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# Role of Artificial Intelligence in Understanding Psychological Influences on Investment Decisions: A Behavioral Finance Study Among IT/ITES Employees

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**Abstract.** This paper analysis an effect of Artificial Intelligence (AI) on understanding psychological factors that affect investment choices in the context of behavioral finance, specifically among IT/ITES employees. The study looks into the ways AI may be used to study and understand the behaviour of herds, fear of loss, trustworthiness, and confidence, all of which have a big impact on investing decisions. Data were obtained from 142 IT/ITES employees out of 170 selected respondents in Chennai, highlighting that psychological factors show significant differences based on gender, with male employees rating these factors higher than female employees. This research paper proposes a novel research design by standardized tools and Likert scale questionnaires to gather data, which AI then analyzes to provide deeper insights into the cognitive and emotional factors driving investment behaviors. These insights suggest that IT/ITES employees should cultivate positive attitudes towards financial investments, as this can enhance their investment character. Moreover, the study advises against relying on information from significant others, as it may lead to poor investment decisions. The research also recommends conducting a similar survey of non-IT/ITES employees to validate these findings.

**Keywords.** Psychological Factors, Investment Decision Process, Loss Aversion, and Herd Behaviour.

## INTRODUCTION

The role of artificial intelligence in understanding psychological influences on investment decisions within the behavioral finance framework provides a comprehensive approach to analyzing investor behavior. Behavioral finance examines how psychological factors influence investors' decisions, combining insights from decision-making psychology, financial market theory, and traditional economic theories [17] [11]. According to this approach, the paradox of the effective market theory highlights how behavioral finance could better explain along with describe individual behaviors, even though individuals generally act reasonably within certain constraints. A major aim of this research area is to recognize cognitive processes behind investment decisions, recognizing that overconfidence and other psychological biases can lead to significant errors [12] [7] [16].

Investment behavior is critical for an investor's future, with the decision-making process influenced by various factors, including attitudes and other psychological variables [5]. Investors in stock markets often make intuitive decisions, such as buying a particular stock based on the company's name, which can be inefficient and highlights the need for a more rational approach to investment decisions [3]. Psychological factors significantly influence decision-making, in addition to rational factors. The market efficiency hypothesis and conventional finance theories suggest that investors' rationality should lead to optimal outcomes, but in practice, psychological influences often play a important role in shaping asset decisions [8].

Behavioral finance, therefore, offers a new perspective on market behavior by considering the psychological factors that impact investor decisions. Traditional economic models alone cannot fully understand human behavior, as psychological factors can partially or entirely influence investment decisions. This paper specifically analyses impact of these psychological aspects on the investment results of IT/ITES employees in Chennai, integrating AI to provide deeper insights into how these influences shape investment behavior and decision-making processes.

## REVIEW OF LITERATURE

The behavioral finance literature emphasizes psychological variables' significant impact on investing choices. Studies have standardized tools for measuring behavioral factors, providing a foundation for understanding how biases such as overconfidence, fear of losing, and herding behavior influence investment choices. Research is also explored AI's role in finance, revealing its potential to identify patterns and predict market trends by analyzing large datasets. However, we still need to examine the integration of AI into behavioral finance, especially in the context of IT/ITES employees. This research will provide to overcome the research gap by exploring how AI can enhance understanding of psychological influences on investment decisions.

A decision-making process based on environmental and situational variables has been linked to psychopaths. Decision-making is an intricate cognitive process. The decision-making progression is called evaluating the alternatives by gathering information and choosing the correct alternative. Discuss the psychological behavior of investor funds. Also, psychological behavior is defined as financial and psychological factors. It is a behavioral fund that examines and influences investor behavior using psychological principles in investment and stock market decision-making. Behavioral finance integrates the investor into decision-making. Modern finance is a decision-making process, anti-argument, and form that can understand investor psychology and realize market anomalies. Fund managers may enhance their decision-making by comprehensively understanding behavioral finance.

The study's results emphasized the crucial influence of trust and subjective criteria on AI-driven investment. We also established the statistical significance of supplementary variables such as perceived benefit, perceived ease of use, and attitudes [2]. This study significantly contributes to the existing knowledge of technology adoption. The text provides a precise explanation, supported by a high degree of accuracy (R2 value = 82.9%), of the factors that impact the adoption of robo-advice in investing services. The study also offers significant insights for service-providing organizations, empowering them with practical information to formulate their business strategy to allow them to acquire a substantial client base and gain a competitive advantage.

