

Economic Instability and Global Market Fluctuations in 2023: Analyzing Causes, Impacts, and Policy Responses

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Abstract

The economic instability and global market fluctuations that will occur in 2023 have created various complex economic challenges and have far-reaching impacts. These dynamics are influenced by various factors, including monetary and fiscal policies, the impact of the COVID-19 pandemic, geopolitical conflicts, and changes in commodity prices. The impact of this instability can be seen in financial markets, macroeconomics, business and industrial sectors, and has significant socio-economic consequences. This research aims to analyze the causes, impacts, and policy responses to economic instability and global market fluctuations in 2023. The method used is a descriptive qualitative approach with data obtained from various relevant research results or previous studies. Data processing is carried out carefully to ensure accurate and in-depth analysis. The results of this research show that the combination of the impact of monetary and fiscal policies, the ongoing influence of the COVID-19 pandemic, geopolitical dynamics, and changes in commodity prices have contributed to global economic instability. This impact is manifested in financial market volatility, macroeconomic disruption, as well as impacts on business and industrial sectors. Socioeconomic consequences such as increasing poverty and income inequality underscore the need for effective policy responses. The policy responses taken include monetary policy strategies, fiscal measures, structural reforms, and international cooperation.

Keywords: *Economic Instability, Market Fluctuations, Policy.*



A. INTRODUCTION

The global economic instability that will occur in 2023 has become a very important and urgent topic to study. The year was marked by a series of significant market fluctuations, affecting the economies of various countries as well as society at large. This phenomenon is not only of concern to economists and policy makers, but also to the general public, because of its broad and multidimensional impact. The beginning of 2023 witnessed increasing economic uncertainty, triggered by various factors, both structural and situational (Tung et al., 2023). Global markets are experiencing instability caused by several issues, including but not limited to, changes in monetary policy in several large countries, geopolitical tensions, and ongoing uncertainty related to the impact of the COVID-19 pandemic which has been ongoing for several years. This instability is also influenced by the dynamics of international

trade, changes in commodity prices, and volatility in financial markets (Shahzad et al., 2023).

On the other hand, exchange rate fluctuations, rising inflation, and changes in interest rates are clear indications of ongoing instability. Countries around the world, both developing and developed, are experiencing various impacts, ranging from reduced economic growth to social and political pressures. This phenomenon has sparked concerns about a possible economic recession, increased poverty, and social instability (Olamide et al., 2022). The energy crisis and climate change also contributed significantly to economic instability that year. Rising energy prices, especially oil and gas, burden many countries, increasing production and transportation costs, and affecting domestic and international economic policies. Meanwhile, extreme weather events and natural disasters linked to climate change are adding to the burden on the economy, damaging infrastructure, and disrupting supply chains (Hussain et al., 2023).

In this context, an appropriate and effective policy response becomes very important. Governments and international institutions are trying to find a balanced solution between maintaining economic growth, stabilizing markets, and protecting society. Fiscal and monetary policy, structural reform, and international cooperation are critical topics of discussion. However, the challenge is to formulate strategies that can address short-term problems without compromising long-term sustainability (Dirani et al., 2020). In addition, 2023 is an important year for understanding how digitalization and technological innovation can affect the global economy. Technological developments such as artificial intelligence, blockchain, and the Internet of Things (IoT) continue to change the global economic and market landscape, creating new opportunities but also new risks and uncertainties (Dwivedi et al., 2023).

Taking all these factors into consideration, research on economic instability and global market fluctuations in 2023 becomes very relevant. Understanding the causes, impacts, and policy responses to this phenomenon is not only important for academic analysis but also for more informed and effective policymaking in the future. This study seeks to provide insight into the complex and rapidly changing dynamics of the global economy, provide a deeper understanding of how various factors interact in the global economy, and identify strategic steps that can be taken to face emerging challenges.

B. LITERATURE REVIEW

1. Economic Instability

Economic instability is a phenomenon in which the economy of a country or region faces instability characterized by extreme and often unpredictable changes in various key economic indicators such as gross domestic product (GDP), inflation rate, currency exchange rate, unemployment rate, and investment rate (Luiz & Barnard, 2022). This condition illustrates the inability of the economy to maintain consistent growth and control important variables, causing uncertainty and risk for economic actors such as consumers, investors, and entrepreneurs. Significant economic

fluctuations, high and unstable inflation, exchange rate volatility, high and fluctuating unemployment rates, and investment uncertainty are some of the main characteristics of economic instability (Tarkom & Ujah, 2023).

