

# The Impact of Behavioural Factors on Investor's Trading Decisions

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## Abstract

The objective of this study was to analyze the behavioural biases which impact the investment decision making and investment performance of the investors in the Indian Stock Market. In this research, the researcher creatively investigates these suppositions by utilizing "Structural Equation Modelling" (SEM) and collected primary data from a nation-wide survey with 302 individual investors and analyzed various principles of behavioural finance, which includes behavioural biases which are: Herding, Market factors and Heuristics include Representativeness, Loss Aversion, Mental Accounting and Disposition Effect which influences the individual's decisions regarding their investment in Indian Stock Market. This study's results offer strong proof that these behavioural biases influence the individual trading behaviour and their investment performance, particularly Herding behaviour factor is the highest and the only factor that has a constructive bearing on the investment enactment of an investor through the path coefficient of 0.16

**Keywords:** Behavioural finance, Psychological behaviour's factors, investment decisions, trading behaviour,

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## 1. Introduction

The Financial markets have a vital part in directing the public's savings to investment organizations that strengthen the government sectors and thus the economy, directing the nation's progress (Raut et al., 2020). The fund flow chain is beneficial for all stock market participants where fund seekers and investors carry out various preferable "motives like long-term growth from capital earnings, dividends and availing a hedge against the inflation" (Teweles & Bradley, 1998). Jaswani (2008) discussed that the availability of investment or trading in the stock market is more attractive in comparison to any other investment option to the investors; the rationale behind these motives, the only intention is to make money and according to the classical thinkers of finance which can be accomplished through systematic or rational decision-making.

Modern finance presumes that stock markets are efficient, and their stakeholders (investors) are aware of future risks and take beneficial decisions related to their investment (Markowitz, 1952; Merton, 1969). "Capital Asset Pricing Model" (Treyner, 1961; William, 1964; Lintner, 1965; Mossin, 1966) CAPM is a model to determine the required rate of return of the investment and specifies the association between systematic risk and anticipated return of a single asset or entire portfolio.

All these above models advocated the investor's rationality and suggested that investors always think right and apprise their views aptly according to received new information and make the best choices that suit their investments (Thaler, 2005). Traditional thinkers from the field of finance can ignore the irrational behaviour of investors while determining the security price (Jana, 2016). However, two crucial theories, "Efficient Market Hypothesis" (EMH) and "Modern Portfolio Theory", have changed market perspective about irrational investor's behaviour and give importance to psychological biases and social elements behind the securities price movements (Singh, 2016). Stock markets are volatile and are affected by behavioural bias provide new dimensions of visualizing and understanding the financial markets where an investor's behaviour has the upper hand over their rationality. The new paradigm shift of financial thinkers allowed us to investigate the stock market anomalies like bubbles in the market, why the marketplace worn-out, what factors are responsible for stock market volatiles.

Regular criticism and failure of classical theories of finance have raised doubts like; Are markets efficient? Are investors making investment decisions rationally, or are their investment decisions subjected to emotional biases that lead to suboptimal and bad decisions, etc. These questions are examined in this study and answer these kinds of questions in Indian culture settings. Indian stock market has not been left untouched from these anomalies and has ample proof to draw the researchers' interest to examine the behaviour of the investors' executive process.

According to Raut, R. K. et al. (2020), Sensex is a barometer of the economy and the pulse of the Indian stock market. "Bombay Stock Exchange (BSE 30) Sensex representing the free float market capital of 30 financially sound companies composition, which was ranked among the world's top 10 stock exchanges, reached their all-time high level at 30000 points in March 2015". BSE Sensex reached 8,106 points due to the subprime crisis blow-out globally, after achieving the highest points, 20,893 in the year 2008. Recently BSE Sensex achieved a remarkable milestone crossing 50,000 points on February 03 2021. Sensex made history during the covid-19 pandemic situation, stated in The Economic Times; Indian economists predicted a GDP of -11.8% and unemployment rates had reached the highest in 45 years. This up and down pattern in the stock market is nothing but the investors' entirely emotional or moody behaviour. Indian stocks have proof that is not different from the international financial market in regards to volatility. Thus, it unwraps opportunities for researchers to discover the reason behind such fluctuations in the Indian stock markets as explored by researchers across the globe.

