterns in Lucknow city. The study includes three types of market investment such as Mutual funds, Debt market and Share Market. The study is based on primary data collection from various brokerage firms from individual investors. The findings of this paper shows the significant impact of investor's psychological biases on investment pattern. This study is helpful for individual investors for develop awareness about the biases which affect their investment decision. It is also helpful for brokerage houses, financial advisors, brokers, financial institutions to take a better investment decision while finding the presence of psychological biases in individual investors which helps to maintain rationality in investment choices in order to avoid risk and uncertainties in future investments.

JEL Codes: G4, G40, G41

Keywords: Behavioural Finance, Investment decisions, psychological biases.

1. Introduction

Financial market is a transmission mechanism between investors or lenders and borrowers through which transfer of funds are facilitated. Financial market in India is incorporated with capital market and money market. Capital market is further divided into two markets namely primary or new issue market and secondary or stock exchange. Money market is the combination of various money market instruments which is applied by the institution and investors during a year. According to RBI report of currency and finance, financial market in India contains credit market, debt and capital market, foreign exchange market, insurance market, derivative market and bond-assurance market. According to Future Industry Association (FIA) in 2nd consecutive year in 2020 by number of contracts traded NSE was appeared as a world's largest derivative exchange and 4th in cash equities by trades as per World Federation of Exchange (WFE) in year 2020. In Global equity derivative exchange on the basis of volume traded NSE ranked 1st. Bank nifty Index ranked 1st and CNX Nifty Index ranked 2nd. In single stock future and options in terms of volume traded NSE & BSE

ranked 6th and 17th (WFE, 2020). According to SEBI 142 lakh Demat account was registered in 2020-21 only the under Central Depository Service (CDSL) and National Securities Depository Limited (NSDL). CDSL & NSDL registered total 551 lakh demat account as on March 31, 2021. After 2014-15, 2nd highest net inflow of foreign portfolio investment Rs 267.1 thousand Crore is generated in 2020-21. Resource mobilisation was Rs 86 lakh crore during this year.

In behavioural finance the psychological bias represents the investor's way of thinking which affect their own behaviour as well as investment decision. These biases affect every investor while they take investment decisions on the basis of individual nature. In this study I have outlined impact of five psychological biases on stock market investment patterns lead to poor investment decisions of individual investor. First **Over Confidence Bias**, According to Pallier et al (2002). Over Confidence is a tendency of individual in which people overestimate their own abilities and knowledge which leads to take risky investment decisions. Second psychological bias is **Optimism**, Sharot, (2011) explains optimistic bias as a tendency to develop over positive attitude towards the events and underestimation of negative events. In this bias belief of individual that the chance of facing loss is minimum and they only experiencing the better investment returns. People might mistakenly believe that bad things won't happen to them. Third psychological bias is **bounded rationality**, the concept of Bounded rationality is given by Herbert Simon. They define the concept of that challenges the rationality of human on the basis of limited information, time and thinking capacity Simon, (1982). It shows cognitive limitation of individual investors in their optional decisions depends on the factors like cognitive limitations, limited time and incomplete or imperfect information. Fourth psychological bias is **cognitive bias**. Ariely, (2008) define cognitive bias as a systematic error in thinking of individuals, in which their decision and perspectives are dispersed according to the desirable norms and logics which they have. The human behaviour are based on subject to limitation. The bias is caused because of external factors like social pressure, motivational and emotional factors which affect individual's behaviour, limitation in processing information etc. Fifth and last psychological bias is **Loss Aversion**. Kahneman & Tversky, (1979) define Loss aversion as an important concept in prospect theory which explains the people don't take situation of loss and gain in a same manner. Effect of loss is more than the pleasure of gain.

Stock market of India and economy of the nation having a significant relationship. Stock market plays an important role in the economic development and vice versa. So, the individual investor's decision in stock market affect the market trends and it influence the economy of nation. It is important to determine the effect of investor's psychological biases on stock market investment patterns in Lucknow city which helps to take better future decisions and justify the outcomes.

2. Review of Literature

The literature review can provide the base for any research which helps to identify the research gap and according to this gap it helps to understand the research problem and to prepare research methodology which is suitable to satisfy the research objective. Related to the research problem various studies are conducted in India as well as all over the world which are include for this study to frame the objective and hypothesis.

Prasad, Kapur & Sengupta (2017), conducted research to identify the overconfidence bias and disposition effect among equity market of India. He study mainly focused on the response function on equity market from NIFTY 50 index and individual returns. They found the presence of psychological biases during the sample period. They concluded that the Indian equity market are not very efficient with respect to psychological biases.

Bouteska & Regaieg (2020), study the impact of overconfidence bias and loss aversion bias on market performance of US stock market. The study shows the negative relationship between financial performance of companies and loss aversion. But it shows positive correlation between overconfidence bias and market performance. They concluded that overconfidence bias are more dominating bias rather than the loss aversion on economic performance of US companies in stock market.

