Globalization of the Stock Market and the Impact of Artificial Intelligence on Challenging Businesses

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Abstract: This paper presents and describes the globalization-influenced stock market and business trends. Globalization introduces profound changes and challenges in development conditions. This pattern is manifested in the economic and business spheres. Indeed, Globalization dictates its laws, one of its fundamental characteristics is the internationalization of production, financial markets and the free movement of capital across national borders.

As a methodology for this study, we reviewed the existing literature, which was the first step in our research and focused on data analysis as well. The results show that since artificial intelligence, businesses and the stock market are phenomena, elements and some of the results of Globalization, we found out that all of them are connected, especially after the appearance and integration of digitalization that facilitates more opportunities between the traders and the stock market.

The conclusions show that in stages of globalization, the growth of artificial intelligence and other forms of automated technology are necessary for the stock market. Artificial intelligence is necessary for business operations and trade opportunities, on the other hand, by using it more it becomes more intelligent. All this is important for the Stock market because globalizing the stock market needs artificial intelligence (AI), business opportunities and operations that are challenging from one market to another.

1. INTRODUCTION

Globalization introduces tremendous changes and challenges in the conditions of development. This pattern is manifested in the economic and business fields. Indeed, globalization dictates its laws; one of its fundamental features is the internationalization of production, financial markets, and the free movement of capital across national borders. As a result, capital becomes a cosmopolitan force, flowing from country to country, from region to region, and accumulating where there are better business conditions, higher economic productivity, and opportunities for profit-making.

The regulation of global traders and investors presents a fundamental challenge to law and legal regimes. This is because foreign investment, by its nature, defies and interrogates 'black-box' theories of law which treat nation-states, legal systems, and legal orders as closed systems (Twining et al., 2000).

The arrival of digital work has helped many businesses and companies to advance. 'Siri and Cortana' are extremely useful for those who manage different business projects because they...
become smarter with frequent use as virtual assistants. In addition, having a virtual assistant can be an advantage for companies because, for example, it can help navigate digital change.

Artificial intelligence (AI) can help facilitate team communication between teams, workers, business leaders, entrepreneurs, market makers, and customers, which can help a lot in business.

Every day, new uses of artificial intelligence are discovered, creating models for the data generated by artificial intelligence. That is why it can be considered part of the commercial operations of industries and businesses.

Since the development of computational methods in finance in the 1990s, a great deal of research has focused on applying artificial intelligence to stock market investments. The primary benefits of using computational approaches to automate the financial investment process are the elimination of "momentary irrationality" or decisions based on emotions, the ability to recognize and explore patterns that humans overlook, and the immediate consumption of information in real time. This field of study is called computational finance (Ferreira et al., 2021).

2. LITERATURE REVIEW

2.1. Artificial Intelligence, Business Capabilities and the Global Market

To support our goals, we inspected recent literature to find significant themes that focus on using artificial intelligence in business. We first discussed the models of AI and associated technologies that underlie current technical concerns, as seen in the article by Korinek and Stiglitz. In contrast, (Dagnaw, 2020) emphasizes that companies must be able to resist changes in the intelligence system to benefit from the intelligence revolution. Together, these works suggest how to survive in the market. Companies must adapt to the challenges and take advantage of opportunities.

AI is a technology that attracts the attention of anyone, and the main reason for this affirmation is that it has a tremendous tendency to disturb all aspects of life. Artificial intelligence tends to emit optimism and skepticism with positive and negative aspects collectively (Dagnaw, 2020). Moreover, companies have increasingly turned to AI to generate economic value in recent years. Despite this, enterprises need help incorporating AI into their operations (Enholm et al., 2021). Considering this, technologies are one of the top investment priorities these days (Agata et al., 2020). According to the Gartner report and forecast, more than 740,000 autonomous-ready vehicles will be added to the global market by 2023. In the coming years, software updates could enable higher levels of vehicle autonomy (Gartner, 2019). Advanced autonomous vehicles operating on roads are still not available (Devenport et al., 2018). Artificial intelligence is necessary for companies through business capabilities rather than technologies (Ronanki et al., 2018). Therefore, AI can support three essential things: autonomy of business processes, gaining insight through data analysis, and engaging with customers and employers.

Several definitions of artificial intelligence have been developed to differentiate it from other traditional information technologies. By integrating two concepts, intelligence refers to mental activity with artificial which infers that humans create something instead of by nature; Artificial intelligence can be defined as the capacity of machines to simulate intelligence (Enholm et al. 2021). Harkut and Kasat (2019) call into question how artificial intelligence is proceeding, and he emphasizes that any task performed by a computer program or machine usually requires
human intelligence. AI is the simulation of human intelligence processes by computers and other technologies. It is a branch of research and a collection of computing approaches inspired by how the human nervous system and the body are used to feel, learn, reason and act.

However, artificial intelligence has directly or indirectly affected our lifestyle and is shaping tomorrow's future. AI has already become an integral part of our daily lives and has had a significant impact on our way of life, despite the ubiquity of digital assistants on mobile phones, driver assistance systems, bots, text and speech translators, and systems that aid in recommending products and services and in customized learning (Harkut & Kasat, 2019).