The paper is organized in the following sequence.

The second part of the study reviews the literature on behavioural biases taken as variables to analyze the individual investors' behaviour and investment performance. In the third section, researchers discussed the conceptual framework, objectives and data samples. The next section of the study discusses the Result and Discussion. In the fifth section, the researcher concludes the result and finding of the study, and in the final section discussion of the practical implication, the future scope and limitations of the study are given.

## **2. Review of literature**

### **2.1 Literature on behavioural biases**

Drawing a link between the financial market and social symmetry, Pareto (1963) advocated that the conditions of the sociological systems are reflected in the financial system. The decision-making capabilities of investors and consumers are affected by society's mood (Nofsinger, 2005). According to Becker (1991), the stock market investors discuss market movements with their family, friends and colleagues, who also trail other participants in the financial market. The investors find these discussions entertaining when talking about common interests in things like sports, motion pictures, eateries or books. The decision an investor makes somewhat depends on the decisions previous investors have made, observed by Banerjee (1992). It does not matter to the investors what is being suggested by the private information, and they will tend to make decisions based on what other investors did. Some phenomena like herding impact the decisions of the investors through social interactions. Altman.M (2012a, p.48) People invest with individuals they trust, e.g. family, friends, and members of the community or religion they belong to, because of the belief that they are reliable

Nofsinger and Sias (1999) observed investors who bypassed the securities analysis and invested by following the recent trade trend hitting the profit. The reasons behind this may be that the investors or market stakeholders derive information from the activities which were done by the investors before, current participants may react to the essential information that they get, analysts tend to herd in order to save themselves from loss, investors may act as emotionally, and herd behaviour may arise under the influence of psychological and social settings.

Investors tend to follow others to abstain from taking decisions independently, which involves analyzing the market by the investors. Christie and Huang (1995) stated that the "individuals who suppress their own beliefs and base their investment decisions solely on the collective actions of the market, even when they disagree with its predictions". In this study, the hypothesis drawn by the researchers is that, because societal expectations and peer pressure are prevalent, herding becomes a very significant factor that affects an investor's decision making.

According to DeBondt and Thaler (1995), the irrational ways of taking a decision and the investors' behaviour may impact the financial markets. Through the viewpoint of behavioural finance, it can be said that investors tend to overprice or under-

price the securities depending upon the information they get, taking hints or referring to past trend for taking future decisions, not taking into consideration the principle of trading in the stock market, the tendency to keep famous securities and seasonal price cycle. The decisions taken by investors in the stock market are affected by these market factors. There are several market factors identified by Waweru et al. (2008, p.36) that affected investment decisions of the investors: changes such as "change in market information, fundamentals of the underlying stock and stock price may cause over or under-reaction to the change in prices" of the stocks and have an impact on investors' decision making, it is empirically proved as well.

Investment decisions are influenced, and strategies related to trading may change due to "over-reaction" (DeBondt & Thasler, 1985, p.804) or "under-reaction" (Lai, 2001, p.215) due to the information being circulated. Investors are using various shortcut methods (Heuristic) for investment-making decisions to save time and money, mainly regarding financial uncertainty in the market. Much of this uncertainty is inestimable in risk. The use of Heuristics by investors is argued for cognitive biases by Tversky and Kahneman (1974). In order to make rational decisions, cognitive resources are required but, since investors do not possess them, they use heuristics. The utilization of heuristics leads to biased decisions under certain circumstances, and "these heuristics are economical and usually effective", as argued by Tversky and Kahneman (1974).

The investors tend to fail to recognize the value of some very precious and appropriate investments and their remarkable history and extraordinary past performance. The firm's performance in the future is what they consider it as, and hence that becomes fundamental for the investments of the present as well. According to De Bondt (1993), the returns a company gave in the recent past can also be taken into account to represent what can be expected from that company in the future. It could be why an investor will invest or go for security which has shown a hike in its price recently.

The "proportion of gains realized (PGR) and proportion of losses realized (PLR)" were considered by Barber et al. (1999) in order to analyze the availability of the "disposition effect". A more significant difference among these two signifies the tendency of the investors to obtain either capital losses or gains.