Thiyagarajan et al (2020), identify the influence of overconfidence bias among the individual investors in stock market. The study shows the significant impact of biases on stock market and it's dominate the individual decision making process.

Iqbal (2015), determine the effect of optimistic bias on investors of Islamabad stock exchange, Pakistan. The findings of the study shows the significant relationship between optimistic bias and investment decisions.

Gakhar (2019), explain the role of optimistic bias in the attitude of investors in stock market investment. They determine that every individual is different from each other's and their attitude is also varies on the basis of their aims, risk taking capacity and desired profitability. They found positive correlation between the optimistic bias and risk attitude of investor in stock market.

Suhono & Nugraha (2020), study the impact of optimistic bias and overconfidence bias on investment decisions of investor in Karawang stock market, Indonesia. They study the psychological factors which generate the irrationality in investor's decision making process. The study concluded that there is an influence of optimistic bias and overconfidence bias on investment decisions of investors.

Rekik & Boujelbene (2013) the individual's age, education, life experiences and gender is related with various financial components. In this study they concluded that people's investment choices are the reflection of their responses and feeling towards the market and most of the time people are psychologically biased while take a money decisions.

Joyce Ehrlinger et al, (2017) determine the range of dispersions from rational decisions which affect the choices of investors in investment on the basis of cognitive biases. According to them this bias is useful to take short plans, shortcuts and efficient decisions but in long run it is not very effective for investment decisions. Short cuts can be helpful to take better investment decisions.

Sha & Ismail (2020), defines that the investors make investment decisions on the basis of available information and create perception about this information. In this process cognitive bias leads them to take investment decision, sometime it is good either bad. They found the influence of cognitive bias in the investment decision of investors.

Kumar (2018), identify the impact of loss aversion on individual investors in Indian stock market. The study consider the demographic variable like age, gender, income, perception, investment experience having a correlation with loss aversion and investment decision. They concluded that the gender of individual investor having a significant relationship with loss aversion bias and investment decisions.

Zekria & Oscar (2018), study the effect of loss aversion bias on behavioral herding of young investors in Swedish. The study is based on primary data collection method. They study explore to find out the casual impact on herd behavior. The author concluded that lossaversion is don't have a significant relationship with herd behavior of young Swedish investors. It not considered as a major factor for herding behavior of investors.

Byder, Agudelo & Arango (2019), examine the reactions of investors during the financial crisis. They include mutual fund investors for the study from stock brokers, Colombia. Theyfound that the women investors and self-employed investors are highly affected with loss aversion and they withdraw their investment in a situation of financial crisis.

Banerjee and Padhan (2017), conducted study to identify the relationship between bounded rationality and new asset class, future in stock market. The study analyze the herd behavior of investors is as key to understand the bandwagon effect, resulting inefficiency in asset pricing. The study found the evidence of bounded rationality for microeconomics new release, spillovers and trade volume.

Jordao et al. (2020), study the bounded rationality bias in individual decision making in Portugal. The research found the significant relationship between the decision making and bounded rationality bias.

3. Objective of Research Study

The research study aims to develop an understanding of the Investor's Psychologicalbiases in Lucknow city. The objectives are to be studied in the research:

- To know the impact of Overconfidence psychological biases on Stock MarketInvestment pattern.
- To know the impact of Optimism psychological biases on Stock Market Investmentpattern.
- To know the impact of Bounded Rationality psychological biases on Stock MarketInvestment pattern.
- To know the impact of Cognitive psychological Biases on Stock Market Investmentpattern.
- To know the impact of Loss Aversion psychological Biases on Stock MarketInvestment pattern.

4. Data and Research Methodology

This study is conducted on the primary data. Cross sectional research design is used to collect the data from retail investors from ten top stock broker Companies. Self-Completion Questionnaire is used for primary data collection through retail investors. Data was Collected by using stratified random sampling includes 500 sample for the study in Lucknow City. Research hypothesis drawn for the study is:

H₁ – There is a significant impact of overconfidence psychological biases on Stock Market Investment pattern.

H₂ – There is a significant impact of Optimism psychological biases on Stock Market Investment pattern.

H₃ – There is a significant impact of Bounded Rationality psychological biases on Stock Market Investment pattern.

H₄ – There is a significant impact of Cognitive psychological biases on Stock Market Investment pattern.

H₅ – There is a significant impact of Loss Aversion psychological biases on Stock Market Investment pattern.

5. Findings and Data Analysis

5.1 Demographic Profile

Gender: There were total 500 respondents mostly dominated by males (Individual Investors), out of which 71.2% male and 28.8% female.

Age (In Years): The majority of the respondents were from the age group 26-35 followed by 36-45 and 18-25. Very few number of respondents are belong to the age group 45-55 and above.

Educational Qualification: The majority of the investors are graduates. Education is an important factor to create outlook and it develop the sense of understanding about the advantages and disadvantage of investment in stock market.

