Research Article

Study On Artificial Intelligence Innovation Shaping The Future Of Share Trading

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ARTICLE INFO	ABSTRACT
	This study explores the role of artificial intelligence in shaping the future landscape of share trading with a focus on investor perception, behavior, and safety concerns. Reviews of relevant literature and insights from investors helped in understanding the above. This research paper is helpful for stakeholders like investors, traders, financial professionals and so on who are interested in the combination of artificial intelligence and share trading. This study was conducted within Ernakulam district in Kerala with a sample size of 101 collected through the Questionnaire method. Concerning data analysis techniques, Descriptive statistics, ChiSquare test, independent sample t-test, Correlation and ANOVA were implied. The major finding of this study indicates a growing significance of Artificial intelligence in share trading and it has the potential to reshape the financial markets.
	Keywords: *Artificial Intelligence, Share trading, Future scope.*

INTRODUCTION

Artificial intelligence in share trading refers to the process of collecting, assessing and applying data and information to make meaningful stock purchase and sales decisions. The process starts with the involvement of a number of tools and techniques to obtain valuable insight from market data, financial statements or other pertinent sources. This will help traders to have a complete picture of the market trends, patterns and possible future opportunities enabling them to make investment decisions. Artificial Intelligence also highlights ongoing observation and assessment of stock performances, so that the traders can alter strategies to maximize returns.

The two factors that make the business alive in its operation, one is sales the other is Stock market. However progressive tools and insights like Artificial intelligence and data analytics capacitate the Stock market. In order to get a deep understanding and better clarifications these techniques are being used. Nowadays for the purpose of stock analysis and share trading, the role of Artificial intelligence is vital. This will helps share traders to gain an accurate overview of the situation. This will bring together data Visualization, Data Tools, Data Mining and some efficient methods for taking Data driven decisions. By observing the data produced by Artificial intelligence techniques, the traders can convert and rapidly accept the changes happening in the stock market. As per the estimates of Goldman Sachs, it says that by 2025 Artificial intelligence related investment expects to be $200 billion globally.

Having a close outlook on the historical insights of Artificial intelligence in share trading, one will be able to understand that rise in technology is connected with the growing intricacy of stock markets. In the early 20th century, newspapers and telegraph services were the only medium for traders to access the market information. It provides real time information, market sentiment analysis and advanced trading strategies. This makes share traders to be successful and expand in stock market. The acceptance of Artificial intelligence in share trading is because of its capacity to organize and analyse huge data sets easily which will lead to take meaningful decisions. In these dynamic and expeditious financial markets, AI tools allow traders to collect, organize and elucidate data sources abundantly.

The paper mainly focuses on knowing about investor perception and awareness regarding AI innovations in share trading. The investor behaviour with respect to AI-influenced trading are also been discussed. Future scope of share trading than traditional trading and the safety and security concerns of AI-influenced share trading are also mentioned in this study. Though having concerns about this, more traders are starting to realize that using data analysis can be really helpful in stock trading, even though it may seem a bit complicated at first. As technology gets easier to use, more people are giving it a try and changing the way they trade stocks.

RESEARCH METHODOLOGY

The objective of the study is sought to be fulfilled through the analysis of the primary data. Field survey become essential for the purpose of studying the perception of AI in share trading and therefore gathering information related to the same with the help of questionnaire.

Population of the study: The investors using Artificial intelligence in the share market of Ernakulam district were taken as the population of the study.

Sample size: The data was collected from a sample of 101 investors from Ernakulam district of Kerala.

Sampling method: Sample is a subset of population, which is selected for conducting the study. It is a representative part of a population of a specific size on which the study is made. In this research convenience sampling method was used. Convenience sampling is a nonprobability sampling technique where subjects are selected because of their convenient accessibility and proximity to the investigator.

Sources of data: The study was based on both primary and secondary data. With the help of primary data, various objectives and hypothesis of the study are reviewed.

Primary data: Primary data were collected from samples with the help of questionnaire. Questionnaire is circulated among the respondents in electronic form. Google form was also used for easy circulation of the questionnaire.

Secondary data: The source of secondary data used were published articles, websites etc.

Tools of analysis: The collected data were analysed using various statistical tools like Mean, Chi-square, Correlation, Independent sample t-test, and ANOVA

Objectives

• To know about the investor perception and awareness regarding AI innovations in share trading.
• To know investor behaviour with respect to AI influenced trading.
• To study future scope of share trading than traditional trading.
• To analyse and evaluate the safety and security concerns of AI influenced share trading.