Limit order's effect on the transaction frequency of investors was found by Linnainmaa (2010). The disposition effect can be observed when a positive update of the market behaviour can result in the implementation of the limit order. The effect of stop losses on disposition effect was studied by Richards et al. (2011), and the findings showed that the lower disposition effect was an outcome of the utilization of stop losses.

The research conducted by Zhou and Pham (1984) investigated why investors act differently when they deal with different securities. The investors make exclusive mental accounts for profit and loss both. Four sets of experiments were done in which it was tested that the promoting and preventive decisions work as distinct motivation in selecting the options of profit and loss. The investors tend to think about their losses heavily "more than they weigh their gains is known as loss aversion". This phenomenon was explored by Godoi et al. (2005) through extensive "qualitative" interviews. It is a subjective area as it is concerned with human behaviour and nature. There are many feelings related to loss aversion. They are categorized under several heads, e.g. "familiar influence on decision making", "financial investment driving investment", "loss and risk", "guilt", "defence mechanism and rationalization", "fear anguish and aversion". Therefore, the interpretive paradigm is employed for this study.

## **2.2 Literature on Multiple behavioural biases**

Le Luong, P., & Thi Thu Ha, D. (2011) measured the effect of behavioural factors which guide individual investor's financial decision-making and their performance in the Ho Chi Minh Stock Market. The Factors that were included are "overconfidence, availability bias, herding market prospecting and anchoring". The study results suggested that among all the factors, only three factors have influenced the investment performances, which are "herding, prospect & overconfidence". However, the "market factor" has the highest impact on investment decisions. Another study conducted on the same Ho Chi Minh Stock market by Luu(2014) found that, in that Stock market, the individual investor's investment decisions have a moderate impact of "overconfidence, anchoring, loss aversion and regret aversion".

Kengatharan (2014) had studied the "Colombo Stock Exchange" to investigate the relationship between behavioural biases and investors' recital. This study revealed that "herding, heuristic (overconfidence and availability bias), prospect and

market factors all have a moderate impact except for the anchoring variable from heuristic factors that exhibit a strong influence on investment decisions". In another study on the same behavioural factors which are mentioned above, Pourjiban, Setayesh and Janani (2014) found that "overconfidence bias had a significant impact on investment in the Tehran Stock market".

The impact of the biases, including over-confidence and biased self-attribution, was brought into focus by Daniel et al. (1998) on the market securities under and over-reactions. Various irrational patterns of behaviour were observed and can be seen because of several reasons, economists. Investors tend to overestimate their capabilities under different situations by investors observed in this paper. An investor's overconfidence makes him/her depending on the information gathered through personal links and not on the information generated by the market.

Factors like "financial heuristics self-regulation, prudence and precautionous attitude, financial addictions and informational asymmetry" were researched by Chandra (2008), taking into account the level of effect they had on the ability of decision making of the investors. An exciting angle was observed by Lakshmi et al. (2013) concerning the period an investor holds an investment. The tendency of showing overconfidence is lower in the investors who invest for a longer period and are likely to be less prone to herding bias. Whereas, when it comes to short-term investors, the scenario is observed to be the opposite. Their gains are less as they take similar investment-related decisions.

### 3. CONCEPTUAL FRAMEWORK

A conceptual model has been developed considering the findings of different studies and researches done earlier to understand the concept better and establish a link between "behavioural factors and the decision-making process" of the investors. When we think of the decision-making process, choosing a specific action in any situation involves personal, technical, and situational conditions. The model tries to explore whether there is any relationship between Herding, Market Perspectives and Heuristic and examines all three behavioural biases that impact the investment performance. These factors are incorporated, and relationships among them are examined at the same time. It provides a framework closer to reality.

