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Iryna Shevchenko

PhD in Economics, Associate Professor,
 Doctoral Student of the Department of
 International Economics, West
 Ukrainian National University, Ternopil,
 Ukraine;
 e-mail: irina_shevchenko@ukr.net
 ORCID: [0000-0001-8188-3551](https://orcid.org/0000-0001-8188-3551)
 (Corresponding author)

Larysa Liubokhynets

D.Sc. in Economics, Associate
 Professor, Head of the Department of
 Economic Theories, Entrepreneurship
 and Trade, Khmelnytskyi National
 University, Khmelnytskyi, Ukraine;
 ORCID: [0000-0003-1578-615X](https://orcid.org/0000-0003-1578-615X)

Iryna Zvarych

D.Sc. in Economics, Professor, Head of
 International Economics Department,
 West Ukrainian National University,
 Ternopil, Ukraine;
 ORCID: [0000-0001-5155-540X](https://orcid.org/0000-0001-5155-540X)

Oksana Brodovska

PhD in Economics, Associate Professor,
 Doctoral Student of the Department of
 International Economics, West
 Ukrainian National University, Ternopil,
 Ukraine;
 ORCID: [0000-0003-4828-528X](https://orcid.org/0000-0003-4828-528X)

Mykhailo Brill

Candidate of Economy Sciences,
 Associate Professor of the Department
 of Public Administration and Economic
 Policy, Simon Kuznets Kharkiv National
 University of Economics, Kharkiv,
 Ukraine;
 ORCID: [0000-0001-6529-7747](https://orcid.org/0000-0001-6529-7747)

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ANTIFRAGILE IN THE GLOBAL ECONOMY AS AN INDICATOR OF ECONOMIC DEVELOPMENT

ABSTRACT

To solve the research goal, the authors proposed to consider the thesaurus of the concept of "antifragile in the global economy" by revealing the categorical-conceptual apparatus, namely the concepts of "economy", "globalization", "antifragile" and "global economy". To delimit the defined definitions and further level the existing contradictions in the categorical-conceptual apparatus, the authors propose to visually demonstrate the relationship between the above-defined terms and the concept of "antifragile in the global economy" using graph-theoretic structures. In the work, with the help of analysis of modern sources, the authors attempted to provide their definition, considering all the pros and cons of the existing interpretations. The given definition differs from the existing ones by considering the critical features of antifragile, expanding the concept of the global economy, considering its purpose, and revealing the meaning of the economy.

The study's authors revealed the economic content of global problems as a component of economic development to reveal which problems contribute to the development of the world economic system. The work analyzed the dynamics of the GDP volumes of three developed countries, namely France, Japan, and the USA, by constructing a diagram based on GDP indicators from 2014-2022.

The impact of global financial crises on the world economic system is considered, namely the impact on super-large investment companies, whose financial crisis is the detonator of the global crisis. The work focuses on the trends in the functioning of the world's stock markets in 2020-2022.

Keywords: globalization, European integration, development, economic development, global crisis, financial crisis, antifragile

JEL Classification: A19, E60, F02, F15

INTRODUCTION

The modern economic world needs constant modernization and is characterized by qualitative transformation on a global scale.

However, for effective modernization and globalization, it is necessary to resist the economic system to the influences of the external environment. Globalization of the world order is an objective process of human development and solving global problems, considering economic factors that require detailed study, which determines the relevance of the issues discussed in this research. It is also necessary to study rational strategies for the effective behaviour of society and relations between countries to develop measures to solve the global problems of humanity. In the process of this confrontation, reorganization in the direction of increasing functionality compared to the existing level is expedient. Determining which element acts as a stressor for the economy, destroying it or using it in favour of development will lead to the possession of economic sovereignty and a special place in the geopolitical space. This aspect can be called the result of antifragility in the global economy.

In reality, it is quite problematic to measure the antifragile in the global economy, but today there are already estimates that are part of the economic position. In 2018, the Bristlecone company developed the anti-fragility index as a comprehensive indicator for

assessing the vulnerability of global companies to external threats. That is why antifragile in the global economy must be considered from the point of view of macroeconomics. Given this, these changes are systemic and harmonize and standardize the operating conditions of the world's macroeconomic systems. It is worth paying attention to the fact that the processes of the global economy in the modern world do not depend on the national state.

LITERATURE REVIEW

The contours of world development, globalization, and the global economy were studied by the following scientists: Belei S.I., Boida S.V., Kolosinska M.I. [1], Melina Kolb Peterson [15], Gina Borgia, Jeanna Sullivan [4], Ben Lutkevich [17], Jason Fernando [11].

For a detailed consideration of the theoretical foundations, the study's authors considered the concepts listed in the Business Dictionary [5] and the Cambridge Academic Content Dictionary [7,8]. This made it possible to consider the global economy's theoretical basis fundamentally. The following scientists were engaged in the study of global problems of the economic system: David W. Cooney [9], G. W. Maxwell [18], Shevchenko I., Lysak O., Zalievska-Shyshak A., Mazur I., Korotun M., Nestor V. [22], Solow R. [24].