LITERATURE REVIEW

1. Application of Artificial Intelligence in Stock Market: "A market for stocks is essential to the prosperity of any economy. Predicting the stock market is a difficult endeavour as it necessitates the consideration of a lot of data. Because a variety of perceptions, emotions, and human psychology are involved, stock markets are extremely volatile and dynamic. The purpose of this work is to investigate the need for artificial intelligence (AI) in stock market prediction. Analysing AI's role in projecting future stock market price movement and its potential to completely replace humans in stock market trading will receive special attention in this conversation. Overview Artificial intelligence (AI) techniques have advanced significantly over the past several years in a wide range of sectors, eventually becoming an essential component of human progress. Artificial Intelligence has the ability to quickly analyse vast volumes of past data and forecast potential outcomes in a given scenario."(Kaur, 2022)
2. Artificial intelligence in stock market investment: "This research looks into how to choose stocks from large stock markets with the best return value possible by applying effective selection techniques. With a useful collection of trading actions, it assists investors in making simple decisions about their own stock market investments. In the context of a financial crisis, many artificial intelligence (AI) approaches remain unproven. The investor may choose and buy stocks with more assistance from this study. Additionally, AI is one of the most popular topics among investors, researchers, and most sectors. Artificial intelligence has made it simple to analyse the financial market using various charts." (More, 2021).

3. Artificial intelligence to predict stock market index:" The aim of this study was to develop a political and economic stability index. Specifically, we developed a genetic algorithm that could be applied to historical stock market data, historical gold indices, and the number of people killed in political revolutions over this time period. We achieved this by employing an artificial intelligence technique. The programme predicted the whole market index for the upcoming year with a very precise 14% prediction accuracy." (moni, 2019).

4. A comparative study of artificial intelligence techniques for stock market prediction: "The Indian stock market is not an exception to the growing interest in the application of artificial intelligence (AI) techniques for stock market prediction in recent years. In order to anticipate the Indian stock market, we compare three artificial intelligence approaches in this paper: random forests (RFs), support vector machines (SVMs), and artificial neural networks (ANNs). This study is based on the National Stock Exchange (NSE) Nifty 50 index, which is based on historical data from 2000 to 2021. The effectiveness of the methods is evaluated using a variety of metrics, such as Mean Absolute Error (MAE), Mean Squared Error (MSE), Root Mean Squared Error (RMSE), and Directional Accuracy (DA). Our results show that ANNs outperform SVMs and RFs for the Indian market in terms of DA and prediction accuracy.." (Ansurkar, 2023).

5. Present and future applications of artificial intelligence in the stock market The article explains how trading robots work in the stock market and their degree of efficiency. A hypothesis on the possible future symbiosis of neurobots and algorithmic robots is provided, along with a comparison between the two. Assumptions are made on the potential for financial gain from stock market trading and the impact of artificial intelligence". (Sukharev, 2023).

6. Use of artificial intelligence for the prediction of stock market movements; "This article examines the use of artificial intelligence (AI) in stock market prediction. It presents the AI-Enhanced Secondary Market Prediction Framework, a theoretical framework that employs a variety of AI techniques and algorithms to analyse historical market data and identify variables and trends that can provide insight into future market movements. These algorithms analyse historical data to find patterns and linkages in past market movements. This theoretical model extends beyond historical data by incorporating external elements such as social media activity, news sentiment analysis, and economic indicators. AISEMPF use machine learning algorithms that have been trained to do predictive analysis in conjunction with integrated external factors. It makes projections to provide light on potential market trends or patterns. In order to assess AISEMPF's performance, the predicted and actual changes in the market are compared. The study highlights how important it is to gauge precision, accuracy, and other relevant parameters in order to assess the model's efficacy. (Mamadou, 2023)

DATA ANALYSIS AND INFERENCES

Ho = There is no significant association between the perception of the impact of AI innovation on share trading and familiarity with AI in share trading.
H1 = There is a significant association between the perception of the impact of AI innovation on share trading and familiarity with AI in share trading.

Test conducted	Value	Degree of freedom	Asymptotic Significance(2 Sided)	-
Pearson Chi-Square	36.339a	16	.003	

Source: *Primary data*

a.18 cells (72.0%) have expected count less than 5. The minimum expected count is .71.