The publication's authors are Musleh Al-Sartawi, A. M., Hussainey, K., and Razzaque, A. The publication was released in 2022. It contributed to the research for the Special Issue, which includes multiple articles that delve into various aspects. Given the circumstances, it is essential to analyze the obstacles and capabilities of artificial intelligence in addressing sustainability problems. This editorial provides a thorough overview of the articles addressing this issue.

This research investigates the subjective perception of humans on using artificial intelligence (AI) to improve decision-making at a personal level. This study presents evidence that the use of AI-based advising systems has a beneficial impact on decision-making behavior and enhances the sense of the quality of choices, which sets it apart from previous studies on algorithm aversion [9]. Moreover, cultivating a greater level of confidence in the adviser and observing a more organized methodology might assist in elucidating the excessive dependence on an AI-augmented decision-making process. This study examines the interaction between human and artificial intelligence in strategic decision-making, particularly in the context of research and development expenditure.

In their study, Muhammad et al. (2020) found that investing choices were impacted by behavioral finance biases, namely Prospect theory, Heuristic behavior, and Personality Characteristics [18]. The research demonstrated that prospects, heuristic behaviors, and personality factors impacted investment decision-making. The study results benefit financial institutions and depositors who make decisions based on psychological analysis. In their study, They proposed that four behavioral components, prospect, heuristic, herding, as well as market, impacted both the return on investment and investment choice.

In their study, they discovered that various market factors favorably impact investors' decision-making. These factors include market information, price fluctuations, customer preferences, historical stock trends, the underlying stock's fundamentals, and the tendency to overreact to price changes. Notably, these factors significantly influence investors' decision-making behavior. Previous study says that heuristic behaviors have the most significant beneficial influence on investment success. Simultaneously, future behavior hurts investment success.

Seraj, Alzain, and Alshebami (2022) found that financial literacy had a beneficial impact on investors' investing choices [1]. Moreover, overconfidence favorably impacted investors' investment choices. Overconfidence played a substantial and favorable role in moderating the connection between investing choices and financial literacy.

Akkaya, (2013) said that overconfidence in individuals is a recognized and prevalent cognitive bias. Overconfident investors underestimate the dangers and become too confident in their knowledge and abilities. The phenomenon of individuals having excessively high assessments of their skills and confidence has garnered significant interest among finance scholars [4]. Overconfident investors tend to feel that they possess more knowledge and intelligence. Therefore, investors have a strong sense of assurance when they anticipate an occurrence. Sometimes, the reality of a situation differs from the expectations. Overconfidence refers to the tendency of a person to excessively overestimate their talents, performance, and likelihood of success. Additionally, they believe that their judgment and knowledge surpass those of others.

Excessive self-assurance might result in prejudiced investing choices. Investors with a strong sense of assurance anticipate more significant financial gains and lower levels of uncertainty while making investments. However, this outcome is not inevitable. They reported that overconfident investors were included in stock transactions. This has a detrimental impact on investors' returns. Overconfident investors made risky investment selections [15]. In their study, [10] discovered that individuals with high optimism tend to exhibit more boldness when allocating money to high-risk assets.

Nevertheless, the outcomes are sometimes advantageous. Overconfident investors should allocate more time to maximize their profitability. Additionally, they hold onto equities that have seen declines. Investors' excessive self-assurance results in making investing choices that carry a significant level of risk.

In their study, [13] identified that a total of 181 investors in Ahmedabad to gather data. The findings demonstrated that investors' investment decisions were impacted by behavioral finance and the significance of behavioral finance - both the determinants and the effect of behavioral finance - when making investment choices.

Market factors are consistently elevated. The second component is the effect of grouping (herding). The third factor is prospective considerations. The fourth factor is heuristic variables that influence investment choice. Behavioral characteristics, including overconfidence, anchoring, availability bias, representation, and gamblers' fallibility, have positively correlated with investing success. Conversely, mental accounting, loss aversion, and regret aversion have a negative correlation with investing success.