A significant contribution to the development of the global inclusive circular economy was made by such domestic scientists as Benner C., Pastor M. [3], Andriy Krysovaty, Iryna Zvarych, Oksana Brodovska, Iryna Shevchenko, Oleksiy Krasnorutskyy [16], Butler B. [6], Deighton-Smith R., Erbacci A., & Kauffmann C. [10], Sharratt B. [21], Shipton D., Sarica S., Craig N., McCartney G., Katikireddi S. V., Roy G., Scobie G. [23].

Discussions of scientists, economists, and scientists in modern times led to the actualization of research on the topic of antifragile in the global economy. There is a need to substantiate the conceptual foundations of the new stage of world economic development. However, according to the authors of this study, a sketchy outline of the antifragile in the global economy in the macro-paradigmatic plane will project new problems of a methodological nature. The coexistence and relationship of old and new trends in developing the world economic system can be the basis for a high-quality and effective global economic system. It is worth noting that despite the significant contribution of the scientists mentioned above, and scholars, the main theoretical and practical aspects of the global economy still need to be developed and require constant improvement and resolution. That is why the immediate need to clarify the conceptual foundations of the global economy and delineate the antifragile in the global economy led to the choice of the research topic and allowed it to form its purpose. The research aims to theoretically substantiate the provisions of the global economy and determine its contours in the context of the development of the world economic system.

AIMS AND OBJECTIVES

The research is aimed at expanding the theoretical base of the global economy by defining the concept of "antifragile in the global economy" to clarify and develop the conceptual and categorical apparatus. To achieve the goal, the authors of the study singled out the following tasks:

- to clarify the concepts of economy, antifragile, global economy and globalization;
- to provide a clear definition of "antifragile in the global economy", by constructing a graphical relationship;
- to identify the goal of antifragile in the global economy;
- to reason the economic content of global problems as a component of economic development;
- to analyze the dynamics of GDP and export indicators.

METHODS

The main research methodology involves developing the conceptual foundations of the global economy using theoretical frameworks and a categorical framework. The research relies on the fundamental principles of globalization theory to accomplish its objectives. The following methods were used for visual presentation of the research results: analysis and synthesis for a visual display of the development process of the global economy, the main trends of its development and the connection with influencing factors that have uncharacteristic features and uncontrolled flow were determined; morphological analysis to determine the main elements of the categorical basis of the study and to define the basic concept of "antifragile" for a further more thorough description of the economic processes presented in the study; induction and

deduction to establish relationships between the main elements of the study, thus considering the main connections and establishing the limits of the impact of antifragile in the global economy and economic processes, which allows further research into the main vectors of evolutionary processes and the construction of a new economic system that will be formed on the basis of taking into account innovative changes of irresistible force; observations and comparisons to identify supporting research facts that clearly emphasize the importance of anti-fragility for the global economy and individual economic processes; graphic method for visual illustration of presented research results. Using methods of the cause-and-effect relationship of the global economy allowed the authors to establish the characteristic features of its prospects in the conditions of the development of the economic system. Using graph-theoretic structures, the authors considered the relationship between the categorical and conceptual apparatus of the research topic.

The paper proposes a hypothesis that the level of GDP depends on the main indicators of the export of goods and services and the indicators of the stock market. To confirm this hypothesis, correlation and regression analysis was performed using the Statgraphics Plus software product.

The presented methods make it possible to consider in more detail the process of antifragility in the global economy and to forecast the further development of the economic system as a whole.

RESULTS

In the modern world, countries need to strengthen the interconnection and interdependence of countries to develop scientific and technological progress and industry. For many years, a significant shortcoming was the violation of the harmonious relationship between countries and their economies; this shortcoming slowed down the sustainable development of the world in general and the development of the global economy in particular.

Antifragile in the global economy is a relatively new concept, which is a restructuring of the existing theoretical base of the global economy. In the conditions of globalization of the world's economic system, there is uncertainty and a need for constant development and evolution. Formulations of the theoretical component make it possible to overcome fragility and act with the aim of improvement.

The problems of the globalization of the world and the transformation of the world economy into a global one have caused numerous discussions in the scientific and economic world.

According to the authors of the study, these processes are undoubtedly related to social, political and economic problems.

In order to solve the research goal, the authors propose to consider the thesaurus of the concept of "antifragile in the global economy", it is considered appropriate to consider the concepts of "economy", "globalization", "antifragile," and "global economy" separately.

The study's authors considered modern definitions of "economy" and systematized them in Table 1.

Source	Definition	Morphological sign
Cambridge Academic Content Dictionary [8]	<i>Economy</i> (from Ancient Greek οἶκος, oikos — house and Ancient Greek νόμος — law) — how trade, industry, or money is organized.	Organized
Oliver Bendel [2]	<i>Economy</i> , also called economics (Greek "oikonomia": "household management" or "household management"), consists of facilities, machines and people that generate and regulate supply and demand.	Consists of
Achim Pollert, Bernd Kirchner, Javier Morato Polzin, Marc Constantin Pollert [19]	<i>The economy</i> is the entirety of all institutions such as companies, and private and public households, as well as the necessary processes such as purchases and sales that are associated with the production and consumption of goods.	Entirety
Gerd Schneider, Christiane Toyka-Seid [20]	All areas in which people produce something are called the <i>economy</i> . But the economy also includes services. These are all activities where people work but nothing is directly produced. These include trade, transport, banking, insurance, administration, police and much more. Individual areas of the economy include, for example, agriculture or the construction industry, mining, the automotive industry or the food industry.	Produce
James K. Galbraith [13]	<i>The economy</i> is a political discipline that deals with the problems of organizing the general and social good, co-evolves with circumstances and is historically contingent. The world toward which economic policies are directed is a complex system, but economists who seek to make appropriate policies are necessarily guided by simplifications and heuristics.	Political discipline

