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Individual Investors – Are they Emotionally Biased?

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Abstract
The stock market is a crucial aspect of not just India's financial market but of the world's economy as a whole, as it results into massive investments performances. In the fast-moving financial scenario, the traditional finance is unable to explain the irrationality of an individual investor, as they are irrational and influenced by irregularities in financial market. Behavioural finance has earned a lot of significance through its attempts to discover such causes which are behind an investor's behaviour. The objective of this research paper is to investigate the key impact of behavioural biases in the investment decision making of individual investors. The study consisted of 378 individual investors trading in Indian stock exchanges and data was collected through a questionnaire developed for the purpose of research. The questionnaire was empirically tested after approving its reliability and validity. It is interesting to know the impact of different emotional biases affecting the investment decisions of individual investors. Loss aversion bias, Status quo bias and Optimism bias were studied.
Keywords Behavioural finance, Behavioural bias, Emotional bias, Individual investor.

1. Introduction

In the modern-day economic system, money has assumed a central position as in order to grapple with the challenges of the future, it is very important to have the financial discipline to invest money. The term 'investment' refers to the act of sacrificing existing consumption and ploughing in/infusing the money that was saved in some economic product, expecting to earn higher dividend in the future. However, infobesity as a result of greater accessibility to financial information leads to individuals getting perplexed, furthermore also taking up a big chunk of investors' time in trying to process the huge information. Additionally, it also becomes essential to have credible knowledge regarding the present investment options so that one can arrive at gainful investment decisions.

One of the most notable pillars of any economy are its financial markets. Similarly, the Indian economy has also greatly benefited in the event of its financial market prospering. Financial market in India comprises Capital market and Money market. The capital market is so designed that it not only aids financial institutions, industries and the government to raise funds but also helps in the growth and development of the Indian economy. Besides, it also

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helps in diverting idle funds from households and organizational savings towards investment into various financial instruments and resultantly leads to the creation of myriad financial assets.

1.1 Rational Finance

Rational finance theories are often known to assume the rationality of individual, informationally efficient and maximization of profit (Fama, 1970). These theories centre on objective market conditions however regularly incapable to elucidate chaotic and abnormal occurrences in the real market conditions **(Huang *et al.*, 2016).** These theories documented that investor focuses only on the maximization of investment returns and minimizes of investment risks. Rational finance is based on mainstays of Expected Utility Theory as given by Bernoulli (1738, 1954), Von Neumann & Morgenstern (1944), Markowitz Portfolio Theory given by Markowitz (1952), Arbitrage Pricing Theory given by Ross (1976a, 1976b), Capital Asset Pricing Model given by Sharpe, Lintner, Black (1964, 1965 and 1972) and Mossin (1966), Optimum Portfolio Theory offered by Black, Scholes and Merton (1973) and, Efficient Market Theory proposed by Fama (1970). The basis of rational finance is presented in **Fig. 1.**

