A STUDY ON ROLE OF AI IN STOCK MARKET PREDICTION WITH SPECIAL REFERENCE TO COIMBATORE CITY

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ABSTRACT

This study examines the role of Artificial Intelligence (AI) in improving stock market prediction and investment decision-making. Stock market forecasting has always been challenging due to the influence of multiple economic, financial, and behavioural factors. Traditional prediction methods often struggle to analyse large volumes of financial data and complex market patterns. With the advancement of technology, Artificial Intelligence has emerged as a powerful tool that can process massive datasets, identify hidden patterns, and generate more accurate predictions. The study aims to understand the concept of AI and analyse how AI techniques contribute to predicting stock price movements. Various AI approaches such as machine learning, deep learning, neural networks, and algorithmic trading systems are examined to understand their application in financial markets. The research also compares AI-based prediction methods with traditional forecasting techniques to evaluate their effectiveness. In addition, the study explores how AI reduces human errors and emotional bias in investment analysis. The findings indicate that AI technologies help investors interpret market trends more efficiently and support data-driven decision-making. Although AI offers several benefits such as speed, automation, and improved accuracy, it also faces challenges including data dependency and market uncertainty. Overall, the study highlights the growing importance of AI in modern financial markets and its potential to transform stock market analysis and forecasting.

Keywords: Artificial Intelligence, Stock Market Prediction, Machine Learning Financial Forecasting, Data Analysis, Algorithmic Trading Investment Decision-Making, Market Trends, Financial Technology

INTRODUCTION

Artificial Intelligence (AI) has emerged as one of the most transformative technologies in the financial sector, particularly in stock market prediction. Traditionally, stock price forecasting relied on fundamental analysis, technical analysis, and expert judgment. However, the dynamic and highly volatile nature of stock markets makes accurate prediction a complex task. AI introduces advanced computational techniques that can analyze vast amounts of financial data, identify hidden patterns, and generate data-driven predictions with improved speed and efficiency. AI in stock market prediction mainly uses techniques such as machine learning, deep learning, neural networks, and natural language processing. These methods enable systems to process historical price data, trading volumes, market indicators, economic reports, and even news articles or social media sentiment. Unlike traditional statistical models, AI systems can continuously learn from new data and adapt to changing market conditions, which enhances their predictive performance over time.

One of the key advantages of AI-based prediction models is their ability to reduce human bias and emotional decision-making in trading. By relying on algorithms and data analysis, AI tools support investors in making more rational and informed investment decisions. Additionally, AI-powered trading systems can execute trades automatically at high speed, improving market efficiency and minimizing manual errors. Despite its advantages, AI in stock market prediction also faces challenges such as data quality issues, overfitting of models, market unpredictability, and ethical concerns. Nevertheless, the growing integration of AI technologies into financial markets indicates a shift toward smarter, technology-driven investment strategies. As digital transformation continues, AI is expected to play an increasingly important role in shaping the future of stock market analysis and prediction.

The stock request is one of the most dynamic and complex fiscal systems in the world. The prices of stocks change snappily because of colorful factors like how well a company is performing, the state of the frugality, political developments, what investors feel about the request, and global trends. Due to this complexity,

it has always been delicate to prognosticate stock prices with high delicacy. In recent times, Artificial Intelligence(AI) has come a strong tool that improves the delicacy and effectiveness of stock request vaticinations by examining large quantities of both organized and unorganized data.

STATEMENT OF PROBLEM

Stock market prediction is a complex and challenging task due to the unpredictable nature of market movements influenced by economic conditions, company performance, investor behaviour, and global events. Traditional stock market prediction methods rely mainly on statistical tools and human judgment, which often fail to analyse large volumes of data and capture complex price patterns accurately. With the increasing availability of financial data, there is a growing need for advanced technologies that can process and analyse data efficiently. Artificial Intelligence has emerged as a powerful tool in stock market prediction, offering improved accuracy and reduced human bias. However, the effectiveness, cost-efficiency, and limitations of AI-based prediction methods are not clearly understood, especially in comparison with traditional forecasting techniques. Therefore, this study seeks to examine the role of Artificial Intelligence in stock market prediction, identify the AI techniques used, analyse their advantages and limitations, and compare them with traditional methods to understand their usefulness in supporting better investment decision-making

OBJECTIVES OF THE STUDY

1. To understand what AI is and how it is used in stock market prediction
2. To identify AI methods used to predict stock price
3. To compare AI prediction with traditional prediction method
4. To analyse how AI reduce human errors in stock market analysis
5. To find out how AI helps investors make better decisions

NEED OF THE STUDY

Stock market prediction plays a vital role in investment planning and financial decision-making. Traditional prediction methods are often limited in their ability to analyse large volumes of market data and complex price movements. With the rapid development of Artificial Intelligence (AI), new techniques have emerged that can process historical and real-time data more efficiently. This study is needed to understand the concept of AI and its application in stock market prediction. It helps in identifying various AI methods used to predict stock prices and in analyzing how AI improves forecasting accuracy. The study also examines whether AI tools are cost-effective for financial firms and investors. Further, the study is required to compare AI-based prediction methods with traditional forecasting techniques to assess their effectiveness. By analyzing how AI reduces human errors and supports better investment decisions, the study provides valuable insights for students and future professionals in finance and technology.