Antifragile — this is an entirely new concept in the modern world, introduced by professor, economist, and trader Nassim Nicholas Taleb [26] in the book *Antifragile: Things That Gain from Disorder*, which means a methodology of preparing for unexpected events that do not require the creation and analysis of chains of cause and effect. In this concept, the conceptual focus is shifted to the ability to withstand strong influence or unexpected events and to the benefit of their occurrence.

The study's authors considered modern definitions of "globalization" and systematized them in Table 2.

Table 2. Current definitions of the concept of "globalization" in the context of antifragile.		
Source	Definition	Morphological sign
Melina Kolb [15]	<i>Globalization</i> refers to the increasing interconnectedness of the world's economies, societies, and demographics. This phenomenon results from the exchange of products and services across international borders, advancements in technology, and the movement of investments, individuals, and knowledge.	Refers to
Gina Borgia, Jeanna Sullivan [4]	<i>Globalization encompasses the concept of enhanced global connectivity and interdependence due to trade and technological advancements. This phenomenon also encompasses the economic and societal transformations that have emerged as a result.</i>	Encompasses
Ben Lutkevich [17]	<i>Globalization</i> refers to the global dissemination of ideas, knowledge, information, products, and services. In the realm of business, it characterizes integrated economies characterized by unhindered trade, the unrestricted movement of capital across borders, and convenient access to international resources, including labour markets, aimed at optimizing returns and promoting collective welfare.	Refers to
Jason Fernando [11]	<i>Globalization</i> denotes the transfer of financial instruments, commodities, technology, data, and employment opportunities across international boundaries and cultural landscapes. In economic terminology, it delineates the mutual reliance of nations nurtured by unrestricted trade.	Denotes the
Cambridge Academic Content Dictionary [8]	<i>Globalization</i> is the expansion of international trade, primarily led by large corporations engaged in the production and distribution of goods across numerous countries.	The expansion

As evident from Table 1, contemporary sources offer varying perspectives on the definition of this concept. This variance underscores the need for greater theoretical clarity. In light of this, for a comprehensive exploration of the research topic and a more thorough examination of the conceptual framework, the authors propose an additional exploration of the "global economy" concept. It is worth noting that the emergence of the global economy is a direct outcome of the ongoing process of globalization. The global economy constitutes a fundamental element within the field of economics, serving as a fundamental requirement for the successful operation of any sector, an indispensable function for efficient management, and a strategic tool for the prudent and efficient allocation of resources.

As seen from Table 3, modern definitions of the "global economy" concept are pretty ambiguous, and economists interpret this definition differently.

Table 3. Current definitions of the concept of "global economy".		
Source	Definition	Morphological sign
Statista Research Department [25]	The global economy encompasses all economic activities occurring within individual countries as well as those transpiring between different nations. Each country operates as an independent entity with its own industrial production, labour market, financial sector, resources, and environmental factors.	Encompasses
David W. Cooney [9]	The global economy essentially boils down to the fact that the banking sector and certain significant corporations have expanded to such an extent that they no longer exhibit allegiance to any specific nation.	Essentially boils
Business Dictionary [5]	The global economy refers to the interconnected economic activities that span across various countries, with the potential to exert both positive and negative impacts on one another.	Refers to
Cambridge Academic Content Dictionary [7]	The global economy is the intricate system of industries and trade worldwide that has evolved as a consequence of globalization.	The intricate system
G. W. Maxwell [18]	A global economy facilitates the exchange of goods and services within an extensive worldwide market. It essentially forms a borderless world where businesses and individuals engage in research and development and sales activities across different geographical regions.	Facilitates
Belei S.I., Boida S.V., Kolo-sinska M.I. [1]	The global economy is a natural outcome of economic globalization and the emergence of a unified global economic entity.	Natural outcome

David W. Cooney associates the global economy primarily with large corporations, while G. W. Maxwell defines it as the exchange of goods and services within a vast global market. However, the authors argue that Maxwell's definition lacks consideration of the global economy's purpose. The Cambridge Academic Content Dictionary adopts a systems approach in its definition, while the Business Dictionary emphasizes economic activities between nations that are interconnected. The authors contend that the Business Dictionary's definition better encapsulates the essence of the global economy than the Cambridge Academic Content Dictionary's. Belei S.I., Boida S.V., and Kolosinska M.I. define the global economy as a natural outcome of economic globalization, although they suggest that this definition may somewhat limit its scope.

The next step to uncovering the categorical basis of antifragile in the global economy under the influence of globalization changes is the analysis of the theoretical basis. A schematic display of the categorical basis of antifragile in the global economy is shown in Figure 1.