The study's results emphasized the crucial influence of trust and subjective criteria on AI-driven investment. We also established the statistical significance of supplementary variables such as perceived benefit, perceived ease of use, and attitudes. This study significantly contributes to the existing knowledge of technology adoption. The text provides a precise explanation, supported by a high degree of accuracy ( $R^2$  value = 82.9%), of the factors that impact the adoption of robo-advice in investing services. The study also offers vital insights for service-providing organizations, empowering them with practical information to formulate their business strategy to allow them to acquire a significant client base and gain a competitive advantage.

The authors contributed to strengthening the specific Issue's studies, which explored into numerous articles exploring the topics of sustainable growth, ESG saving, and AI's potential to guide investors, creditors, and business leadership to financial sustainability over the long term. Given the circumstances, it is essential to analyze the obstacles and possibilities of artificial intelligence in addressing sustainability concerns.

This study investigates people's subjective perceptions of augmented decision-making using artificial intelligence (AI) on a personal level [6]. This study presents evidence that the use of AI-based advising systems has a beneficial impact on decision-making behavior and enhances the sense of the quality of choices, which is different from previous studies on algorithm aversion. Moreover, cultivating a greater level of confidence in the adviser and observing a more organized methodology might assist in elucidating the excessive dependence on an AI-augmented decision-making process. This study examines the interaction between human and artificial intelligence in strategic decision-making, particularly in the context of research and development expenditure. There has been a lot of talk about how algorithms are improving management, and this adds to that conversation. According to studies, recommendations made by AI systems are more trustworthy than those made by human advisors.

In their study, Muhammad et al. (2020) found that investing choices were impacted by behavioral finance biases, namely Prospect theory, Heuristic behavior, and Personality Characteristics [18]. The research demonstrated that prospects, heuristic behaviors, and personality factors impacted investment decision-making. The study results benefit financial institutions and depositors who make decisions based on psychological analysis. In a study

conducted by Nzelibe et al. (2020), it was shown that four behavioral characteristics, namely prospect, heuristic, herding, and market, significantly impacted both the return on investment and investment choice [19].

According to Schmidt, (2008), market factors such as market information, price changes, customer preference, past stock trends, underlying stock fundamentals, and overreaction to price changes positively impact investors' decision-making behavior [20]. According to Luong and Thi (2011), heuristic behaviors have the most beneficial influence on investment success. Simultaneously, future behavior negatively impacts investment performance.

Seraj, Alzain, and Alshebami (2022) found that financial literacy had a beneficial impact on investors' investing choices [1]. Moreover, overconfidence favorably impacted investors' investment choices. Overconfidence played a substantial and favorable role in moderating the connection between investing choices and financial literacy.

According to Manoj Kumar Dash (2010), men and women have different risk tolerances when it comes to financial choices. Age and gender, which are demographic variables, influence investment patterns.

They said that overconfidence in individuals is a recognized and prevalent cognitive bias. Overconfident investors underestimate the dangers and become too confident in their knowledge and abilities. The phenomenon of positive self-evaluations about overcapacity and overconfidence has garnered significant interest among finance scholars. Overconfident investors tend to feel that they possess more knowledge and intelligence. Therefore, investors have a strong sense of assurance when they anticipate an occurrence. Sometimes, the reality of a situation differs from the expectations. Overconfidence refers to excessive belief in one's talents, performance, and likelihood of success. Additionally, they believe that their judgment and knowledge surpass those of others.

They conducted the study. Excessive self-assurance might result in prejudiced investing choices. Investors with a strong sense of assurance anticipate more significant financial gains and lower levels of uncertainty while making investments. However, we are still determining this outcome. According to Palomino and Sadrieh (2011), stock transactions included overconfident investors. This had a detrimental impact on the investors' returns. Overconfident investors made risky investment choices, as stated [15]. In their study, [10] discovered that highly optimistic individuals tend to be bolder in allocating money toward high-risk investments.

Nevertheless, the actual outcomes are sometimes advantageous. Overly self-assured investors should allocate extra time to generate a financial gain. In addition, they hold onto equities that have seen declines. Investors' excessive self-assurance results in making investing choices with a high level of risk.