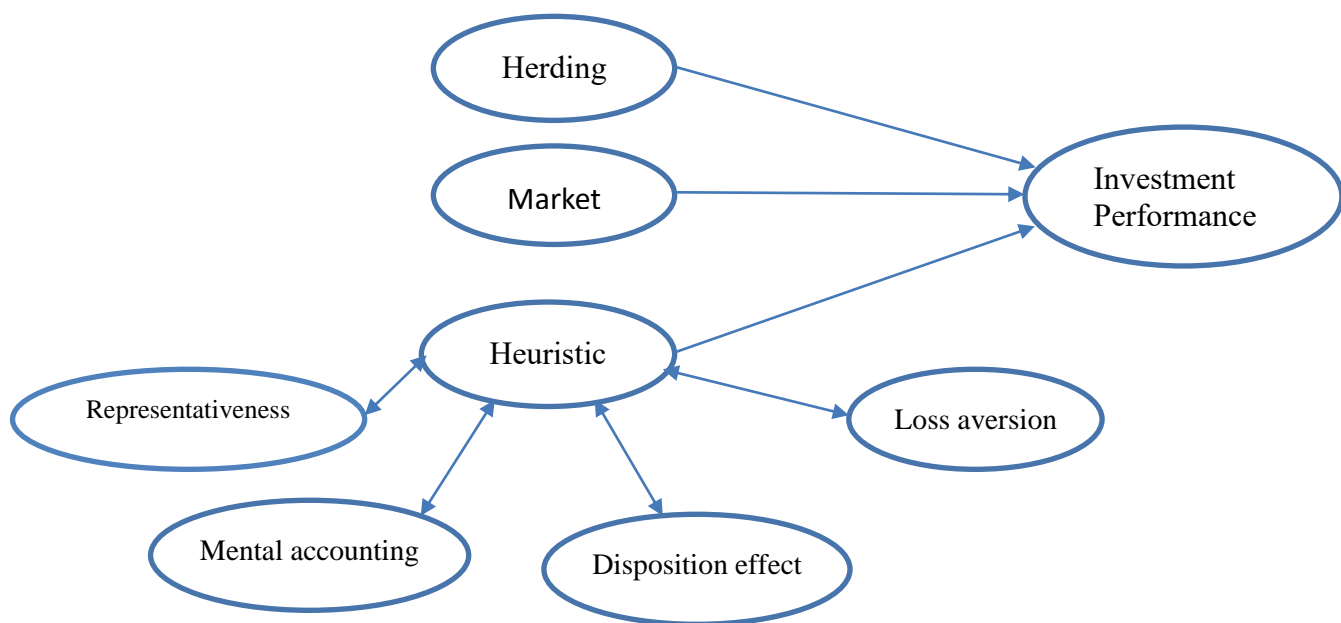


Figure 1:- Compiled by the Author

#### Objectives of the study

Through this study, the researcher was trying to evaluate the impact or power of psychological bias on the investment recital of distinct investors. The study also explores the individual complex financial decisions taken by logical reasoning or rational behaviour or irrational behaviour and checks its impact on investment performance.

In the first stage, the researcher explores whether the psychological biases lay under four factors as per behavioural literature and, second, are these psychological factors positively influencing the investors' investment performance.

### 3.1 Hypotheses Testing

As observed in the studies reviewed above, some biases have a positive and some have a negative impact on the investment performance of the individual investors in the Indian stock market. Factors taken up in this research study such as herding, Market factors, and heuristics suggest that interactions an investor has socially influences his/her investment-related decisions immensely and hence his/her investment performance.

*H1: Heuristics factor has a positive impact on individual investors' investment performance at the Indian Stock Exchange.*

*H2: Market factor has a positive impact on individual investors' investment performance at the Indian Stock Exchange.*

*H3: Herding factor has a positive impact on individual investors' investment performance at the Indian Stock Exchange.*

### 3.2 Questionnaire

The study relies on a survey approach for analyzing the behaviour of individual investors and their investment performances in the Indian financial market's setting. The researcher seeks individual investor's responses on their psychological biases and impact on the investment performance. A structured questionnaire was used to collect views from the active individual investors of selected five cities to draw out reactions on 25 items to achieve the study's objectives. The questionnaire items were divided into two stages: psychological bias items and investment performance or rational decision-making process. Psychological bias is viewed as a latent variable measured by 2 to 5 observed variables of each behavioural bias and totally constructed 22 items. The second part involved investment performance, which is the dependent variables was measured by 3 items. The 25 items in the questionnaire adopt five-point Likert-type scales from strongly disagree (1) to Strongly Agree (5) to analyze the psychological behaviour of the respondents based on the observed variables.