Other factors contributing to this instability include instability in specific sectors, fiscal imbalances characterized by large budget deficits and rising public debt, and government economic policies that change frequently and are perceived as ineffective. External factors such as changes in global commodity prices, geopolitical tensions, or international financial crises can also cause or worsen these conditions. Economic instability not only affects economic aspects but also has broad social impacts, including increasing inequality and poverty, as well as social dissatisfaction (Maweje & Odhiambo, 2021). Financial market volatility, such as stock and bond market volatility, often reflects or exacerbates these conditions. The government's response, whether through monetary or fiscal policy, also plays an important role in worsening or improving economic conditions. Understanding and addressing economic instability is key to reducing economic risks and creating a more stable environment for long-term growth and development (Ma & Lv, 2023).

Additionally, economic instability often results from excessive uncertainty in the markets, which can be triggered by various factors including changes in government policy, political uncertainty, or even rumors and speculation in financial markets. For example, inconsistent fiscal and monetary policies can cause investors and businesses to lose confidence in the economy, resulting in decreased investment and consumption (Ahmed & Sarkodie, 2021). This in turn can lead to a decrease in economic output and an increase in unemployment. External factors such as economic crises in other countries or drastic changes in global commodity prices can also affect a country's economic stability, especially for countries that are highly dependent on the export or import of certain commodities. Therefore, economic resilience to external shocks is also an important aspect of evaluating a country's economic stability (Khan et al., 2023).

The impact of economic instability is not only limited to the financial sector but also extends to all aspects of social and economic life. For example, economic instability can lead to lower living standards, increase income inequality, and worsen conditions of poverty. It can also cause prolonged uncertainty in individuals' daily lives, affecting decisions such as investing in education, purchasing a home, or family planning (Rabbani et al., 2021). On the other hand, economic stability is an important foundation for long-term development and sustainability. Governments and policymakers should focus on creating policies that stimulate stable economic growth, control inflation, and reduce unemployment. This policy must be accompanied by measures to increase the economy's resilience to external shocks, such as economic diversification, strengthening the financial system, and investment in social and economic infrastructure (Kiseľáková et al., 2020).

2. Market Fluctuations

Market fluctuation is a concept that refers to changes or movements in prices and values in financial markets, which can include stock markets, bond markets, foreign exchange markets (forex), and commodity markets. These fluctuations are a natural phenomenon in a market economy and are the result of the interaction of various economic, political, social, and psychological factors. These fluctuations can occur on a variety of time scales, from very short daily changes to long-term trends lasting several years (Korley & Giouvriss, 2021). Market fluctuations are the result of changes in the supply and demand for assets in the market. When demand for a particular asset increases, its price tends to rise; conversely, when demand decreases, prices tend to fall. Asset supply also plays a role; an increase in supply, without an equivalent increase in demand, usually causes prices to fall. The factors influencing this supply and demand are diverse and can include macroeconomic conditions such as GDP growth rates, inflation rates, central bank monetary policy, interest rates, labor market conditions, and the fiscal health of governments (Boufateh & Saadaoui, 2021).

Other factors that influence market fluctuations include geopolitical events, such as elections, wars, conflicts, and international tensions, which can create uncertainty among investors and influence market behavior. Company decisions and reports, such as earnings reports and announcements about mergers or acquisitions, can also influence the market's perception of the company's value and cause fluctuations in its stock price (Talbi et al., 2022). In addition, psychological factors and investor behavior also play an important role in market fluctuations. For example, excessive optimism or pessimism can lead to market bubbles or market crashes. Bubbles occur when asset prices rise far above their intrinsic value due to investors' excessive expectations, while market crashes occur when asset prices fall sharply over a short period, often as a result of panic selling (Woo et al., 2020).

Markets are also influenced by technical phenomena such as algorithmic trading patterns, where computers use sophisticated algorithms to execute trades based on specific market conditions. This kind of trading can increase market volatility due to the large number of transactions that can occur in a very short period. Market fluctuations are an important component of a free market system and provide valuable information about how various economic, political, and psychological factors affect asset values (Hilbert & Darmon, 2020). For investors, understanding and being able to navigate market fluctuations is key to making effective investment decisions. However, these fluctuations also carry risks, and investors need to balance potential gains with the risks associated with market volatility. Risk management strategies, such as portfolio diversification and fundamental analysis, can help investors reduce the negative impact of market fluctuations (Thakkar & Chaudhari, 2021).