Research [13] found that stock market decision-making is heavily influenced by behavioral finance principles such excessive trust, understanding, cognitive variation, constrained structure, regrets aversion, as well as mental valuation. They performed original research using a well-organised questionnaire and collected data from 181 investors in Ahmedabad. The findings indicated that investors' investment selections were impacted by behavioral finance, including the significance of behavioral finance components and the effect of behavioral finance on investors' investment choices.

Similarly, market factors are significant, followed by the influence of grouping (herding) variables, prospective factors, and heuristic variables that affect investment decisions. Behavioral characteristics, including overconfidence, anchoring, availability bias, representation, and gamblers' fallibility, have positively correlated with investing success. Investment performance was inversely associated to mental valuation, fear of loss, and fear of regret.

## **METHODOLOGY**

We collected data from 142 IT/ITES employees out of 170 selected respondents, focusing on behavioral factors and investment decision processes. This research utilized a descriptive design, with questionnaires distributed via Google Docs. We gathered the data using a categorical and Likert scale format, measuring responses on a 5-point Likert scale from 1 to 5. This approach enabled the application of robust statistical methods to test the study's hypotheses. We evaluated the investment decision process using five statements, and respondents responded on a five-point scale based on a tool constructed and standardized. Additionally, psychological factors were assessed using a similar five-point scale, categorized into four distinct characteristics, with the tool standardized. Integrating

AI, the study aimed to analyze these responses, providing deeper insights into the psychological influences on investment decisions among IT/ITES employees.

**Table 1.** Psychological Factors and Gender of IT/ITES Employees

S.No.	Variable	Items	Total Items
	Psychological Factors	1 to 19	19
1	Confidence	1 to 6	6
2	Optimism	7 to 10	4
3	Loss Aversion	11 to 14	4
4	Herd Behaviour	15 to 19	5

The researcher selected 170 IT/ITES employees for the pilot study in Chennai city. The questionnaire was constructed by the researcher and distributed to the IT/ITES employees through a Google document. The researcher clearly explained the nature of the research to the IT/ITES employees. IT/ITES employees voluntarily agreed to answer the questionnaire. Also, the collected data were analyzed and tabulated by SPSS software to determine the reliability and validity of the questionnaire in table 1.

The reliability of the questionnaire was evaluated through a pilot study. Reliability (Cronbach alpha) of not less than 0.6 for all constructs was considered sufficient for the research. This paper used Cronbach's alpha to test the reliability of the instrument. Instrument reliability of 0.6 and above is acceptable. Reliability and validity are the criteria of a good instrument. Reliability and validity are the primary purposes of reliability testing to improve the quality of the research instrument. The reliability of the research instrument refers to the consistency of the research [14]. Data were collected from 124 IT/ITES employees in Chennai for the pilot study. Correlation analysis was done to identify the validity. At the same time, the table value was found to be 0.273 at a five percent level. The table values indicate that the set questionnaire was correct at the five percent level. Therefore, the questionnaire was designed to make this study more valid. The questionnaire was taken to the next stage of the study as the value detected by the valid analyzer was more significant than 0.273. The primary data collected will be analyzed by the researcher using statistical tools. According to the hypotheses constructed in this study, the researcher will analyze using some statistical tools (t-test and multiple regression analysis).

**Table 2.** Mean Difference Between Dimensions of Psychological Factors and Gender of IT/ITES Employees

Psychological Factors	Gender	N	Mean	SD	t Value	p Value
Confidence	Male	88	4.8359	0.99172	2.611	0.009
	Female	36	4.6059	1.18000		
Optimism	Male	88	4.8392	1.13557	4.806	0.001
	Female	36	4.1755	1.08917		
Loss Aversion	Male	88	4.6490	1.08999	2.959	0.003
	Female	36	4.3623	1.30031		
Herd Behaviour	Male	88	4.8895	1.11500	3.900	0.001
	Female	36	4.5011	1.33051		
Overall PF	Male	88	4.9239	0.90686	4.565	0.001
	Female	36	4.5559	1.08188		

\*\*\*Source: Primary data

Table 2 details the results of the independent sample t-test. It shows the mean difference between the dimensions of psychological factors and the gender of IT/ITES employees. The research sample size is 124 IT/ITES employees in Chennai. The psychological factor, the dependent variable of the study, is estimated under four factors: confidence, optimism, loss aversion, and herd behavior. The independent variable is considered from two different gender groups of IT/ITES employees: male and female.