Occupation: The majority of the investors are Private employees followed by own Business. Government sectors have very few contribution as investors. It clearly shows that people now a days are focusing more on investments.

Annual Income (In Rs.): The highest percentage of investors are belongs to middle class and middle lower class having an annual income from 2 to 4 Lakhs. So the data clearly define that the investors are willing to create another income source to increase their income.

Preference in Investment: There were a very large number of investors preferred investment in Mutual funds as compare to other financial instruments. This shows that mostly investors prefer to invest in moderate risk avenues.

5.2 Relationship between Overconfidence Bias and Investment Decision

To determine the impact of overconfidence bias on stock market investment pattern regression analysis was applied by using Advance Excel.

5.2.1 Impact on Mutual Fund

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.75	0.56	0.56	0.80

It is inferred from the table I that the value of R is 0.75, which revealed that the model has a good level of prediction. The value of R Square is 0.56, which implied that independent variable (Overconfidence Bias) had 56% variability of the dependent variable (Mutual Funds). So it depict a good relationship and significance of overconfidence over mutual fund investment pattern.

Table II ANOVA ^a

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	3.00	413.0	137.67	212.71	0.00
Residual	496.0	321.0	0.65		
Total	499.0	734.0			

The table II depicts about statistical significance of the model. The F ratio in the ANOVA Table reveals that the independent variable (Overconfidence Bias) is statistically significant with dependent variable (Mutual Fund), $F(1,598)=212.71$, $p<0.05$.

Table III Coefficients^a

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	-0.07	0.15	-0.47	0.64
SIP	0.57	0.06	10.39	0.00
Close Ended Mutual Fund	0.29	0.05	5.65	0.00
Open Ended Mutual Fund	0.15	0.05	2.78	0.01

It was inferred from the table III that the Overconfidence bias is found to be statistically significant with SIP as the p value is 0.000 (i.e. less than 0.05), p value is 0.00 in case of Close Ended Mutual Funds but in case of Open Ended Mutual Funds p value is 0.01(i.e. Greater than 0.05) which shows the insignificant relationship between Overconfidence bias and Open ended Mutual fund. The model indicates that overconfidence bias is the key determinant which affect the mutual fund investment pattern. It includes SIP and Close Ended Mutual Funds. It was inferred from the table the p value is 0.00 (i.e. less than 0.05) therefore the null hypothesis has been rejected. Hence, it can be concluded that the Overconfidence bias has a significant impact on mutual funds investment.

5.2.2 Impact on Share Market

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.77	0.59	0.58	0.64

It was inferred from the table IV that the value of R is 0.77, which revealed that the model has a good level of prediction. The value of R Square is 0.59, which implied that independent variable (Overconfidence Bias) had 59% variability of the dependent variable (Share Market). So it depict a good relationship and significance of overconfidence over Share Market investment pattern.

Table V ANOVA^b

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	3	284.211	94.7370	234.550	1.02E-94
Residual	496	200.338	0.40390		
Total	499	484.55			

The table V depicts about statistical significance of the model. The F ratio in the ANOVA Table reveals that the independent variable (Overconfidence Bias) is statistically significant with dependent variable (Share Market), $F(1,598)=234.5$, $p<0.05$.

Table VI Coefficients^b

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	0.66	0.13	5.27	0.00
Equity Share	0.54	0.05	11.86	0.00
Preference Share	-0.10	0.04	-2.46	0.01
Right Share	0.37	0.04	8.83	0.00

It was inferred from the table VI that the Overconfidence bias is found to be statistically significant with Equity Share as the p value is 0.00 (i.e. less than 0.05), p value is 0.00 in case of Right Share but in case of Preference Share p value is 0.01(i.e. Greater than 0.05) which shows the insignificant relationship between Overconfidence bias and Preference Share. The model indicates that overconfidence bias is the key determinant which affect the mutual fund investment pattern. It includes Equity Share and Right Share. It was inferred from the table that the p value is 0.00 (i.e. less than 0.05) therefore the null hypothesis has been rejected. Hence, it can be concluded that the Overconfidence bias has a significant impact on Share Market investment.

5.2.3 Impact on Debt Market

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.77	0.59	0.59	0.74

It was inferred from the table VII that the value of R is 0.77, which revealed that the model has a good level of prediction. The value of R Square is 0.59, which implied that independent variable (Overconfidence Bias) had 59% variability of the dependent variable (Debt Market). So it depict a good relationship and significance of overconfidence over Debt Market investment pattern.

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	3.00	398.53	132.84	242.19	0.00
Residual	496.00	272.07	0.55		
Total	499.00	670.60			

The table VIII depicts about statistical significance of the model. The F ratio in the ANOVA Table reveals that the independent variable (Overconfidence Bias) is statistically significant with dependent variable (Debt Market), $F(1,598)=242.19$, $p<0.05$.