C. METHOD

The method used in this research is a descriptive qualitative approach, which aims to describe and analyze economic instability and global market fluctuations in 2023. This approach was chosen because it allows for an in-depth understanding of

the complex and multi-layered dynamics behind the economic phenomena being studied. Data for this research was obtained from various sources, including the results of relevant and reliable research or previous studies. After the data is collected, the next step is processing the data. This process involves a detailed analysis of the information obtained, intending to identify patterns, trends, and cause-and-effect relationships in the context of economic instability and market fluctuations. This analysis is carried out carefully to ensure that every conclusion drawn is based on strong evidence and arguments. Thus, it is hoped that the research results will provide valuable insight into the causes, impacts, and policy responses to the economic challenges faced in 2023. This method also makes it possible to explore solutions and strategies that can be adopted to overcome this complex economic problem (Sarosa, 2021).

D. RESULT AND DISCUSSION

1. Factors Driving Economic Instability and Market Fluctuations in 2023

In 2023, economic instability and global market fluctuations can be understood through the lens of several key factors interacting on a large scale. One of the main drivers of this instability is the impact of monetary and fiscal policies implemented by major central banks and governments around the world. Monetary policy, in particular, such as interest rate adjustments and open market operations, has a direct impact on market liquidity conditions and investor psychology. On the one hand, some central banks may have adopted a stricter approach to tackling inflation, which could result in tightening credit conditions and reduced investment. On the other hand, some maintain a loose monetary policy to support economic growth, even though this could pose a risk of inflation. Meanwhile, fiscal policy, which includes government spending and tax policy, is also an important tool in managing economic momentum. The balance between fiscal stimulus to encourage growth and efforts to maintain fiscal stability is a challenge for many countries.

In addition, the influence of the previous COVID-19 pandemic continues to have a residual impact on the global economy. Although most countries have begun to recover, the long-term effects of the pandemic on supply chains, consumer behavior, and the labor sector are still being felt (Nandi et al., 2021). For example, supply chain disruptions have led to increased production costs and inflation in some sectors, while changes in work and consumption habits are affecting demand in various industries. Uncertainty regarding the potential for the next wave of the pandemic or the emergence of new variants also adds to uncertainty in the market.

Changing geopolitical dynamics are also an important factor in creating market fluctuations in 2023. Geopolitical conflicts and tensions between countries have caused market uncertainty, both directly and indirectly. For example, military conflict or political tensions can disrupt trade and investment flows, and increase political risks for investors. In addition, economic sanctions and protectionist policies adopted by some countries in response to these tensions could disrupt global trade and investment flows, exacerbating market uncertainty.

Finally, changes in commodity prices, especially oil, gas, and other important commodities, have contributed significantly to global economic instability in 2023. Because many economies depend on these commodities both for domestic consumption and as a source of export income, price fluctuations can have large ripple effects. For example, rising oil prices can lead to increased production costs and inflation, while falling prices can harm oil-exporting countries. These fluctuations not only affect the energy sector, but also have an impact on transportation costs, manufacturing, and even on the monetary and fiscal policies of the countries concerned.

Taking these factors into account, it becomes clear that economic instability and market fluctuations in 2023 are the result of a complex set of interrelated factors. From monetary and fiscal policy, the ongoing impact of the COVID-19 pandemic, and changing geopolitical dynamics, to changes in commodity prices, every element contributes to a global economic environment that is not only dynamic but also highly uncertain. Understanding the interactions between these factors is important for formulating effective policy responses and mitigating potential negative impacts.

2. Impact of Economic Instability on Economic Sectors

The economic instability that will occur in 2023 has had a significant impact on various economic sectors, starting from financial markets to broader socio-economic impacts. In financial markets, fluctuations in stocks, bonds, and other financial instruments have created a highly volatile and uncertain environment. This instability, which is often triggered by policy uncertainty, geopolitical conflict, or macroeconomic events, causes investors to experience difficulties in making investment decisions (Gupta et al., 2022). High volatility in stock markets can affect the value of investment portfolios and individual wealth, while in bond markets, interest rate fluctuations can affect borrowing and funding costs for governments and companies. This condition not only affects investors and companies but also has broader implications for economic confidence and financial stability.