HO: There is no significant difference between psychological factors and the gender of IT/ITES employees.

Confidence in psychological factors is the first factor, showing a mean score of 4.8359 of male IT/ITES employees, which is more excellent than that of female IT/ITES employees, with a mean score of 4.6059. Out of

124 IT/ITES employees, the male IT/ITES employees have the highest representatives than the female IT/ITES employees. The t value is 2.611 and is significant. Results revealed a significant difference between the confidence of psychological factors and the gender of IT/ITES employees. Manoj Kumar Dash (2010) revealed that male and female investment decisions differ in investment patterns.

Optimism of psychological factors is the first factor, showing that the mean score of 4.8392 of male IT/ITES employees is greater than that of female IT/ITES employees, with a mean score of 4.1755. Out of 124 IT/ITES employees, the male IT/ITES employees have the highest representatives than the female IT/ITES employees. The t value is 4.806 and is significant. Results revealed a significant difference between the optimism of psychological factors and the gender of IT/ITES employees. Manoj Kumar Dash (2010) revealed that male and female investment decisions differ in investment patterns.

Loss of aversion to psychological factors is the first factor that shows the mean score of 4.6490 for male IT/ITES employees is greater than that of female IT/ITES employees, with a mean score of 4.3623. Out of 124 IT/ITES employees, the male IT/ITES employees have the highest representatives than the female IT/ITES employees. The t value is 2.959 and is significant. Results revealed a significant difference between loss aversion of psychological factors and the gender of IT/ITES employees. Manoj Kumar Dash (2010) revealed that male and female investment decisions differ in investment patterns.

Herd behavior of psychological factors is the first factor, showing a mean score of 4.8895 for male IT/ITES employees greater than female IT/ITES employees' mean score of 4.5011. Out of 124 IT/ITES employees, the male IT/ITES employees have the highest representatives than the female IT/ITES employees. The t value is 3.900 and is significant. Results revealed a significant difference between herd behavior of psychological factors and the gender of IT/ITES employees. Manoj Kumar Dash (2010) revealed that male and female investment decisions differ in investment patterns.

Psychological factors mean a score of 4.9239 for male IT/ITES employees, more significant than the female IT/ITES employee's score of 4.5559. Out of 124 IT/ITES employees, male IT/ITES employees have higher representatives than female IT/ITES employees. The t value is 4.565 and is significant. Results revealed a significant difference between psychological factors and the gender of IT/ITES employees. Manoj Kumar Dash (2010) revealed that male and female investment decisions differ in investment patterns.

The psychological factors show significant differences based on the gender of the IT/ITES employees. The analysis highlighted that male IT/ITES employees are highly rated for psychological factors than female IT/ITES employees. Manoj Kumar Dash (2010) revealed that male and female investment decisions differ in terms of investment patterns.

**Table 3.** Influence of Dimensions of Psychological Factors on Investment Decision Process of IT/ITES Employee Towards Behavioral Finance

Dependent Variable	Independent Variable	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F Value	p Value
Investment Decision Process	Confidence	0.729	0.531	0.528	152.917	0.001
	Optimism					
	Loss Aversion					
	Herd Behaviour					

\*\*\*Source: Primary data

Table 3 details the results of the multiple regression analysis. This table shows the influence of psychological factors on the investment decision process of IT/ITES employees toward behavioral finance. The research sample size is 124 IT/ITES employees in Chennai. Psychological factors are considered independent variables. The dependent variable is the investment decision process.

Ho: Influence of psychological factors on the investment decision process of IT/ITES employees towards behavioral finance.

The multiple regression analysis was utilized to check the framed null hypothesis. The calculated P-value is significant at a one percent level in the regression model summary. Hence, the stated hypothesis is rejected. Hence, it is found that psychological factors influence the investment decision process of IT/ITES employees toward behavioral finance. The R-value of 0.729 indicates a very strong relationship between psychological factors in the investment decision process. The R2 is a key output of regression analysis. R2 suggests how many data points fall within the results of the line formed by the regression equation. It is found to be 0.531, which implies that 53.1 percent of the variation in the investment decision process toward behavioral finance is explained by psychological factors.

