



Role of Information Technology in Investment Market

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ABSTRACT :

Information technology has fundamentally reshaped the investment market by enhancing accessibility, efficiency, and decision-making processes. This paper delves into the expanding role of information technology in modern investment strategies, including algorithms trading, Artificial Intelligence (AI) driven analysis, blockchain applications and cyber security measures and the impact of information technology on market transparency, risk management, and investor behavior.

Keywords—Information Technology, Artificial Intelligence, Blockchain, Algorithms trading

INTRODUCTION

Earlier, shares were written out by hand on scratch paper, investors passed shares back and forth in coffee shops with other investors and the telegraph, perhaps the first significant piece of technology of its time was invented. This invention led to the first financial newsletters, which were an achievement in communications. Then came the invention of computers and supercomputers. Anyone can use the internet to register interest in purchasing stocks, and the computer will act as a broker, searching for the best deal. Human representation is no longer required as a result. These computers produced findings at an unmatched pace. The following are some ways that technology has benefited investments over time:

Technological advances in online platforms and reporting styles not only simplify the research process but also provide investors with much more information than was ever available before. Importantly, having the ability to access data allows investors to track their investment performance; these tools allow investors to plan out an investment strategy and know where they are investing their hard-earned money. Thanks to cloud and mobile applications, investing is now easier and more accessible for anyone. Investors can obtain crucial data from anywhere in the world. Investors benefit by making the investment process easier, enabling investors to gain more financial knowledge, taking away the role of the middleman, facilitating better understanding of stocks, and permitting investors to trade conveniently at their fingertips - making trading lower cost and more convenient leading to even more profitable trades.

Artificial intelligence news aggregation apps, which are a form of contemporary technology, help their users by monitoring headlines based on their preferences and browsing history. AI-enhanced search engines also aid investors in monitoring their holdings more frequently so that they do not miss out on the perfect opportunity to buy or sell an asset. It takes the hassle out of viewing dozens of charts and constantly checking for updates concerning each investment. Technology allows for a more open financial market, which means investors have access to another layer of information and insight that was previously not available. As a result, investors can identify trends in the markets, expose unrealized possibilities, and monitor the performance of their investment portfolios in real time. Plus, it eliminates the possibility of a human error being traded.

New technology has changed the stock market landscape and allowed transactions to happen faster and with much more security. Before technology, stock market participants utilized intermediaries, causing them to go through a cumbersome transaction process that detailed trade settlements. There was indeed a time when brokers would shout across the floor to swap orders, complicating an already complicated process. Incorporating technology has made the stock market much more practical and user-friendly by allowing faster trade settlements, more transparency, enhanced security, automatic tracking, and many other benefits. There will always be some risk with investing, but using the right technology makes the risk relatively low.

II. MODERN INVESTMENT STRATEGIES

A. Fintech – investment platforms-

Fintech is mainly said to be as the combination of finance and technology which mainly delivers financial services to the consumers. The combination of finance and the platforms for investments Technology has greatly increased access to investment, making it a with their user-friendly interfaces, instructional resources, and reasonably priced options, mobile applications and internet investment platforms have completely changed how people invest.

Key Features of Online Investment Platforms

- User-Friendly Interfaces: Investors can easily navigate and manage their investments thanks to online platforms' user-friendly interfaces
- Educational Resources: By providing an abundance of educational resources, these platforms enable investors to make well-informed decisions on their financial destiny.

• **Low-Cost Options:** A wider range of people in society can now invest because a financial advisor that stays in the phone always ready to help that where to invest and where to not online platforms have drastically lowered the prices involved.

The Rise of Robo-Advisors

- **Personalized Portfolios:** These platforms create customized portfolios, carefully allocating assets to optimize returns while minimizing risk.
- **Fractional Investing:** Robo-advisors also facilitate fractional investing, enabling investors to purchase a fraction of shares in high-value stocks or assets, providing greater flexibility and diversification.