LIMITATIONS OF THE STUDY

1. The study is based only on secondary data collected from journals, books, research articles, and websites.
2. Real-time stock market data and live trading analysis are not included.
3. The study considers only selected AI methods and does not cover all advanced AI models.
4. Stock market predictions are affected by sudden economic, political, and global events, which cannot be fully predicted by AI.
5. The study is conducted for academic purposes and may not be suitable for direct investment decisions.

SCOPE OF STUDY

The scope of this study is to analyse the role of Artificial Intelligence (AI) in stock market prediction. The study aims to provide a basic understanding of Artificial Intelligence and how it is used in predicting stock market prices and trends. It focuses on explaining the importance of AI in analyzing large amounts of stock market data efficiently. The study covers different AI methods used for stock price prediction, such as machine learning techniques and neural networks. It attempts to identify how these methods help in improving the accuracy of stock market forecasts when compared to traditional prediction methods. This study also examines the limitations of using AI in stock market prediction, including market uncertainty, data dependency, and technical challenges. It evaluates whether AI tools are cost-effective for financial firms and investors. Further, the scope includes a comparison between AI-based prediction methods and traditional forecasting techniques to understand their effectiveness. The study highlights how AI reduces human errors and bias in stock market analysis and supports better investment decisions. The study is limited to secondary data collected from journals, research articles, and websites. It does not involve real-time trading or primary data collection. The findings of this study are intended for academic purposes only.

RESEARCH METHODOLOGY

The research methodology used in this study is descriptive and analytical in nature. The study relies entirely on secondary data sources such as academic journals, published research papers, books, financial reports,

and authentic online sources related to Artificial Intelligence and stock market prediction. Data collected are analysed to understand the role of AI in predicting stock prices, the different AI methods used, and their advantages and limitations. A comparative analysis is carried out between AI-based prediction methods and traditional forecasting techniques to evaluate their effectiveness. The study also analyses the cost-effectiveness of AI tools and their role in reducing human errors in stock market analysis. No primary data collection, software tools, or real-time market experiments are involved in this study

SIGNIFICCANCE OF THIS STUDY

This study is significant as it helps in understanding the growing importance of Artificial Intelligence in stock market prediction. With increasing complexity and volatility in financial markets, AI provides advanced tools to analyse large volumes of data and improve forecasting accuracy. The study highlights how AI-based prediction methods are more effective than traditional techniques. The study is useful for students as it provides basic knowledge about AI concepts and their practical application in stock market analysis. It helps learners understand modern trends in financial technology and prepares them for future careers in finance, analytics, and data science. For investors and financial professionals, the study offers insights into how AI reduces human bias and errors in decision-making. It explains how AI supports better investment decisions through data-driven analysis and trend identification. The study is also significant for academic researchers, as it serves as a reference for further research on AI applications in financial markets. Additionally, it helps financial institutions understand the cost-effectiveness and limitations of AI tools in stock market prediction. Overall, this study contributes to bridging the knowledge gap between traditional stock market analysis and modern AI-based prediction techniques.

TOOLS AND TECHNIQUES

The collected data is analysed using the following tools and techniques

- Percentage analysis
- One-way Anova
- Chi-square
- Regression

These tools help in interpreting the data clearly and drawing meaningful conclusions.

ANALYSIS AND INTERPRETATION

PECENTAGE ANALYSIS

TABLE NO.:1

GENDER OF THE RESPONDENT

GENDER	NO. OF RESPONDENT	PERCENTAGE
MALE	**89**	**70.6**
FEMALE	**37**	**29.4**
TOTAL	**126**	**100**

(SOURCE: PRIMARY DATA)

INTEPRETATION

The table shows the gender distribution of 126 respondents. Out of the total respondents, 89 (70.6%) are male, while 37 (29.4%) are female. This indicates that most of the respondents are male, representing more than two-thirds of the sample. Female respondents make up less than one-third of the total population.

TABLE NO.:2

QUALIFICATION OF THE RESPONDENT

QUALIFICATION	NO. OF RESPONDENT	PERCENTAGE
SSLC	7	5.6
HSC	9	7.1
UNDERGRADUATE	70	55.6
POSTGRADUATE	37	29.4
PhD	3	2.4
TOTAL	**126**	**100**

(SOURCE: PRIMARY DATA)

INTERPRETATION

The table shows the educational qualifications of the 126 respondents. Most respondents, 70 individuals (55.6%), are undergraduates, making this the largest group. This is followed by 37 respondents (29.4%) who have completed postgraduate studies. A smaller proportion of respondents have lower secondary qualifications, with 9 respondents (7.1%) holding HSC and 7 respondents (5.6%) holding SSLC qualifications.

TABLE NO.:3

HOW FAMILIAR ARE YOU

HOW FAMILIAR ARE YOU	NO. OF RESPONDENT	PERCENTAGE
VERY FAMILIAR	44	34.9
SOMEWHAT FAMILIAR	54	42.9
SLIGHTLY FAMILIAR	19	15.1
NOT FAMILIAR	9	7.1
TOTAL	126	100

(SOURCE: PRIMARY DATA

INTERPRETATION

The table presents the level of familiarity among 124 respondents. The majority, 54 respondents (43.5%), reported being somewhat familiar. This is followed by 42 respondents (33.9%) who indicated they are very familiar. Meanwhile, 19 respondents (15.3%) stated they are slightly familiar, and only 9 respondents (7.3%) reported being not familiar. Overall, 77.4% of respondents have at least a moderate level of familiarity.

