UDC 339.9:330.34(477)
JEL Classification: E20; H56; O10

FRAGMENTATION OF GLOBALIZED ECONOMY AND MACROECONOMIC COST OF THE WAR IN UKRAINE

©2024 **ZHYVKO M. A.**

UDC 339.9:330.34(477)
JEL Classification: E20; H56; O10

Zhyvko M. A.

Fragmentation of Globalized Economy and Macroeconomic Cost of the War in Ukraine

This article provides a comprehensive analysis of the fragmentation of the globalized economy and the macroeconomic costs stemming from the war in Ukraine. The conflict has had far-reaching consequences, disrupting global supply chains, trade flows, and economic stability. The research delves into the specific impacts on various sectors, including energy, agriculture, and technology, showcasing the intricate interdependencies of the modern global economy and how regional conflicts can reverberate worldwide. Using a blend of quantitative data and qualitative insights, the article details the significant disruptions in energy markets, which have led to soaring oil and gas prices and exacerbated inflationary pressures globally. It also examines the critical blockade of Ukrainian agricultural exports, which has heightened food security concerns, especially in developing countries. Moreover, the article explores the broader implications for international trade and investment. It discusses how the fragmentation of global supply chains has forced businesses to reevaluate their reliance on single-source suppliers, resulting in a reconfiguration of production networks. The war has also highlighted vulnerabilities in global financial systems, with increased market volatility and heightened risk aversion among investors. In addressing these challenges, the article emphasizes the importance of coordinated policy responses and international cooperation. It underscores the need for diplomatic efforts to restore stability and mitigate the adverse economic effects of the conflict. The findings advocate for enhanced economic resilience through collaborative international strategies, recognizing the necessity of a united approach in addressing the complexities of geopolitical conflicts in an interconnected world.

Keywords: *fragmentation, globalized economy, macroeconomic costs, war in Ukraine, supply chain disruption, energy markets, agricultural exports, trade flows, economic stability, geopolitical risks, international cooperation.*

DOI: *https://doi.org/10.32983/2222-0712-2024-3-15-30*

Fig.: *7.* ***Tabl.:*** *3.* ***Bibl.:*** *32.*

Zhyvko Maksym A. *– Candidate of Sciences (Economics), Deputy Director of the B. Havrylyshyn Education and Research Institute of International Relations, West Ukrainian National University (11 Lvivska Str., 46009, Ukraine)*

E-mail: *m.zhyvko@wunu.edu.ua*

ORCID: *https://orcid.org/0000-0002-7663-5737*

Scopus Author ID: *https://www.scopus.com/authid/detail.uri?authorId=36070212500*

УДК 339.9:330.34(477)
JEL Classification: E20; H56; O10

Живко М. А. Фрагментація глобалізованої економіки та макроекономічна ціна війни в Україні

У статті проведено комплексний аналіз фрагментації глобалізованої економіки та макроекономічних показників, спричинених війною в Україні, оскільки конфлікт має далекосяжні наслідки, порушивши глобальні ланцюги поставок, торговельні потоки та економічну стабільність. Досліджено конкретні наслідки для різних секторів, зокрема енергетику, сільське господарство та технології, демонструючи складні взаємозалежності сучасної глобальної економіки та те, як регіональні конфлікти можуть охопити весь світ. Описано збої на енергетичних ринках, які призвели до стрімкого зростання цін на нафту та газ і посилили інфляційний тиск у всьому світі. Розглянуто блокаду експорту української сільськогосподарської продукції, яка посилила занепокоєння щодо глобальної продовольчої безпеки, особливо в країнах, що розвиваються. Проаналізовано наслідки для міжнародної торгівлі та інвестицій. Обґрунтовано, що фрагментація глобальних ланцюгів постачання змусила підприємства переглянути свою залежність від єдиних постачальників, що призвело до реконфігурації виробничих мереж. Війна також виявила вразливі місця в глобальній фінансовій системі, збільшивши волатильність ринку та посиливши несхильність до ризиків серед інвесторів. Запропоновано шляхи вирішення цих викликів через важливість скоординованих політичних заходів і міжнародного співробітництва. Підкреслено необхідність дипломатичних зусиль для відновлення стабільності та пом'якшення негативних економічних наслідків конфлікту. Отримані висновки свідчать про підвищення економічної стійкості за допомогою спільних міжнародних стратегій, визначаючи необхідність єдиного підходу до вирішення складних геополітичних конфліктів у глобалізованому світі.

Ключові слова: *фрагментація, глобалізована економіка, макроекономічні витрати, війна в Україні, порушення ланцюгів постачання, енергетичні ринки, глобальна продовольча безпека, експорт сільськогосподарської продукції, торговельні потоки, економічна стабільність, геополітичні ризики, міжнародна співпраця.*

Рис.: *7.* ***Табл.:*** *3.* ***Бібл.:*** *32.*

Живко Максим Андрійович *– кандидат економічних наук, заступник директора Навчально-наукового інституту міжнародних відносин імені Б. Д. Гаврилишина, Західноукраїнський національний університет (вул. Львівська, 11, Тернопіль, 46009, Україна)*

E-mail: *m.zhyvko@wunu.edu.ua*

ORCID: *https://orcid.org/0000-0002-7663-5737*

Scopus Author ID: *https://www.scopus.com/authid/detail.uri?authorId=36070212500Introduction*

The global economy, characterized by interdependence and integration, has been significantly impacted by various geopolitical events over the years. Among the most profound and far-reaching disruptions in recent times is the war in Ukraine. This conflict has not only resulted in tragic human suffering and displacement but has also triggered a complex set of economic consequences that ripple through the global economic system. The fragmentation of the globalized economy, a phenomenon that was already gaining momentum due to rising protectionism and geopolitical tensions, has been exacerbated by the war, leading to substantial macroeconomic costs that are being felt worldwide.

Globalization has long been a defining feature of the modern world economy, promoting unprecedented levels of trade, investment, and economic interdependence among nations. However, the benefits of globalization have been unevenly distributed, leading to economic disparities and social tensions within and between countries. Over the past decade, there has been a noticeable shift towards economic nationalism and protectionist policies, challenging the notion of a seamlessly integrated global economy. The COVID-19 pandemic further highlighted vulnerabilities in global supply chains, prompting a reevaluation of the benefits and risks associated with deep economic interconnections.

The war in Ukraine, which began in 2022, has introduced a new and severe shock to the global economic system. The conflict has led to widespread destruction and disruption within Ukraine, causing significant human and economic losses. Beyond its immediate impact on Ukraine, the war has also disrupted global supply chains, particularly in critical sectors such as energy, agriculture, and raw materials. Ukraine and Russia are major exporters of grains, fertilizers, and energy resources, and the conflict has led to supply shortages and increased prices worldwide. Sanctions imposed on Russia by Western countries have further complicated the economic landscape. These sanctions, while aimed at exerting economic pressure on Russia, have had unintended consequences for global trade and investment flows. Companies and investors have had to navigate a complex web of restrictions, leading to reduced trade volumes, increased transaction costs, and heightened uncertainty.

The macroeconomic costs of the war in Ukraine are multifaceted and substantial. One of the most immediate impacts has been the surge in energy prices. Russia is one of the world's largest producers of oil and natural gas, and disruptions to its exports have caused significant price volatility in global energy markets. This has translated into higher costs for businesses and consumers, contributing to inflationary pressures in many economies.

Food security has also become a pressing concern. Ukraine and Russia are key suppliers of agricultural products, including wheat and corn. The war has disrupted planting and harvesting cycles, leading to reduced agricultural output and higher food prices. Developing countries, which are heavily dependent on imported foodstuffs, are particularly vulnerable to these disruptions.

In addition to these direct economic impacts, the war has exacerbated existing geopolitical tensions and contributed to the erosion of trust in international institutions and cooperation. This has led to increased fragmentation of the global economy, as countries and regions pursue more insular and protectionist policies in an attempt to shield themselves from external shocks.

Analysis of publications. The fragmentation of the globalized economy and the macroeconomic cost of the war in Ukraine are topics that have garnered significant attention in recent academic and policy-oriented literature. This analysis aims to synthesize key findings from a broad range of publications, highlighting the various dimensions of economic fragmentation and the multifaceted impacts of the conflict in Ukraine on the global economy.

Several studies have examined the recent trends in globalization and economic fragmentation. The literature suggests a growing skepticism towards globalization, driven by the rise of economic nationalism, trade wars, and the COVID-19 pandemic. Baldwin R. and Freeman R. argue that the pandemic exposed the vulnerabilities of global supply chains, leading to calls for more resilient and localized production systems [1]. This shift is seen as a form of economic fragmentation, where nations seek to reduce their dependency on global networks and focus on regional or national self-sufficiency.

The Peterson Institute for International Economics (PIIE) provides an in-depth analysis of how geopolitical tensions, particularly between major powers such as the United States and China, have further accelerated economic fragmentation [2]. The research highlights the strategic decoupling in critical sectors like technology and manufacturing, which has significant implications for global trade and investment patterns.

The literature on the economic impacts of the war in Ukraine is rapidly expanding. Early analyses, such as those by the International Monetary Fund and the World Bank, focus on the immediate macroeconomic consequences of the conflict [3; 4]. These publications provide data on GDP contraction in Ukraine, the effects of sanctions on Russia, and the broader spillover effects on global markets.

A comprehensive report by the European Bank for Reconstruction and Development details the disruption of key supply chains, particularly in energy and agriculture [5]. The report notes that Ukraine and Russia are critical exporters of grains, fertilizers, and energy resources, and the war has led to significant shortages and price increases in these markets. The EBRD's analysis underscores the vulnerability of developing countries to these disruptions, as they are heavily dependent on imports of these essential goods.

The surge in energy prices is a recurrent theme in the literature. According to a report by the International Energy Agency, the war in Ukraine has led to unprecedented volatility in global energy markets [6]. Sanctions on Russian oil and gas exports have created supply shortages, pushing prices to record highs. This has had a cascading effect on inflation rates worldwide, as energy costs are a critical input for various industries.