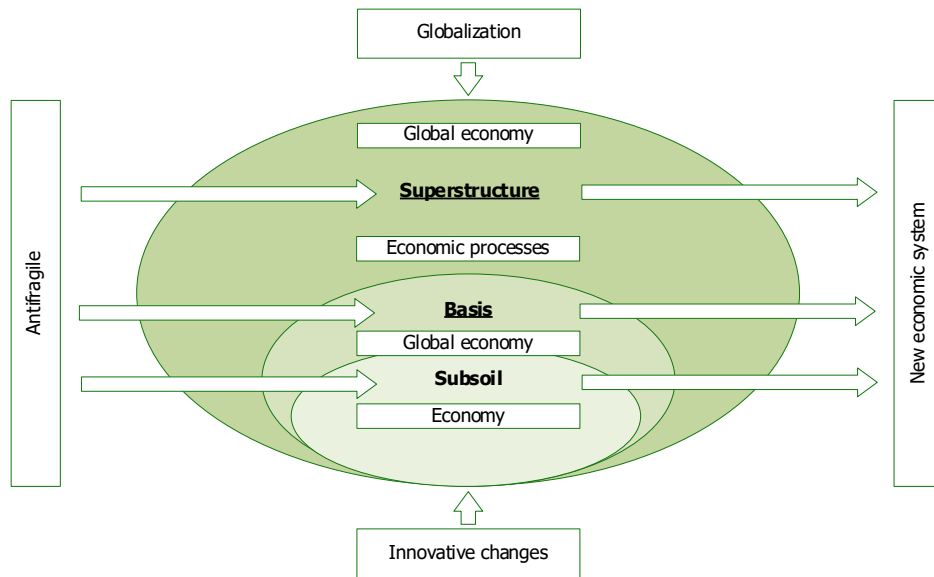
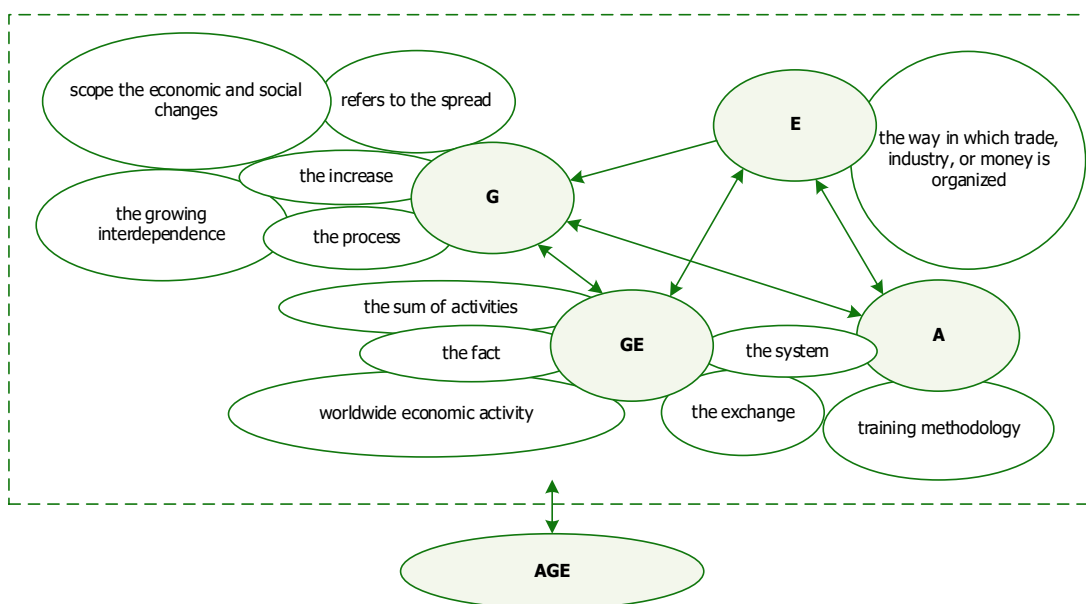


Figure 1. Categorical basis of antifragile in the global economy.

To clarify these various definitions and address existing contradictions in the conceptual framework, the authors propose employing graph-theoretic structures to visually illustrate the relationships between these terms and the concept of the "antifragile in the global economy" (Figure 2).



E – economy, G – globalization, A – antifragile, GE – global economy, AGE – antifragile in the global economy.

Figure 2. Interrelation graph of the thesaurus concept of "antifragile in the global economy".

As seen in Figure 1, the "global economy" concept is narrower than the "economy" concept. Examining the interrelationship graph of the thesaurus concept of "antifragile in the global economy", it is worth emphasizing that by its economic nature, the antifragility of the global economy is a dialectical unity of qualitative characteristics.

Therefore, it is appropriate to propose an own definition, which, according to the authors, took into account all the pros and cons of the above interpretations: antifragile in the global economy this process of unpredictable and uncontrollable changes that can act as a new thread for economic global development, which remains in the process of the economic system can start a new round of evolution and improve its quality or vice versa.

The goal of antifragile in the global economy is to build the ability to withstand strong impacts or unexpected events and use them to benefit the development of the global economic system. Creating global economic integration involves reducing trade barriers, harmonizing rules and promoting globalization.