TABLE NO.:4

WHICH AI TECHNIQUE

WHICH AI TECHNIQUE	NO. OF RESPONDENT	PERCENTAGE
MACHINE LEARNING	35	27.8
ARTIFICIAL NEURAL NETWORKS	43	34.1
DEEP LEARNING	28	22.2
ALL OF THE ABOVE	20	15.9
TOTAL	126	100

(SOURCE: PRIMARY DATA)

INTERPRETATION

The table presents respondents' preferences regarding different technological approaches among 126 participants. The highest proportion, 43 respondents (34.1%), selected Artificial Neural Networks. This is followed by 35 respondents (27.8%) who chose Machine Learning. Additionally, 28 respondents (22.2%) preferred Deep Learning, while 20 respondents (15.9%) selected All of the Above

TABLE NO.:5

TRADITIONAL STOCK PREDICTION METHODS

RELY MAINLY ON	NO. OF RESPONDENT	PERCENTAGE
TECHNICAL & FUNDAMENTAL ANALYSIS	45	35.7
ARTIFICIAL INTELLIGENCE	50	39.7
AUTOMATION	18	14.3
ROBOTICS	13	10.3
TOTAL	126	100

(SOURCE: PRIMARY DATA)

INTERPRETATION

The table presents respondents' preferred approaches among 126 participants. The largest group, 50 respondents (39.7%), selected Artificial Intelligence, making it the most favoured option. Close behind, 45 respondents (35.7%) chose Technical and Fundamental Analysis. Meanwhile, 18 respondents (14.3%) preferred Automation, and 13 respondents (10.3%) selected Robotics. Overall, AI emerges as the leading approach.

TABLE NO.:6

PROVIDE CONSISTENT RESULTS

PROVIDE CONSISTENT RESULTS	NO. OF RESPONDENT	PERCENTAGE
WORK BASED ON EMOTIONS	45	35.7
FOLLOW PREDEFINED RULES AND DATA	54	42.9
IGNORE HISTORICAL DATA	16	12.7
CHANGE DECISIONS RANDOMLY	11	8.7
TOTAL	126	100

(*SOURCE: PRIMARY DATA)*

INTERPRETATION

The table presents respondents' approaches to decision-making among 126 participants. The largest group, 54 respondents (42.9%), follow predefined rules and data. This indicates a preference for structured, data-driven methods. Meanwhile, 45 respondents (35.7%) work based on emotions. Smaller groups include 16 respondents (12.7%) who ignore historical data and 11 respondents (8.7%) who change decisions randomly.

TABLE NO.:7

AI-BASED TOOLS

AI-BASED TOOLS	NO. OF RESPONDENT	PERCENTAGE
REAL-TIME MARKET ANALYSIS	52	41.3
DELAYED INFORMATION	36	28.6
MANUAL REPORTS	25	19.8
GUESS-BASED ADVICE	13	10.3
TOTAL	**126**	**100**

(SOURCE: PRIMARY DATA)

INTERPRETATION

The table presents respondents' preferred sources of market information among 126 participants. The largest group, 52 respondents (41.3%), rely on Real-Time Market Analysis. This indicates a strong preference for timely and up-to-date information. Meanwhile, 36 respondents (28.6%) use Delayed Information. Additionally, 25 respondents (19.8%) depend on Manual Reports, and 13 respondents (10.3%) follow Guess-Based Advice.

TABLE NO.:8

AI HELPS INVESTORS MAINLY BY

AI HELPS INVESTORS MAINLY BY	NO. OF RESPONDENT	PERCENTAGE
ELIMINATING RISK	49	38.9
PREDICTING TRENDS USING DATA	43	34.1
IGNORING PAST DATA	20	15.9
INCREASING UNCERTAINTY	14	11.1
TOTAL	**126**	**100**

(SOURCE: PRIMARY DATA)

INTERPRETATION

The table presents respondents' perceptions of the main benefits of a particular approach among 126 participants. The largest group, 49 respondents (38.9%), identified Eliminating Risk as the primary advantage. This indicates that risk reduction is highly valued. Additionally, 43 respondents (34.1%) selected Predicting Trends Using Data. Smaller groups include 20 respondents (15.9%) who Ignore Past Data and 14 respondents (11.1%) who believe it Increases Uncertainty. Overall, most respondents view the approach positively.

TABLE NO.:9

HOW SATISFIED ARE YOU

HOW SATISFIED ARE YOU	NO. OF RESPONDENT	PERCENTAGE
VERY SATISFIED	36	28.6
SATISFIED	46	36.5
NEUTRAL	25	19.8
DISSATISFIED	13	10.3
VERY DISSATISFIED	6	4.8
TOTAL	**126**	**100**

(SOURCE: PRIMARY DATA)

INTERPRETATION

The table presents respondents' satisfaction levels among 126 participants. The largest group, 46 respondents (36.5%), reported being Satisfied, followed by 36 respondents (28.6%) who are Very Satisfied. Together, 65.1% express a positive level of satisfaction. Meanwhile, 25 respondents (19.8%) remained Neutral. A smaller proportion reported dissatisfaction, with 13 respondents (10.3%) Dissatisfied and 6 respondents (4.8%) Very Dissatisfied.