A further analysis by the Goldman Sachs Group explores the inflationary pressures stemming from higher energy and food prices [7]. The report highlights that the combination of supply chain disruptions and increased production costs has led to a significant rise in consumer prices, exacerbating the economic burden on households and businesses.

Food security is another major concern highlighted in the literature. A research by the Abay, K. A., Breisinger, C., Glauber, J., Kurdi, S., Laborde, D., Siddig, K. examines the impact of the war on global food supplies [8]. The research reveals that the conflict has disrupted the planting and harvesting cycles in Ukraine, one of the world's largest grain producers. Coupled with sanctions on Russian agricultural exports, this has led to reduced availability and higher prices for key commodities such as wheat and corn.

Research by the World Food Programme emphasizes the severe implications for food security in developing countries [9]. The WFP report warns of potential famine conditions in regions heavily reliant on imported grains, stressing the need for international cooperation to address these humanitarian crises.

The broader geopolitical and economic shifts resulting from the war in Ukraine are a significant focus of recent publications. An analysis by the Center for Strategic and International Studies [10] discusses the realignment of international alliances and economic blocs. The report suggests that the war has accelerated the formation of new geopolitical coalitions, with countries seeking to reduce their reliance on adversarial powers and strengthen regional partnerships.

In a similar vein, a research by the Brookings Institution explores the implications of increased economic fragmentation for global governance [11]. The authors argue that the erosion of trust in international institutions and the rise of unilateral policies are undermining multilateral cooperation. This fragmentation poses significant challenges for addressing global issues such as climate change, public health, and economic stability.

The literature also provides various policy recommendations to mitigate the macroeconomic costs of the war and address economic fragmentation. The OECD suggests enhancing global cooperation and dialogue to manage the economic fallout of the conflict [12]. The report advocates for targeted economic support to vulnerable countries and sectors, as well as measures to stabilize global energy and food markets.

Another significant contribution is the proposal for a new international framework for managing economic interdependence, put forth by the World Economic Forum [13]. The framework emphasizes the need for resilient and inclusive global supply chains, promoting diversification and redundancy to reduce vulnerability to shocks.

The current literature also identifies emerging trends and areas that warrant further research to better understand the ongoing fragmentation of the global economy and the macroeconomic costs of the war in Ukraine. Several key areas stand out:

One of the most critical areas of future research is the resilience and reconfiguration of global supply chains. Studies by Baldwin R. and Freeman R. [14] and the Boston Consulting Group highlight the need for companies to reassess their supply chain strategies to mitigate risks associated with geopolitical conflicts and other disruptions [15]. Research is needed to explore the effectiveness of various strategies, such as diversification, nearshoring, and the adoption of digital technologies to enhance supply chain visibility and flexibility.

The war in Ukraine has underscored the importance of energy security and the need for a transition to more sustainable energy sources. Publications by the International Renewable Energy Agency [16] and the World Energy Council [17] emphasize the dual challenge of ensuring energy security while accelerating the shift towards renewable energy. Future research should focus on the economic and technological pathways to achieve this transition, considering the geopolitical dynamics and potential disruptions in traditional energy markets.

The war has also had significant implications for global financial markets. The volatility induced by geopolitical uncertainties has affected investment flows, currency stability, and asset prices. Research by the Bank for International Settlements [18] and McKinsey & Company [19] suggests that further investigation is needed into the mechanisms through which geopolitical risks impact financial markets and the effectiveness of policy interventions to stabilize these markets. Understanding these dynamics is crucial for safeguarding financial stability in an increasingly fragmented world.

Beyond macroeconomic metrics, the humanitarian and social impacts of the war in Ukraine are profound and require in-depth analysis. The United Nations Development Programme [20] and the International Committee Of The Red Cross [21] have documented the severe humanitarian crises resulting from the conflict. Future research should explore the long-term social and economic consequences for displaced populations, including issues related to migration, integration, and the rebuilding of war-torn communities.

The disruption of trade and investment patterns is another area that demands closer scrutiny. Studies by the World Trade Organization [22] and the Peterson Institute for International Economics [23] highlight shifts in global trade flows and the reconfiguration of investment strategies. Future research should analyze the implications of these shifts for global economic growth, regional development, and the distribution of economic opportunities and challenges across different countries and sectors.

The article aims to provide a comprehensive analysis of the fragmentation of the globalized economy in the context of the war in Ukraine and to quantify the macroeconomic costs associated with this fragmentation. Specifically, the research will: examine the direct and indirect economic impacts of the war on Ukraine and the broader global economy; analyze the effects of supply chain disruptions and sanctions on global trade and investment flows; assess the implications of increased energy and food prices for inflation and economic stability; investigate the broader geopolitical and economic shifts that are contributing to the fragmentation of the global economy and provide policy recommendations for mitigating the negative economic consequences of the war and fostering greater economic resilience and cooperation.

The research will employ a mixed-methods approach, combining quantitative and qualitative analysis. Economic data from international organizations, national governments, and industry sources will be analyzed to quantify the macroeconomic impacts of the war. In addition, interviews with experts and stakeholders in affected sectors will provide insights into the broader geopolitical and economic implications of the conflict. This comprehensive approach will allow for a nuanced understanding of the complex and multifaceted nature of the economic fragmentation and the macroeconomic costs associated with the war in Ukraine.

The war in Ukraine represents a critical juncture for the globalized economy. As the world grapples with the immediate and long-term consequences of this conflict, it is essential to understand the dynamics of economic fragmentation and the associated macroeconomic costs. This research seeks to contribute to this understanding by providing a detailed analysis of the economic impacts of the war and offering insights into role of economists in policy-making to address these challenges and promote a more resilient and cooperative global economy.

The main material. Globalization, characterized by the interdependence of economies, has been a defining feature of the modern economic landscape. However, recent geopolitical events, particularly the war in Ukraine, have disrupted this globalized framework, leading to significant economic fragmentation. This paper aims to explore the fragmentation of the globalized economy and the macroeconomic costs associated with the war in Ukraine, with a particular focus on geopolitical risks.

Globalization has facilitated the free flow of goods, services, capital, and labor across borders, contributing to economic growth and development. The benefits of globalization include increased trade, technological advancements, and improved living standards. However, the global economic integration also means that local conflicts can have far-reaching implications.

The war in Ukraine, which began in 2022, has had profound implications not only for the countries directly involved but also for the global economy. The conflict has led to significant geopolitical tensions, with major powers such as the United States, the European Union, and Russia taking sides. The imposition of sanctions, trade restrictions, and the disruption of supply chains have all contributed to economic instability (Table 1).

The fragmentation of the globalized economy and the macroeconomic costs of the war in Ukraine underscore the profound impact of geopolitical risks on the global economic

Table 1

Key areas of fragmentation of the globalized economy, macroeconomic costs of the war in Ukraine and geopolitical risks

Fragmentation of the Globalized Economy	Trade Disruptions	The conflict has disrupted trade routes, particularly those involving energy supplies. Europe, heavily reliant on Russian gas, has faced significant challenges in securing alternative energy sources
	Sanctions and Trade Barriers	Economic sanctions imposed by Western countries on Russia have led to retaliatory measures, creating barriers to trade and investment. This has resulted in the reconfiguration of trade networks and the emergence of new economic blocs
	Supply Chain Disruptions	The war has disrupted global supply chains, particularly in sectors such as agriculture and manufacturing. Ukraine, a major exporter of grains and other agricultural products, has seen its exports plummet, leading to food security concerns worldwide
	Financial Instability	The conflict has led to significant financial market volatility. Investors, wary of geopolitical risks, have shifted their assets to safer havens, leading to capital flight and currency devaluations in affected regions
Macroeconomic Costs of the War in Ukraine	Economic Contraction	Both Ukraine and Russia have experienced severe economic contractions. The destruction of infrastructure, loss of human capital, and disruption of economic activities have led to significant declines in GDP
	Inflationary Pressures	The disruption of energy supplies and agricultural exports has led to increased prices for these commodities globally. This has resulted in inflationary pressures, affecting both developed and developing economies
	Unemployment and Social Costs	The war has led to widespread displacement and unemployment. Millions of people have been forced to flee their homes, creating a refugee crisis and putting additional pressure on neighboring countries
	Fiscal Strain	The need to finance military operations and reconstruction efforts has led to increased fiscal deficits. This has forced governments to cut spending in other areas, leading to reduced public services and social welfare
Geopolitical Risks and Their Economic Implications	Energy Security	The reliance on Russian energy supplies has exposed vulnerabilities in global energy security. Countries are now seeking to diversify their energy sources, leading to increased investments in renewable energy and alternative suppliers
	Global Trade Reconfiguration	The fragmentation of trade networks has led to the emergence of regional trade blocs. This reconfiguration poses risks to global trade, as countries may adopt protectionist measures to safeguard their economic interests
	Investment Uncertainty	Geopolitical tensions have created uncertainty for investors. The risk of asset seizures, sanctions, and other retaliatory measures has made investment in affected regions more risky, leading to reduced foreign direct investment
	Political Instability	The war has exacerbated political instability in several regions. The displacement of populations, economic hardships, and social unrest have the potential to destabilize neighboring countries and create further conflicts

Source: developed by the author

landscape. The conflict has disrupted trade, created financial instability, and led to significant economic and social costs. As the world grapples with these challenges, it is imperative to develop strategies to mitigate geopolitical risks and foster economic resilience. Addressing energy security, reconfiguring trade networks, and promoting political stability will be crucial in navigating the complex interplay between globalization and geopolitical conflicts.

Geopolitical risk refers to the economic and financial uncertainties that arise due to political events, conflicts, and instability. These risks have significant implications for the global economy, affecting everything from trade and investment to market stability and growth prospects.

Geopolitical risk is a multifaceted and complex phenomenon that encompasses a broad spectrum of events and developments (Table 2).