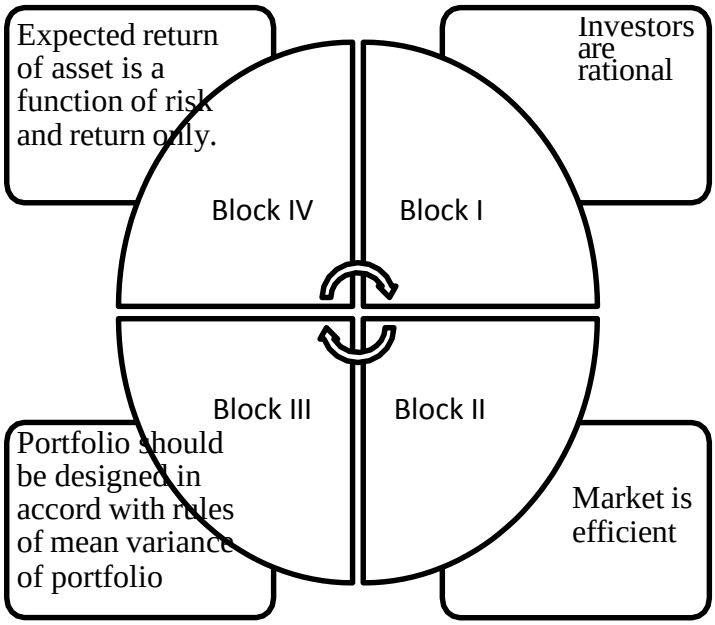

Fig. 1. Basis of Rational Finance

1.2 Behavioural Finance

"Behavioural finance is the study of the influence of psychology on the behaviour of financial practitioners and the subsequent effect on markets".

– Martin Sewell

In the early 1980s, the behavioural finance **(Fig. 2)** was first acknowledged by academician from disciplines,for instance, psychology, economics and engineering, headed by a tiny group of academicians organized from the Russell Sage Foundation in New York. The chief member of this group is now a renowned researcher in behavioural finance. The origin of behavioural finance was emerged due to absence of supported theories on decision making

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(Goyal & Kumar, 2021) in the financial field. In rational and modern finance, all the concepts, theories and models suppose investor and agent are rational and the stock market is efficient **(Nigam *et. al.*, 2018).**

Among the earliest evidence of investors' irrationality is The Dutch Tulip Bubble, also known as its more popular alias "Tulip Mania". It dates back to the "Dutch Golden Age" when the Tulip plant was brought in the Netherlands for the first time. The exotic flower was so appealing to the Dutch people that they started putting in their money in the plant. As time went by, tulip plant investments became a trend and the prices took on from there too, being pushed to newer highs. In its prime, the people were ready to purchase even single bulbs of tulip for over-the-top prices which sometimes reached more than ten times the yearly salary of an experienced worker. When people finally realized that a huge proportion of their earnings was being spent on a flower bulb which did not otherwise hold much value, the market finally collapsed. People started to get rid of their tulip stocks as quickly as possible and the price of the tulips crashed, causing great market losses **(Montier, 2009).** Such instances pose a serious question on the rationality of investors.

The question of investors' rationality is a representation of the has been, time and again, voiced by many scholars and research-worker **(Peng et. al., 2022)**, throughout the past. The traditional finance theories revolve around the idea of a "fully rational agent" who makes decisions based only on whatever data is available to him, the information processing ability of investors and concepts and principles backed by mathematical proofs. This methodology of 'fully rational agent' was deemed the focal point of financial planning and financial decision-making till its forecasts stopped being reflective of the on-ground market situations. **(Nkukpornu, 2020).**

The errors of such types and many others can lead to market unproductivity and can manifest in the way of crises like conjectural bubbles, overreaction or under reaction. Some of the noteworthy examples of these inefficiencies are "the dot-com bubble of the 1990s"