INTERPRETATION: The Chi-Sq value for 16 degree of freedom is 36.339 and p value is 0.003 which is less than 0.05.Hence the null hypothesis is rejected and therefore there is significant association between the perception of the impact of AI innovations on share trading and familiarity with AI in share trading, which means the one with greater familiarity likely to have a better grasp of AI's advantages and disadvantages, which may color their perceptions.

Ho = There is no significant correlation between Recommendations from AI generated   algorithms and Investment portfolio diversification.
H1 = There is significant correlation between Recommendations from AI generated algorithms and Investment portfolio diversification.

Descriptive Statistics

Basis	Mean	Standard deviation	N
Whether recommendations from AI algorithms are essential or not	2.950	1.2359	101
Likely to diversify investment portfolio using AI	2.713	1.2028	101

		Whether recommendations from AI algorithms are essential or not	Likely to diversify investment portfolio using AI
Whether recommendations from AI algorithms are essential or not	Pearson Correlation	1	.710**
	Sig.(2-tailed)		.000
	N	101	101
Likely to diversify investment portfolio using AI	Pearson Correlation	.710**	1
	Sig.(2-tailed)	.000	
	N	101	101

**. Correlation is significant at the 0.01 level (2-tailed).
Source: Primary data

INTERPRETATION: A correlation coefficient of 0.710 indicate a positive moderate correlation. Insights received from AI generated algorithms and portfolio diversification decisions are correlated. As the p value is 0.000 which shows that the null hypothesis is rejected. Therefore it can be inferred that traders receiving recommendations and insights through AI are likely to diversify their investment portfolio. From this, it implies that AIgenerated insights play a crucial role in making decisions related to portfolio performance as a whole.

Ho = Weighing human intuition and experience against insights from AI tools doesn't varies across gender
H1 = Weighing human intuition and experience against insights from AI tools varies across gender.

Group Statistics

	Gender	N	Mean	Std. Deviation	Std. Error Mean
How human intuition and experience weighted against AI tools	Male	71	2.620	.8513	.1010
	Female	30	2.667	.9589	.1751

	Levene's Test for equality of variances			
	F	Sig.	t	dof
Equal variances assumed	.554	.459	-.244	99
Equal Variances not assumed			-.232	49.268

Source : Primary data

INTERPRETATION: The t value of -0.244 for 99 dof is not significant because p value for two tailed test is 0.459 which is greater than 0.05. Hence, Ho is accepted suggest that across gender weighing human intuition and experience against insights from AI tools doesn't varies, which shows gender does not appear to have a meaningful impact on how individuals weigh human intuition and experience against insights from AI tools.

Ho = There is no correlation with respect to trading platforms and level of confidence in using AI in decision making.
H1 = There is correlation with respect to trading platforms and level of confidence in using AI in decision making.

Descriptive Statistics

	Mean	Std. Deviation	N
Preferred Trading Platform	2.406	.6508	101
Level of confidence in using AI in decision making	3.030	1.0626	101

Table showing the results of Pearson correlation

		Preferred trading platform		Level of confidence in using AI in decision-making
Preferred trading platform	Pearson Correlation	1		.098
	Sig.(2-tailed)			.329
	N	101		101
Level of confidence in using AI in decision making	Pearson Correlation	.098		1
	Sig.(2-tailed)	.329		
	N	101		101

Source: Primary data

INTERPRETATION: A weak but positive correlation coefficient of 0.098 was found by correlation analysis between the chosen trading platforms and the degree of confidence in adopting AI technologies for trading decisions. Acceptance of the null hypothesis raises the possibility that there is no significant relationship between the variables and that the observed correlation is just the result of chance. This suggests that people have a modest preference for particular trading platforms as their confidence in AI tools grows. Although there seems to be some correlation between preferred trading platforms and trust in AI tools, this correlation might not be very meaningful when making decisions.

Ho1 = There is no difference with respect to years of experience and concerns regarding potential risks.
He1 = There is a difference with respect to years of experience and concerns regarding potential risks.
Ho2 = There is no difference with respect to years of experience and effectiveness of cybersecurity protocols.
He2 = There is a difference with respect to years of experience and effectiveness of cybersecurity protocols.
Ho3= There is no difference with respect to years of experience and effectiveness in detecting insider trading
He3= There is a difference with respect to years of experience and effectiveness in detecting insider trading.