Table 2

Key Impacts of Understanding Geopolitical Risk

Political Conflicts and Wars	
Political conflicts and wars are among the most visible and disruptive sources of geopolitical risk. These events often lead to significant economic disruptions, as seen in the ongoing war in Ukraine. The invasion has caused widespread devastation, displacing millions of people and creating a humanitarian crisis. The economic repercussions extend beyond Ukraine's borders, affecting global supply chains, commodity prices, and investor confidence	
Disruption of Trade	Conflicts can halt trade routes and disrupt the flow of goods, leading to shortages and increased prices. For instance, the war in Ukraine has severely impacted the global supply of wheat and other agricultural products
Investment Declines	Uncertainty and instability deter foreign direct investment (FDI), as investors seek safer environments. The risk of asset expropriation, infrastructure damage, and political instability makes conflict zones unattractive for investment
Economic Contraction	War-torn regions experience significant economic contractions due to destruction of infrastructure, loss of human capital, and interrupted economic activities
Economic Sanctions	
Economic sanctions are a tool used by countries and international bodies to exert pressure on nations, often for political reasons. While sanctions aim to change behavior or policies, they can also lead to economic isolation and unintended consequences	
Trade Barriers	Sanctions can limit a nation's ability to export goods and access critical imports, leading to economic downturns. For example, sanctions on Iran have restricted its oil exports, significantly impacting its economy
Financial Isolation	Sanctions can sever a country's access to international financial systems, making it difficult to conduct cross-border transactions and attract foreign investment
Domestic Strain	Sanctions often lead to higher costs for domestic businesses and consumers, as access to foreign goods and capital is restricted
Terrorism and Civil Unrest	
Acts of terrorism and widespread civil unrest create significant geopolitical risk by destabilizing regions and undermining economic stability. These events can have both immediate and long-term effects on economies	
Investor Confidence	Terrorist attacks and civil unrest create an environment of uncertainty, reducing investor confidence and leading to capital flight. For instance, the 9/11 attacks caused a sharp decline in stock markets globally
Economic Disruption	Prolonged unrest disrupts daily economic activities, from manufacturing to retail operations, leading to economic slowdowns
Security Costs	Governments and businesses must increase spending on security measures, diverting resources from other productive uses
Regulatory and Policy Changes	
Sudden regulatory and policy changes can create an unpredictable business environment, adding to geopolitical risk.	
Nationalization of Industries	Governments may nationalize key industries, leading to loss of foreign investments and expertise. This was seen in Venezuela, where the nationalization of the oil industry led to significant economic challenges
Trade Policy Shifts	Changes in trade policies, such as the imposition of tariffs or withdrawal from trade agreements, can disrupt established trade relationships and increase costs for businesses. The U.S.-China trade war is a prominent example, leading to increased tariffs and market volatility
Regulatory Overhauls	Comprehensive regulatory changes can impose new compliance burdens on businesses, increasing operational costs and creating uncertainties
Diplomatic Tensions	
Diplomatic tensions between nations can escalate into broader economic confrontations, impacting global markets. These tensions can arise from various sources, including territorial disputes, ideological differences, and competition for resources	

End table 2

Trade Disputes	Diplomatic conflicts can lead to trade disputes, resulting in tariffs, quotas, and other trade barriers. The recent trade tensions between the United States and China have led to significant disruptions in global trade
Economic Retaliation	Countries involved in diplomatic conflicts may engage in economic retaliation, such as imposing sanctions or restricting access to markets. This can lead to economic fragmentation and reduced international cooperation
Market Volatility	Diplomatic tensions often lead to increased volatility in financial markets, as investors react to uncertainties and potential disruptions in global trade and investment flows

Source: developed by the author

Geopolitical risk is a complex and ever-evolving phenomenon that can arise from a wide range of events and developments. Understanding the sources and implications of these risks is crucial for policymakers, businesses, and investors. By recognizing the multifaceted nature of geopolitical risk, stakeholders can better anticipate potential disruptions and develop strategies to mitigate their impact, ensuring greater economic stability and resilience in an increasingly interconnected world (see Figure 1).

The Figure 1 depicts an index of geopolitical risk from 2000 to 2023, with notable geopolitical events marked by red vertical lines and annotated labels. The index is normalized to a value of 100 for the period 1985-2023. Here's an analysis and description of the figure: the y-axis represents the geopolitical risk index, with a baseline value of 100 for the period 1985-2023 and the x-axis shows the timeline from the year 2000 to 2023.

Key Events and Spikes: 9/11 Attack (2001) the first significant spike in the index, reaching a peak around 800. This event marks the terrorist attacks on the United States on September 11, 2001, which led to global economic and political ramifications. The U.S. air strike on Baghdad (2003), another noticeable peak occurs around 2003, corresponding to the U.S.-led invasion of Iraq. Libyan Civil War (2011), a smaller peak is visible around 2011, aligning with the outbreak of the Libyan Civil War during the Arab Spring. Invasion of Ukraine (2022), a significant spike occurs in early 2022, marking the Russian invasion of Ukraine, which has had profound geopolitical and economic impacts. Latest Conflict in the Middle East (2023), the most recent peak in the index in 2023, likely referring to an escalated conflict in the Middle East region.

Patterns and Trends: the index shows periods of relative stability interspersed with sharp spikes corresponding to major geopolitical events. After the 9/11 attack, the index gradually decreases but exhibits periodic increases due to other significant events. The trend towards the latter part of the timeline (2020 onwards) shows an overall increase in geopolitical risk, with notable peaks for the Ukraine invasion and the latest Middle East conflict. The index illustrates how sensitive the global economy is to geopolitical events. Each marked event corresponds to significant economic uncertainty and risk. Events such as the 9/11 attack and the invasion of Ukraine have global repercussions, leading to heightened geopolitical risk perceptions. The increasing frequency and intensity of spikes in recent years suggest a trend towards heightened geopolitical instability.

The Figure 1 effectively captures the fluctuations in geopolitical risk over the past two decades, highlighting the economic impact of major geopolitical events. The increasing

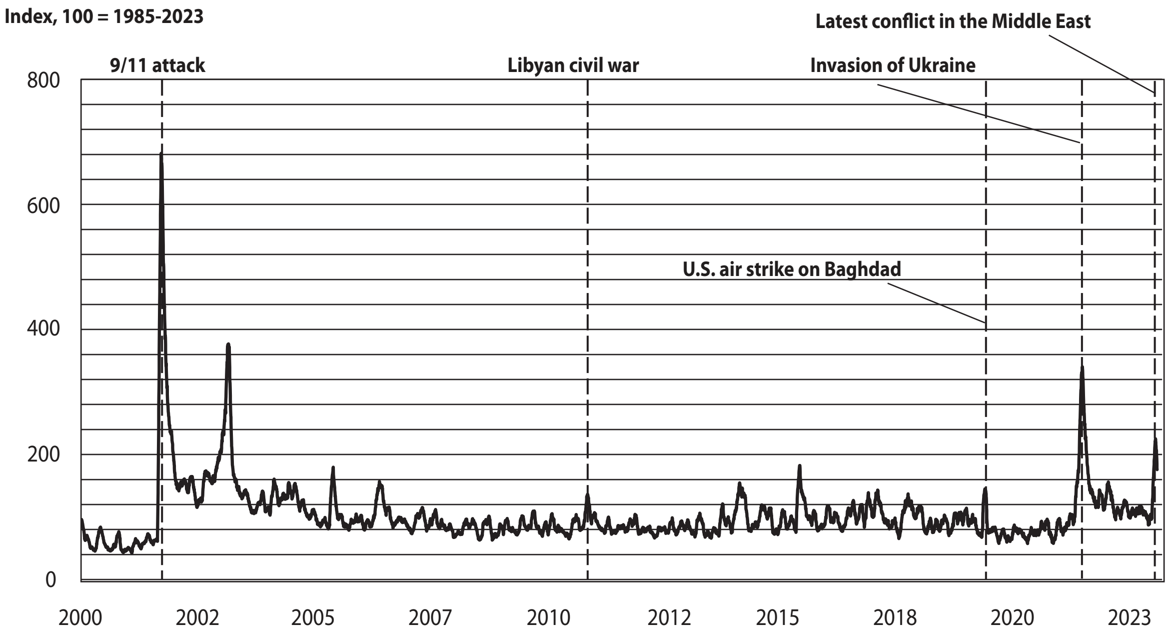

Fig. 1. Geopolitical risk index and conflicts 2000-2023

Source: [24]

trend in the index towards recent years underscores the need for heightened awareness and strategies to mitigate geopolitical risks in the global economy.

The conflict in Ukraine is anticipated to have profound implications for the global economy. A primary consequence of this war will be a marked increase in energy prices, driven by disruptions in supply and heightened geopolitical tensions. Additionally, the conflict is expected to erode confidence in economic stability and financial markets, leading to increased volatility and uncertainty. The imposition of rigorous international sanctions on Russia will further exacerbate these economic disruptions. These sanctions are likely to constrain global trade and investment, culminating in a potential decline in global GDP (see Figure 2). The economic burden of the conflict will be particularly severe in Europe, given its geographical proximity to Ukraine and its reliance on energy imports from the region.