### 3.3 Sample

The present study collects the primary data through structured questionnaires on active individual investors' who have a trading track record of a minimum of 3 years in the stock market. The researcher captures the responses from the investors and their psychological behaviour biases that exist in the mind of respondents. A total of 700 questionnaires were equally distributed in the five cities of India to individual investors based in New Delhi - NCR, Mumbai, Chandigarh and Gujarat, out of which only 352 were received. In the data that was collected, only the data of 302 questionnaires were found appropriate for analysis. The logical reasoning behind selecting five cities to collect the primary data is based on SEBI's Annual Report 2018-19, which states that these states have the highest number of investors in terms of trading.

## 4. Result and Discussion

### 4.1 Measurement Model

The researcher analyzed the preliminary data to check data normality, missing value, outliers and multicollinearity of all variables. Next, Confirmatory Factor Analysis (CFA) was implemented with the four constructs evaluated in this study by utilizing AMOS 24 by means of maximum likelihood estimation. To analyze the measurement model, CFA was performed. The measurement model of the CFA attained excellent fit;  $\chi^2 = 1275.943$ ,  $df = 751$ ,  $\chi^2/df = 2.379$ ,  $p < .000$ ,  $TLI = 0.907$ ,  $NFI = 0.868$ ,  $CFI = 0.919$ ;  $GFI = 0.854$ ;  $RMSEA = 0.068$ .

Table 1: Results from measurement model from Confirmatory Factor Analysis (CFA)

Construct and items	M	SD	SL	SMC
Herding (He)				
He1	3.77	1.03	.730	.412

He2	3.78	0.91	.797	.534
He3	3.72	0.96	.757	.497
He4	3.78	1.00	.777	.511
He5	3.65	0.99	.838	.704
He6	3.67	0.94	.838	.791
He7	3.68	0.94	.860	.744
Heuristic (H)				
H1	3.50	1.18	.874	.711
H2	3.28	1.08	.916	.910
H3	3.43	1.00	.873	.662
H4	3.63	1.09	.843	.541
Market (M)				
M1	3.73	0.97	.731	.329
M2	3.56	1.04	.786	.433
M3	4.04	0.98	.844	.709
M4	4.02	1.00	.824	.568
M5	3.76	0.92	.739	.321
Investment Performance (I)				
I1	3.97	1.04	.737	.302
I2	3.43	1.19	.848	.700
I3	3.66	1.20	.867	.768

(Compiled by Author)

As per table 1, all squared multiple correlation (SMC) value items were over 0.5, i.e., the threshold benchmark of 0.5. In addition, total items that acquired a mean score more than the mid-scale point of 2.5. The overall valued by responded to the factors are Herding (M = 3.72), Heuristic (M = 3.82), Market (M = 3.46) and Investment Performance (M = 3.69).

#### 4.2 Reliability and Validity of scales:

The researcher ensures the content validity of items. The questionnaire has been studied and tested by academic and professional experts. To avoid ambiguous language, the researcher tried to get an opinion from the brokers, financial experts and pre-tested on some selected individual investors. After this complex exercise, the researcher finalized the questionnaire tested on the respondents. As far as convergent validity is concerned, the researcher confirmed all the conditions suggested by *Fornell & Larcker (1981)*. The correlations of the constructs were evaluated with the square root of the Average Variance Extracted (AVE) for each of the constructs.

Table 2 showed that all AVE values were above 0.50, which means convergent and discriminant validity was confirmed. In addition, the reliability of each construct was above the value of 0.70 that fulfils common conditions of reliability for the questionnaire items.

Table 2: Discriminant validity and reliability

Construct	$\alpha$	CR	AVE	MSV	MaxR(H)	M	He	H	I
M	0.929	0.849	0.533	0.048	0.868	0.730			
He	0.848	0.926	0.613	0.091	0.939	-0.095	0.783		
H	0.904	0.905	0.706	0.035	0.940	-0.032	0.164	0.840	
I	0.794	0.806	0.589	0.091	0.859	0.219	-0.301	-0.087	0.768

Note: AVE= average variance extract, CR= construct reliability, MSV= maximum shared variance, M= Market Factors, He= Herding, H = Heuristic, I = Investment Performance.