The impact of this instability also spreads to the macroeconomy. Economic growth in various countries has come under pressure, with some experiencing slowdowns or even recessions. Instability often leads to a decline in investment and consumption, two important components of economic growth. Additionally, unemployment rates have risen in many regions, as companies respond to uncertainty by reducing hiring or laying off workers. Inflation, on the other hand, is a complex phenomenon, where in some places it increases due to cost pressures, and in others, it is controlled or even turns into deflation due to weak demand.

In the context of the business and industrial sectors, economic instability has had various impacts. The manufacturing industry, for example, is often hit by falling demand and disruptions to supply chains. The technology sector, while at times shielded from the immediate impact, is also feeling the pressure from changing investment and consumption patterns. Service industries, especially those dependent on consumer trust such as tourism and retail, have faced significant challenges.

Prolonged uncertainty can result in reduced business activity, project delays, and negative impacts on revenues and profits.

At a broader level, economic instability also has profound socio-economic impacts. Poverty levels in many countries are increasing as a result of unemployment and reduced incomes. Income inequality, already a serious problem in many places, was exacerbated by the economic crisis's uneven impact among various socio-economic groups. Social stability is also at stake, with public dissatisfaction increasing due to economic injustice and social inequality. In some cases, this can trigger protests or political instability, which in turn can worsen economic conditions.

Through analysis of these various impacts, it becomes clear that the economic instability that will occur in 2023 has given rise to a series of interrelated challenges, affecting various aspects from financial markets to the socio-economic conditions of society. These impacts are not limited to one sector or group, but also propagate through the economy as a whole, creating feedback cycles that can worsen conditions of instability if not addressed with appropriate policies.

3. Analysis of Policy Responses to Economic Instability

In facing the economic instability that will occur in 2023, policy responses, both at the monetary and fiscal levels, as well as structural reforms and international cooperation, have become crucial aspects in efforts to stabilize economic conditions and minimize their negative impacts (Coccia, 2022). Central banks in various countries have taken strategic steps in their monetary policies, with the main focus being interest rate adjustments and market liquidity management. On the one hand, some central banks face the challenge of raising interest rates to control inflation, while on the other hand, they also need to keep liquidity in the market to prevent credit bottlenecks and support economic activity. This policy must be implemented carefully to avoid worsening already unstable economic conditions.

In the aspect of fiscal and budgetary policies, governments in various countries are taking important steps to stimulate the economy and reduce the negative impact of this instability. Fiscal stimulus packages, increased government spending on infrastructure, and support for the worst-hit sectors are some of the steps that have been taken. This fiscal policy aims to increase aggregate demand and maintain or create jobs while considering long-term budget balance and state debt sustainability.

Furthermore, long-term structural and policy reforms have become an important part of the government's response to economic challenges. This reform covers various aspects, ranging from improving labor market regulations and increasing public sector efficiency to reforms in the education and health sectors. The aim is to create a stronger foundation for stable and sustainable economic growth, as well as increase economic competitiveness and productivity. Although these structural reforms often take longer to show results, they are key to ensuring long-term economic stability.

Finally, the role of international and multilateral cooperation cannot be ignored in overcoming global economic challenges. International organizations such as the

International Monetary Fund (IMF), World Bank, and regional organizations have played an important role in providing financial, technical, and policy support to countries in need. Cooperation between countries, whether in the form of policy dialogue, information exchange, or cooperation in dealing with issues such as tax avoidance and international financial regulation, is also crucial. In an interconnected global environment, no country can address economic challenges independently. Therefore, international cooperation and coordination are key to achieving effective and sustainable solutions.

Overall, policy responses to economic instability in 2023 have included various strategies and approaches, each of which has an important role in efforts to stabilize the economy. The combination of prudent monetary policy, proactive fiscal policy, long-term structural reforms, and effective international cooperation is an integral part of responding to and overcoming these complex and interrelated economic challenges.