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	-0.10	0.15	-0.64	0.53
Debentures	0.55	0.05	10.45	0.00
Government Bonds and Securities	0.17	0.05	3.30	0.00
PSU Bonds	0.28	0.04	6.34	0.00

It was inferred from the table IX that the Overconfidence bias is found to be statistically significant with Debentures as the p value is 0.00 (i.e. less than 0.05), p value is 0.00 in case of Government Bonds and Securities and p value is 0.00 in case of PSU Bonds. The model indicates that overconfidence bias is the key determinant which affect the Debt Market investment pattern. It includes Debentures, Government Bonds & Securities and PSU Bonds. It was inferred from the table that the p value is 0.00 (i.e. less than 0.05) therefore the null hypothesis has been rejected. Hence, it can be concluded that the Overconfidence bias has a significant impact on Debt Market investment.

5.3 Relationship between Optimism Bias and Investment Decision

To determine the impact of Optimism bias on stock market investment pattern regression analysis was applied by using Advance Excel.

5.3.1 Impact on Mutual Funds

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.74	0.54	0.54	0.82

It was inferred from the table X that the value of R is 0.75, which revealed that the model has a good level of prediction. The value of R Square is 0.54, which implied that independent variable (Optimism Bias) had 54% variability of the dependent variable (Mutual Fund). So it depict a good relationship and significance of Optimism Bias over Mutual Fund investment pattern.

Table XI ANOVA^a

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	3.00	393.85	131.28	194.47	0.00
Residual	495.00	334.16	0.68		
Total	498.00	728.02			

The table XI depicts about statistical significance of the model. The F ratio in the ANOVA Table reveals that the independent variable (Optimism Bias) is statistically significant with dependent variable (Mutual Fund), $F(1,598)=194.47$, $p<0.05$.

Table XII Coefficients^a

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	0.38	0.15	2.54	0.01
SIP	0.64	0.05	12.69	0.00
Close Ended	0.12	0.05	2.45	0.01
Open Ended	0.08	0.04	2.15	0.03

It was inferred from the table XII that the Optimism bias is found to be statistically significant with SIP as the p value is 0.00 (i.e. less than 0.05), p value is 0.01 (i.e. Greater than 0.05) in case of Close ended Mutual Funds and in Open Ended Mutual Funds p value is 0.01(i.e. Greater than 0.05) which shows the insignificant relationship between Optimism Bias and Close Ended Mutual Fund and Open Ended Mutual Fund.. The model indicates that Optimism bias is the key determinant which affect the Mutual fund investment pattern. It includes SIP. It was inferred from the table that the p value is 0.00 (i.e. less than 0.05) therefore the null hypothesis has been rejected. Hence, it can be concluded that the Optimism bias has a significant impact on Mutual Fund investment.

5.3.2 Impact on Share Market

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.73	0.54	0.54	0.70

It was inferred from the table XIII that the value of R is 0.73, which revealed that the model has a good level of prediction. The value of R Square is 0.54, which implied that independent variable (Optimism Bias) had 54% variability of the dependent variable (Share Market). So it depict a good relationship and significance of Optimism Bias over Share Market investment pattern.

Table XIV ANOVA^b

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	3.00	283.4	94.47	193.02	0.00
Residual	495.00	242.2	0.49		
Total	498.00	525.7	0		

The table XIV depicts about statistical significance of the model. The F ratio in the ANOVA Table reveals that the independent variable (Optimism Bias) is statistically significant with dependent variable (Share Market), $F(1,598)=193.02$, $p<0.05$

Table XV Coefficients^b

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	0.79	0.13	6.25	0.00
Equity Share	0.40	0.05	7.67	0.00
Preference Share	0.04	0.05	0.83	0.40
Right Share	0.35	0.05	7.25	0.00

It was inferred from the table XV that the Optimism bias is found to be statistically significant with Equity Share as the p value is 0.00 (i.e. less than 0.05), p value is 0.00 (i.e. Less than 0.05) in case of Right Share and in Case of Preference Share p value is 0.40 (i.e. Greater than 0.05) which shows the insignificant relationship between Optimism Bias and Preference Share. The model indicates that

Optimism bias is the key determinant which affect the Share Market investment pattern. It includes Equity Share and Right Share. It was inferred from the table that the p value is 0.00 (i.e. less than 0.05) therefore the null hypothesis has been rejected. Hence, it can be concluded that the Optimism bias has a significant impact on Share Market investment.

5.3.3 Impact on Debt Market

Table XVI Model Summary ^c			
R	R Square	Adjusted R Square	Std. Error of the Estimate
0.81	0.65	0.65	0.65

Interpretation:

The Table XVI of the value of R is 0.81, which revealed that the model has a good level of prediction. The value of R Square is 0.65, which implied that independent variable (Optimism Bias) had 65% variability of the dependent variable (Debt Market). So it depict a good relationship and significance of Optimism Bias over Debt Market investment pattern.