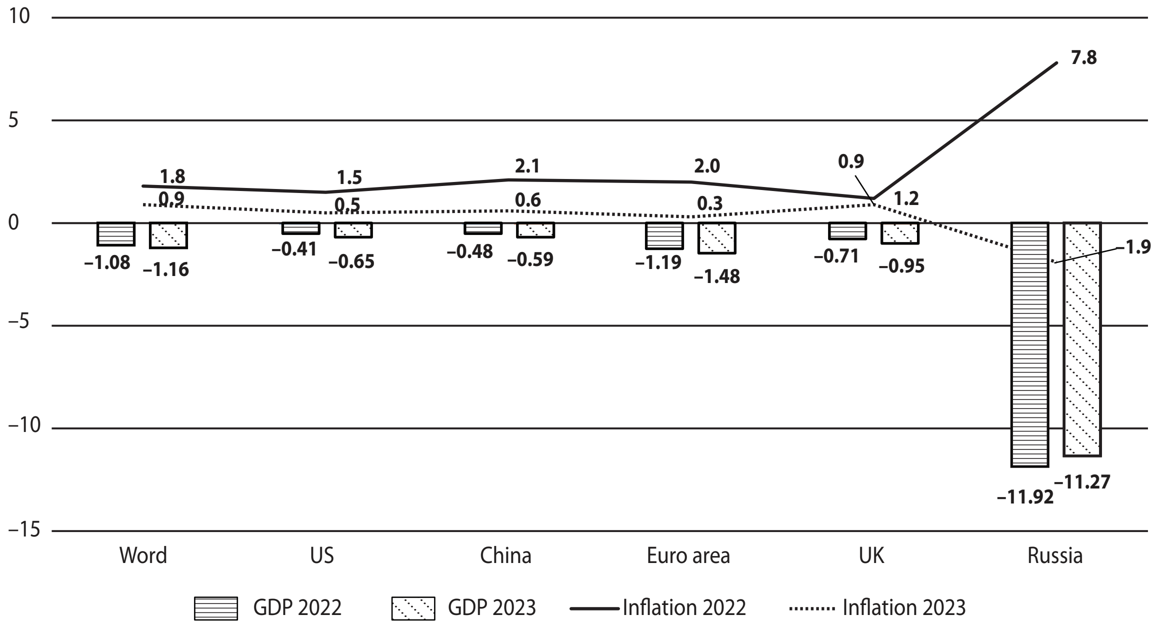

Fig. 2. The GDP and inflation cost of the war for the global economy

Source: [25]

European nations will be compelled to significantly augment public expenditure to address the humanitarian crisis resulting from the influx of Ukrainian refugees. Furthermore, these countries will need to make substantial investments in their military capabilities to mitigate the security threats posed by the conflict. This increased spending, while potentially cushioning the immediate adverse effects on European GDP, is likely to strain public finances and resources. The necessity to finance these expenditures will exert upward pressure on inflation, as governments may resort to increased borrowing or monetary expansion to meet their fiscal needs. This inflationary pressure, coupled with supply chain disruptions and elevated energy costs, could lead to a challenging economic environment in Europe and beyond.

Despite Ukraine not being a major trading partner for any leading global economy, Russia maintains significant economic ties with the European Union. Both Russia and Ukraine are crucial suppliers of several key commodities, such as titanium, palladium, wheat, and corn. There is growing apprehension about potential supply chain disruptions for industries dependent on these materials, including automotive, smartphone, and aircraft manufacturing sectors. The impact of the conflict on commodity prices, and consequently on household spending, is more critical than the risk of economic contagion through trade links with other countries. In the National Institute of Economic and Social Research's Spring 2022 Global Economic Outlook, these transmission channels were analyzed using the National Institute Global Econometric Model [26].

According to NiGEM, Russia's GDP is projected to contract by over 10% in 2022 compared to the pre-conflict baseline from Winter 2022. The Ukrainian economy is expected to shrink by over 30%, and global GDP may decline by approximately 1% in 2022. Europe will bear the brunt of this economic fallout due to its extensive trade links, reliance on energy and food supplies from the region, and its geographical proximity to Ukraine. European GDP is forecast to decrease by more than 1% in 2022 relative to the baseline forecast (see Figure 2). The war will precipitate a severe recession in Russia, with GDP anticipated to decline by 12 percentage points in 2022 compared to Winter 2022 estimates (from a forecast +3.2% to an actual -9.1%) and to contract further by 11% in 2023. The increase in revenues from energy exports will not fully mitigate the overall adverse impact on Russia's GDP.

We anticipate sustained higher commodity prices due to the disruption of food and other exports from Ukraine and the sanctions imposed on Russian exports. Our modeling assumptions indicate that the conflict has led to a 30% surge in oil prices, a 90% spike in European gas prices, and a 17% rise in food prices. Figure 2 projects that the war will elevate global inflation by about 2% in 2022 and by 1% in 2023, compared to forecasts from February 2022. In Russia, inflation is expected to soar to nearly 20% in the second quarter of 2022 due to higher import prices. These adverse effects will lead to reduced consumer confidence, weaker real incomes, and disrupted trade flows. Should sanctions extend to Russian energy exports, the ramifications for Russia's economy would be far more severe. However, the West would face even higher energy prices and a more substantial economic downturn, significantly increasing the likelihood of recession accompanied by intensified inflation.

The Consumer Price Index (CPI) is a vital economic indicator that tracks the average change over time in the prices paid by consumers for a market basket of goods and services. It provides a measure of inflation, reflecting the cost of living and purchasing power of the currency. The CPI is expressed relative to a base year, which serves as a benchmark for comparison. In this instance, the base year is 2010.

For example, if the CPI in a given year is 120, this indicates that the price level for the basket of goods and services has increased by 20% compared to the base year 2010. Essentially, consumers would need to spend 20% more in that year than they did in 2010 to purchase the same basket of items. From 1960 to 2022, the CPI has undergone significant changes, reflecting various economic events, policies, and trends. During this decade, the CPI showed relatively moderate growth. The U.S. economy experienced stable expansion, with average inflation rates remaining low, reflecting post-war prosperity and a growing middle class. The CPI experienced more rapid increases due to the oil crises of 1973 and 1979, which led to substantial spikes in energy prices. This period, marked by stagflation, saw high inflation rates coupled with stagnant economic growth. In response to the high inflation of the previous decade, the Federal Reserve implemented stringent monetary policies. These measures, while initially painful, eventually led to a reduction in inflation rates. The CPI growth rate slowed down, reflecting these efforts. The 1990s were characterized by relatively stable CPI growth, with the economy benefiting from technological advancements, globalization, and the Internet boom. Inflation rates remained low, contributing to a period of economic prosperity. The early 2000s saw a mild increase in the CPI, but the financial crisis of 2007-2008 led to significant economic downturns. Despite this, inflation remained relatively controlled due to weakened demand and various economic stimuli. The base year for our current CPI measure, 2010, falls in this decade. Post-crisis recovery saw moderate CPI increases. The Federal Reserve's policies and global economic conditions contributed to maintaining low inflation rates throughout this period. The early part of the decade, especially post-2020, has seen notable CPI increases. The COVID-19 pandemic disrupted supply chains, increased government spending, and altered consumer behavior, all contributing to higher inflation. By 2022, the CPI reflected these significant changes, indicating a sharp rise in the price levels of goods and services (see Figure 3).

The Figure 3 illustrates the Consumer Price Index (CPI) trends from 1960 to 2022 for several countries, including Ukraine, India, South Africa, Mexico, the United States, China, and Japan. The CPI is an economic indicator that measures the average change over time in the prices paid by consumers

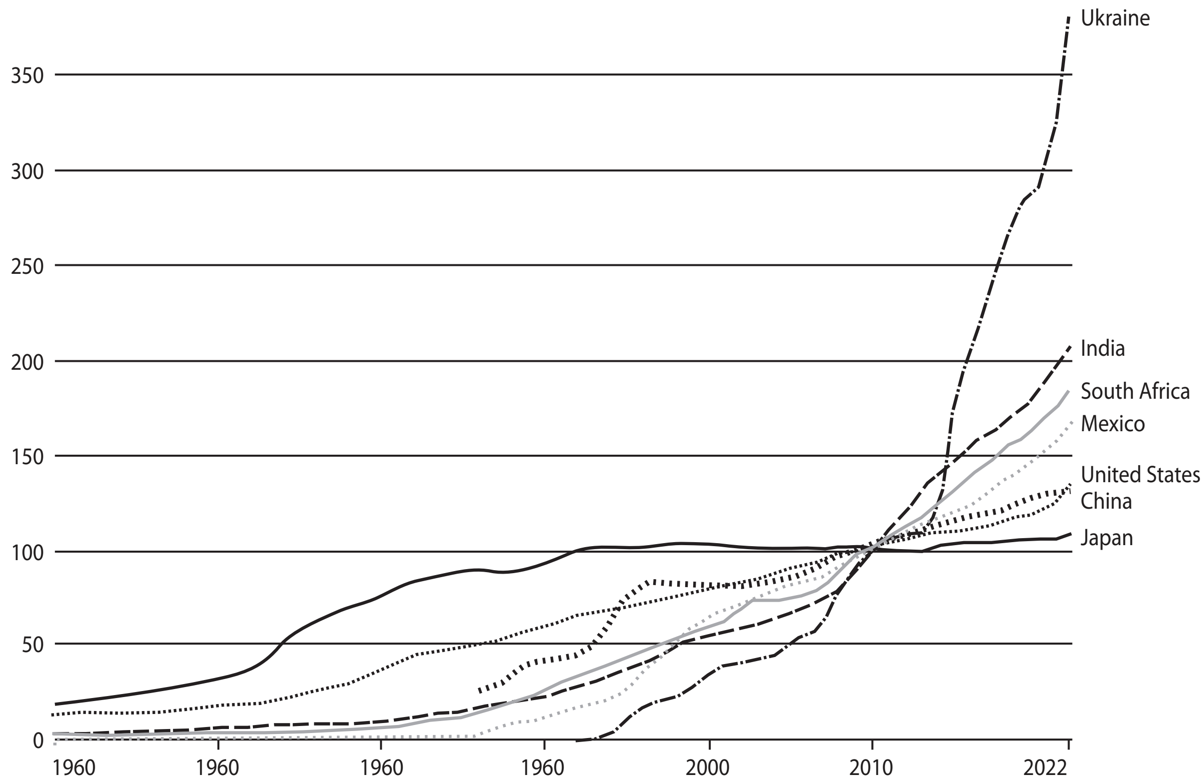

Fig. 3. Consumer price index, 1960 to 2022

Source: [27]

for a basket of goods and services. Ukraine's CPI shows an exceptionally steep increase post-2010, particularly around 2020 onwards, indicating a significant rise in prices. This could be attributed to various economic challenges, including political instability and the conflict with Russia. India and South Africa show a steady increase in their CPI over the years, with a more noticeable rise post-2000. This reflects gradual inflation, possibly due to economic growth and increasing consumer demand. Mexico's CPI growth is moderate but consistent, showing a slight acceleration in recent years. This indicates steady inflation, influenced by factors such as economic reforms and global trade dynamics. The United States has a relatively stable CPI growth curve, with moderate increases over the decades. This stability reflects the country's strong economic policies and central banking system aimed at controlling inflation. China's CPI shows significant growth from the late 1980s to the early 2000s, coinciding with its rapid economic expansion and industrialization. The growth rate stabilizes somewhat in the following years, reflecting more controlled inflation. Japan's CPI shows minimal growth compared to other countries, with periods of deflation or very low inflation. This aligns with Japan's long-term economic challenges, including low consumer spending and an aging population.