Impact on Investing:

- **Greater Accessibility:** A greater spectrum of people may now engage in the markets thanks to the democratization of investing brought about by online platforms and robo-advisors.
- **Increased Efficiency:** By streamlining the investment process and lowering expenses, automation and algorithm-driven recommendations have increased overall efficiency.
- **Improved Financial Inclusion:** The growth of robo-advisors and internet platforms has facilitated financial inclusion by giving marginalized groups access to investing services.

B. Blockchain currency and crypto- assets-:

- **Cryptocurrencies** are digital currencies that use secret codes (cryptography) to secure transactions. They're like digital money, but instead of being controlled by governments or banks, they're run by computer programs (blockchain technology). They are operated on a decentralized structure; cryptocurrencies are not governed by a single entity. A public ledger, or blockchain, is used to record transactions, guaranteeing security and transparency. So, unlike traditional money controlled which is said to be done by the bank, Cryptocurrencies are mainly decentralized. It is said that there is no single owner controlling them. So, they have less potential for manipulation.
- **Cryptocurrency** is based on blockchain technology. It is a digital ledger that keeps track of transactions made across a computer network. Transactions become safe and transparent because of the permanent, unchangeable record this produces.

Benefits of Blockchain Technology

Blockchain technology has many benefits, including:

1. **Secure Transactions:** Blockchain guarantees tamper-proof and secure transactions.
2. **Transparent Transactions:** All transactions are transparent since they are documented on a public ledger.
3. **Smart Contracts:** Smart contracts, which automate corporate procedures, can be created thanks to blockchain technology.
4. **Decentralized Finance (DeFi):** DeFi apps, which offer financial services without the use of conventional middlemen, are made possible by blockchain technology.

Challenges Facing Cryptocurrencies:

Despite the benefits, cryptocurrencies face challenges, including:

1. **Volatility:** The value of cryptocurrencies can change drastically.
2. **Regulatory Difficulties:** Regulators and governments are still figuring out how to control cryptocurrency.
3. **Responsible wealth management:** Investing with integrity.

C. Socially Responsible Investing (SRI)

The environmental, social, and governance (ESG) effects of investments are considered by the SRI investment method. It ultimately boils down to investing in businesses and initiatives that support sustainable operations and constructive social consequences.

SRI is important because it allows investors to support businesses that prioritize:

- **Environmental Stewardship:** Businesses that use renewable energy, lessen their carbon footprint, and support sustainable practices.
 - **Ethical Labor Practices:** Businesses that support diversity and inclusion, give their workers safe working conditions, and treat them fairly.
- **Diversity and Inclusion:** Businesses that support equity, diversity, and inclusion in their supplier chain, workforce, and community involvement.
- **Renewable Energy:** Businesses that make investments in wind and solar energy, among other renewable energy sources.
- **ESG considerations** are included in investment choices as part of SRI. Investors can employ a range of instruments and tactics, including:
- **ESG Screening:** Eliminating businesses that don't fit ESG standards.
- **ESG Integration:** Including ESG considerations in the analysis and selection of investments.

Impact Investing: Putting money into businesses or initiatives that benefit the environment or society.**Illustration-**

Like we are shopping for a new pair of shoes. We may consider the brand price. But what if I consider how the shoes are said to have been made. Where they have been made using sustainable materials supporting fair labour practices. This is what is called ESG investing.

Let us breakdown it into points-

- We might choose to buy shoes from brands that is best known for its ethical practices .This is basically said to be as the as the ESG screening in investing that is said to have been meet the ESG standard.
 - We may consider the environmental impact of the shoes that we buy like the materials used and how they have been shipped. This is like ESG integration in investing – incorporating ESG factors in investment analysis.
- We might decide to buy shoes from the brand that decides to donate a portion of its profits to charity supporting fair trade. This is what it is called impact investing where the company invests half of it profits to the society.

Benefits of SRI**The benefits of SRI include:**

Long-term Financial Performance: Companies with strong ESG practices tend to outperform those without.

- Risk Management: SRI can help investors avoid companies with high ESG risks.
- Positive Impact: SRI can contribute to positive social and environmental outcomes.

