Journal DOI: 10.36713/epra0412 ISSN: 2277–7741

International Journal of

Asian Economic Light (JAEL) – Peer Reviewed Journal

SJIF Impact Factor (2025): 8.579 Volume: 13 | Issue: 3 | March 2025

IMPACT OF ARTIFICIAL INTELLIGENCE ON FINANCIAL MARKETS IN INDIA- A CASE STUDY OF TELANGANA

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Article DOI: https://doi.org/10.36713/epra20490

DOI No: 10.36713/epra20490

ABSTRACT

Purpose

This paper includes monetary and non-monetary data to acquire a dependable image of organizations' presentations, and the yearly report is one of the principal hotspots for the dynamic course of financial backers in the monetary market. Assess how AI is enhancing or transforming trading strategies through automation and high-frequency trading. Examine how AI-driven predictive models are being used to forecast stock prices, market trends, and economic indicators more accurately than traditional methods. Explore how AI helps financial institutions manage risks, such as credit risk, market risk, and operational risk, by identifying patterns and anomalies.

Design/Methodology/Approach

The study employed used a Primary data, using a structured questionnaire administered through an online platform targeting a selection of forensic accounting investigators and forensic accountants. The reliability and validity of the instrument were confirmed with the use of Cronbach Alpha and descriptive statistics. The sample size is 300 from 10 various corporate financial companies

Findings

Enhanced Liquidity is a AI-driven trading strategies contribute to increased market liquidity by executing large volumes of trades rapidly, leading to smaller bid-ask spreads and greater market depth and Improved Market Efficiency is a AI's ability to process vast amounts of data has made market predictions more accurate, resulting in better price discovery and reduced market inefficiencies.

Originality

This research paper explores the pervasive influence of Artificial Intelligence (AI) in the realm of finance, investigating its multifaceted impact on the industry. The study encompasses a comprehensive analysis of AI applications, focusing on its transformative effect on operational processes, decision-making paradigms, and the overall trajectory of the financial sector. The primary objective is to dissect the varied applications of AI within finance, ranging from risk management and fraud detection to algorithmic trading and customer service.

Research Limitations/Implications

Personal finance encompasses the management of your money, including budgeting, saving, investing, and planning for your financial goals. It involves making informed decisions about how to allocate your financial resources to achieve your short- and long-term objectives. Traditionally, this process relied on individual knowledge and manual calculations

Practical Implications

Improved Market Liquidity is use of AI in trading increases the volume of trades and can make markets more liquid, which lowers bid-ask spreads and helps price discovery. Optimized Investment Portfolios is AI systems can assess market conditions and adjust portfolios automatically, improving returns for institutional investors, hedge funds, and even retail investors using robo-advisory services. Reduced Human Error is a AI can reduce

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errors caused by human bias or emotional decision-making, leading to more rational and data-driven trading strategies.

Social Implications

The social implications of the impact of Artificial Intelligence (AI) on financial markets in India are significant and multifaceted, affecting a broad spectrum of individuals, communities, and society at large. These implications span across economic inequality, employment, financial inclusion, privacy, and education. Below are the key social implications:

KEYWORDs: *Artificial Intelligence, Financial Technology, Fintech, Machine learning, Technological Change*

JEL Codes: *B0, B2, B6, B18.*

Article classification: *Research Paper with Empirical Evidence.*

INTRODUCTION

In recent years, **Artificial Intelligence (AI)** has emerged as one of the most transformative forces in global financial markets, and India is no exception. As a rapidly growing economy with a large and diverse financial ecosystem, India stands at the forefront of adopting technological innovations in finance, with AI playing a pivotal role in reshaping various aspects of the sector. From retail banking and investment strategies to trading, risk management, and customer service, AI is driving significant changes in how financial services are delivered and how markets operate.

Artificial Intelligence refers to the simulation of human intelligence in machines that are programmed to think, learn, and perform tasks that traditionally require human cognition. In the context of **financial markets**, AI encompasses a wide array of technologies, including machine learning (ML), natural language processing (NLP), robotics, and deep learning, all of which enable systems to analyze vast amounts of data, make predictions, and even automate decision-making processes.