## Coefficients

**Table 4.** Influence of Dimensions of Psychological Factors on Investment Decision Process of IT/ITES Employee Towards Brand Personality

S.No.	Brand Personality	Un-standardized Coefficients		Standardized Coefficients	t Value	p Value
		B	SE	Beta		
	Constant	3.029	0.247		12.274	0.001
1	Confidence	0.451	0.035	0.369	12.943	0.001
2	Optimism	0.289	0.034	0.227	8.534	0.001
3	Loss Aversion	0.327	0.026	0.374	12.819	0.001
4	Herd Behaviour	0.337	0.023	0.387	14.471	0.001

+++Source: Primary data

In table 4 the coefficient of confidence was 0.369, and the p-value indicates significance at the one percent level. This implies that confidence explains 36.9 percent of the variation in the investment decision process level. This result indicates that confidence in psychological factors influenced the investment decision process. Hence, psychological factors in the investment decision process influence confidence. Devrshi Upadhyay and Paresh Shah (2019) revealed that behavioral finance and its relevance influenced investors' investment decisions [13].

The coefficient of optimism was 0.227, and the p-value indicates significance at the one percent level. This implies that optimism explains 22.7 percent of the variation in the investment decision process level. This result indicates that the optimism of psychological factors influenced the investment decision process. Hence, it is found that optimism and psychological factors influence the investment decision process. Devrshi Upadhyay and Paresh Shah (2019) revealed that behavioral finance and its relevance influenced investors' investment decisions [13].

The loss aversion coefficient was 0.374, and the p-value indicates significance at the one percent level. This implies that 37.4 percent of the variation in the level of the investment decision process is explained by loss aversion. This result indicates that psychological factors such as loss aversion influenced the investment decision process. Hence, it is found that psychological factors in the investment decision process influence loss aversion. Devrshi Upadhyay and Paresh Shah (2019) revealed that behavioral finance and its relevance influenced investors' investment decisions [13].

The coefficient of herd behavior was 0.387, and the p-value indicates significance at the one percent level. This implies that 38.7 percent of the variation in the level of the investment decision process is explained by herd behavior. This result indicates that herd behavior and psychological factors influenced the investment decision process. Hence, it is found that herd behavior influences psychological factors in the investment decision process. Devrshi Upadhyay and Paresh Shah (2019) revealed that behavioral finance and its relevance influenced investors' investment decisions [13].

Four psychological factors, namely confidence, optimism, loss aversion, and herd behavior, influence the investment decision process regarding behavioral finance. Devrshi Upadhyay and Paresh Shah (2019) revealed that behavioral finance and its relevance influence investors' investment decisions [13].

## CONCLUSIONS

This research analyses the role of artificial intelligence (AI) in understanding the psychological influences of investment decisions among IT/ITES employees in Chennai. The study collected data from 142 out of 170 respondents using a descriptive research design and distributed questionnaires via Google Docs. We used multiple regression and t-tests to analyze the questionnaire, which included sections on demographic profiles, psychological factors, and investment decision processes. Its vital psychological factors examined include confidence, optimism, fear of loss, and herding behavior.

The findings reveal significant gender differences, with male IT/ITES employees rating psychological factors higher than their female counterparts. Herd behavior emerged as a strong predictor of investment intentions, followed by loss aversion. The study underscores the importance of psychological factors in investment decisions and suggests that IT/ITES employees should adopt positive attitudes toward financial investments to improve their investment outcomes. It also advises to rely on something other than external information, as it may lead to suboptimal investment decisions. The study's commitment to scientific rigor is evident in its recommendation for further research to validate these findings in a broader context beyond IT/ITES employees.

The study underscores the growing importance of AI in modern finance, demonstrating its potential to provide valuable insights into cognitive and emotional biases affecting investment behaviors. AI can help investors and fund managers develop more targeted and practical strategies that account for these psychological factors. The research suggests that IT/ITES employees should adopt positive attitudes towards financial investments and be cautious about relying solely on external information, as it may lead to suboptimal decisions. The study's commitment to scientific rigor is reflected in its recommendation for further research to validate these findings in a broader context beyond IT/ITES employees.

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