### 4.3 Structural equation model (SEM)

The operational model was verified with maximum possibility estimate using AMOS 24 to evaluate the model appropriateness and interrelationship among the constructs. The whole model fitness indices  $\chi^2 = 640.458$ ,  $df = 200$ ,  $\chi^2/df = 3.302$ , CFI = .96, TLI = .96, NFI = .94, GFI = .88, RMSEA = 0.083, and SRMR = 0.068 reflect good model fit.

Table 3: structural relations and related statistics for structural model

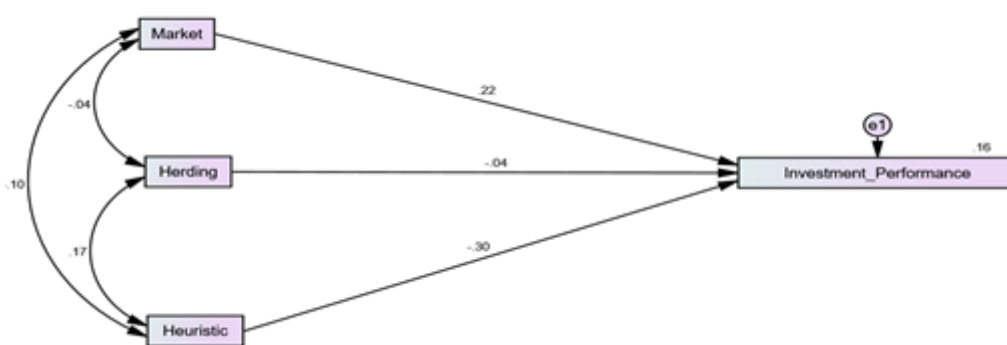
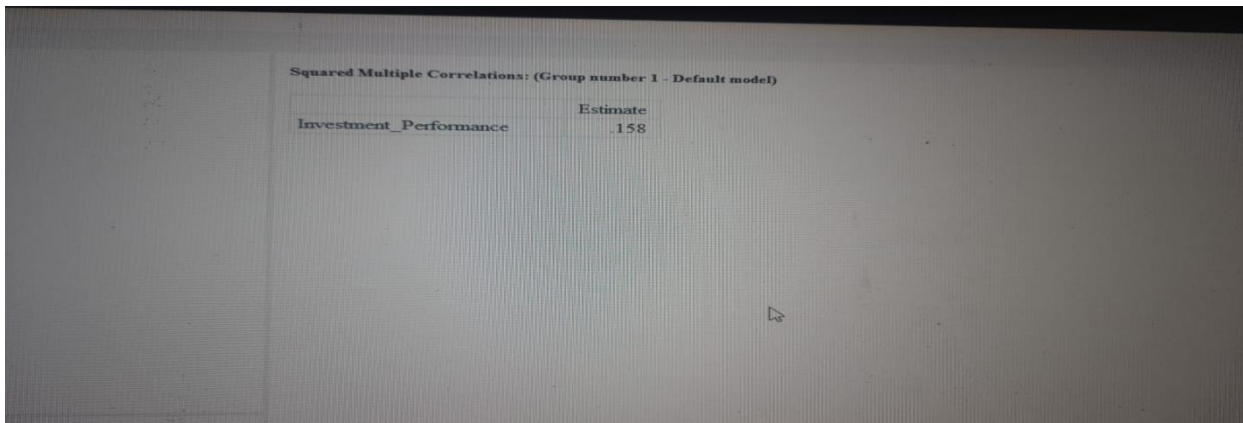
			Regression Weight ( $R^2$ )	$\beta$	C.R. T value	P	Result
H1	Investment performance	<-- Market	.271	.067	4.046	***	Supported
H2	Investment performance	<-- He	.365	.065	5.615	***	Supported
H3	Investment performance	<-- H	-.035	.052	-.664	.507	Not Supported

(Compiled by the Author)