Evolution of AI in India's Financial Sector

The adoption of AI in India's financial markets can be traced to the growing need for **efficiency**, **speed**, and **accuracy** in a highly competitive and rapidly evolving environment. Several factors have driven this adoption:

- **Digital Transformation**: India's financial sector has seen a surge in digitization, especially with the government's push for **Digital India** initiatives. The rise of mobile banking, online trading, and digital payment platforms has created a fertile ground for the integration of AI into financial operations.
- **Vast Data Availability**: Financial markets generate massive amounts of data every day — from transaction records, market prices, and economic indicators, to customer behavior patterns and news sentiment. AI's ability to analyze and process big data efficiently makes it invaluable in enhancing decision-making processes.
- **Improved Internet Access**: With increasing internet penetration, especially through mobile phones, financial services are now more accessible to individuals across the country, further catalysing the role of AI in offering services like digital loans, online trading, and robo-advisory.

Key Areas of AI Application in Financial Markets

AI is being applied across a wide range of financial activities, bringing both innovation and disruption to the sector. Some of the key areas where AI is making an impact include:

1. **Algorithmic and High-Frequency Trading**: AI-powered algorithms are capable of analyzing vast datasets in real-time, executing trades faster than human traders, and adapting to market changes. **High-frequency trading (HFT)**, which involves executing numerous trades at ultra-fast speeds, has become increasingly reliant on AI models to predict short-term price movements and execute optimal trades.
2. **Risk Management**: AI's ability to process large amounts of data and identify patterns has revolutionized risk management practices. AI tools help financial institutions predict market risks, assess creditworthiness, and even detect fraud in real-time. This leads to **better-informed decision-making**, reduced risk exposure, and enhanced security within the financial system.
3. **Customer Service and Personalization**: AI technologies, including chatbots and virtual assistants, are improving customer experience in the financial sector. **Robo-advisors** are offering personalized investment advice to individuals, while AI-powered customer service tools are providing round-the-clock support, answering queries, and processing transactions seamlessly.

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4. **Market Analysis and Sentiment**: AI systems can now analyze market sentiment through **natural language processing (NLP)**, which enables them to process and interpret vast quantities of unstructured data, such as news articles, social media, and financial reports. This allows investors to gain insights into market trends and investor sentiment in real-time, providing a competitive advantage in decision-making.
5. **Credit Scoring and Lending**: Traditional credit scoring systems often fail to assess the creditworthiness of individuals without formal credit histories. AI-driven credit models use alternative data sources like **mobile phone usage**, **transaction history**, and **social media behavior** to generate more accurate credit scores, expanding access to financial products for underserved populations.

REVIEW OF LITARATURE

- **Nusrat Azeema, Hassan Nawaz, Mohsin Asad Gill, Muzammil Ahmad Khan, Javed Miraj and Kashif Lodhi (2023):** This paper includes monetary and non-monetary data to acquire a dependable image of organizations' presentations, and the yearly report is one of the principal hotspots for the dynamic course of financial backers in the monetary market. Hence, this exploration depends on the examination of 130 yearly reports for each of the 15 Jordanian-recorded banks from the timeframe of 2014-2022. Results suggested that AI has revolutionized algorithmic trading in financial markets. Algorithmic trading is the practice of using automated, computer-based systems to execute high-frequency and complex trading strategies. AI-driven trading algorithms can analyse massive volumes of historical and real-time data, identify patterns, and make split-second trading decisions. Results also suggest a clear upward trend in the increase in AI opportunities over the years, with values generally increasing from left to right. In 2014, the rise in AI opportunities was relatively low, at around 5.4. From 2015 to 2017, there was a steady increase in AI opportunities, with a more noticeable upward trend in 2017. The growth continued to accelerate from 2018 to 2022, with the most significant increase observed in 2022.
- **Oliver Bodemer (2024):** This article explores the transformative impact of Artificial Intelligence (AI) and Cloud Computing on the banking sector, highlighting real-world applications and their effects on operational efficiency, cost reduction, and customer satisfaction. Through detailed case studies, such as JP Morgan Chase's COIN platform and Bank of America's virtual assistant Erica, we illustrate how these technologies automate complex processes, enhance security, and deliver personalized customer experiences. The integration of AI and cloud computing not only streamlines banking operations but also presents significant cost savings, with potential reductions in operational expenses projected to reach up to $1 trillion by 2035. Furthermore, the article discusses the positive correlation between the adoption of these technologies and improved customer satisfaction, driven by 24/7 access to banking services and tailored financial advice. This comprehensive review underscores the critical role of AI and cloud computing in shaping the future of banking, offering insights into the challenges and opportunities that lie ahead.
- **Bonnie G. Buchanan, PhD, FRSA (2019):** Artificial intelligence (AI) is rapidly transforming the global financial services industry. As a group of related technologies that include machine learning (ML) and deep learning (DL), AI has the potential to disrupt and refine the existing financial services industry. I review the extant academic, practitioner and policy related AI literature. I also detail the AI, ML and DL taxonomy as well as their various applications in the financial services industry. A literature survey of AI and financial services cannot ignore the econometric aspects and their implications. ML methods are all about algorithms, rather than asymptotic statistical processes. Unlike maximum likelihood estimation, ML's framework is less unified. To that end, I will discuss the ML approaches of unsupervised and supervised learning.
- **Salman Bahoo, Marco Cucculelli, Xhoana Goga, Jasmine Mondolo (2024):** The aim of this study is to provide a comprehensive overview of the existing research on this topic and to identify which research directions need further investigation. Accordingly, using the tools of bibliometric analysis and content analysis, we examined a large number of articles published between 1992 and March 2021. We find that the literature on this topic has expanded considerably since the beginning of the XXI century, covering a variety of countries and different AI applications in finance, amongst which Predictive/forecasting systems, Classification/detection/early warning systems and Big data Analytics/Data mining /Text mining stand out. Furthermore, we show that the selected articles fall into ten main research streams, in which AI is applied to the stock market, trading models, volatility forecasting, portfolio management, performance, risk and default evaluation, cryptocurrencies, derivatives, credit risk in banks, investor sentiment analysis and foreign exchange management, respectively. Future research should seek to address the partially unanswered research questions and improve our understanding of the impact of recent disruptive technological developments on finance.