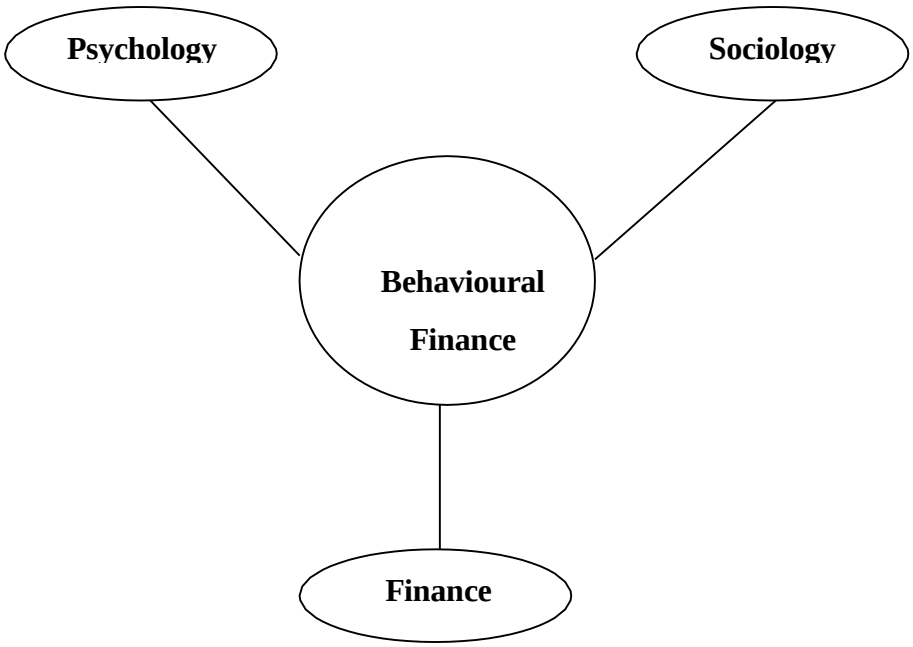

Fig. 2. Origin of Behavioural Finance

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(Alekseievska et. al., 2021) and "the real estate bubble of 2006" **(Jelonek, 2006).** The dot-com bubble refers to the internet boom which occurred during the period 1997 to 2000. The madness of the crowds of investors during this phase was o out of control that companies could increase their share prices by adding just an 'e' prefix or a '.com' suffix to their names. This bubble collapsed in 1999-2001 when many of the dot com companies could not survive and eventually failed and went out of business. Even the most stable companies like Cisco and Amazon suffered when the bubble burst **(Samal & Mohapatra, 2020).**

Popular traditional economic theories such as the Efficient market hypothesis assume that financial market agents are rational and the price of financial securities reflect their true fundamental value as these securities are priced by rational agents after weighing in and evaluating all the available information. So the prices of financial securities are always right, they don't follow any past pattern and therefore no investor can beat the market. However, it has been proven time and again that in actuality, the financial market agents are not always act in line with the rational nature of making decisions that has been attributed to them by theories of Standard Finance. They are heavily influenced by their emotions and cognitive limitations; use shortcuts and emotional filters while processing information and make irrational decisions **(Kamoune & Ibenrissoul, 2022).**

On the contrary, Behavioural Finance aids in better decision-making in matters of finance owing to its approach towards assessing the thought-processes of real persons. Behavioural finance is a newly emerging field which has gained considerable popularity in the last few decades. This field is premised on the irrationality of human beings and that they make decisions using emotional filters and mental short cuts. For many years, finance scholars did not pay much attention to the possibility of financial agents not being rational. It was only after evidence of irrationality started accumulating, that the finance scholars started paying attention to the irrationality of financial market participants. The field of behavioural finance was seriously acknowledged by finance scholars after the conferment of the Nobel Prize to Vernon Smith and Daniel Kahneman in 2002 for their work in the field of Behavioural Finance. Financial economists finally started paying attention to the proposition that the cognitive appraisal of information inside the human brain may be prone to using heuristics and being influenced by emotions while making all kinds of decisions, including investment decisions **(Wong, 2021).**

As more and more people in lndia invest in the stock market through direct equities, it becomes important to ensure that the investors make well-informed and rational decisions. It is also important to make investors aware of their behavioural biases so that they can make decisions without being influenced by these biases.

This article makes an attempt in studying the impact of emotional behavioural biases on the investment decision making of individual investors in India.

Through this article, we propose that the following irregularities require to be answered:

- Do investors really make rational decisions?
- The reasons behind irrational decision- making of investors?
- How do the anomalies affect investment decision making of investors?