Table XVII ANOVA^c

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	3.00	392.33	130.78	306.00	0.00
Residual	495.00	211.55	0.43		
Total	498.00	603.89			

Interpretation:

The ANNOVA Table XVII depicts about statistical significance of the model. The F ratio in the ANOVA Table reveals that the independent variable (Optimism Bias) is statistically significant with dependent variable (Debt Market), $F(1,598)=306.00$, $p<0.05$.

Table XVIII Coefficients^c

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	0.12	0.12	1.01	0.31
Debentures	0.30	0.05	6.70	0.00
Government Securities	0.35	0.04	8.26	0.00
PSU Bonds	0.28	0.04	6.96	0.00

It was inferred from the table XVIII that the Optimism bias is found to be statistically significant with Debenture as the p value is 0.00 (i.e. less than 0.05), p value is 0.00 (i.e. Less than 0.05) in case of Government Bonds & Securities and p value is 0.00 (i.e. Less than 0.05) in Case of PSU Bonds. The model indicates that Optimism bias is the key determinant which affect the Debt Market investment pattern. It includes Debentures, Government Bonds & Securities and PSU Bonds. It was inferred from the table that the p value is 0.00 (i.e. less than 0.05) therefore the null hypothesis has been rejected. Hence, it can be concluded that the Optimism bias has a significant impact on Debt Market investment.

5.4 Relationship between Bounded Rationality Bias and Investment Decision

To determine the impact of Bounded Rationality bias on stock market investment pattern regression analysis was applied by using Advance Excel.

5.4.1 Impact on Mutual Funds

Table XIX Model Summary^a

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.71	0.50	0.50	0.87

It was inferred from the table XIX that the value of R is 0.71, which revealed that the model has a good level of prediction. The value of R Square is 0.50, which implied that independent variable (Bounded Rationality Bias) had 50% variability of the dependent variable (Mutual Fund). So it depict a good relationship and significance of Bounded Rationality Bias over Mutual Fund investment pattern.

Table XX ANOVA^a

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	3.00	379.60	126.53	166.43	0.00
Residual	495.00	376.33	0.76		
Total	498.00	755.93			

The table XX depicts about statistical significance of the model. The F ratio in the ANOVA Table reveals that the independent variable (Bounded Rationality Bias) is statistically significant with dependent variable (Mutual Fund), $F(1,598)=166.43$, $p<0.05$.

Table XXI Coefficients^a

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	0.44	0.16	2.68	0.01
SIP	0.54	0.05	10.80	0.00
Close Ended	0.27	0.05	5.43	0.00
Open Ended	0.04	0.04	0.92	0.36

It was inferred from the table XXI that the Bounded Rationality bias is found to be statistically significant with SIP as the p value is 0.00 (i.e. less than 0.05), p value is 0.00 (i.e. Less than 0.05) in case of Close Ended Mutual Funds and p value is 0.36 (i.e. Greater than 0.05) in Case of Open Ended Mutual Fund which shows the insignificant relationship between Bounded Rationality and Open Ended Mutual Fund. The model indicates that Bounded Rationality bias is the key determinant which affect the Mutual Fund investment pattern. It includes SIP and Close ended Mutual Fund. It was inferred from the table that the p value is 0.00 (i.e. less than 0.05) therefore the null hypothesis has been rejected. Hence, it can be concluded that the Bounded Rationality bias has a significant impact on Mutual Fund investment.

5.4.2 Impact on Share Market

Table XXII Model Summary^b

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.61	0.37	0.36	0.90

It was inferred from the table XXII that the value of R is 0.61, which revealed that the model has a good level of prediction. The value of R Square is 0.37, which implied that independent variable (Bounded Rationality Bias) had 37% variability of the dependent variable (Share Market). So it depict a good relationship and significance of Bounded Rationality Bias over Share Market investment pattern

Table XXIII ANOVA^b

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	3.00	232.56	77.52	95.73	0.00
Residual	495.00	400.83	0.81		
Total	498.00	633.39			

The table XXIII depicts about statistical significance of the model. The F ratio in the ANOVA Table reveals that the independent variable (Bounded Rationality Bias) is statistically significant with dependent variable (Share market), $F(1,598)=95.73$, $p<0.05$.

Table XXIV Coefficients^b

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	1.30	0.15	8.67	0.00
Equity Share	0.38	0.05	8.26	0.00
Preference Share	0.01	0.06	0.26	0.80
Right Share	0.29	0.06	5.14	0.00

It was inferred from the table XXIV that the Bounded Rationality bias is found to be statistically significant with Equity Share as the p value is 0.00 (i.e. less than 0.05), p value is 0.00 (i.e. Less than 0.05) in case of Right Share and p value is 0.80 (i.e. Greater than 0.05) in Case of Preference share which shows the insignificant relationship between Bounded Rationality and Preference share. The model indicates that Bounded Rationality bias is the key determinant which affect the Share Market investment pattern. It includes Equity Share and Right Share. It was inferred from the table that the p value is 0.00 (i.e. less than 0.05) therefore the null hypothesis has been rejected. Hence, it can be concluded that the Bounded Rationality bias has a significant impact on Share Market investment.