In order to reveal the conceptual foundations of the antifragility of the global economy, the authors of the study propose to reveal the issues of global problems that, being inherently problems, at the same time open up new opportunities for enhancing antifragility in the economy. The study of global problems is quite relevant, taking into account the increased development of integration processes, the formation and effective functioning of global corporations, the liberalization of international trade, the effectiveness of the activities of leading international organizations, the formation and functioning of the international capital market, the functioning of free economic zones, etc. It is worth noting that global problems are problems that are gaining more importance on a larger scale every year. Once upon a time, there was no global problem in the world, but the faster the development of society, states, and the world became, the more prerequisites for global problems arose. Global problems are a set of vital problems of humanity, the solution of which depends on its existence and development prospects. Global problems lead to significant economic and social losses, and all global problems are interconnected; this is clearly illustrated in Figure 3. For many years, scientists have been studying global problems and the process of their influence on the development of the world economic system. However, globalization is not only a grave threat but also new opportunities and prospects for global development and social progress.

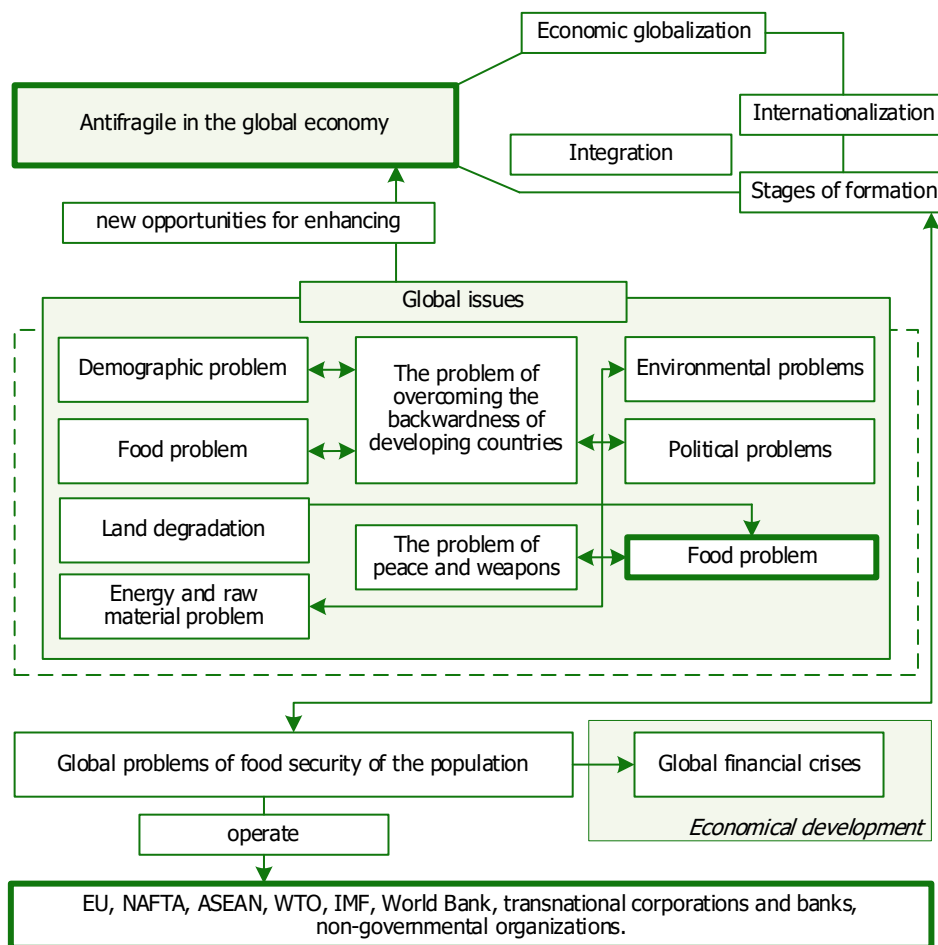


Figure 3. The economic content of global problems as an opportunity for antifragile in the global economy.

Thus, outlining the picture, the authors suggested considering global problems and emphasizing that global problems have a close relationship and act, according to the authors, as a system. Separately, it is worth noting that global problems of food security and the system of global problems affect global financial crises. The figure also shows world organizations that influence and solve global problems from the participation of these organizations. Regional integration associations of countries (European Union, NAFTA, ASEAN and others), international organizations (WTO, IMF, World Bank), transnational corporations, banks, and non-governmental organizations play a leading role in solving global problems.

According to the authors, global financial crises are integral to economic development. An increase in financial and psychological risks contributes to decreased economic activity. The experience of past crises of a planetary scale in the conditions of globalization makes it possible to make sure that one of the prerequisites of the global financial crisis is the cyclicity of economic development. As a result of the GDP growth rate changes, a disproportion in the volume of financial assets arises, as a result - the unfolding of the financial crisis.