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- How do the different behavioural biases affect individual investors in their decision-making process?
  Below is a detailed description of the different emotional biases taken in the current research article to show their impact on the decision making of individual investors

1.2. **Loss aversion bias**

The concept of loss aversion bias was coined by **Kahneman & Tversky (1979).** Investors have a tendency to react differently to losses and profits **(Koszegi & Rabin 2006).** Some individuals overreact when they incur a loss, hence, there focus is more on avoiding losses than observing profits **(Ainia & Lutfi, 2019).** This bias leads to investors sticking to unprofitable investment avenues **(Akinkoye & Bankole, 2020).** Investors inclined towards loss aversion bias are concerned regarding the losses suffered and at times even avoid investments **(Khan, 2017).** Investors are subjected to loss aversion bias when decisions are about investments **(Bashir et al., 2013).** The researchers concluded that there was a significant impact of loss aversion on investment decisions **(Areiqat et al., 2019).** Loss aversion bias affects different investors differently while they take financial decisions **(Gachter et al., 2021). Rostami & Dehaghani (2015)** supported a significant association between loss-aversion bias and investment. Researchers exhibit a significant positive level of relation existing between loss aversion bias and investment decisions **(Sukanya, 2015; Subash, 2012).**

H1a: Loss Aversion Bias (LA) affects investment decision of Indian individual investors.

1.3. **Optimism bias**

Optimism can be defined as the overestimation in the occurrence of positive events and undermining the probability of bad events **(Marwan & Sedeek, 2018).** Many investors are likely to look at the financial market situations with unnecessary optimism. Many investors are overly optimistic thinking that bad investments won't happen to them **(Banerji et al., 2020)**, it will only bother others. Investors have a tendency to be excessively positive regarding the financial system and its pleasant performance. Optimism bias influences investment decision **(Brahmana et al., 2012).** Moderate occurrence of optimism bias is found to have a positive impact on investors while they make investment decision making **(Akinkoye & Bankole, 2020). (Abreu & Mendes, 2020)** found positive effect of optimism bias on investment trading and decision making.

H1b: Optimism Bias (OP) affects investment decision of Indian individual investors.

1.4.**Status quo bias**

Samuelson & Zeckhauser (1988) underlined presence of status quo bias in investment decision making. In case of this bias, investors prefer to continue the existing investment situation and avoid making changes in their portfolio **(Banerji et al., 2020).** Investors realize the difficulty in taking financial decisions and decide to put them on hold **(Filiz et al., 2018).** Many investors try to trade securities for higher yields but are unable to accomplish them due to stagnant portfolios **(Brown & Kagel, 2009).** This bias has an influence over the financial decisions of an investor**.** Male investors exhibit less status quo bias in comparison to their female counterparts **(Tekçe & Yılmaz, 2016).** Researchers have also emphasised on no