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- **R. Karthika, a. Anburaj, s. Raja(2023):** In this analysis, the exploration of the applications and benefits of AI in each domain highlights how it enhances decision-making and optimizes operations efficiently. AI analyses extensive financial data to make informed investment decisions, create personalized portfolios, and predict market trends in investment management. Asset Management leverages AI's predictive capabilities to monitor asset performance, assess risks, and optimize asset allocation strategies. AI tools can continuously monitor the environment and activities of a warehouse. This study explains AI and its impact on investment, asset, and warehouse management. The impact of AI is undeniable, and creates opportunities for better performance, reduced costs, and enhanced customer satisfaction.
- **Michelle Chikunga, Alistair Tempest- South African Institute of International Affairs (2021):** This paper looks at the development of the Fourth Industrial Revolution (4IR) in Africa against the backdrop of the African Continental Free Trade Area (AFCFTA), and makes proposals for policymakers. The COVID-19 pandemic has demonstrated how digital innovations can help resolve some of the most serious challenges facing the world today. Digital solutions have helped many businesses and economies stay afloat in this crisis. In Africa the use of digital solutions is nothing new – indeed, the continent is recognised for its use of mobile-based payment systems such as M-Pesa, and many other innovations, including cashless payments. Digital solutions have also been hailed by the AU and other international bodies as critical for Africa's development and growth. Trends show that digital innovations will continue to play a key role in supporting not only recovery but also, sustainable growth and prosperity, benefiting Africa and contributing to the implementation of the AFCFTA.
- **Dr D Divya, Ms J Shrivarshini, Mr S Karan, Ms R Kanimozhi (2024):** This research paper explores the pervasive influence of Artificial Intelligence (AI) in the realm of finance, investigating its multifaceted impact on the industry. The study encompasses a comprehensive analysis of AI applications, focusing on its transformative effect on operational processes, decision-making paradigms, and the overall trajectory of the financial sector. The primary objective is to dissect the varied applications of AI within finance, ranging from risk management and fraud detection to algorithmic trading and customer service. By delving into specific use cases and implementations, the research aims to provide a clear understanding of how AI technologies are reshaping traditional practices and augmenting the capabilities of financial institutions. Furthermore, the paper scrutinizes the intricate role of AI in decision-making within the financial sector. This involves a detailed examination of its impact on risk assessment, investment strategies, and credit scoring. The study aims to delineate the AI's influence on decision processes, elucidating its advantages in integrating advanced technologies into established financial frameworks.
- **Dr. Janne Hagen, Dr. Olav Lysne (2016):** Through technological development and the continuously expanding Internet, the challenges of physical distance, borders and time has diminished, enabling new and more efficient business models and concepts. With this technological development, however, follows an increase in global cybercrime, mass surveillance, internet censoring, and espionage. Terror attacks and cybercrime incidents are now forcing policy makers to balance surveillance and privacy through a paradox: While privacy regulations protect individuals' freedom of speech and safety from persecution, it may also restrain effective crime and terror investigation. In November 2015, the Norwegian Governmental Committee on Digital Vulnerability delivered an Official Norwegian Report (NOU) to the Minister of Justice and Public Security in which the problematic issue of balancing surveillance and privacy was emphasized. The intricate challenge is that in-between surveillance and the privacy lays the personal data—the new *gold* from a commercial perspective, a resource in the fight against terrorism from a security perspective, and a future threat of human rights from an individual perspective.
- **Dr. Harold J. Arata III , Mr. Brian L. Hale (2018):** We are living in a time when virtually anything can be connected to the Internet: from smart clothing to autonomous driving to near realtime management of assets in agriculture, manufacturing, logistics, and more the possibilities are endless. Among this connectedness, the smart cities trend continues to gain momentum. In November 2017, a real estate investment firm owned by Microsoft co-founder Bill Gates announced they purchased nearly 25,000 acres, approximately 45 minutes west of downtown Phoenix for $80 million for development into a smart community. [1] Similarly, Google's parent company, Alphabet, committed $50 million for a Toronto neighbourhood development, AT&T is investing nearly $3 billion in the Atlanta area to enhance smart-city networks, and Saudi Arabia is forecasting a $500 billion investment in a mega-city spanning three countries intended to "push the boundaries of innovation." [2,3] A smart base may be able to take advantage of the same benefits anticipated for a smart city, with added military capabilities mission assurance and mission command.