Detailed analysis of most countries exhibited relatively slow CPI growth. Economic conditions were generally stable post-World War II, with limited inflationary pressures. The 1980s show varied CPI growth rates, with countries like Mexico experiencing higher inflation possibly due to economic restructuring and debt crises. The 1990s reflect the impact of globalization and technological advancements, leading to moderate inflation in most economies. The early 2000s see more pronounced CPI growth, particularly in emerging markets like China and India, due to rapid economic development and increased consumer spending. Ukraine's CPI skyrockets post-2010, highlighting severe economic disruptions. This could be linked to political instability, economic reforms, and external conflicts. The recent sharp increases in CPI for several countries, notably Ukraine, indicate heightened inflationary pressures. This could be due to factors such as supply chain disruptions, geopolitical tensions, and the economic impact of the COVID-19 pandemic.

The Figure 3 demonstrates diverse inflation trends across different countries from 1960 to 2022. While some countries like the United States and Japan have managed relatively stable inflation rates, others like Ukraine have experienced significant volatility. These trends underscore the varying economic challenges and policy responses across different regions and time periods. The sharp rise in CPI in recent years, particularly for Ukraine, signals potential economic instability and the need for robust economic policies to manage inflation.

According to the U.S. Department of Agriculture, Russia and Ukraine collectively account for approximately one-quarter of the world's wheat exports. Additionally, they contribute nearly one-fifth of global corn and other coarse grain exports. Notably, around 80% of the world's sunflower oil exports originate from these two countries. The imposition of sanctions and the disruption of supplies from these regions are likely to drive up the prices of wheat and other grains, exacerbating the already significant inflationary pressures on the global economy. This situation could also have severe political repercussions in several emerging economies that depend heavily on imported grains, where food constitutes a substantial portion of household expenditures.

In the United Kingdom, bread and cereals make up 2.1% of the Consumer Price Index (CPI). Although flour prices closely track wheat prices, the same is not true for bread, which includes additional costs such as production, ingredients, packaging, and advertising, making flour a smaller component of the overall cost. However, higher energy costs have driven up the expenses associated with baking and transporting bread. Given the tight global supply, retail prices for bread are likely to rise. Emerging markets like Egypt and Bangladesh, where food represents a larger share of the CPI basket, may face even more severe impacts from higher food prices.

Russia is a major producer of several key industrial commodities. It accounts for 40% of global palladium mine production, a crucial material used in automotive engine exhaust systems to reduce emissions, and controls about 10% of the global platinum supply. Additionally, Russia and Ukraine produce approximately 15% of the world's titanium sponge, essential for aircraft manufacturing. Russia also contributes about 13% of global fertilizer supplies. Disruptions in the supply of these commodities, compounded by existing supply chain issues from the pandemic, have the potential to cause significant interruptions in various industries. This could lead to prolonged shortages and sustained high retail prices.

As one of the largest oil producers and energy exporters globally, Russia plays a critical role in energy markets. The ongoing conflict has led to discussions about targeting Russia's oil and gas exports through sanctions. Such measures would likely cause a further escalation in energy prices. The price of Brent crude oil has already surged to over $120 per barrel, the highest since 2014 (see Figure 4). In the United States, changes in crude oil prices account for about 40% of the changes in fuel costs at the pump, though this proportion is lower in Europe due to higher taxes.

The uncertainty surrounding the Ukraine conflict has negatively impacted share prices, wiping billions off the value of indices like the FTSE 100 [29]. Investors are increasingly seeking safe-haven assets, such as the U.S. dollar and government bonds.

The war has heightened uncertainty and country-specific risks, particularly for nations in close proximity to the conflict. This increased risk deters investment, further depressing demand. Consequently, inflation expectations are likely to rise due to new supply-side disruptions and escalating energy costs. This combination of factors suggests that the global economic outlook remains uncertain and challenging.

The ongoing conflict in Ukraine has led to a severe blockade of Ukrainian agricultural exports, significantly affecting global food security. Ukraine, known as one of the world's breadbaskets, plays a crucial role in the global supply of several key agricultural commodities. The disruption of these exports has particularly dire implications for developing countries, which are highly dependent on affordable grain imports.

Ukraine is among the top global exporters of wheat, contributing significantly to the global supply. Ukrainian wheat is a vital source of food for many countries in the Middle East,

Fig. 4. Brent oil price 1982–2024

Source: [28]

Africa, and Asia. Ukraine also ranks high in the global export of corn. This grain is not only a staple food in many countries but also a critical input for livestock feed and various industrial products. Approximately 80% of the world's sunflower oil exports come from Ukraine and Russia combined. Sunflower oil is a primary cooking oil in many countries and is also used in numerous food products and industrial applications.

The immediate effect of the blockade is a significant reduction in the global supply of wheat, corn, and sunflower oil. This shortage has led to sharp increases in prices, making these essential commodities less affordable and accessible, particularly in developing countries. The disruption in supply chains has introduced considerable volatility in global food markets. This instability makes it difficult for countries and consumers to plan and budget for food purchases, exacerbating food insecurity. The increased prices of these key agricultural commodities contribute to broader inflationary pressures. Higher food prices translate to increased costs of living, particularly in developing economies where food constitutes a large portion of household expenditures. Developing countries, which already face challenges in ensuring food security for their populations, are particularly vulnerable. Nations in Africa and the Middle East, which rely heavily on Ukrainian wheat, are experiencing severe food shortages. This crisis has the potential to trigger widespread hunger and malnutrition, exacerbating existing humanitarian issues. The surge in food prices and the resulting food shortages can lead to political unrest in vulnerable countries. Historical precedents show that food insecurity often fuels social and political instability, potentially leading to protests, conflicts, and even regime changes (see Fig. 5).

Various international organizations and countries are taking steps to address the crisis: efforts are being made to identify and develop alternative sources of wheat, corn, and sunflower oil. However, these measures take time and may not fully compensate for the loss of Ukrainian exports. International aid agencies are mobilizing resources to provide food assistance to the most affected regions. This aid is crucial in preventing a humanitarian disaster, but it is a temporary solution. Diplomatic efforts are ongoing to negotiate safe passage for Ukrainian agricultural exports through blockaded ports. Ensuring the unimpeded flow of these essential commodities is critical for stabilizing global food markets. Some countries are tapping into their strategic food reserves to mitigate the immediate impact of shortages. However, the sustainability of this approach is limited, and it underscores the need for a long-term solution.

The blockade of Ukrainian agricultural exports has significantly disrupted global food markets, heightening food security concerns, especially in developing countries. The resulting supply shortages, price volatility, and inflationary pressures pose severe risks to global food security and political stability. While international efforts to mitigate these impacts are underway, the situation underscores the interconnectedness of global food systems and the urgent need for collaborative solutions to ensure food security for all.

The fragmentation of global supply chains, exacerbated by ongoing geopolitical conflicts, has triggered significant shifts in international trade and investment patterns. The disruption of Supply Chain Reevaluation in global supply chains has compelled businesses to reassess their dependence on single-source suppliers. Many companies previously relied heavily on suppliers concentrated in specific regions, which proved vulnerable during times of crisis. As a result, there's a widespread effort among businesses to diversify their supplier base geographically and to develop more resilient supply chain strategies. This diversification aims to mitigate risks associated with geopolitical instability, trade barriers, and natural disasters.