IN YOUR OPINION	NO. OF RESPONDENT	PERCENTAGE
VERY RELIABLE	41	32.5
RELIABLE	50	39.7

MODERATELY RELIABLE	26	20.6
NOT RELIABLE	9	7.1
TOTAL	**126**	**100**

TABLE NO.:10
IN YOUR OPINION

(SOURCE: PRIMARYDATA)

INTERPRETATION

The table presents respondents' perceptions of reliability among 126 participants. The majority, 50 respondents (39.7%) rated it Reliable and 41 respondents (32.5%) rated it Very Reliable, totalling 72.2% positive responses. Meanwhile, 26 respondents (20.6%) consider it Moderately Reliable. Only 9 respondents (7.1%) rated it as Not Reliable. Overall, the findings indicate strong confidence in reliability among most participants.

TABLE NO.:11
WOULD YOU CONTINUE USING AI-BASED

WOULD YOU CONTINUE USING AI	NO. OF RESPONDENT	PERCENTAGE
DEFINITELY YES	53	42.1
PROBABLY YES	42	33.3
NOT SURE	25	19.8
NO	6	4.8
TOTAL	**126**	**100**

(SOURCE: PRIMARY DATA)

INTERPRETATION

The table presents respondents' likelihood of agreeing or taking a particular action. The largest group, 53 respondents (42.1%), answered Definitely Yes, while 42 respondents (33.3%) chose Probably Yes. Together, this shows that 95 respondents (75.4%) are positively inclined toward the action or decision. 25 respondents (19.8%) are Not Sure, reflecting some uncertainty, and the smallest group, 6 respondents (4.8%), responded No.

Overall, the findings indicate a strong positive inclination among most respondents, with only a small portion uncertain or unwilling. This suggests broad support or willingness among participants for the proposed action or idea.

TABLE NO.:12
HUMAN ERRORS IN STOCK MARKET

HUMAN ERRORS IN STOCK MARKET	NO. OF RESPONDENT	PERCENTAGE
EMOTIONAL BIAS	40	31.7
AUTOMATION	41	32.5
ACCURATE DATA	32	25.4
AI SYSTEMS	13	10.3
TOTAL	**126**	**100**

(SOURCE: PRIMARY DATA)

INTERPRETATION

The table shows respondents' perceptions of factors influencing decisions or outcomes. The largest group, 41 respondents (32.5%), identified Automation as a key factor, closely followed by 40 respondents (31.7%) who indicated Emotional Bias. This suggests that both automated processes and human emotions are seen as major influences.

32 respondents (25.4%) emphasized the importance of Accurate Data, showing that a quarter of respondents prioritize reliable information in decision-making. The smallest group, 13 respondents (10.3%), selected AI Systems, indicating lower reliance on advanced AI technologies.

Overall, the findings indicate that respondents recognize a balance between human influence (emotional bias), technology (automation), and data accuracy, with AI adoption still emerging as a smaller factor in the decision-making process.

TABLE NO.:13
AI-BASED PREDICTION

TABLE.:16
HOW FAMILIAR ARE YOU

AI-BASED PREDICTION	NO. OF RESPONDENT	PERCENTAGE
HISTORICAL MARKET DATA	50	39.7
RANDOM ASSUMPTIONS	35	27.8
PERSONAL OPINIONS	30	23.8
MANUAL CALCULATIONS	11	8.7
TOTAL	**126**	**100**

(SOURCE: PRIMARY DATA)

INTERPRETATION

The table presents the sources respondents rely on for decision-making. The largest group, 50 respondents (39.7%), indicated that they rely on Historical Market Data, showing that factual and past market trends are the primary basis for most respondents' decisions.

35 respondents (27.8%) use Random Assumptions, and 30 respondents (23.8%) rely on Personal Opinions, indicating that a notable portion of respondents still depends on subjective or less systematic methods. The smallest group, 11 respondents (8.7%), depends on Manual Calculations.

Overall, the findings suggest that while most respondents base their decisions on historical data, a significant proportion still uses assumptions or personal judgment. This highlights a mix of analytical and intuitive approaches among the respondents, with data-driven decision-making being the most common.

ANOVA ANALYSIS

TABLE NO.:14
AGE OF THE RESPONDENT

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	13.292	3	4.431	8.288	.000
Within Groups	64.151	120	.535		
Total	**77.444**	**123**			

H_0: There is no significant difference between the group means (all group means are equal).

H_1: There is a significant difference between at least one pair of group means.

INTERPRETATION

The ANOVA results show an F value of 8.288 with a p-value of 0.000. Since $p < 0.05$, the result is statistically significant. This indicates a significant difference between the group means. The between-group variance is higher than the within-group variance, explaining the high F value. Therefore, the null hypothesis is rejected, confirming significant differences among the groups.

TABLE NO.:15
QULIFICATION OF THE RESPONDENT

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.370	3	.123	.190	.903
Within Groups	77.727	120	.648		
Total	**78.097**	**123**			

H_0: There is no significant difference among the group means (the independent variable has no effect on the dependent variable).

H_1: There is a significant difference among the group means (at least one group mean differs from the others).

INTERPRETATION

The ANOVA results show an F value of 0.190 with a p-value of 0.903. Since $p > 0.05$, the result is not statistically significant. This indicates that there is no significant difference among the group means. The between-group variance (0.123) is much lower than the within-group variance (0.648), leading to a low F value. Therefore, the null hypothesis (H_0) is accepted, and the alternative hypothesis (H_1) is rejected, confirming no significant difference among the groups.