5.4.3 Impact on Debt Market

Table XXV Model Summary^c

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.68	0.47	0.47	0.76

It was inferred from the table XXV that the value of R is 0.68, which revealed that the model has a good level of prediction. The value of R Square is 0.47, which implied that independent variable (Bounded Rationality Bias) had 47% variability of the dependent variable (Debt Market). So it depict a good relationship and significance of Bounded Rationality Bias over Debt Market investment pattern

Table XXVI ANOVA^c

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	3.00	252.17	84.06	145.77	0.00
Residual	495.00	285.45	0.58		
Total	498.00	537.62			

The table XXVI depicts about statistical significance of the model. The F ratio in the ANOVA Table reveals that the independent variable (Bounded Rationality Bias) is statistically significant with dependent variable (Debt market), $F(1,598)=145.77$, $p<0.05$.

Table XXVII Coefficients^c

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	0.86	0.14	6.12	0.00
Debentures	0.27	0.04	6.16	0.00
Government Bonds & Securities	0.35	0.05	6.83	0.00
PSU Bonds	0.13	0.04	2.98	0.00

It was inferred from the table XXVII that the Bounded Rationality bias is found to be statistically significant with Debentures as the p value is 0.00 (i.e. less than 0.05), p value is 0.00 (i.e. Less than 0.05) in case of Government Bonds & Securities and p value is 0.00 (i.e. Less than 0.05) in Case of PSU Bonds. The model indicates that Bounded Rationality bias is the key determinant which affect the Debt Market investment pattern. It includes Debentures, Government Bonds & Securities and PSU Bonds. It was inferred from the table that the p value is 0.00 (i.e. less than 0.05) therefore the null hypothesis has been rejected. Hence, it can be concluded that the Bounded Rationality bias has a significant impact on Debt Market investment

5.5 Relationship between Cognitive Bias and Investment Decision

To determine the impact of Cognitive bias on stock market investment pattern regression analysis was applied by using Advance Excel.

5.5.1 Impact on Mutual Funds

Table XXVIII Model Summary^a			
R	R Square	Adjusted R Square	Std. Error of the Estimate
0.73	0.53	0.53	0.81

It was inferred from the table XXVIII that the value of R is 0.73, which revealed that the model has a good level of prediction. The value of R Square is 0.53, which implied that independent variable (Cognitive Bias) had 53% variability of the dependent variable (Mutual Fund). So it depict a good relationship and significance of Cognitive Bias over Mutual Fund investment pattern.

Table XXIX ANOVA^a

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	3.00	364.95	121.65	186.46	0.00
Residual	496.00	323.60	0.65		
Total	499.00	688.55			

The table XXIX depicts about statistical significance of the model. The F ratio in the ANOVA Table reveals that the independent variable (Cognitive Bias) is statistically significant with dependent variable (Mutual Fund), $F(1,598)=186.46$, $p<0.05$

Table XXX Coefficients^a

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	0.32	0.14	2.24	0.03
SIP	0.42	0.05	8.29	0.00
Close Ended	0.32	0.05	6.76	0.00
Open Ended	0.13	0.04	3.33	0.00

It was inferred from the table XXX that the Cognitive bias is found to be statistically significant with SIP as the p value is 0.00 (i.e. less than 0.05), p value is 0.00 (i.e. Less than 0.05) in case of Close Ended Mutual Fund and p value is 0.00 (i.e. Less than 0.05) in Case of Open ended Mutual Fund. The model indicates that Cognitive bias is the key determinant which affect the Mutual Fund investment pattern. It includes SIP, Close Ended Mutual Fund and Open Ended Mutual Fund. It was inferred from the table that the p value is 0.00 (i.e. less than 0.05) therefore the null hypothesis has been rejected. Hence, it can be concluded that the Cognitive bias has a significant impact on Mutual Fund investment

1.5.2 Impact on Share Market

Table XXXI Model Summary^b

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.74	0.55	0.55	0.69

It was inferred from the table XXXII that the value of R is 0.74, which revealed that the model has a good level of prediction. The value of R Square is 0.55, which implied that independent variable (Cognitive Bias) had 55% variability of the dependent variable (Share Market). So it depicts a good relationship and significance of Cognitive Bias over Share Market investment pattern

Table XXXII ANOVA^b

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	3.00	289.02	96.34	201.17	0.00
Residual	496.00	237.53	0.48		
Total	499.00	526.55			

The table XXXII depicts about statistical significance of the model. The F ratio in the ANOVA Table reveals that the independent variable (Cognitive Bias) is statistically significant with dependent variable (Share Market), $F(1,598)=201.17$, $p<0.05$.