4. The Influence of Technology and Innovation in the Global Economic Context

In the context of the global economy, the influence of technology and innovation has become a key factor defining the modern economic landscape. Digital transformation, in particular, has significantly changed the way the economy and business work. Digitalization has enabled companies to operate more efficiently, reach a wider market, and offer more personalized and responsive service to customers (Van Veldhoven & Vanthienen, 2022). From e-commerce to fintech, digitalization has created new business models and transformed existing industries. For example, advances in e-commerce have revolutionized the retail sector, while fintech has transformed the financial sector with online payment services, digital banking, and cryptocurrencies.

Furthermore, technologies such as artificial intelligence (AI) and big data have played an important role in market stability. AI and advanced algorithms are used to analyze market trends, predict fluctuations, and make more precise and faster trading decisions. The use of big data in economic and financial analysis allows stakeholders to understand complex patterns in big data and make more informed decisions based on the analysis. This technology not only strengthens financial markets but also helps companies in various sectors to make better strategic decisions.

Technological innovation also acts as a major catalyst for future economic growth. Discoveries and advanced technological applications in fields such as renewable energy, biotechnology, and nanotechnology, are expected to bring about significant changes in the way we live and work. This innovation not only drives economic growth through the creation of new industries and jobs but also contributes to solutions to global challenges such as climate change and public health. For example, the development and adoption of renewable energy such as solar and wind power has great potential in strengthening energy security and reducing dependence on fossil fuels.

However, technological innovation also brings risks and uncertainties. New technological developments are often accompanied by regulatory challenges, cybersecurity, and ethical issues. For example, concerns over data privacy and the use of AI in decision-making have sparked public debate and demands for stricter regulation. Additionally, there are concerns that automation and AI could lead to large-scale job dislocations. This uncertainty requires ongoing dialogue between stakeholders, including government, industry, and civil society, to ensure that technological innovation provides maximum benefits while minimizing negative impacts.

Technology and innovation have played and will continue to play an important role in shaping the global economy. From facilitating digital transformation to fueling economic growth through innovations, technology's impact on the economy is far-reaching. However, there must be a balanced approach to capitalize on the opportunities offered by technology while addressing emerging challenges and risks. Active engagement of various sectors and effective policy coordination will be key in ensuring that technological innovation leads to positive and inclusive outcomes for the global economy.

E. CONCLUSION

This research finds that economic instability and global market fluctuations in 2023 have been influenced by various complex factors. The impact of monetary and fiscal policies, the ongoing influence of the COVID-19 pandemic, geopolitical dynamics, and changes in commodity prices have contributed significantly to global economic instability. This impact manifests in various forms, including financial market volatility, disruption to the macro economy including economic growth, unemployment rates, and inflation, as well as substantial impacts on business and industrial sectors. Moreover, the socio-economic consequences of this instability, such as increasing poverty and income inequality, highlight the importance of effective and comprehensive policy responses. Policy responses, both at the monetary and fiscal levels, together with structural reforms and international cooperation, have been key instruments in overcoming the challenges arising from this instability. Monetary policy strategies adopted by central banks, fiscal measures by governments, as well as structural reforms and long-term policies, all aim to restore stability and stimulate economic growth. On the other hand, the influence of technology and innovation has shown significant potential in shaping the future of the global economy, despite its inherent risks and uncertainties. Overall this analysis emphasizes the importance of a deep understanding of the various factors influencing the global economy and the need for a multidimensional approach in formulating policy responses to promote stability and sustainable growth.