H_0: There is no significant difference among the means of the groups (the independent variable has no effect on the dependent variable).
H_1: There is a significant difference among the means of the groups (at least one group mean differs from the others).

INTERPRETATION

The ANOVA results show an F value of 1.390 with a significance (p-value) of 0.242. Since the p-value is greater than 0.05 (p > 0.05), the result is not statistically significant. This indicates that there is no significant difference among the group means. The between-group variance (Mean Square = 1.080) is relatively close to the within-group variance (Mean Square = 0.777), resulting in a low F value. Therefore, the null hypothesis (H_0) is accepted, and the alternative hypothesis (H_1) is rejected, meaning there is no significant difference among the groups under study

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.321	4	1.080	1.390	.242
Within Groups	92.478	119	.777		
Total	**96.798**	**123**			

TABLE NO.:17
HOW SATISFIED ARE YOU WITH AI

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.158	3	1.053	.825	.482
Within Groups	153.059	120	1.275		
Total	**156.218**	**123**			

H_0: There is no significant difference among the group means (all group means are equal).
H_1: There is a significant difference among the group means (at least one group mean is different from the others).

INTERPRETATION

The ANOVA results show an F value of 0.825 with a significance (p-value) of 0.482. Since the p-value is greater than 0.05 (p > 0.05), the result is not statistically significant.

This indicates that there is no significant difference among the group means. The between-group variance (Mean Square = 1.053) is lower than the within-group variance (Mean Square = 1.275), resulting in a low F value.

Therefore, the null hypothesis (H_0) is accepted, and the alternative hypothesis (H_1) is rejected, meaning there is no significant difference among the groups under study.

4.3 CHI-SQUARE ANALYSIS

TABLE NO.:18
GENDER VS TRUST IN AI-BASED INVESTMENT PREDICTIONS

Gender	Do Not Trust	Neutral	Strongly Trust	Trust	Total
Female	5 (13.5%) [41.7%]	7 (18.9%) [30.4%]	13 (35.1%) [28.9%]	12 (32.4%) [27.3%]	**37 (100%) [29.8%]**
Male	7 (8.0%) [58.3%]	16 (18.4%) [69.6%]	32 (36.8%) [71.1%]	32 (36.8%) [72.7%]	**87 (100%) [70.2%]**
Total	**12 (9.7%) [100%]**	**23 (18.5%) [100%]**	**45 (36.3%) [100%]**	**44 (35.5%) [100%]**	**124 (100%)**

Chi-Square Test Result

Test	Value	df	p-value
Pearson Chi-Square	**1.380**	**3**	**0.710**

H_0: There is no significant association between gender and the level of trust in AI-based investment predictions.
H_1: There is a significant association between gender and the level of trust in AI-based investment predictions.

INTERPRETATION

Based on the row percentages, both male and female respondents show similar levels of trust in AI, with a considerable proportion in each group selecting “Trust” and “Strongly Trust.” Although there are slight

differences in percentages between genders across the trust categories, these variations are minimal and do not indicate any major difference in opinion. Therefore, the level of trust in AI does not appear to depend on gender. This suggests that both male and female respondents share relatively similar perceptions regarding AI. Since the p-value is greater than 0.05 (p = 0.710), the null hypothesis is accepted at the 5 percent level of significance. Hence, it is concluded that there is no significant association between gender and trust in AI

TABLE NO.:19
AGE OF THE RESPONDENT VS EFFECTIVENESS OF AI IN ANALYZING STOCK MARKET DATA

Age of the Respondent	Effective	Neutral	Not Effective	Very Effective	Total
Below 25 Years	26 (42.6%) [52.0%]	12 (19.7%) [42.9%]	3 (4.9%) [25.0%]	20 (32.8%) [58.8%]	**61 (100%) [49.2%]**
26–35 Years	22 (45.8%) [44.0%]	11 (22.9%) [39.3%]	3 (6.3%) [25.0%]	12 (25.0%) [35.3%]	**48 (100%) [38.7%]**
36–50 Years	2 (20.0%) [4.0%]	5 (50.0%) [17.9%]	1 (10.0%) [8.3%]	2 (20.0%) [5.9%]	**10 (100%) [8.1%]**
Above 50 Years	0 (0.0%) [0.0%]	0 (0.0%) [0.0%]	5 (100.0%) [41.7%]	0 (0.0%) [0.0%]	**5 (100%) [4.0%]**
Total	**50 (40.3%) [100%]**	**28 (22.6%) [100%]**	**12 (9.7%) [100%]**	**34 (27.4%) [100%]**	**124 (100%)**

Chi-Square Test Result

Test	Value	df	p-value
Pearson Chi-Square	**47.622**	**9**	**0.000**

H_0: There is no significant relationship between age of respondents and their perception of effectiveness.
H_1: There is a significant relationship between age of respondents and their perception of effectiveness.

INTERPRETATION

Based on the row percentages, respondents below 25 years and 26–35 years show higher levels of positive perception, with a majority selecting "Effective" and "Very Effective." In contrast, respondents above 50 years show a completely negative perception, as all of them rated it as "Not Effective," while the 36–50 years group shows comparatively more neutral responses.