Table XXXIV Coefficients^b

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	0.62	0.13	4.86	0.00
Equity Share	0.41	0.05	9.20	0.00
Preference Share	0.21	0.04	5.05	0.00
Right Share	0.21	0.04	4.88	0.00

It was inferred from the table XXXIV that the Cognitive bias is found to be statistically significant with Equity Share as the p value is 0.00 (i.e. less than 0.05), p value is 0.00 (i.e. Less than 0.05) in case of Preference Share and p value is 0.00 (i.e. Less than 0.05) in Case of Right Share. The model indicates that Cognitive bias is the key determinant which affect the Share Market investment pattern. It includes Equity Share, Preference Share and Right Share. It was inferred from the table that the p value is 0.00 (i.e. less than 0.05) therefore the null hypothesis has been rejected. Hence, it can be concluded that the Cognitive bias has a significant impact on Share Market investment.

5.5.3 Impact on Debt Market

Table XXXV Model Summary^c

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.71	0.51	0.51	0.80

It was inferred from the table XXXV that the value of R is 0.71, which revealed that the model has a good level of prediction. The value of R Square is 0.51, which implied that independent variable (Cognitive Bias) had 51% variability of the dependent variable (Debt Market). So it depicts a good relationship and significance of Cognitive Bias over Debt Market investment pattern

Table XXXVI ANOVA^c

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	3.00	328.49	109.50	172.61	0.00
Residual	496.00	314.64	0.63		
Total	499.00	643.13			

The table XXXVI depicts about statistical significance of the model. The F ratio in the ANOVA Table reveals that the independent variable (Cognitive Bias) is statistically significant with dependent variable (Debt Market), $F(1,598)=172.61$, $p<0.05$.

Table XXXVII Coefficients^c

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	0.17	0.16	1.08	0.28
Debentures	0.30	0.05	5.65	0.00
Government Bonds & Securities	0.27	0.05	5.18	0.00
PSU Bonds	0.34	0.05	7.02	0.00

It was inferred from the table XXXVII that the Cognitive bias is found to be statistically significant with Debentures as the p value is 0.00 (i.e. less than 0.05), p value is 0.00 (i.e. Less than 0.05) in case of Government Bonds & Securities and p value is 0.00 (i.e. Less than 0.05) in Case of PSU Bond. The model indicates that Cognitive bias is the key determinant which affect the Debt Market investment pattern. It includes Debentures, Government Bonds & Securities and PSU Bonds. It was inferred from the table that the p value is 0.00 (i.e. less than 0.05) therefore the null hypothesis has been rejected. Hence, it can be concluded that the Cognitive bias has a significant impact on Debt Market investment.

5.6 Relationship between Loss Aversion Bias and Investment Decision

To determine the impact of Loss Aversion bias on stock market investment pattern regression analysis was applied by using Advance Excel.

5.6.1 Impact on Mutual Funds

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.73	0.54	0.54	0.84

It was inferred from the table XXXVIII that the value of R is 0.73, which revealed that the model has a good level of prediction. The value of R Square is 0.54, which implied that independent variable (Loss Aversion Bias) had 54% variability of the dependent variable (Mutual Fund). So it depicts a good relationship and significance of Loss Aversion Bias over Mutual Fund investment pattern.

Table XXXIX ANOVA^a

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	3.00	395.57	131.86	188.99	0.00
Residual	483.00	336.99	0.70		
Total	486.00	732.56			

The table XXXIX depicts about statistical significance of the model. The F ratio in the ANOVA Table reveals that the independent variable (Loss Aversion Bias) is statistically significant with dependent variable (Mutual Fund), $F(1,598)=188.99$, $p<0.05$.

Table XL Coefficients^a

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	0.12	0.15	0.76	0.45
SIP	0.47	0.05	8.88	0.00
Close Ended	0.35	0.05	7.34	0.00
Open Ended	0.10	0.04	2.51	0.01

It was inferred from the table XL that the Loss Aversion bias is found to be statistically significant with SIP as the p value is 0.00 (i.e. less than 0.05), p value is 0.00 (i.e. Less than 0.05) in case of Close Ended Mutual Fund and p value is 0.01 (i.e. greater than 0.05) in Case of Open Ended Mutual Fund which shows the insignificant relationship between Loss Aversion and Open Ended Mutual Fund. . The model indicates that Loss Aversion bias is the key determinant which affect the Mutual Fund investment pattern. It includes SIP and Close Ended Mutual Fund. It was inferred from the table that the p value is 0.00 (i.e. less than 0.05) therefore the null hypothesis has been rejected. Hence, it can be concluded that the Loss Aversion bias has a significant impact on Mutual Fund investment.

5.6.2 Impact on Share Market

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.71	0.50	0.49	0.73

It was inferred from the table XLI that the value of R is 0.71, which revealed that the model has a good level of prediction. The value of R Square is 0.50, which implied that independent variable (Loss Aversion Bias) had 50% variability of the dependent variable (Share Market). So it depicts a good relationship and significance of Loss Aversion Bias over Share Market investment pattern.