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- **Dr. Pinky Soni (2021):** Our study focuses on the applications of artificial intelligence in the field of finance sectors (banking, investment companies, insurance companies) with a brief introduction. The study explains challenges and their impacts with pros and cons in financial sectors. The study also reveals how artificial intelligence makes changes in financial industries in the future with few recommendations.
- **Niraj Kumar, Rimjhim, John Cheriyan (2024):** This paper explores the growing need for transformation in the personal finance industry. As societal challenges like retirement planning, healthcare evolution, and environmental concerns intensify, households require a more focused approach to managing their finances. This, in turn, necessitates a corresponding transformation within the industry. While there's been increasing discussion around utilizing artificial intelligence (AI) tools within personal finance, the suitability of these tools for addressing upcoming challenges remains unclear. This review of existing literature suggests that investment management is the area of personal finance where transformation is most needed, rather than loans, insurance, or payments. Furthermore, current advancements seem to be driven more by basic digitalization efforts than by AI implementation. Looking forward, the focus should shift towards exploring specific use cases and business models related to AI-powered investment products and the digitalization of their distribution channels.
- **Rupali Gupta & Dr. Charu Bisaria (2024):** This research project aims to explore the impact of AI-driven personal finance apps on financial decision-making and marketing strategies. These apps, leveraging artificial intelligence and machine learning, offer personalized financial insights and automate tasks to facilitate better money management. The study will investigate how these apps influence various financial behaviours such as budgeting, saving goals, and investment strategies.Additionally, the research will examine the trust users place in AI-driven recommendations and the factors affecting their adoption. Ethical considerations surrounding data privacy, security, and algorithmic biases will also be addressed, with recommendations provided for responsible deployment. Furthermore, the study will analyse marketing strategies employed by companies offering these apps, including personalized messaging and user engagement tactics. By examining both the opportunities and challenges, the research aims to inform stakeholders about the implications of AI in personal finance and the broader financial landscape.
- **Asha kumari1, Dr. Batani Raghavendra Rao (2024):** Artificial intelligence (AI) is revolutionizing financial decision-making, reshaping the industry with its multifaceted applications. Through extensive research, this paper explores AI's impact on finance, from algorithmic trading to risk assessment. It reveals AI's ability to enhance predictive analytics, optimize investments, and automate trading, leading to greater efficiency and lower costs. However, ethical and regulatory issues require attention, emphasizing the importance of responsible AI governance. Looking ahead, the paper anticipates future trends and challenges in AI-driven finance, urging stakeholders to collaborate for sustainable innovation. Overall, AI offers immense potential for financial transformation, but careful consideration of ethical and regulatory concerns is crucial for long-term success.
- **J.B. Heaton, Nick Polson, Jan Witte (2016):** We explore the use of deep learning hierarchical models for problems in financial prediction and classification. Financial prediction problems – such as those presented in designing and pricing securities, constructing portfolios, and risk management – often involve large data sets with complex data interactions that currently are difficult or impossible to specify in a full economic model. Applying deep learning methods to these problems can produce more useful results than standard methods in finance. In particular, deep learning can detect and exploit interactions in the data that are, at least currently, invisible to any existing financial economic theory.
- **Raja Venkata Sandeep Reddy Davu (2024):** This paper is about the steps that need to be taken to create a safe on-premises cloud system that complies with all industry data protection rules. One company built its cloud system on-premises to ensure it was safer and more in line with regulations. It is important to observe closely at some important technical parts to ensure that the on-premises cloud option gets rid of security risks and follows the rules. Some of the things that make it up are permission, encryption, monitoring, and framework. The study explains why on-premises cloud technology is becoming more popular among businesses that need to handle a lot of data. Businesses may be able to improve their security with these results without giving up control of their data.
- **Artur Filipe Ewald Wuerges, Jose Alonso Borba (2009):** There are problems in accounting and finance that can't be solved easily though conventional techniques. Some examples are bankruptcy prediction and the development of strategies to trade (profitably) in stock exchanges. In these cases, one of the alternatives is the use of artificial intelligence systems. This article analyses empirical articles published in journals between 2000 and 2008 that present applications of neural networks, fuzzy logic and genetic algorithms to problems in