Given the above, the authors consider it necessary to achieve the study's goal by considering the dynamics of GDP volumes of completely different developed countries. The authors of the study chose three countries, namely France, Japan, and the USA. Three developed countries with a powerful economic system of the state but countries with different territories, populations, external economy, energy resources, and different political systems - these characteristics are significant because they are one of the aspects of the functioning of the state and an auxiliary link in the global development of its countries. Having analyzed the level of GDP in these countries, we can conclude that there are factors that restrain development and there are factors that accelerate it. Here are examples of factors that can hinder and accelerate development:

Factors that can hinder development:

1. Political instability and corruption: Frequent changes in leadership and corrupt practices can deter foreign investment and economic growth.
2. Poor infrastructure: Inadequate transportation, energy, and communication systems can hinder productivity and trade.
3. Lack of access to education and healthcare: Insufficient investment in education and healthcare can limit human capital development.
4. High levels of debt: Excessive national debt can lead to economic instability and reduced fiscal flexibility.
5. Natural disasters: Frequent natural disasters can disrupt economic activities and require significant resources for recovery.

Factors that can accelerate development:

1. Political stability and good governance: Stable governments with transparent policies can attract investments and foster economic growth.
2. Infrastructure development: Investment in modern infrastructure, such as roads, ports, and technology, can enhance productivity and trade.
3. Access to quality education and healthcare: A well-educated and healthy workforce can drive innovation and productivity.
4. Sound fiscal policies: Prudent fiscal management can create a stable economic environment and attract investors.
5. Innovation and technology adoption: Embracing new technologies and fostering innovation can lead to increased competitiveness and economic development.

Therefore, in Figure 4. the authors presented the dynamics of GDP volumes from 2014-2022.

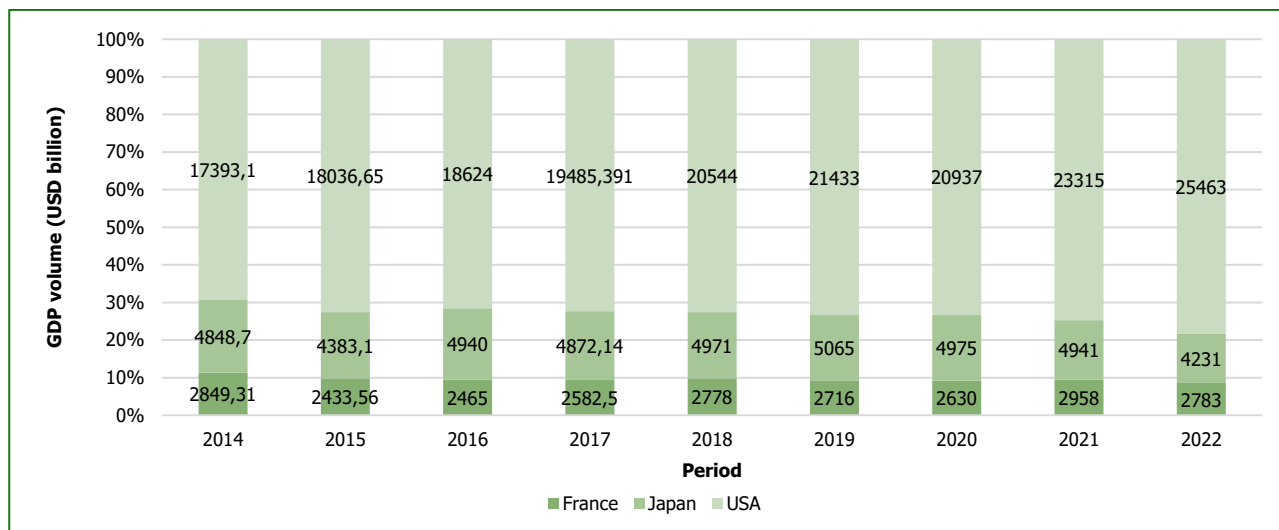


Figure 4. Dynamics of the GDP volumes of France, Japan and the USA in 2014-2022. (Source: constructed by the authors from the source: [12, 14, 27])

As can be seen from Figure 4 over the past eight years, despite economic crises, political conditions, natural disasters, the COVID-19 pandemic, wars, and terrorist attacks, the level of GDP of these countries is almost at the same level, which indicates the antifragility of the economies of these states. This is clear evidence of how a successfully constructed economic system is almost invulnerable and serves the sustainable development of the global economy. The level of GDP is a visual indicator of the health of the country's economy. These countries are economically developed states of the world; the USA has been at the top of the economic rankings for many years.

However, it is worth noting that not only the level of GDP is an indicator of the effective development of the economy. Interrelationships of people, communities, states, and capitals have been taking on a global character for a long time, aiming to open and spread the planetary information space, the market for goods and services. As part of the study, the authors propose to consider the dynamics of the export volumes of the USA, Japan, and France. (Figure 5)