Therefore, the perception of effectiveness appears to depend on the age of the respondents. This indicates that younger respondents have a more favorable view, whereas older respondents tend to show lower acceptance.

Since the p-value is less than 0.05 (p = 0.000), the null hypothesis is rejected at the 5 percent level of significance. Hence, it is concluded that there is a significant association between age and perception of effectiveness.

TABLE NO.:20
QUALIFICATION OF THE RESPONDENT VS FAMILIARITY WITH ARTIFICIAL INTELLIGENCE (AI)

Qualification	Not Familiar	Slightly Familiar	Somewhat Familiar	Very Familiar	Total
SSLC	1 (16.7%) [11.1%]	1 (16.7%) [5.3%]	3 (50.0%) [5.6%]	1 (16.7%) [2.4%]	**6 (100%) [4.8%]**
HSC	1 (11.1%) [11.1%]	0 (0.0%) [0.0%]	5 (55.6%) [9.3%]	3 (33.3%) [7.1%]	**9 (100%) [7.3%]**
Undergraduate	1 (1.4%) [11.1%]	12 (17.4%) [63.2%]	30 (43.5%) [55.6%]	26 (37.7%) [61.9%]	**69 (100%) [55.6%]**

Qualification	Not Familiar	Slightly Familiar	Somewhat Familiar	Very Familiar	Total
Postgraduate	6 (16.2%) [66.7%]	6 (16.2%) [31.6%]	14 (37.8%) [25.9%]	11 (29.7%) [26.2%]	**37 (100%) [29.8%]**
PhD	0 (0.0%) [0.0%]	0 (0.0%) [0.0%]	2 (66.7%) [3.7%]	1 (33.3%) [2.4%]	**3 (100%) [2.4%]**
Total	**9 (7.3%) [100%]**	**19 (15.3%) [100%]**	**54 (43.5%) [100%]**	**42 (33.9%) [100%]**	**124 (100%)**

Chi-Square Test Result

Test	Value	df	p-value
Pearson Chi-Square	**16.398**	**12**	**0,173**

H_0: There is no significant relationship between educational qualification and level of familiarity.
H_1: There is a significant relationship between educational qualification and level of familiarity.

INTERPRETATION

Based on the row percentages, most respondents across all qualification levels fall under "Somewhat Familiar" and "Very Familiar." Undergraduate and Postgraduate respondents show comparatively higher familiarity levels, while SSLC and HSC respondents also demonstrate moderate familiarity. Although there are some variations in percentages among different qualification groups, the differences are not substantial. Therefore, familiarity with AI does not appear to strongly depend on the qualification level of the respondents. The overall pattern suggests that respondents across different educational backgrounds share relatively similar levels of familiarity. Since the p-value is greater than 0.05 ($p = 0.173$), the null hypothesis is accepted at the 5 percent level of significance. Hence, it is concluded that there is no significant association between qualification and familiarity with AI.

TABLE NO.:21
OCCUPATION OF THE RESPONDENT VS PREFERRED METHOD FOR STOCK PREDICTION

Occupation	AI-Based Methods	Both	Neither	Traditional Methods	Total
Daily Wages	2 (33.3%) [4.9%]	0 (0.0%) [0.0%]	3 (50.0%) [37.5%]	1 (16.7%) [2.1%]	**6 (100%) [4.8%]**
Employee	15 (31.9%) [36.6%]	7 (14.9%) [25.9%]	2 (4.3%) [25.0%]	23 (48.9%) [47.9%]	**47 (100%) [37.9%]**
Others	0 (0.0%) [0.0%]	2 (50.0%) [7.4%]	1 (25.0%) [12.5%]	1 (25.0%) [2.1%]	**4 (100%) [3.2%]**
Own Business	6 (23.1%) [14.6%]	8 (30.8%) [29.6%]	1 (3.8%) [12.5%]	11 (42.3%) [22.9%]	**26 (100%) [21.0%]**
Student	18 (43.9%) [43.9%]	10 (24.4%) [37.0%]	1 (2.4%) [12.5%]	12 (29.3%) [25.0%]	**41 (100%) [33.1%]**
Total	**41 (33.1%) [100%]**	**27 (21.8%) [100%]**	**8 (6.5%) [100%]**	**48 (38.7%) [100%]**	**124 (100%)**

Chi-Square Test Result

Test	Value	df	p-value
Pearson Chi-Square	**17.618**	**12**	**0.128**

H_0: There is no significant relationship between occupation and preferred investment method.
H_1: There is a significant relationship between occupation and preferred investment method.

INTERPRETATION

Based on the row percentages, employees and own business respondents show a higher preference for traditional methods, while students display a relatively stronger inclination toward AI-based methods. Daily wage

workers show a mixed preference, with a larger proportion selecting “Neither” nor respondents under “Others” show varied responses. Although there are some visible differences in preferences across occupation groups, these variations are not highly pronounced. Therefore, the preferred investment method does not appear to strongly depend on the occupation of the respondents. The overall pattern suggests that occupation does not significantly influence the choice between AI-based and traditional methods. Since the p-value is greater than 0.05 ($p = 0.128$), the null hypothesis is accepted at the 5 percent level of significance. Hence, it is concluded that there is no significant association between occupation and preferred investment method.