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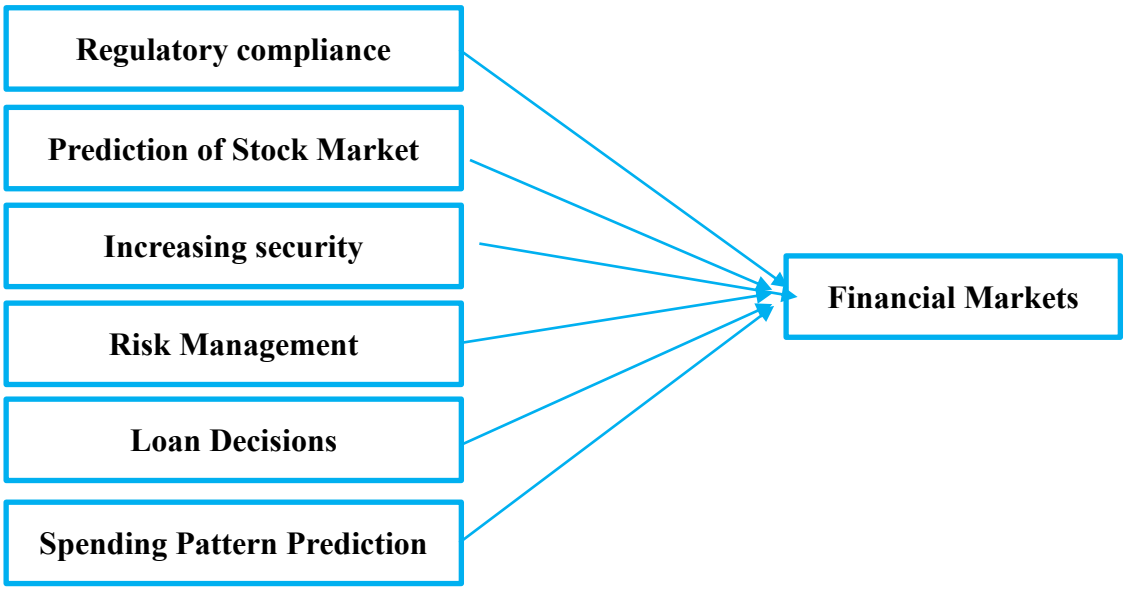
finance and accounting. After the analysis of 57 articles, this article finds that the most used method is the artificial neural networks (40 articles) and most of the applications are in finance (49 articles). There were just 8 articles about AI systems applied to accounting, what leads to the conclusion that there is still room for new developments in this field of knowledge.