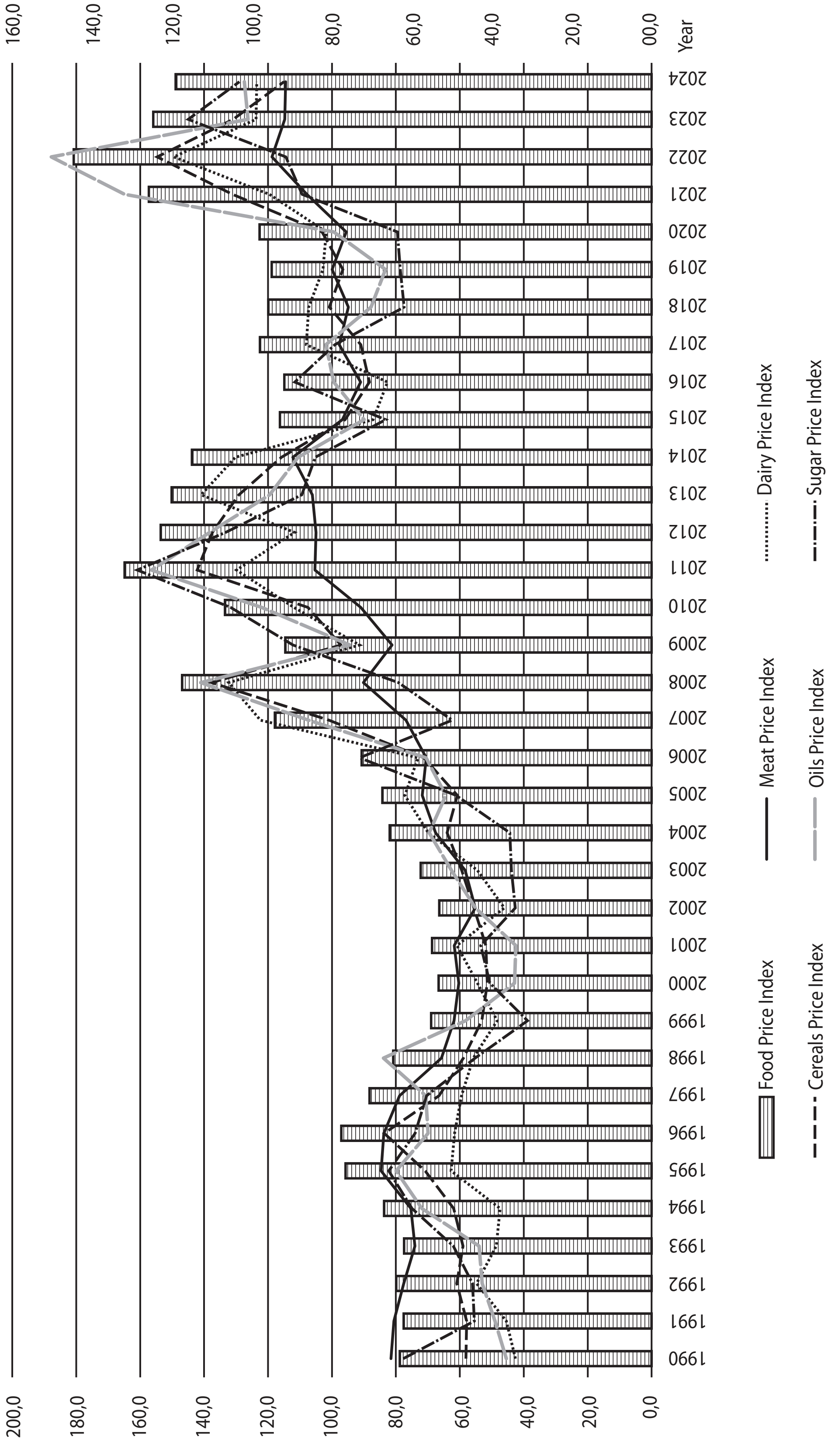

Fig. 5. Annual FAO Food Price Indices 1990–2024

Source: [30]

Supply Chain Reevaluation involves reassessing and optimizing supply chain processes to improve efficiency, resilience, and adaptability.

This has become increasingly important due to disruptions caused by events like the COVID-19 pandemic, geopolitical tensions, and technological advancements. Reevaluation helps companies stay competitive and responsive to market changes (Table 3).

Reevaluating supply chains is essential for companies aiming to enhance their operational efficiency, resilience, and sustainability. By adopting modern practices and technologies, businesses can better navigate the complexities of today's global market.

Reconfiguration of production networks is to adapt to the new supply chain dynamics, businesses are actively reconfiguring their production networks. This includes establishing alternative sourcing options, reshoring or nearshoring production to reduce reliance on distant suppliers, and enhancing flexibility within their manufacturing processes. Such adjustments aim to enhance agility and responsiveness, allowing companies

Table 3

Comparison of Traditional vs. Reevaluated Supply Chain

Aspect	Traditional Supply Chain	Reevaluated Supply Chain	Key Aspects of Supply Chain Reevaluation
Risk Management	Reactive approach to disruptions	Proactive risk assessment and mitigation strategies	Identifying and mitigating risks in the supply chain to avoid disruptions
	Typically reactive, responding to disruptions as they occur, which can lead to significant delays and increased costs	Proactively identifies potential risks, implements contingency plans, and uses predictive analytics to prevent disruptions	
Technology Integration	Limited use of digital tools	Extensive use of AI, IoT, blockchain for transparency	Utilizing advanced technologies such as AI, IoT, and blockchain for better data visibility and decision-making
	Limited integration of digital technologies, often relying on manual processes and basic software tools	Leverages advanced technologies like AI for demand forecasting, IoT for real-time tracking, and blockchain for secure and transparent transactions	
Sustainability	Minimal focus on sustainability	High emphasis on eco-friendly practices	Implementing eco-friendly practices to reduce environmental impact
	Focuses primarily on cost and efficiency, with less consideration for environmental impact	Prioritizes sustainable practices, such as reducing carbon footprint, utilizing renewable energy, and ensuring ethical sourcing	
Supplier Diversification	Reliance on single or few suppliers	Diverse supplier base to spread risk	Reducing dependency on a single supplier or region to enhance supply chain resilience
	Often depends heavily on a few suppliers, which can create vulnerabilities if a supplier fails to deliver	Diversifies supplier base across different regions to mitigate risks and ensure continuous supply	
Inventory Optimization	High safety stock levels	Data-driven inventory management	Balancing inventory levels to meet demand without overstocking
	Maintains high safety stock levels to prevent stock-outs, leading to higher holding costs	Uses data analytics and demand forecasting to optimize inventory levels, reducing excess stock and associated costs	
Cost Efficiency	Focuses on low-cost sourcing	Strategic sourcing with cost-benefit analysis	Reducing costs through improved processes and strategic sourcing
	Focuses on low-cost sourcing strategies, sometimes at the expense of quality and reliability	Employs strategic sourcing, considering both cost and value, leading to more reliable and cost-effective supply chain operations	
Flexibility and Agility	Rigid, less responsive to market changes	Agile, quickly adaptable to market demands	–
	Often rigid and slow to respond to market changes, leading to lost opportunities and inefficiencies	Builds flexibility into supply chain processes, allowing for quick adjustments to meet changing market demands and conditions	

Source: developed by the author

to navigate disruptions more effectively while maintaining operational continuity.

The provided chart depicts the trade dynamics between the United States and China, and their respective trades with other partners from January 2016 to October 2023. The chart includes two significant events: Trade Tensions (starting around mid-2018) and the War in Ukraine (starting around early 2022) (see Fig. 6). Trade between the United States and China: 2016 to Mid-2018:

The trade between the United States and China shows a relatively steady growth trend. Mid-2018 to End of 2019: A noticeable decline starts around mid-2018, coinciding with the onset of trade tensions. This period marks significant fluctuations, likely due to tariff implementations and trade negotiations. 2020: Despite the COVID-19 pandemic, there is a brief recovery in trade during 2020. 2021 to 2022: Another period of growth is observed, reaching a peak in early 2021. However, from 2022 onwards, there is a sharp decline, potentially exacerbated by the global economic uncertainties and the war in Ukraine. 2023: The trade between the United States and China remains low compared to previous years, showing minor fluctuations.

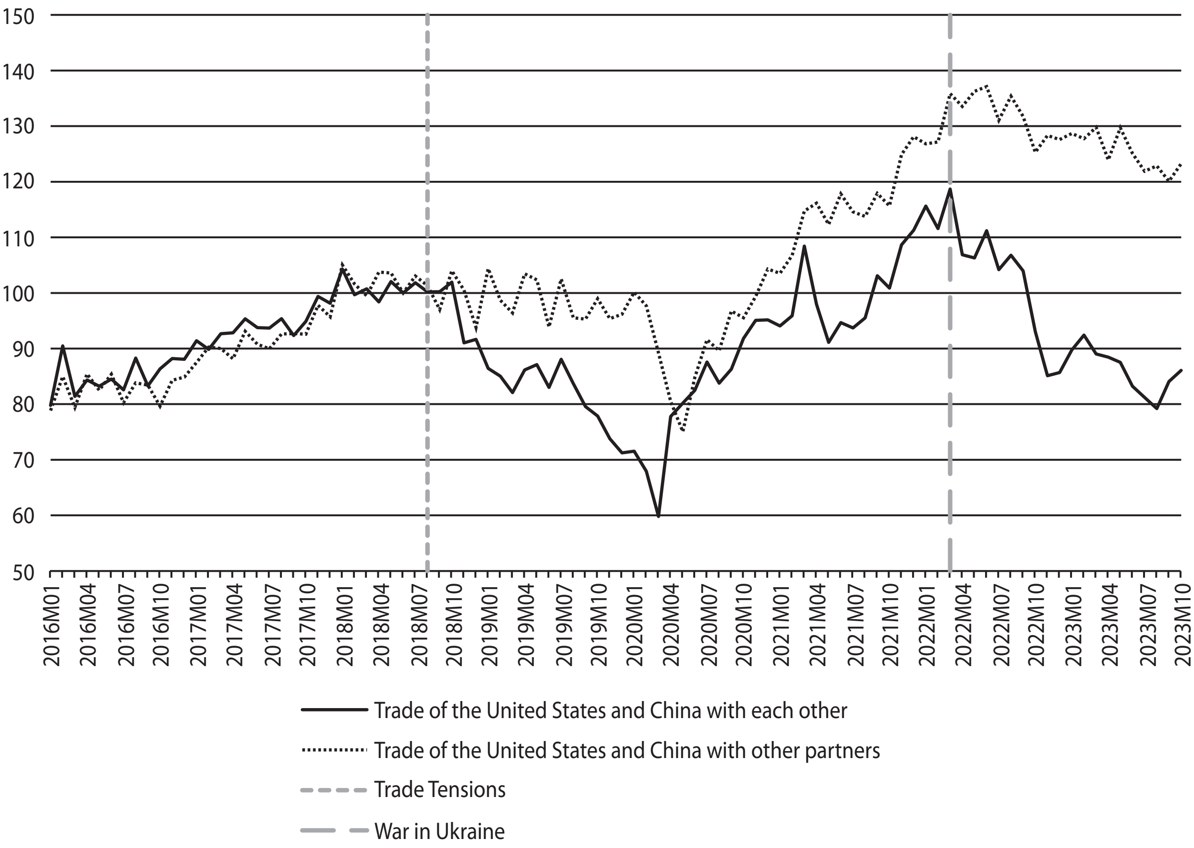

Fig. 6. Trade between the United States and China and with other partners, 2016–2023

Source: [31]

Trade of the United States and China with Other Partners: 2016 to Mid-2018: The trade with other partners mirrors the trend of the U.S.-China trade until mid-2018, indicating a stable growth phase. Mid-2018 to End of 2019: Unlike the U.S.-China trade, the trade with other partners experiences a brief dip around mid-2018 but recovers quickly, suggesting diversification or shift in trade focus. 2020 to 2021: A significant increase is observed, peaking around mid-2021. This suggests a strong recovery and possible expansion of trade networks during and after the COVID-19 pandemic. 2022 to 2023: The trade with other partners shows a downward trend starting around early 2022, likely impacted by the war in Ukraine. However, it stabilizes towards the end of the period, indicating adaptation to new global circumstances.