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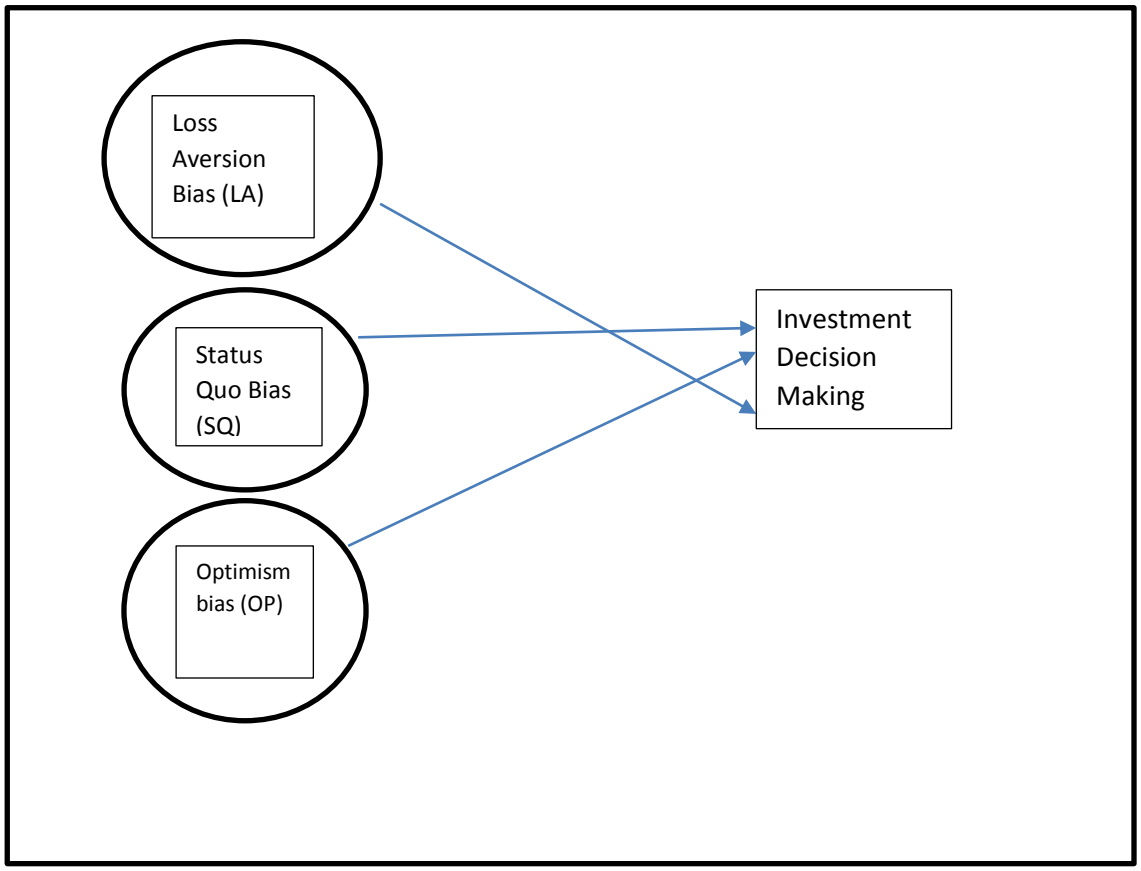
significant relationship existing between status quo bias and investment decision making **(Akinkoye & Bankole, 2020).**

H1c: Status Quo Bias (SQB) affects investment decision of Indian individual investors.

2. Development of the conceptual framework and hypotheses formulation

The researcher is proposing a conceptual model **(Fig. 3)** based on the extant literature to measure the impact of different behavioural biases on investment decision process made by individual investors in the presence of gender as a moderator. Investment decision making is a dependent variable and the three biases to be studied, namely, loss aversion bias, status quo bias and optimism bias are the independent variables, while investment decision making is a dependent variable.



3. Research methodology

3.1 Questionnaire development

The form was designed based on the factors identified in the analysis of literature, on subjects of demographic variables, behavioural bias and investment decision process related to individual investors of India. Based on the review of literature, sixteen sub-factors have been identified which influence an Indian's investment decision. These sixteen sub-factors are categorized into four main factors (Loss aversion bias, Optimism bias, Status quo bias and Investment decision making). To confirm the validity check of the questionnaire, professionals from both industry and academics were approached. Based on the feedback received by the experts, ambiguous terms and complex sentences were modified in the final

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questionnaire. The detailed description of constructs along with variables used in the preparation of instrument is mentioned in **Table 1.**

Table 1. Constructs and Variables

Constructs	Variable	References
Loss Aversion bias	Loss and gain on stock, engagement in risk, rate of return on investment, nervousness over price drop, market performance, loss of capital	Areiqat et al., 2019; Baker et al., 2019; Jain et al., 2019; Alrabadi et al., 2018; Usman, 2018.
Status Quo bias	Standard mix of investment, rate of return, satisfaction over investment	Akinkoye & Bankole (2020); Alrabadi et al., 2018; Pompian, 2006.
Optimism bias	Optimism, investment opportunities, earnings, confidence of investor	Pompian 2011; Pompian, 2006.
Investment Decision making	Degree of safety, interest payments, principal repayment, degree of risk, revenue growth, societal benefit, cash flow, risk association, long-term yield, financial knowledge, risk involvement.	Ogunlusi & Obademi, 2019; Nyamute, 2016; Pasewark & Riley, 2010; Qureshi, 2012.