- **Frank Z. Xing, Erik Cambria, Roy E Welsch (2018):** The pragmatic research perspective of computational linguistics, has become increasingly powerful due to data availability and various techniques developed in the past decade. This increasing capability makes it possible to capture sentiments more accurately and semantics in a more nuanced way. Naturally, many applications are starting to seek improvements by adopting cutting-edge NLP techniques. Financial forecasting is no exception. As a result, articles that leverage NLP techniques to predict financial markets are fast accumulating, gradually establishing the research field of natural language based financial forecasting (NLFF), or from the application perspective, stock market prediction. This review article clarifies the scope of NLFF research by ordering and structuring techniques and applications from related work. The survey also aims to increase the understanding of progress and hotspots in NLFF, and bring about discussions across many different disciplines.
- **Shorouq Fathi Eletter, Saad Ghaleb Yaseen and Ghaleb Awad Elrefae (2010):** This study developed a proposed model that identifies artificial neural network as an enabling tool for evaluating credit applications to support loan decisions in the Jordanian Commercial banks. A multi-layer feed-forward neural network with backpropagation learning algorithm was used to build up the proposed model.
- **Aleksandrina Aleksandrova, Valentina Ninova, Zhelyo Zhelev (2023):** The main objective of this review is to provide a comprehensive walk-through and to fill the gaps in the literature related to AI implementation in finance, insurance, and financial control from an economic perspective. We provide a comprehensive overview of AI implementation in finance, insurance, and financial controlling, highlighting crucial issues in that process and identifying the relationship between the development of these economic sectors and AI. The authors' team identifies the trends and main themes in the existing literature in AI-related publications in finance, insurance, and financial control. We discuss the main advantages and disadvantages of AI implementation, identified by our research, and also make some suggestions regarding future research having in mind the interdisciplinary of the topic, the vast development of AI and technologies, and the increasing demand for AI-based solutions, services and products.
- **Amine EN-NAJAH, Hassane BOUJETTOU (2024):** The competitiveness of companies has been influenced by recent occurrences, particularly the COVID-19 pandemic, which caused significant disruption to the global economy. Nevertheless, certain companies have adeptly adjusted to the new circumstances by embracing novel business models, investing in technology, and displaying adaptability to swiftly accommodate rapid changes. The rapid digitalization across various industries has also left its mark on companies' competitive landscape, allowing them to offer products and services with greater speed and reduced expenses. Companies that have channelled resources into technology have also reaped the rewards of improved collaboration and heightened operational efficiency, attributes that have played a pivotal role in sustaining their competitiveness. In fact, even audit firms have not remained unaffected by this trend. Digitalization is fundamentally reshaping the audit sector. These firms are under growing pressure to provide services that are not only swifter and more precise but also cost-efficient. Digitalization presents fresh avenues to enhance audit procedures through the integration of technologies such as big data, artificial intelligence, blockchain, and cloud computing. Through this article, we aim to explore the impact of these technologies on the "Audit Risk Equation" that represents our research model.
- **Bernard Owusu Antwi, Beatrice Oyinkansola Adelakun, Augustine Obinna Eziefule (2024):** This review explores the revolutionary impact of AI on financial reporting, with a specific focus on enhancing accuracy and timeliness. AI-driven technologies such as machine learning, natural language processing, and predictive analytics are reshaping traditional financial reporting processes. These technologies enable organizations to automate routine tasks, analyse vast volumes of financial data, and extract valuable insights with unprecedented speed and accuracy. By leveraging AI, organizations can streamline data collection, validation, and analysis, thereby reducing manual errors and improving the overall quality of financial reports. One of the key advantages of AI in financial reporting is its ability to identify patterns and anomalies in financial data that may go unnoticed by human analysts. Machine learning algorithms can detect irregularities in financial transactions, flag potential risks, and enhance fraud detection capabilities, thus bolstering the integrity and reliability of financial reports. Furthermore, AI powered natural language processing (NLP) algorithms enable organizations to extract relevant information from unstructured data sources such as financial statements, regulatory filings, and news articles.

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RESEARCH METHODOLOGY

- **Conceptual Model**



- **Problem Statement**
  The integration of Artificial Intelligence (AI) into financial decision-making heralds a technological revolution in the industry, offering immense potential benefits alongside significant challenges. This study aims to dissect the complexities surrounding AI in finance, focusing on identifying and overcoming obstacles to its effective implementation.

- **Research Gap**
  Lack of Comprehensive Regulatory Guidelines: One of the most pressing gaps in research is the absence of well-defined regulatory frameworks for AI in India's financial markets. While the global financial markets have started to explore AI governance, India's regulatory landscape remains underdeveloped in terms of addressing the specific challenges posed by AI, such as market manipulation via algorithmic trading, transparency of AI decision-making, and accountability in AI-driven systems. Behavioral Insights into AI's Effect on Market Dynamics: While AI is known to improve efficiency in trading and market prediction, there is limited research into how AI-driven systems affect broader market behavior, such as investor sentiment, volatility, and decision-making processes.

- **Objectives of the Study**
  - ❖ To study the applications of artificial intelligence in Financial Markets in Telangana.
  - ❖ To study the impacts of artificial intelligence in Markets in Telangana.