Table:-3 presents the result of Structural equation modelling by the path between latent variables. The hypotheses (H1 and H2) are strongly supported. Only the third hypothesis is not supported. H1 produced regression weights ( $R^2 = .271$ ,  $\beta = 0.067$ ,  $t = 4.046$  and  $p\text{-value} < 0.05$ ) indicates that market factors like the company's image, company's product, and public reputation positively impact the investment performance of individual investors. H2 produced regression weights ( $R^2 = .365$ ,  $\beta = 0.065$ ,  $t = 5.615$  and  $p\text{-value} < 0.05$ ) that means Herding have a constructive impact on the investor's performance which indicates that when people follow their friends and family member's advice in the financial matter that gives a positive result and improve their performance. H3 was carried on to examine the relationship between Heuristic and investment performance. H3 was not accepted by the data that produced regression weights ( $R^2 = -.035$ ,  $\beta = 0.052$ ,  $t = -0.664$  and  $p\text{-value} > 0.05$ ), which means a negative association between Heuristic and investment performance of individual investors in the Indian stock market.

If we summarize the structural model results, it is clear that investor's behaviour is biased while making financial decisions, and they do not follow the thumb rules of finance, particularly Indian investors who actively trade in the stock market. They do not evaluate alternative possibilities of the investment or do not even examine the investment decisions rationally. Hence, they end up being subjected to behavioural biases, i.e. Market factors and Herding. In a nutshell, investors consider market dynamics like the company's reputation, company size, and product before making financial decisions. They blindly follow the advice of family, friends and brokers without reviewing it. However, these behavioural biases have a positive impact on their investment performance.

Regression Weights: (Group number 1 - Default model)						
			Estimate	S.E.	C.R.	P
Investment_Performance	<---	Market	.271	.067	4.046	***
Investment_Performance	<---	Herding	-.035	.052	-.664	.507
Investment_Performance	<---	Heuristic	-.365	.065	-5.615	***



**Path analysis diagramme**

**5. Conclusion**

We consider the risk and rate of return as a benchmark to evaluate the investment performance, but that will not show the foretelling nature of investment returns and the logic behindhand investors' strategy. Whether the classical theories of finance are applicable for forecasting the market condition, behavioural bias has a reason and a vital role in investors' investment decision-making. This research study has a primary objective to recognize the role of behavioural biases in the investment performance of investors. Three variables, Herding, Market factors and Heuristics, were taken as Independent Variables, whereas, Investment Performance is taken as the dependent variable, helped to explain the impact of behavioural biases and investors' decision making. In this study, it was observed that behavioural biases influence the decision-making process of the investors.

Moreover, among different factors that stimulus the investment recital of the investors, herding has been seen as the most influencing factor where investors utilize the investment patterns of their family, friends and peer groups. Moreover, SEM results explain that the total influence of behavioural biases has 16 % on the investment recital of the distinct investors. These findings are supported by various other studies like [Chen, Rui and Xu \(2003\)](#), [Lin, H \(2012\)](#), [Bashir et al. \(2013\)](#), [Rout et al. \(2018\)](#), which stated that "the herding effect is extremely impacting the emerging markets than developed ones as the government intervenes highly and the quality of information disclosure remains low". However, this study's result related to the herding variable differs from [Lakshman, Basu and Vaidyanathan \(2013\)](#), which "experienced low impact of herd behaviour in the Indian market".

**6. Practical Implication**

The result of the study is significant from the practical perspective for different stakeholders such as individual investors, fund managers and policymakers of the financial market. This study had highlighted the most significant psychological bias, i.e. herding, that individual investors should take care of while taking financial decisions. As far as managerial implications are concerned, Fund managers are to be identified and repeating such common behavioural mistakes should be avoided. While determining efficient asset allocation and rebalance the portfolio, fund manager, referring to the fact-finding

of the research study, should put to use an investment policy in a financial market system particularly, in the Indian stock market context, where the market is semi efficient, most of the participants have no technical knowledge and emotions play a vital role.

### 6.1 Scope for Future Study

This study underwrites to enhancing the awareness of individual investors in the Indian stock market regarding their own behavioural biases, which impact their investment returns and also help to increase the market efficiency. It is recommended that for future research, a bigger sample size of individual investors can be considered. Also, other regions of India can be considered for getting a better picture of the given concept and its applicability.

This study has taken only limited behavioural biases as variables existing in the Indian stock market. However, other behavioural factors can be engaged in future studies. Some important policies can be implemented to progress on the psychosomatic factors and prejudices. The research can be taken up where the effectiveness of those implementations can be studied in order to make the stock market more efficient than before.

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