The questionnaire designed consists of multiple sections. Section A defines the demographic details (age, gender, occupation, income, city/ state, trading experience etc.). Section B emphasises upon questions in the area of investor behaviour using a five-point likert scale where 1 refers to Strongly disagree and ranges till 5, where 5 refers to Strongly agree. The questions in this section were related to loss aversion bias, optimism bias and status quo bias. Section C explains investor's behaviour while taking investment related decisions using a five-point likert scale.

3.2 Sample and data collection

The universe targeted for the study included individual investors trading in the Indian stock market. The primary data was collected from the investors during the period of August 2021 to April 2022. The purposive sampling technique was used to select respondents from each district. A total of 408 respondents were contacted to fill the required questionnaire. The final responses taken into study were 378 excluding 30 responses which were eliminated due to non-submission of responses, missing values, or inappropriate details. The gathered is analysed with help of Statistical Package for Social Sciences (SPSS) version 23.0.

4. Data Analysis and Findings

4.1 Exploratory Factor Analysis (EFA)

All the required items have been appropriately loaded (as shown in **Table-2 and Table-3**).

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Table 2. Assumptions of EFA

Assumptions of EFA	Conditions	Reference: (Chopra et al. 2019)	Assumptions
Sample size is 378	*n>200*	Kyriazos (2018)	Met
Barlett's test of sphericity is significant	$p < 0.001$	Field (2013)	Met
KMO value is 0.873 measure of sampling adequacy	> 0.70	Hutcheson & Sofroniou (1999)	Met
Satisfactory communalities values	> 0.50	Field (2013)	Met
Total variance explained is 76.245%	> 50%	(Podsakoff & Organ, 1986)	Met
The variance for the first factor is 20.951%	< 50%	(Podsakoff & Organ, 1986)	Met

Table 3. Rotated Component Matrix

	Component			
	1	2	3	4
LA1				.795
LA2				.806
LA3				.782
LA4				.773
SQ1	.918			
SQ2	.918			
SQ3	.894			
SQ4	.902			
OP1		.871		
OP2		.884		
OP3		.894		
OP4		.884		
IDM1			.794	
IDM2			.807	
IDM3			.804	
IDM4			.795	
Total Variance explained (Cumulative %)	20.951	40.761	58.719	76.245

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4.2 Confirmatory Factor Analysis (CFA)

In the proposed model of individual investor's investment decision-making, decision-making construct is developed by the constructs of loss aversion bias, optimism bias and status quo bias. As could be seen from Table 4, all the values of fitness indices are meeting the minimum criteria. Therefore, it is concluded that the model is robust from different parameters studied.

Fit Index	Limit	Values in Present Study	References (Chopra & Madan, 2021; Hooper, 2008)	Acceptability
Absolute Fit Indices				
χ^2		116.59		
df		98		
p value	>0.05	0.097		Yes
χ^2 / df	1.00-5.00	1.19	Kline (2010)	Yes
RMR	<0.08	0.024	Hu & Bentler (1999)	Yes
GFI	>0.90	0.963	Jöreskog & Sörbom (1993)	Yes
AGFI	>0.80	0.949	Jöreskog & Sörbom (1993)	Yes
Relative Fit Indices				
NFI	>0.80	0.971	Bentler & Weeks (1980)	Yes
PNFI	>0.50	0.793	Bentler & Weeks (1980)	Yes
IFI	>0.90	0.995	Bollen (1990)	Yes
TLI	>0.90	0.994	Tucker & Lewis (1973)	Yes
Noncentrality- based indices				
CFI	>0.90	0.995	Byrne et al., (2010)	
PGFI	>0.50	0.694	James et al. (1982)	
RMSEA	<0.08	0.022	Steiger (1990)	

4.3. Measurement model

Path Analysis

For investigating the model fit, relative Chi-square index (CMIN/DF), Goodness-Of-Fit Index (GFI), Comparative Fit Index (CFI), The Root Mean Square Error of Approximation (RMSEA) were considered **(Fig. 4)**. The results of the above-mentioned texts were: 1.19; 0.963; 0.995 and 0.022 respectively. Behavioural biases have significance in the investment decision.