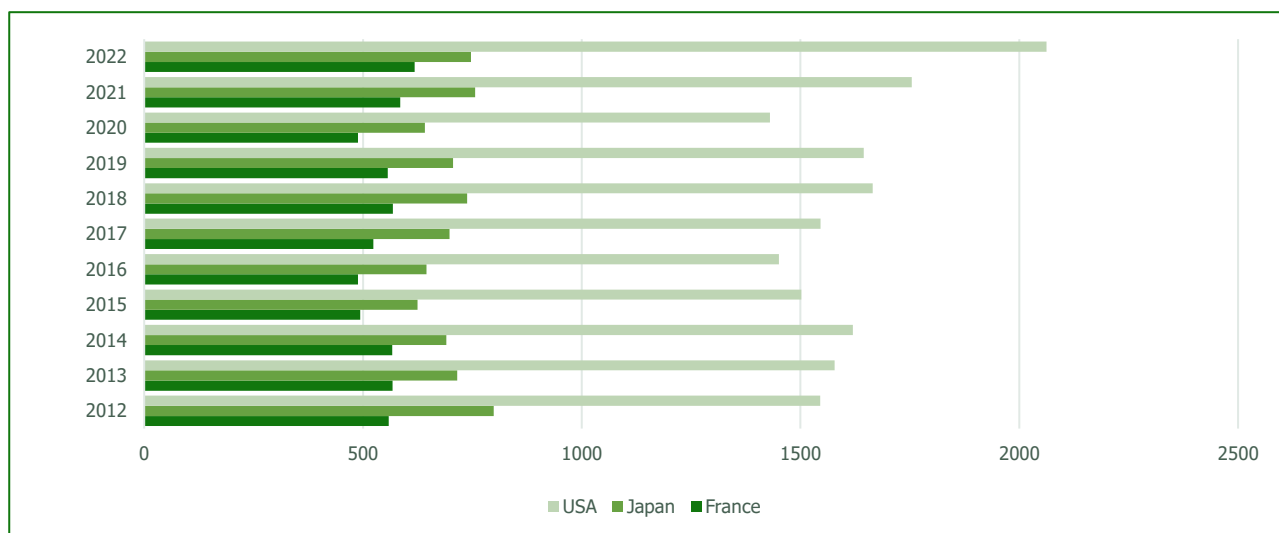


Figure 5. Dynamics of export volumes of the USA, Japan and France (USD) 2012-2022. (Source: constructed by the authors from the source: [28])

As seen from Figure 5, total exports from Japan amounted to USD 641 billion in 2020. The supply of goods from Japan decreased in value terms by 9.11%. Compared to 2019, Exports of goods decreased by USD 64 billion (in 2019, goods worth USD 705 billion were supplied from Japan).

Cumulative exports from France were USD 488 billion in 2020. The decrease in the supply of goods from France in value terms was 12.1%. Compared to 2019, Exports of goods decreased by USD 67 billion (in 2019, goods worth USD 556 billion were supplied from France).

Cumulative exports from the USA were USD 1.43 trillion in 2020. The reduction in the supply of goods from the USA in terms of value was 13%. Compared to 2019, Exports of goods decreased by USD 214 billion (in 2019, goods from the US were delivered for USD 1.64 trillion).

At the same time, not only the quantitative dynamics of export indicators are impressive, but also big changes from year to year (Figure 6).

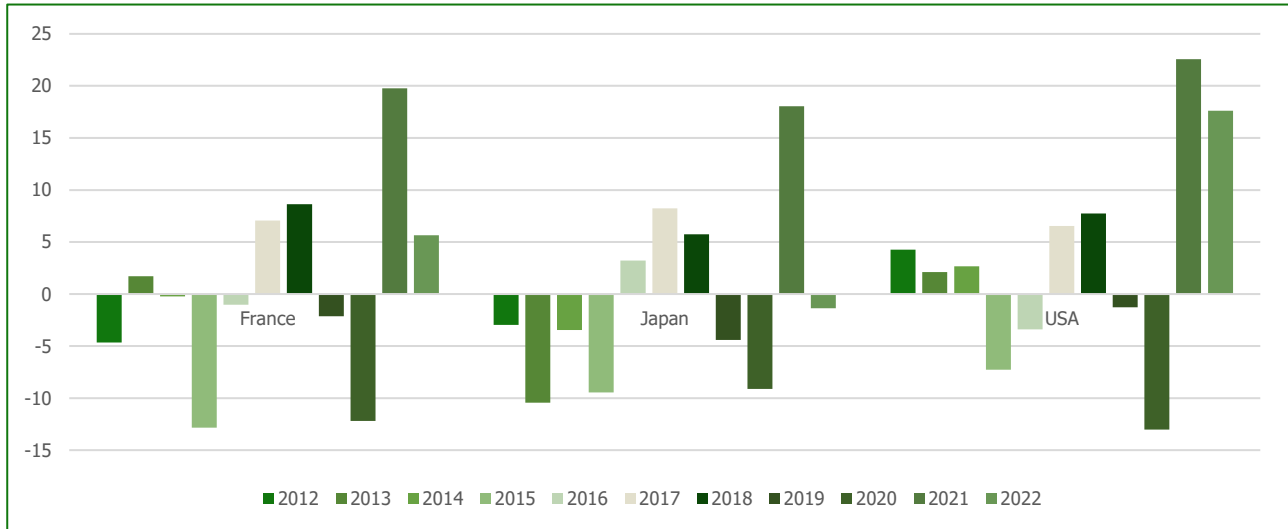


Figure 6. Dynamics of the ratio of volume % of exports of France, Japan and the USA from 2012-2022. (Source: constructed by the authors from the source: [28])

The dynamics are pretty unstable using the dynamics of the ratio of volume % of exports of France, Japan, and the USA from 2012-2021. However, the question arises where exactly these economically developed countries export goods. The primary destinations from France are European countries, namely Germany with a share of 14.3% (USD 69 billion), Italy with a share of 7.6% (USD 37 billion), Belgium with a share of 7.36% (USD 35 billion), Spain with a share of 7.29% (USD 35 billion), the Netherlands with a share of 3.77% (USD 18.4 billion), Switzerland with a share of 3.37% (USD 16.4 billion), Poland with a share of 2.18% (10 .6 billion dollars). France exports to the United States with a share of 7.59% (USD 37 billion) and Great Britain with a share of 6.34% (USD 30 billion), as well as to China with a share of 4.08% (USD 19.9 billion).