Artificial intelligence could be relevant and less expensive to society through its application in financial and professional services (Devenport et al., 2018, p. 116). Exploring cognitive technologies should be necessary for companies, and there is no space for complacency in the workforce and ethics of intelligent machines. However, cognitive technology could lead to a golden age of productivity, satisfaction, and prosperity with proper planning and development (Devenport et al., 2018).

2.2. Artificial Intelligence, Businesses, Market Integration and the Stock Market

Artificial intelligence impacts and transforms businesses by increasing human work (Daugherty et al., 2018). Focus is on using AI to achieve more flexibility, better decision-making, grander scale, and productivity (Wilson & Daugherty, 2018). Companies should think about and reimagine their business processes (Wilson & Daugherty, 2018). When humans and machines work together, firms achieve the most significant process and performance improvements, which is why many companies have used artificial intelligence to automate the process (Wilson & Daugherty, 2018). Companies should understand how humans may augment machines in such a practical way since machines can boost what humans do best (Wilson & Daugherty, 2018). Machines and humans can work together in a relationship of augmentation rather than automation (Davenport & Bean, 2017). In creative problem-solving, intelligent machines will be partners and collaborators (Davenport & Kirby, 2015).

The analysis of financial market integration bases on different approaches. One deal with the sensitivity of international capital flows of interest-rate differentials and the other approach focuses on the degree of integration between markets as evidenced by interest rates (Bhoocha-oom & Stansell, 1990).

Market integration can be measured in 3 ways. First, by using the interest rate parity approach that examines the degree to which interest rate differentials on assets of comparable risk are related to the forward premium or discount on one of both currencies involved. The second way is by applying the convergence of interest rates approach that examines the level of interest rates among countries. The third way is by using the co-variability of interest approach that analyzes changes in rates (Bhoocha-oom & Stansell, 1990).

If co-variability exists that shows that the prices of financial assets in countries move in conjunction (Bhoocha-oom & Stansell, 1990). Because of different levels of risk, different rate levels may exist (Bhoocha-oom & Stansell, 1990).
3. OPPORTUNITIES AND CHALLENGES FOR BUSINESSES THAT ARE USING/IMPLEMENTING AI TECHNOLOGY

Today, for each business, it is essential to understand the challenges and obstacles that could impact them by implementing or adopting artificial intelligence technology. Moreover, it is necessary to realize that in addition to the positive aspects, the negative ones keep them stepping back and reanalyzing its usage and role.

The first opportunity AI brings to a business is improved economic outcomes and productivity, similar to previous technological developments. More precisely, AI will increase the rate and effectiveness of manufacturing. However, the research also notes that precisely quantifying AI's influence will be challenging and that there currently needs to be an appropriate means for doing so. The second opportunity is for businesses to enhance or aid human decision-making. AI helps users integrate and uncover hidden patterns or anomalies among vast and diverse datasets. As a result, policymakers can employ AI systems to generate data-driven policies, even though such systems' validation and potential programmed bias still need to be fully known. The third opportunity for businesses is to improve problem-solving: the current state of AI research offers an expansion of the technology's applications to societal difficulties while reducing the regulatory oversight costs on the government and those regulated (Dagnaw, 2020). Finding some opportunities, (Dagnaw, 2020) also shows that we need to extend our view, focus on the challenges, and extend our conceptual understanding of the provocations that might come with implementing AI technology within a company.

The first challenge that might come into view is data collection and sharing obstacles. Artificial intelligence systems that use disparate data sources may encounter difficulties accessing and integrating data from sources whose regulatory accessibility, completeness, and general quality differ. The second challenge that might be materialized is the limited access to computing resources and human capital: Developers, researchers, and implementers in various government organizations or agencies may need help acquiring and financing the computing power and talent-intensive requirements of AI systems. The third challenge is the legal and regulatory obstacles: The fast development and use of AI systems have overtaken the legislative framework that governs how and when these systems should be used effectively and safely for their diverse applications. The government will require new technical knowledge to ensure that AI policy is current and appropriate for the technology. The fourth challenge might enter the picture when developing ethical, explicable, and acceptable AI applications. As AI systems improve and surpass human capabilities, it will be crucial that the actions and decisions derived from these systems can be held to the same standards of accountability as the human decision-makers they are assisting and replacing (Dagnaw, 2020).

Furthermore, Harkut and Kasat (2019) raise a similar point highlighted by Dagnaw (2020), signaling that there are ten challenges that a business can face while implementing artificial intelligence technology. Building trust is one of the issues because AI is all about science, technology, and algorithms that people usually need to be made aware of, making it difficult for them to trust. Another challenge comes with the development of artificial intelligence that accelerates. There need to be more qualified professionals who can meet demand and utilize this technology. Therefore, business owners must teach their professionals to use the benefits of this technology. In addition to technological development, AI is a costly technology for which only some business owners or management can spend money. Moreover, software malfunction is another
challenge, meaning that automation makes it difficult to pinpoint the origin of mistakes and problems.