4.4 REGRESSION ANALYSIS

TABLE NO.:22
GENDER OF THE RESPONDENT VS TRUST AI-BASED PREDICTIONS WHEN MAKING INVESTMENT DECISIONS

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Gender of the respondent Vs trust AI-based predictions when making investment decisions	125	100.0	0	0.0	125	100.0

		Trust AI-based predictions when making investment decisions					Total
			1	2	3	4	
Gender of the respondent		1	0	0	0	0	1
	1	0	32	32	16	7	87
	2	0	13	12	7	5	37
Total		**1**	**45**	**44**	**23**	**12**	**125**

Chi-Square Tests

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	125.971[a]	8	.000
Likelihood Ratio	12.567	8	.128
N of Valid Cases	125		

8 cells (53.3%) have expected count less than 5. The minimum expected count is .01

INTERPRETATION

The chi-square test was conducted to examine the relationship between gender and trust in AI-based investment predictions. The Pearson Chi-Square value is 125.971 with df = 8 and a p-value of 0.000. Since the p-value is less than 0.05 ($p < 0.05$), the result is statistically significant.

This indicates that there is a significant association between gender and trust in AI-based predictions when making investment decisions. Therefore, the null hypothesis is rejected, and the alternative hypothesis is accepted.

However, it is important to note that 53.3% of the cells have expected counts less than 5, and the minimum expected count is 0.01. This violates the chi-square test assumption, meaning the result should be interpreted with caution. A category merging or Fisher’s Exact Test may provide more reliable results.

TABLE NO.:23
AGE OF THE RESPONDENT VS HOW EFFECTIVE DO YOU THINK AI IS IN ANALYZING STOCK MARKET DATA

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent

Age of the respondent Vs How effective do you think AI is in analyzing stock market data	125	100.0	0	0.0	125	100.0

		AI is in analyzing stock market data					
			Effective	Neutral	Not effective	Very effective	Total
Age of the respondent		1	0	0	0	0	1
	26-35 Years	0	22	11	3	12	48
	36-50 Years	0	2	5	1	2	10
	Above 50 Years	0	0	0	5	0	5
	Below 25 Years	0	26	12	3	20	61
Total		**1**	**50**	**28**	**12**	**34**	**125**

Chi-Square Tests

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	180.089[a]	16	.000
Likelihood Ratio	42.737	16	.000
N of Valid Cases	125		

a. 18 cells (72.0%) have expected count less than 5. The minimum expected count is .01.

INTERPRETATION

The Chi-Square test was conducted to examine the relationship between age and perception of AI effectiveness in analyzing stock market data. The Pearson Chi-Square value is 180.089 with df = 16 and a p-value of 0.000. Since the p-value is less than 0.05 ($p < 0.05$), the result is statistically significant. This indicates that there is a significant association between age of the respondents and their perception of AI effectiveness. Therefore, the null hypothesis (H_0) is rejected, and the alternative hypothesis (H_1) is accepted.

However, it is important to note that 72.0% of the cells have expected counts less than 5, and the minimum expected count is 0.01. This violates the chi-square assumption, so the results should be interpreted with caution. Combining age categories or using an alternative test may provide more reliable results.

TABLE NO.:24

OCCUPATION OF THE RESPONDENT VS WHICH METHOD DO YOU USUALLY PREFER FOR STOCK PREDICTION

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Occupation of the respondent Vs Which method do you usually prefer for stock prediction?	125	100.0	0	0.0	125	100.0

		Which method do you usually prefer for stock prediction					
			AI-based	methods Both	Neither	Traditional methods	**Total**
Occupation of the respondent		1	0	0	0	0	1
	Daily wages	0	2	0	3	1	6
	Employee	0	15	7	2	23	47
	Others	0	0	2	1	1	4

	Own business	0	6	8	1	11	26
	Student	0	18	10	1	12	41
Total		**1**	**41**	**27**	**8**	**48**	**125**

Chi-Square Tests

INTERPRETATION

The Chi-Square test was conducted to examine the relationship between occupation and preferred stock prediction method. The Pearson Chi-Square value is 158.403 with df = 20 and a p-value of 0.000. Since the p-value is less than 0.05 ($p < 0.05$), the result is statistically significant. This indicates that there is a significant association between occupation and the method preferred for stock prediction. Therefore, the null hypothesis (H_0) is rejected, and the alternative hypothesis (H_1) is accepted. However, 70.0% of the cells have expected counts less than 5, and the minimum expected count is 0.01, which violates the chi-square assumption. Hence, the results should be interpreted with caution, and combining categories or using an alternative test may provide more reliable findings

TABLE NO.:25

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	158.403[a]	20	.000
Likelihood Ratio	36.140	20	.015
N of Valid Cases	125		

a. 21 cells (70.0%) have expected count less than 5. The minimum expected count is .01.

QUALIFICATION OF THE RESPONDENT VS HOW FAMILIAR ARE YOU WITH ARTIFICIAL INTELLIGENCE (AI)

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Qualification of the respondent Vs How familiar are you with Artificial Intelligence (AI)	125	100.0	0	0.0	125	100.0

		How familiar are you with Artificial Intelligence (AI)					Total
			Not familiar	Slightly familiar	Somewhat familiar	Very familiar	
Qualification of the respondent		1	0	0	0	0	1
	HSC	0	1	0	5	3	9
	PhD	0	0	0	2	1	3
	Postgraduate	0	6	6	14	11	37
	SSLC	0	1	1	3	1	6
	Undergraduate	0	1	12	30	26	69
Total		**1**	**9**	**19**	**54**	**42**	**125**

Chi-Square Tests

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	137.600[a]	20	.000

Likelihood Ratio	26.538	20	.149
N of Valid Cases	125		

24 cells (80.0%) have expected count less than 5. The minimum expected count is .01.