Illustration

Here's an illustration to summarize the concept of SRI:

Imagine a tree with three branches:

- Environmental Stewardship: The tree's roots represent a company's commitment to reducing its carbon footprint and promoting sustainable practices.
- Social Responsibility: The tree's trunk represents a company's commitment to treating its employees fairly, providing safe working conditions, and promoting diversity and inclusion.
- Governance: The tree's branches represent a company's commitment to transparency, accountability, and ethical business practices.

SRI is about investing in companies that nurture this tree, promoting a healthy and sustainable ecosystem for all stakeholders.

III. Indian's Regulatory Approach

India has made great strides in incorporating AI into financial markets but is struggling to build a comprehensive regulatory framework for AI. The regulatory landscape is still being defined with the governance of AI spread among various entities. Regulatory Authority AI frameworks and policies Development:

- **Securities and Exchange Board of India (SEBI):** It Regulates AI-driven financial services; however, AI-specific regulations are not yet in place. Introduced AI-based monitoring and fraud detection to supervise market abuse. Working towards drafting AI governance frameworks to align with best practices in other jurisdictions.
- **Reserve Bank of India (RBI):** Supports the integration of AI into banking and fintech while ensuring data privacy and security. Integrating AI-based fraud detection and AML (anti-money laundering) regulation for banks. Working on AI models for consumer credit scoring to ensure fairness and no discrimination.
- **Digital Personal Data Protection Act,2023:** It Aligns with global principles of data privacy but lacks detailed application to financial markets and AI. Regulates the use of personal data in AI-based financial services. Provides rights for users regarding transparency in AI decision-making.

IV. Recommendations for India's AI Regulatory framework

To facilitate the responsible and sustainable adoption of AI in financial markets, India must take some concrete regulatory action as follows:

1. Establish an Umbrella AI Regulatory framework:

- a) Develop financial regulations specifically related to AI and the application of AI under the supervisory controls of SEBI and the RBI.
- b) Establish AI compliance standards - ensuring compliance of firms managing AI-related financial services with document operational and risk mitigation processes.
- c) Establish an AI market surveillance unit at SEBI to monitor algorithms in trading practice.

2. Promote AI Transparency and Responsibility:

- a) Mandate firms to disclose their AI disclosure policies, requiring firms to provide an understanding of the AI-driven investment decision processes.
- b) Establish an AI ethics reviewing authority or ethics committee within appropriate regulatory convictions.
- c) Implement similar guidelines from the UK's FCA governing AI-powered decision-making models with no provision for certain decisions due to the challenges of interrelation.

3. Strengthen AI Ethics and Bias Mitigation:

- a) Require fairness audits of AI-driven lending and risk assessment models.
- b) Require the implementation of bias detection mechanisms to prevent AI-driven discrimination in financial decision-making.

- c) Develop protections for consumer rights to invest or engage in lending strategies or practices through AI methods that are unfair.

4. Establish Strong AI Risk Management and Cybersecurity Policies:

- a) Use AI to create capabilities for detecting fraud in Banking and stock markets to prevent financial crimes and cyber risks.
- b) Improve AI-powered compliance reporting, so market participants can comply with AI guidelines and ethical standards.
- c) Bring India's AI Cybersecurity Regulation in line with the global standard, i.e., U.S. SEC guidance on AI regulation and risk management.

5. Promote Multinational Cooperation on AI Regulations:

- a) Form partnerships with regulatory agencies in the U.S., the EU, the UK, and Singapore to create similar AI governance frameworks.
- b) Engage in international AI ethics dialogues to demonstrate that AI policies in India are grounded in similar strategies for reducing the risk associated with AI.
- c) Develop regulatory sandboxes for AI experimentation so potential fintech companies can test AI-based financial solutions on a regulated basis.

V. Conclusion

AI is set to transform financial markets, yet successful implementation will require robust governance, transparency, and risk management practices. India has made meaningful advances in using AI in the financial ecosystem, but regulatory gaps must be addressed to meet global standards. A sound AI regulatory regime will help ensure that India will realize the benefits of an innovation driven by AI, while also protecting market integrity and investor confidence. By employing a balanced approach—fostering innovation while enforcing strict regulation—India can emerge as a global leader using AI to advance financial market development.

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