REFERENCES

1. Ahmed, M. Y., & Sarkodie, S. A. (2021). COVID-19 pandemic and economic policy uncertainty regimes affect commodity market volatility. *Resources policy*, *74*, 102303.
2. Boufateh, T., & Saadaoui, Z. (2021). The time-varying responses of financial intermediation and inflation to oil supply and demand shocks in the US: Evidence from Bayesian TVP-SVAR-SV approach. *Energy Economics*, *102*, 105535.
3. Coccia, M. (2022). Preparedness of countries to face covid-19 pandemic crisis: Strategic positioning and underlying structural factors to support strategies of prevention of pandemic threats. *Environmental Research*, *203*(111678), 10-1016.
4. Dirani, K. M., Abadi, M., Alizadeh, A., Barhate, B., Garza, R. C., Gunasekara, N., ... & Majzun, Z. (2020). Leadership competencies and the essential role of human resource development in times of crisis: a response to Covid-19 pandemic. *Human resource development international*, *23*(4), 380-394.
5. Dwivedi, Y. K., Sharma, A., Rana, N. P., Giannakis, M., Goel, P., & Dutot, V. (2023). Evolution of artificial intelligence research in Technological Forecasting and Social Change: Research topics, trends, and future directions. *Technological Forecasting and Social Change*, *192*, 122579.
6. Gupta, V., Santosh, K. C., Arora, R., Ciano, T., Kalid, K. S., & Mohan, S. (2022). Socioeconomic impact due to COVID-19: An empirical assessment. *Information Processing & Management*, *59*(2), 102810.
7. Hilbert, M., & Darmon, D. (2020). How complexity and uncertainty grew with algorithmic trading. *Entropy*, *22*(5), 499.
8. Hussain, S. A., Razi, F., Hewage, K., & Sadiq, R. (2023). The perspective of energy poverty and 1st energy crisis of green transition. *Energy*, *275*, 127487.
9. Khan, K., Khurshid, A., & Cifuentes-Faura, J. (2023). Investigating the relationship between geopolitical risks and economic security: Empirical evidence from central and Eastern European countries. *Resources Policy*, *85*, 103872.
10. Kiseľáková, D., Filip, P., Onuferova, E., & Valentiny, T. (2020). The impact of monetary policies on the sustainable economic and financial development in the euro area countries. *Sustainability*, *12*(22), 9367.
11. Korley, M., & Giouvris, E. (2021). The regime-switching behaviour of exchange rates and frontier stock market prices in Sub-Saharan Africa. *Journal of Risk and Financial Management*, *14*(3), 122.
12. Luiz, J. M., & Barnard, H. (2022). Home country (in) stability and the locational portfolio construction of emerging market multinational enterprises. *Journal of Business Research*, *151*, 17-32.
13. Ma, Y., & Lv, L. (2023). Financial development, financial instability, and fiscal policy volatility: International evidence. *The North American Journal of Economics and Finance*, *64*, 101873.
14. Maweje, J., & Odhiambo, N. M. (2021). Uganda's fiscal policy reforms: What have we learned?. *Public Budgeting & Finance*, *41*(2), 89-107.

15. Nandi, S., Sarkis, J., Hervani, A. A., & Helms, M. M. (2021). Redesigning supply chains using blockchain-enabled circular economy and COVID-19 experiences. *Sustainable Production and Consumption*, 27, 10-22.
16. Olamide, E., Ogujiuba, K., & Maredza, A. (2022). Exchange rate volatility, inflation and economic growth in developing countries: Panel data approach for SADC. *Economies*, 10(3), 67.
17. Rabbani, M. R., Bashar, A., Nawaz, N., Karim, S., Ali, M. A. M., Rahiman, H. U., & Alam, M. S. (2021). Exploring the role of islamic fintech in combating the aftershocks of covid-19: The open social innovation of the islamic financial system. *Journal of Open Innovation: Technology, Market, and Complexity*, 7(2), 136.
18. Sarosa, S. (2021). *Analisis data penelitian kualitatif*. Pt Kanisius.
19. Shahzad, U., Mohammed, K. S., Tiwari, S., Nakonieczny, J., & Nesterowicz, R. (2023). Connectedness between geopolitical risk, financial instability indices and precious metals markets: Novel findings from Russia Ukraine conflict perspective. *Resources Policy*, 80, 103190.
20. Talbi, D., Chaibi, H., & Maoueti, A. (2022). Political uncertainty, financial crises, and stock market volatility: Evidence from MENA region. *Journal of Public Affairs*, 22, e2783.
21. Tarkom, A., & Ujah, N. U. (2023). Global policy uncertainty and working capital management: Does national culture matter?. *Technological Forecasting and Social Change*, 196, 122869.
22. Thakkar, A., & Chaudhari, K. (2021). A comprehensive survey on deep neural networks for stock market: The need, challenges, and future directions. *Expert Systems with Applications*, 177, 114800.
23. Tung, R. L., Zander, I., & Fang, T. (2023). The Tech Cold War, the multipolarization of the world economy, and IB research. *International Business Review*, 102195.
24. Van Veldhoven, Z., & Vanthienen, J. (2022). Digital transformation as an interaction-driven perspective between business, society, and technology. *Electronic Markets*, 32(2), 629-644.
25. Woo, K. Y., Mai, C., McAleer, M., & Wong, W. K. (2020). Review on efficiency and anomalies in stock markets. *Economies*, 8(1), 20.