Table showing the results of One way ANOVA

		Sum of Squares	dof	Mean Square	F	Sig.
"I am highly concerned regarding potential risks associated with the use of AI in share trading"	Between Groups	11.227	4	2.807	2.932	.025
	Within Groups	91.902	96	.957		
	Total	103.129	100			
"Cybersecurity protocols in protecting AI systems from threats are effective"	Between Groups	2.887	4	.722	.730	.573
	Within Groups	94.876	96	.988		
	Total	97.762	100			
"To what extent do you believe that the AI system effectively detects and prevents insider trading."	Between Groups	4.338	4	1.085	.919	.456
	Within Groups	113.305	96	1.180		
	Total	117.644	100			

Source: Primary data

INTERPRETATION
The ANOVA test is conducted on concerns regarding potential risks associated with AI in share trading across varying years of experience yielded a significant result with a p-value of 0.025, which means concerns regarding the potential risk varies according to the years of experience of a share trader. This suggests that concerns differ significantly according to the level of experience used by traders. Experience influences the perception of risk by traders and emphasizes the importance of taking into account of levels of experience when analyzing attitudes to adopting artificial intelligence in trading.

The ANOVA test is conducted on the effectiveness of cyber security protocols with AI in share trading across varying years of experience and yielded a significant result with a p-value of 0.573 is obtained which gives differences with respect to the effectiveness of cyber security protocols with AI in share trading and years of experience. It also suggests that, even amongst expert share traders, robust cybersecurity protocols do not seem to be able to protect AI systems from attacks. These findings reinforce the need for further research and improvement of protocols in order to guarantee a strong level of protection against AI systems within the trading sector

The ANOVA test is conducted on years of experience and effectiveness in detecting insider trading and the P value obtained is 0.456. Hence, there is no difference with respect to years of experience and effectiveness of AI systems in detecting and preventing insider trading, which means irrespective of their level of experience, people share a similar opinion on the effectiveness of artificial intelligence systems in detecting and stopping insider trading. This implies that experience does not have a significant impact on the perception of the effectiveness of the systems for detecting insider trading, highlighting a consistent perspective between different levels of experience in the trading field.

FINDINGS, SUGGESTIONS AND CONCLUSION

- Of the respondents, 70.3% belong to the male category and 29.7% are female.
- About 40% of those surveyed said they had been trading shares for one to five years and around 46% of the respondents use mobile app as their preferred trading platform for share trading which indicate a growing trend towards mobile based trading practices.
- Less than 10% of the respondents reported that perceiving the impact of AI in share trading is not at all beneficial while majority of them are against to this.
- Improved decision making is one among the impact which mostly influenced by the users of AI in share trading with 40.6%.
- 77.3% of the respondents are familiar with AI in share trading but 68.3% of them are well informed about the current state of AI in share trading.
- Majority of the respondents observed improvements in their trading performance by using AI.
- Respondents' knowledge of current AI innovations in share trading and their perception of the impact of these innovations doesn't pose any relation which means elements other than people's knowledge of AI developments might have a greater impact.
- Through analysis it found that receiving recommendations and insights through AI tend to diversify their investment portfolio resulting positive finding which highlights the importance of AI.
- 83.2% are on the opinion to recommend the use of AI influenced share trading to other investors indicating the future scope of Ai influenced trading in stock market.
- The results show that in order to promote trust and the uptake of AI-based solutions in the share trading community, it is critical to solve security issues.

Suggestions
- Educational institutions should incorporate advanced share trading courses to improve financial literacy and equip students to excel in financial markets.
- Organising workshops and webinars focusing AI practices in share trading will create more impact on general public.
- Concerns about AI-based share trading tools can be reduced by keeping strong security safeguards as well as monitoring and regulating AI system is also necessary.
- Transparency in AI based trading platforms should be enhanced.

Conclusion

In conclusion, the results of the study highlight the increasing acceptability and importance of AI in share trading, as most participants noted that it improves performance, decision-making, and portfolio diversification Despite security concerns and varying levels of awareness regarding these advances, there is a discernible movement in the stock market towards the use of AI-driven solutions. This suggests that trading will benefit greatly from AI in the future, particularly as technology advances. To ensure the continued trust and uptake of AI-powered products, security issues must be addressed, transparency must be increased, and financial literacy must be promoted. Traders' and investors' trust can be bolstered by robust security protocols, workshops, and instructional initiatives. All things considered, the outcomes demonstrate how AI has the power to fundamentally alter the share trading sector, demonstrating the technology's disruptive capacity to reshape financial markets.

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