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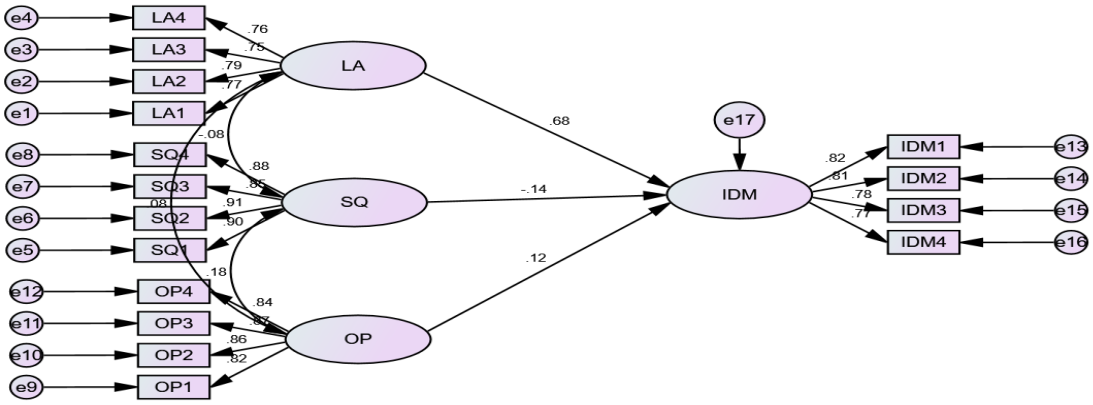

CHI SQUARE= 116.590; DF=98; CFI= 0.995; RMSEA= 0.022

Fig. 4. Structural model by AMOS 21.

5. Conclusion

Indian economy remains one of the fast-growing economies in the world, the strength and competence of Indian financial markets offer an appealing prospect of investment to investors. However, financial controllers and policy regulators are anxious regarding behavioural leanings of Indian investors. The study investigates the existence of behavioural bias among investors with the help of 378 respondents. The analysis discovers that various behavioural bias which includes loss aversion bias, status quo bias and optimism bias are present while an investor decides on financial investment. Therefore, the finding of this research supports the point of irrationality among investors and explains that personal sentiments are strongly correlated with investment decision making.

Based on the values calculated of different behavioural biases, out of loss aversion bias, status quo bias and optimism bias, status quo bias appears to be the most prominent bias exhibited by the sample of individual investors with a value of 0.885, followed by optimism bias (0.848) and loss aversion bias (0.766)

6. Implications

The findings of our study have significant implications to develop an enhanced and rational investment decision making. Moreover, investment strategies to be developed may be based on the biases undertaken in the study. The findings are crucial not just for research scholars or academicians but also to the financial experts, practitioners and decision makers as the empirical studies show irrationality in investment decisions. The study has further inferences for financial educationalists in proposing awareness plans. The counsellors can be further effective in their services by knowing the prevailing behavioural biases while the client take financial decisions related to short-term and long-term investments. Society in general can reap the benefits of the understanding offered in this study by improving financial education, resulting in financial wellbeing.

7. Future Scope

Researchers in future can undertake studies on extended sample base of individual investors in India. Further, variables apart from gender like trading experience, nationality, religion, or

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income could be used and analysis of their association with investor's financial behaviour could be studied.

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