- **Hypothesis of the Study**
  H0: There is no impacts of artificial intelligence in Markets in Telangana
  H1: There is an impact of artificial intelligence in Markets in Telangana

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ANALYSIS & INTERPRETATION

Vector Error Correction Estimates for AI Applications and Financial Markets

Vector Error Correction Estimates		
Sample (adjusted): 8 24		
Included observations: 17 after adjustments		
Standard errors in ( ) & t-statistics in [ ]		
Co-integrating:	CointEq1	
DAI APPLICATIONS (-1)	1.000000	
FINANCIAL MARKETS (-1)	-0.118446	
	(0.05873)	
	[-2.01683]	
C	-0.417817	
Error Correction:	D(DAI APPLICATIONS)	D(FINANCIAL MARKETS)
CointEq1	8.182668	0.458956
	(2.22330)	(1.12015)
	[-3.68041]	[0.40973]
D(DAI APPLICATIONS(-1))	6.213100	-0.402586
	(2.02411)	(1.01979)
	[3.06955]	[-0.39477]
D(DAI APPLICATIONS(-2))	5.002851	-0.449579
	(1.74490)	(0.87912)
	[2.86713]	[-0.51140]
D(DAI APPLICATIONS(-3))	4.077004	-0.234632
	(1.49321)	(0.75231)
	[2.73035]	[-0.31188]
D(DAI APPLICATIONS(-4))	2.674216	-0.135144
	(1.04024)	(0.52409)
	[2.57078]	[-0.25786]
D(DAI APPLICATIONS(-5))	1.614632	0.278938
	(0.64854)	(0.32675)
	[2.48963]	[0.85367]
D(FINANCIAL MARKETS(-1))	1.043237	-0.465551
	(0.84353)	(0.42499)
	[1.23676]	[-1.09545]
D(FINANCIAL MARKETS(-2))	1.080672	0.355927
	(0.83571)	(0.42105)
	[1.29311]	[0.84533]
D(FINANCIAL MARKETS(-3))	-1.241347	-0.083861
	(0.63347)	(0.31916)
	[-1.95959]	[-0.26276]
D(FINANCIAL MARKETS(-4))	-1.095337	0.115915
	(0.58325)	(0.29385)
	[-1.87800]	[0.39447]
D(FINANCIAL MARKETS(-5))	-0.983528	-0.054779
	(0.56130)	(0.28280)
	[-1.75222]	[-0.19371]
C	-1.988553	-0.262141
	(1.82091)	(0.91742)
	[-1.09206]	[-0.28574]
R-squared	0.942880	0.957666
Adj. R-squared	0.817217	0.864531

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Sum sq. resids	178.4687	45.30196
S.E. equation	5.974424	3.010049
F-statistic	7.503216	10.28257
Log likelihood	-44.10716	-32.45312
Akaike AIC	6.600842	5.229779
Schwarz SC	7.188992	5.817929
Mean dependent	-0.545103	-0.445068
S.D. dependent	13.97423	8.178124
Determinant resid covariance (dof adj.)		323.3294
Determinant resid covariance		27.96967
Log likelihood		-76.55844
Akaike information criterion		12.06570
Schwarz criterion		13.34002

Interpretation

The above table contains VECM and its coefficient value as well as t-statistic and standard error. Results indicates that the coefficients were significant at 5% level of significance. DI and AI Applications sector are in logarithms and one co-integrating vector is estimated which indicates the coefficients as long run relationship. The fall in AI Applicationss sector investment will leads to decrease in Indian FINANCIAL MARKETS flows, thus, the estimated model was able to produce a consistent result i.e., 1% fall of the AI Applications sector investment is likely to decrease Indian FINANCIAL MARKETS flows by 0.118446(12%). Generally, the result of the co-antiquation found to be satisfactory in terms of correct signs. It is seen that AI Applications sector investment has negative sign with the India FINANCIAL MARKETS inflows relationship.

Least Square Method for AI Applications and Financial Markets

System: UNTITLED				
Estimation Method: Least Squares				
Sample: 7 24				
Included observations: 18				
Total system (balanced) observations 36				
	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.901805	0.652480	-1.382118	0.1921
C(2)	0.227950	0.585241	0.389498	0.7037
C(3)	0.168165	0.552311	0.304476	0.7660
C(4)	0.183537	0.509244	0.360411	0.7248
C(5)	0.152449	0.377724	0.403599	0.6936
C(6)	0.122418	0.323124	0.378856	0.7114
C(7)	-0.078982	0.621940	-0.126993	0.9010
C(8)	1.086744	0.861563	1.261364	0.2311
C(9)	0.096421	0.866450	0.111283	0.9132
C(10)	-0.175198	0.827299	-0.211771	0.8358
C(11)	0.045788	0.719763	0.063616	0.9503
C(12)	0.435877	2.234879	0.195034	0.8486
C(13)	-0.508820	0.198676	-2.561057	0.0250
C(14)	0.394278	0.178202	2.212535	0.0471
C(15)	0.230256	0.168175	1.369147	0.1960
C(16)	0.380771	0.155061	2.455618	0.0303
C(17)	0.227438	0.115014	1.977473	0.0714
C(18)	0.527744	0.098389	5.363842	0.0002
C(19)	-1.076794	0.189377	-5.685993	0.0001
C(20)	-0.271942	0.262340	-1.036600	0.3204