The introduction of trade tensions marks a critical point where the trade between the U.S. and China begins to decline sharply. The trade with other partners also dips initially but recovers, indicating a potential shift in trade strategies to mitigate the impact of tariffs and trade barriers. The war in Ukraine introduces another period of instability, particularly noticeable in the trade dynamics from early 2022. Both trade lines show a decline around this period, highlighting the broader impact of geopolitical events on global trade patterns. The Fig. 6 illustrates the fluctuating nature of trade relationships amid significant geopolitical events. The trade between the U.S. and China experiences more volatility, particularly during periods of heightened tensions and conflict. In contrast, the trade with other partners shows more resilience, with quicker recovery phases and less pronounced declines. This underscores the importance of diversification in trade partnerships to cushion against bilateral disruptions and global uncertainties.

The geopolitical tensions and resulting supply chain disruptions have exposed vulnerabilities in global financial systems. Increased uncertainty has led to higher market volatility, impacting asset prices and investor sentiment. This heightened volatility can deter investment decisions, as investors become more risk-averse and cautious about allocating capital across international markets. Central banks and financial institutions also face challenges in managing economic stability amidst fluctuating geopolitical dynamics (see Fig. 7).

The provided Figure 7 illustrates various factors influencing the S&P 500 index from 2021 to 2024. These factors include the risk-free rate, earnings (current and projected), equity risk premiums, and the return on the S&P 500 index. The Figure 7 shows the periods where the risk-free rate is negative and the periods where it is positive. Significant fluctuations are observed throughout the period that depicts current and projected earnings of companies within the S&P 500. There is a general trend of increasing earnings from 2021 to mid-2022, followed by a decline. Earnings start to rise again towards the end of 2023 and into 2024. The extra return investors expect for taking on the higher risk of equities compared to risk-free investments is reflected. These premiums are more stable compared to the risk-free rate and earnings. There is a notable increase in equity risk premiums toward the latter part of the period, starting from mid-2023.

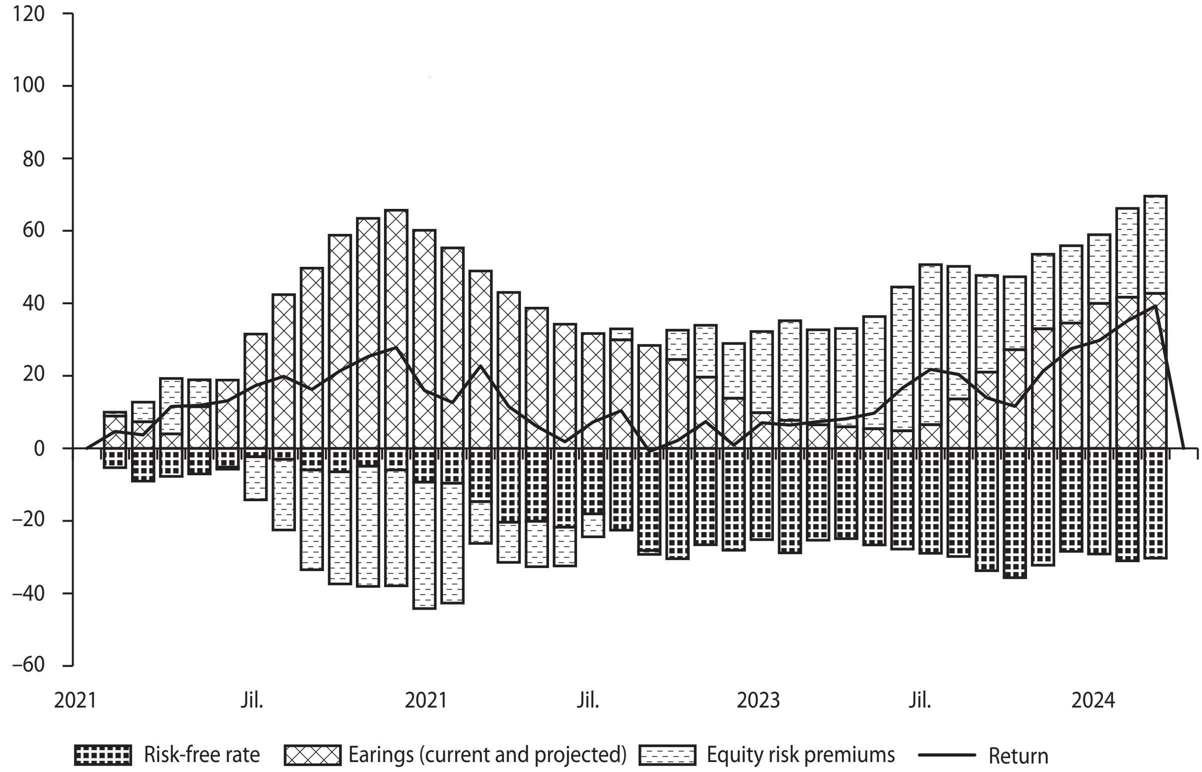

Fig. 7. Decomposition of Cumulative Returns for S&P 500 (Percent)

Source: [32]

In response to these challenges, businesses and investors are placing greater emphasis on risk management and strategic planning. This includes stress-testing supply chain resilience, incorporating geopolitical risk assessments into investment strategies, and adopting more agile financial management practices. Companies are also exploring technologies like blockchain for enhanced transparency and traceability within supply chains, aiming to reduce operational risks and ensure compliance with regulatory requirements.

Overall, the current geopolitical landscape underscores the interconnectedness of global trade, investment, and financial systems. The fragmentation of supply chains and heightened market volatility necessitate adaptive strategies that prioritize resilience, diversification, and proactive risk management to thrive in an increasingly uncertain global environment.

Conclusion. The insights from the current body of literature also have significant policy implications. Effective policy responses are crucial to managing the macroeconomic costs of the war in Ukraine and addressing the broader trends of economic fragmentation. Key recommendations include:

Strengthening international institutions and fostering multilateral cooperation is essential to address the global challenges posed by the war. This includes coordinated efforts to stabilize energy and food markets, provide humanitarian assistance, and support economic recovery in affected regions. Policymakers should incentivize businesses to adopt resilient supply chain practices, such as diversification and digitalization. Public-private partnerships can play a crucial role in developing robust supply chain infrastructures that can withstand geopolitical and other shocks.

Accelerating the transition to renewable energy is vital for reducing dependency on geopolitically sensitive energy sources. Governments should implement policies that promote investment in renewable energy technologies and infrastructure, while also ensuring that the transition is just and inclusive. Central banks and financial regulators need to enhance their frameworks for managing financial stability in the face of geopolitical risks. This includes developing tools to monitor and mitigate the impact of geopolitical events on financial markets and ensuring adequate liquidity and support mechanisms are in place. Immediate and long-term support for displaced populations and communities affected by the war is critical. International organizations and governments should coordinate efforts to provide humanitarian aid, support refugee integration, and invest in the reconstruction of affected areas.

The fragmentation of the globalized economy and the macroeconomic costs of the war in Ukraine present complex and multifaceted challenges. Moving forward, it is imperative that researchers and policymakers continue to explore these dynamics, develop robust strategies to enhance economic resilience, and foster international cooperation to navigate the turbulent economic landscape. By addressing these challenges collectively, the global community can work towards a more stable, inclusive, and sustainable economic future.

LITERATURE

1. Baldwin R., Freeman R. Risks and global supply chains: What we know and what we need to know. *Annual Review of Economics.* 2022. Vol. 14.1. P. 153–180.

2. The Peterson Institute for International Economics. 2021. URL: https://www.piie.com/sites/default/files/documents/2021-annual-report.pdf

3. CRISIS UPON CRISIS. IMF Annual Report 2022. URL: https://www.imf.org/external/pubs/ft/ar/2022/downloads/imf-annual-report-2022-english.pdf

4. World Development Report 2022: Finance for an Equitable Recovery. URL: https://documents1.worldbank.org/curated/en/408661644986413472/pdf/World-Development-Report-2022-Finance-for-an-Equitable-Recovery.pdf

5. Financial Report. 2023. URL: https://www.ebrd.com/documents/comms-and-bis/financial-report-2023-pdf.pdf

6. Emiliozzi S., Ferriani F., Gazzani A. The European energy crisis and the consequences for the global natural gas market. *Bank of Italy Occasional paper,* 2023. 824 p.

7. The Goldman Sachs Group, Inc. Annual Report. 2023. URL: https://www.goldmansachs.com/investor-relations/financials/current/annual-reports/2023-annual-report/multimedia/2023-annual-report.pdf

8. Abay K. A., Breisinger C., Glauber J., Kurdi S., Laborde D., Siddig K. The Russia-Ukraine war: Implications for global and regional food security and potential policy responses. *Global Food Security.* 2023. Vol. 36. 100675.

9. Global Report on Food Crises 2023. URL: https://www.fsinplatform.org/sites/default/files/resources/files/GRFC2023-hi-res.pdf

10. Cordesman A. H. The Lasting Strategic Impact of the War in the Ukraine. 2023. URL: https://csis-website-prod.s3.amazonaws.com/s3fs-public/2023-07/230705_Cordesman_StrategicImpact_WarUkraine.pdf?VersionId=DbYdDMdHvBcZ5wfVhMkBQXWA39GRRMYJ

11. Derviş K., Strauss S. Global governance after COVID-19. URL: https://www.brookings.edu/wp-content/uploads/2021/08/Global-Governance-after-COVID-19.pdf

12. OECD (2023), Economic Policy Reforms 2023: Going for Growth, OECD Publishing, Paris.

DOI: https://doi.org/10.1787/9953de23-en

13. Annual Report 2022–2023 // World Economic Forum. 2023. URL: https://www3.weforum.org/docs/WEF_Annual_Report_2022-23.pdf

14. Baldwin R., Freeman R., Theodorakopoulos A. Hidden exposure: measuring US supply chain reliance. *National Bureau of Economic Research*, 2023.