INTERPRETATION

The Chi-Square test was conducted to examine the relationship between educational qualification and familiarity with Artificial Intelligence (AI). The Pearson Chi-Square value is 137.600 with df = 20 and a p-value of 0.000. Since the p-value is less than 0.05 ($p < 0.05$), the result is statistically significant. This indicates that there is a significant association between qualification level and familiarity with AI. Therefore, the null hypothesis (H_0) is rejected, and the alternative hypothesis (H_1) is accepted. However, it is important to note that 80.0% of the cells have expected counts less than 5, and the minimum expected count is 0.01. This violates the assumption of the chi-square test, so the findings should be interpreted with caution. Combining qualification categories or using an alternative statistical test may yield more reliable results.

FINDINGS OF THE STUDY

Most of the respondents (70.6%) are male, while 29.4% are female.

1. Most respondents (55.6%) are undergraduates, followed by postgraduates (29.4%).
2. A large proportion of respondents are below 25 years, indicating strong youth participation.
3. 77.4% of respondents are either very familiar or somewhat familiar with AI.
4. Artificial Neural Networks (34.1%) are the most preferred AI technique.
5. Real-time market analysis (41.3%) is the most preferred AI-based tool feature.
6. 65.1% of respondents are satisfied or very satisfied with AI-based stock prediction tools.
7. 72.2% of respondents consider AI-based predictions reliable.
8. Age has a significant influence on perception of AI effectiveness ($p < 0.05$).
9. Gender, qualification, and occupation do not show significant association with trust or preference toward AI-based stock prediction methods.
10. A significant proportion of respondents prefer Artificial Intelligence-based methods over purely traditional approaches, indicating a shift toward technology-driven investment strategies.
11. Real-time market analysis is considered one of the strongest advantages of Artificial Intelligence tools, showing the importance of timely and updated information in stock market decisions.
12. Most of the respondents believe that Artificial Intelligence helps in reducing human errors, especially emotional bias in investment decisions.
13. Most participants rely on historical market data for prediction, highlighting the importance of data-driven analysis in Artificial Intelligence systems.
14. Respondents show a positive perception of the reliability of Artificial Intelligence, with more than two-thirds rating it as reliable or very reliable.
15. Satisfaction levels with Artificial Intelligence-based stock prediction tools are generally high, indicating good user experience and acceptance.
16. A large percentage of respondents expressed willingness to continue using Artificial Intelligence tools in the future, suggesting strong long-term adoption potential.
17. Younger respondents demonstrate a more favorable perception of Artificial Intelligence effectiveness compared to older age groups.
18. Although occupation shows some variation in preferred methods, it does not significantly influence the overall preference toward Artificial Intelligence.
19. Statistical analysis reveals that age plays a more important role than gender or qualification in influencing perceptions of Artificial Intelligence effectiveness.

SUGGESTIONS OF THE STUDY

- Older investors show comparatively lower acceptance of Artificial Intelligence tools. Conducting awareness programs can help them understand the benefits and practical applications of Artificial Intelligence in stock market prediction. This will reduce hesitation and encourage wider adoption among senior investors.
- Providing practical training workshops will help investors learn how to use Artificial Intelligence-based stock prediction platforms effectively. Training improves technical knowledge and builds confidence in data-driven decision-making. This ensures better and more efficient utilization of Artificial Intelligence tools.
- Improving transparency and explainability of Artificial Intelligence models is essential to build trust among investors. When users clearly understand how predictions are generated, they feel more confident in relying on them. Greater transparency enhances credibility and acceptance of Artificial Intelligence systems.

- Encouraging investors to combine Artificial Intelligence tools with traditional technical and fundamental analysis can improve decision accuracy. A balanced approach reduces risk and increases reliability in stock market predictions. This integration leads to more informed and strategic investment decisions.
- Promoting financial literacy programs will help investors shift from emotional or assumption-based decisions to analytical and data-driven approaches. Educated investors are more likely to make rational financial choices. This strengthens the overall effectiveness of Artificial Intelligence adoption.
- Future research should increase sample size and improve statistical methods to ensure more reliable and valid results. Addressing limitations such as small, expected cell counts will strengthen the accuracy of findings. This will provide more robust conclusions about the role of Artificial Intelligence in stock market prediction.

CONCLUSION

The study shows that Artificial Intelligence is becoming very important in stock market prediction. Most respondents are somewhat or very familiar with Artificial Intelligence and believe that it is reliable, useful, and effective in making investment decisions. Younger investors are more comfortable using Artificial Intelligence tools, while older respondents are slightly less confident in adopting new technologies. Gender and educational qualification do not significantly affect people's opinions about Artificial Intelligence, but age plays an important role in shaping their attitudes toward its effectiveness.

Most respondents are satisfied with Artificial Intelligence-based stock prediction tools and are willing to continue using them in the future. This shows that trust in technology is increasing in the financial sector. However, some statistical limitations in the study suggest that future research with a larger number of respondents would provide more accurate results. Overall, Artificial Intelligence-based stock prediction tools are widely accepted and considered reliable.