Table XLII ANOVA^b

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	3.00	256.44	85.48	159.60	0.00
Residual	483.00	258.69	0.54		
Total	486.00	515.13			

The table XLII depicts about statistical significance of the model. The F ratio in the ANOVA Table reveals that the independent variable (Loss Aversion Bias) is statistically significant with dependent variable (Share Market), $F(1,598)=159.60$, $p<0.05$.

Table XLIII Coefficients^b

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	0.91	0.13	6.83	0.00
Equity Share	0.24	0.05	4.55	0.00
Preference Share	0.22	0.04	5.10	0.00
Right Share	0.31	0.05	6.64	0.00

It was inferred from the table XLIII that the Loss Aversion bias is found to be statistically significant with Equity Share as the p value is 0.00 (i.e. less than 0.05), p value is 0.00 (i.e. Less than 0.05) in case of Preference Share and p value is 0.00 (i.e. less than 0.05) in Case of Right Share. The model indicates that Loss Aversion bias is the key determinant which affects the Share Market investment pattern. It includes Equity Share, Preference Share and Right Share. It was inferred from the table that the p value is 0.00 (i.e. less than 0.05) therefore the null

hypothesis has been rejected. Hence, it can be concluded that the Loss Aversion bias has a significant impact on Share Market investment

5.6.3 Impact on Debt Market

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.76	0.58	0.57	0.71

It was inferred from the table XLIV that the value of R is 0.76, which revealed that the model has a good level of prediction. The value of R Square is 0.58, which implied that independent variable (Loss Aversion Bias) had 58% variability of the dependent variable (Debt Market). So it depict a good relationship and significance of Loss Aversion Bias over Debt Market investment pattern.

Table XLV ANOVA^c

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	3.00	330.07	110.02	219.96	0.00
Residual	483.00	241.60	0.50		
Total	486.00	571.67			

The table XLV depicts about statistical significance of the model. The F ratio in the ANOVA Table reveals that the independent variable (Loss Aversion Bias) is statistically significant with dependent variable (Debt Market), $F(1,598)=219.96$, $p<0.05$.

Table XLVI Coefficients^c

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	0.22	0.14	1.58	0.11
Debentures	0.47	0.04	11.94	0.00
Government Bond & Securities	0.28	0.04	6.43	0.00
PSU Bonds	0.18	0.04	4.31	0.00

It was inferred from the table XLVI that the Loss Aversion bias is found to be statistically significant with Debentures as the p value is 0.00 (i.e. less than 0.05), p value is 0.00 (i.e. Less than 0.05) in case of Government Bonds & Securities and p value is 0.00 (i.e. Less than 0.05) in Case of PSU Bonds. The model indicates that Loss Aversion bias is the key determinant which

affect the Debt Market investment pattern. It includes Debentures, Government Bonds & securities and PSU Bond. It was inferred from the table that the p value is 0.00 (i.e. less than 0.05) therefore the null hypothesis has been rejected. Hence, it can be concluded that the Loss Aversion bias has a significant impact on Debt Market investment.

6. DISCUSSION

Taking into account the present study's findings, some suggestions are made that would be beneficial to the stock market participants as well as to the individual investors for future. The suggestions are based on the survey results, the researcher's observations during the study of investor's psychological bias and its impact on stock market investment pattern. The relationship between the psychological biases and stock market investment pattern is significant. So it is suggested to the stock market participants to take initiative for reducing the effect of psychological biases on investment behavior of individual investors while taking investment choices. The scope of the present study and its coverage area is limited to Lucknow City, Uttar Pradesh, India. The scope for further research is a vast concept; it is quite difficult to cover the each aspect of stock market investment. The further research can also be conducted in other regions, states, and territories. The further research can also be conducted on other stock market participants. This study is only focusing on retail investors.

7. CONCLUSION

The present study is an attempt to analyses the impact of investors psychological biases on stock market investment patterns. The focus of study is to find significant relationship between psychological biases and stock market investment pattern which includes mutual funds, share market and debt market investment in India. It is concluded from the findings of the study that the psychological bias, has created a significant positive impact on mutual fund which includes SIP, Close Ended Mutual Funds and open ended mutual funds. It is also concluded that psychological bias has created a significant positive impact on share market which includes Equity share, preference share and right shares respectively. In this context the psychological bias has created a significant impact on debt market includes debentures, government bonds & Securities and PSU bonds. The findings of the research study is satisfied the objective of this study. The result is clearly shows the significant impact of these psychological biases on stock market investment pattern. So this study helps to individual investors to take better investment decision with minimizing the influence of psychological biases. It is equally helpful to brokers, financial advisors and financial institutions to understand the psychological perspective of individual investors which helps to reduce risk and uncertainties in future investment decisions.

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