Journal DOI: 10.36713/epra0412 ISSN: 2277–7741

International Journal of

Asian Economic Light (JAEL) – Peer Reviewed Journal

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C(21)	-0.255468	0.263828	-0.968311	0.3520
C(22)	-0.076158	0.251907	-0.302327	0.7676
C(23)	-0.295117	0.219163	-1.346563	0.2030
C(24)	-1.216672	0.680506	-1.787893	0.0991
Determinant residual covariance		30.93648		

Equation: D(AI APPLICATIONSS) = C(1)*(AI APPLICATIONSS(-1) - 0.409052087943*FINANCIAL MARKETS(-1) - 4.08037225111) + C(2)*D(AI APPLICATIONSS(-1)) + C(3)*D(AI APPLICATIONSS(-2)) + C(4)*D(AI APPLICATIONSS(-3)) + C(5)*D(AI APPLICATIONSS(-4)) + C(6)*D(AI APPLICATIONSS(-5)) + C(7)*D(FINANCIAL MARKETS(-1)) + C(8)*D(FINANCIAL MARKETS(-2)) +C(9)*D(FINANCIALMARKETS(-3)) + C(10)*D(FINANCIAL MARKETS(-4)) + C(11)*D(FINANCIAL MARKETS(-5)) + C(12)

Observations: 18			
R-squared	0.801375	Mean dependent var	-0.399934
Adjusted R-squared	0.437230	S.D. dependent var	10.34421
S.E. of regression	7.760017	Sum squared resid	361.3072
Durbin-Watson stat	2.018890		

Equation: D(FINANCIAL MARKETS) = C(13)*(AI APPLICATIONSS(-1) - 0.409052087943*FINANCIAL MARKETS(-1)-4.08037225111) + C(14)*D(AI APPLICATIONSS(-1)) + C(15)*D(AI APPLICATIONSS(-2)) + C(16)*D(AI APPLICATIONSS(-3)) + C(17)*D(AI APPLICATIONSS(-4)) + C(18) *D(AI APPLICATIONSS(-5)) + C(19)*D(FINANCIAL MARKETS(-1)) + C(20)*D(FINANCIAL MARKETS(-2)) + C(21)*D(FINANCIAL MARKETS(-3)) + C(22)*D(FINANCIAL MARKETS(-4)) + C(23)*D(FINANCIAL MARKETS(-5)) + C(24)

Observations: 18			
R-squared	0.968831	Mean dependent var	-0.321690
Adjusted R-squared	0.911689	S.D. dependent var	7.951194
S.E. of regression	2.362874	Sum squared resid	33.49904
Durbin-Watson stat	1.648698		

Interpretation

The above table depicts least square test that have been extracted from system equation in which all the coefficient probability value for the equation 1 seem to be non-significant at 5% level and C(1) is the coefficient of the co-integrated model (short run) with Chemical sector investment as the dependent variable while C(2) to C(11) are also observed to be short run coefficients. C(1) is the speed of adjustment towards short run equilibrium which negative and non-significant that indicates FDI inflows has short run relationship with the Chemicals sector's investment

CONCLUSION

Artificial Intelligence (AI) is rapidly transforming financial markets worldwide, and India is no exception. The integration of AI technologies into India's financial sector offers substantial benefits, including enhanced efficiency, improved decision-making, better risk management, and a more inclusive financial ecosystem. As AI tools like machine learning (ML), natural language processing (NLP), and robotic process automation (RPA) are increasingly deployed, they are revolutionizing various aspects of financial markets, from algorithmic trading and portfolio management to fraud detection and customer service. In India, AI's impact is particularly significant due to the country's growing digital infrastructure, large data pools, and expanding fintech ecosystem. With increasing penetration of digital payments, mobile banking, and online trading platforms, AI is helping financial institutions cater to a broader customer base while improving service delivery. AI-based solutions, such as credit scoring models, personalized investment advisory, and customer support chatbots, are also enhancing the accessibility and affordability of financial products.

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International Journal of

Asian Economic Light (JAEL) – Peer Reviewed Journal

SJIF Impact Factor (2025): 8.579 Volume: 13 | Issue: 3 | March 2025

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