Regarding the responsibilities and replacement of tasks, AI has its limitations, just like any other technology, and cannot replace all charges. However, this will result in new employment domains with different job profiles. In addition, many technologists and scientists with different goals, motivations, and interests research artificial intelligence. Research focuses on unraveling the mysteries of human intelligence and cognition, and in this scenario, AI may be misunderstood and have high expectations.

Machine learning and artificial intelligence applications depend on massive amounts of classified data, often sensitive and personal. As a result, data leaks and identity theft are serious vulnerabilities. In addition, enterprises and governments seeking profit and power use AI-based tools that are often internationally networked and impossible to manage. One of the last challenges is data-driven AI considering that its accuracy depends on training and data. Training data with racial, gender, communal, or ethnic biases will lead to unethical and unfair decisions. The tendencies will undoubtedly increase as AI systems are taught with erroneous data.

The last challenge refers to the power and capacities of AI, and AI applications are directly dependent on the quality and relevance of supervised and labeled training and learning datasets. Therefore, there needs to be more data with quality labels. Transfer learning, active learning, deep learning, and unsupervised learning are now being utilized to develop techniques that will allow AI models to learn despite the lack of high-quality labeled data, which will exacerbate the problem (Harkut & Kasat, 2019).

4. ARTIFICIAL INTELLIGENCE IN STOCK MARKET INVESTMENT

Stock trading is an investment in which investors purchase and sell firm shares on the stock exchange. The market is extremely volatile and highly dependent on economic events. Therefore, significant trading experience and awareness of the latest financial news are needed for profitable trading. In artificial intelligence analysis, providing results every millisecond is beneficial. As a result, AI has begun to play a magical role in trading. It includes reliable and timely information by predicting stock prices using historical data. Essentially, it combines the trading community, and by scanning all trades, it performs better.

Although many businesses employ AI to help the economy, Amazon proposes products to customers. Netflix creates materials based on artificial intelligence, generating substantial demand in the current market. Companies are implementing artificial intelligence in several industries, including travel/tourism, education, and health care. Primarily in retail and media, entertainment has moderate AI usage. For automation and financial services, AI is heavily utilized (Gonzales & Hargreaves, 2022).

In financial portfolio management, artificial intelligence tools can help increase performance. AI's capabilities make it vital for trading today. With financial services, AI aids in model validation, backtesting, trading, and portfolio composition, as well as fraud detection (Mohapatra et al., 2021).
5. COMPANIES, TRADERS AND THE STOCK MARKET

A company has a total number of shares, which are divided into principal shares for investors with a vote in the meetings and public shares for stock market listing, the value of these public shares is the price at which they are willing to buy and sell to investors. If a company promises growth, people will pay more to get rid of their shares and the opposite is if it looks weak people will sell their shares at a lower price in order to get rid of them.

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\text{Figure 1. The application and integration of Artificial intelligence in the stock market and its main elements} \\
\text{Source: Authors’ design, 2022}
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\text{Figure 2. Illustration of the connection between Globalization, business, artificial intelligence and the stock market} \\
\text{Source: Authors’ design, 2022}
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A trader sends his orders through the brokers' platforms and they carry out the operation with the market makers, but the brokers are also companies that carry out operations to buy and sell shares on behalf of the traders, they are the ones that offer their platforms to that traders can connect and operate in the market (Figure 1).

The stock market greatly needs the support of market makers, which are institutions that have a large inventory of shares from different companies available to be sold to investors immediately (Figure 1). This gives the stock market great liquidity and they are always prepared to offer a price of purchase and another of sale for the trader so that he can execute his operations at any time; these market makers obtain their profits through the spread which is the difference between the purchase price and the sale price that they offer for the shares, for example, the purchase and sale of the dollar where the exchange houses earn this difference or spread.

6. RESULTS

The results show some interesting publications, but more was needed to cover the connection between globalization and its influence on the stock markets and AI from a business point of view. In addition, the price movement of all markets is sometimes more predictable. Thus, globalization has dramatically impacted challenging businesses. Through this research paper, we have reviewed the relevant literature to conduct a rigorous inquiry, corroborating the proposed scientific approach from a theoretical standpoint with data analysis.

Moreover, the results of our study and analysis show that since there are many markets, some markets can be less efficient because investments have variable random prices that cannot be predicted.

7. CONCLUSION

Therefore, Globalization has a huge impact on the stock market, financial integration, negotiations, business challenges, and technology that requires and relies more on digitalization and security by using and developing artificial intelligence for more operations and integrations in the Stock market. Businesses should start investing and making money in the stock market. AI is becoming increasingly intelligent. When AI combines large amounts of data, an enormous analytical capability is possible. Many AI approaches still need to be evaluated in a financial crisis. More trainers are required to educate individuals to do the jobs and ensure a business's success.

Since artificial intelligence, businesses and the stock market are phenomena, elements and some of the results of Globalization, we found out that all of them are connected, especially after the appearance and integration of digitalization (Figure 2).

Artificial intelligence is necessary for business operations and trade opportunities because the more you use it, the more intelligent it becomes. All this is important for the Stock market as was pointed out (Figure 1) because globalizing the stock market needs both Artificial intelligence and business opportunities and operations that are challenging from one market to another.


References

Additional reading