15. From Bold Ideas to Exponential Impact. Annual Sustainability Report. Boston Consulting Group. 2024. URL: https://media-publications.bcg.com/2023-Annual-Sustainability-Report-April-2024.pdf

16. Geopolitics of the energy transition energy security // International Renewable Energy Agency. 2024. URL: https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2024/Apr/IRENA_Geopolitics_transition_energy_security_2024.pdf?rev=40bab71a18e14038b5a4973b5e3bb4d4

17. World Energy Issues Monitor // World Energy Council. 2024. URL: https://www.worldenergy.org/assets/downloads/Issues_Monitor_2024_-_Full_Report.pdf?v=1720426993

18. Annual Report 2023/24 // Bank for International Settlements. 2024. URL: https://www.bis.org/about/areport/areport2024.pdf

19. Ziad H. How three global companies navigate geopolitical risk to build resilience // McKinsey & Company. 2023. URL: https://www.mckinsey.com/capabilities/risk-and-resilience/our-insights/how-three-global-companies-navigate-geopolitical-risk-to-build-resilience

20. Annual Report 2023. UNITED NATIONS DEVELOPMENT PROGRAMME. 2023. URL: https://annualreport.undp.org/assets/Annual-Report-2023.pdf?_gl=1*dvcdyq*_gcl_au*MTQyNzYzODM2Mi4xNzIwNTk2NDM2*_ga*MTM5MTc2MjY1MC4xNzIwNTk2NDM2*_ga_3W7LPK0WP1*MTcyMDU5NjQzNi4xLjEuMTcyMDU5NjcxMC41MS4wLjA

21. A year of "vast humanitarian need": Crises the world can't ignore in 2023 // INTERNATIONAL COMMITTEE OF THE RED CROSS. 2022. URL: https://www.icrc.org/en/document/humanitarian-crises-world-cant-ignore-2023

22. World trade report 2023. Re-globalization for a secure, inclusive and sustainable future. 2023. URL: https://www.wto.org/english/res_e/booksp_e/wtr23_e/wtr23_e.pdf

23. Annual Report 2023 // Peterson Institute for International Economics. 2023. URL: https://www.piie.com/sites/default/files/2024-04/2023-annual-report.pdf

24. Geopolitical risks // World Bank. 2022. URL: https://thedocs.worldbank.org/en/doc/18ad707266f7740bced755498ae0307a-0350012022/related/GEP-June-2022-Chapter1-Fig1-11.xlsx

25. National Institute Global Econometric Model (NiGEM) simulations. URL: https://www.niesr.ac.uk/nigem-macroeconomic-model

26. National Institute UK Economic Outlook // National Institute of Economic and Social Research. 2022. URL: https://www.niesr.ac.uk/wp-content/uploads/2022/05/UK-Economic-Outlook-Spring-2022.pdf

27. Consumer price index // Our World in Data. 2024. URL: https://ourworldindata.org/grapher/consumer-price-index?country=IND~USA~JPN~ZAF~CHN~MEX~UKR

28. Brent crude oil // Trading ECONOMICS. 2024. URL: https://tradingeconomics.com

29. Financial Times Stock Exchange 100 Index. FTSE Group. 2024. URL: https://www.google.com/finance/quote/UKX:INDEXFTSE?sa=X&ved=2ahUKEwjGuYbEk5-HAxXCefEDHXYeAgAQ3ecFegQIKhAf

30. FAO Food Price Index. 2024. URL: https://www.fao.org/worldfoodsituation/foodpricesindex/en/

31. Global Trade Outlook and Statistics // World Trade Organization. 2024. URL: https://www.wto.org/english/res_e/booksp_e/trade_outlook24_e.pdf

32. Global financial stability report // International Monetary Fund. 2024. URL: https://www.imf.org/-/media/Files/Publications/GFSR/2024/April/English/text.ashx

REFERENCES

"A year of "vast humanitarian need": Crises the world can't ignore in 2023". INTERNATIONAL COMMITTEE OF THE RED CROSS. 2022. https://www.icrc.org/en/document/humanitarian-crises-world-cant-ignore-2023

"Annual Report 2022-2023". World Economic Forum. 2023. https://www3.weforum.org/docs/WEF_Annual_Report_2022-23.pdf

"Annual Report 2023/24". Bank for International Settlements. 2024. https://www.bis.org/about/areport/areport2024.pdf

"Annual Report 2023". Peterson Institute for International Economics. 2023. https://www.piie.com/sites/default/files/2024-04/2023-annual-report.pdf

"Annual Report 2023". UNITED NATIONS DEVELOPMENT PROGRAMME. 2023. https://annualreport.undp.org/assets/Annual-Report-2023.pdf?_gl=1*dvcdyq*_gcl_au*MTQyNzYzODM2Mi4xNzIwNTk2NDM2*_ga*MTM5MTc2MjY1MC4xNzIwNTk2NDM2*_ga_3W7LPK0WP1*MTcyMDU5NjQzNi4xLjEuMTcyMDU5NjcxMC41MS4wLjA

Abay, K. A. et al. "The Russia-Ukraine war: Implications for global and regional food security and potential policy responses". *Global Food Security*, vol. 36 (2023): 100675.

"Brent crude oil". Trading ECONOMICS. 2024. https://tradingeconomics.com

Baldwin, R., and Freeman, R. "Risks and global supply chains: What we know and what we need to know". *Annual Review of Economics*, vol. 14.1 (2022): 153-180.

Baldwin, R., Freeman, R., and Theodorakopoulos, A.. *Hidden exposure: measuring US supply chain reliance*. National Bureau of Economic Research, 2023.

"Consumer price index". Our World in Data. 2024. https://ourworldindata.org/grapher/consumer-price-index?country=IND~USA~JPN~ZAF~CHN~MEX~UKR

"CRISIS UPON CRISIS". IMF Annual Report 2022. https://www.imf.org/external/pubs/ft/ar/2022/downloads/imf-annual-report-2022-english.pdf

Cordesman, A. H. "The Lasting Strategic Impact of the War in the Ukraine". 2023. https://csis-website-prod.s3.amazonaws.com/s3fs-public/2023-07/230705_Cordesman_StrategicImpact_War-Ukraine.pdf?VersionId=DbYdDMdHvBcZ5wfVhMkBQXWA39GRRMYJ

Dervis, K., and Strauss, S. "Global governance after COVID-19". https://www.brookings.edu/wp-content/uploads/2021/08/Global-Governance-after-COVID-19.pdf

Emiliozzi, S., Ferriani, F., and Gazzani, A. *The European energy crisis and the consequences for the global natural gas market*. Bank of Italy Occasional paper, 2023.

"FAO Food Price Index". 2024. https://www.fao.org/worldfoodsituation/foodpricesindex/en/

"Financial Report. 2023". https://www.ebrd.com/documents/comms-and-bis/financial-report-2023-pdf.pdf

"Financial Times Stock Exchange 100 Index". FTSE Group. 2024. https://www.google.com/finance/quote/UKX:INDEXFTSE?sa=X&ved=2ahUKEwjGuYbEk5-HAxXCefEDHXYeAgAQ3ecFegQIKhAf

"From Bold Ideas to Exponential Impact. Annual Sustainability Report". Boston Consulting Group. 2024. https://media-publications.bcg.com/2023-Annual-Sustainability-Report-April-2024.pdf

"Geopolitical risks". World Bank. 2022. https://thedocs.worldbank.org/en/doc/18ad707266f7740bced755498ae0307a-0350012022/related/GEP-June-2022-Chapter1-Fig1-11.xlsx

"Geopolitics of the energy transition energy security". International Renewable Energy Agency. 2024. https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2024/Apr/IRENA_Geopolitics_transition_energy_security_2024.pdf?rev=40bab71a18e14038b5a4973b5e3bb4d4

"Global financial stability report". International Monetary Fund. 2024. https://www.imf.org/-/media/Files/Publications/GFSR/2024/April/English/text.ashx

"Global Report on Food Crises 2023". https://www.fsinplatform.org/sites/default/files/resources/files/GRFC2023-hi-res.pdf

"Global Trade Outlook and Statistics". World Trade Organization. 2024. https://www.wto.org/english/res_e/booksp_e/trade_outlook24_e.pdf

"National Institute Global Econometric Model (NiGEM) simulations". https://www.niesr.ac.uk/nigem-macroeconomic-model

"National Institute UK Economic Outlook". National Institute of Economic and Social Research. 2022. https://www.niesr.ac.uk/wp-content/uploads/2022/05/UK-Economic-Outlook-Spring-2022.pdf

OECD, Economic Policy Reforms 2023: Going for Growth. Paris: OECD Publishing, 2023. DOI: https://doi.org/10.1787/9953de23-en

"The Goldman Sachs Group, Inc. Annual Report". 2023. https://www.goldmansachs.com/investor-relations/financials/current/annual-reports/2023-annual-report/multimedia/2023-annual-report.pdf

The Peterson Institute for International Economics. 2021. https://www.piie.com/sites/default/files/documents/2021-annual-report.pdf

"World Development Report 2022: Finance for an Equitable Recovery". https://documents1.worldbank.org/curated/en/408661644986413472/pdf/World-Development-Report-2022-Finance-for-an-Equitable-Recovery.pdf

"World Energy Issues Monitor". World Energy Council. 2024. https://www.worldenergy.org/assets/downloads/Issues_Monitor_2024_-_Full_Report.pdf?v=1720426993

"World trade report 2023. Re-globalization for a secure, inclusive and sustainable future". 2023. https://www.wto.org/english/res_e/booksp_e/wtr23_e/wtr23_e.pdf

Ziad, H. "How three global companies navigate geopolitical risk to build resilience". McKinsey & Company. 2023. https://www.mckinsey.com/capabilities/risk-and-resilience/our-insights/how-three-global-companies-navigate-geopolitical-risk-to-build-resilience

Стаття надійшла до редакції 11.07.2024 р.

Статтю прийнято до публікації 26.07.2024 р.