Japan is an island country among the top ten countries in the world regarding exports and imports — a country with a very developed standard of living. For many years, it has confidently held the leading position in the United States regarding GDP. The main destinations for exporting goods from Japan are China, with a share of 22% (USD 141 billion), and the USA, with 18.5% (USD 118 billion). South Korea has a share of 6.96% (USD 44 billion), Hong Kong with a share of 4.99% (USD 32 billion), Thailand with a share of 3.98% (USD 25 billion), Singapore with a share of 2.75% (USD 17.6 billion) Vietnam with a share of 2.66% (USD 17.1 billion), Malaysia with a share of 1.96% (USD 12.5 billion) and other Asian countries with a share of 6.92% (USD 44 billion). Among European countries, Germany has a share of 2.74% (USD 17.5 billion).

Summing up the dynamics of the volume of exports, it is worth paying attention to the USA; the main direction of exports to the USA is Canada, with a share of 17.8% (USD 255 billion), and Mexico, with 14.8% (USD 212 billion). Among South America, the export rate to Brazil is low, with a share of 2.45% (USD 35 billion).

Asian countries receive from the US exports to China with a share of 8.71% (USD 124 billion) and Japan with a share of 4.48% (USD 64 billion, South Korea with a share of 3.58% (USD 51 billion), and other Asian countries with a share of 2.13% (USD 30 billion).

European countries, namely the UK with a share of 4.12% (USD 58 billion), Germany with a share of 3.99% (USD 57 billion) and the Netherlands with a share of 3.18% (USD 45 billion).

Thus, the statistical data indicate how high-quality growth is unique in terms of its scale and impact on the economy of international trade.

DISCUSSION

The issue of the theoretical significance surrounding the definition of "antifragile in the global economy" pertains to the appropriateness of prioritizing the four key concepts (economy, globalization, global economy, and antifragile) in the context of global economic resilience.

The paper presents findings derived from the theoretical underpinning of the concept of "antifragile in the global economy." It's important to note that there is a substantial debate regarding the precise definition of antifragility within the global economy, especially considering there is no officially accepted definition to date. Consequently, the authors of this study introduced a similar term for the first time.

Nevertheless, it necessitates a thorough examination in terms of the adequacy of the proposed definition. This prompts us to consider several interconnected issues.

The initial inquiry revolves around the legitimacy of prioritizing these four sectors concerning global economic antifragility. The proponent of the antifragile concept, Nasim Taleb [26], suggests that antifragility represents a quality that can contribute to both positive and negative developments. However, within the framework of the global economy, antifragility should serve the purpose of identifying potential instigators of instability and devising strategies to mitigate adverse consequences through restructuring.

The authors have outlined the economic implications of global challenges in the context of the global economy. This aspect is a subject of debate. How precisely can global challenges enhance antifragility within the global economy? In our defence, we can argue that global challenges present new opportunities for combating economic instability. Addressing these global challenges requires maintaining the functionality of all sectors of the economy. Therefore, the foundation of antifragility in the global economy is contingent upon the establishment of a sectoral framework aimed at generating additional societal benefits and fostering the development of the global economic system.

The next question for discussion: how to consider antifragile in the global economy? However, it is worth noting that antifragility is a phenomenon that will manifest itself at the macro, meso and micro levels. With regard to antifragile in the global economy, this is a somewhat debatable issue, because the global economy is a macro-economic phenomenon in itself. However, antifragility in the global economy is revealed by the interconnectedness of levels. For example, the influence on the meso level can be revealed by the example of the grain agreement of Ukraine, due to the war (a global problem), the unpredictability of the meso level was reclassified as a global problem of the macro level.

Another aspect that warrants clarification is the relationship between the dynamics of GDP and exports and the concept of antifragility within the global economy. It's important to note that antifragility in the global economy serves as an indicator of economic development. However, during the course of development, the sectoral framework becomes increasingly complex and scales up in proportion to the economic foundation. This can result in global structural disparities among countries' economies.

In cases where development proceeds in a predictable manner, additional industries saturate their respective markets and lose their initial functionality. This phenomenon is entirely natural and characteristic of virtually all economic sectors. When such a situation arises, a global structural imbalance emerges within the economy: the weakened foundation of priority industries cannot withstand the inefficient adaptation of these additional industries. Consequently, this conflict leads to a crisis and necessitates an economic restructuring that reinforces the foundation and renews the superstructure of the relevant industries.

Hence, the findings of our study on antifragility in the global economy provide further insights into the driving forces, potential solutions to global challenges, and the mechanisms of transformation within a specific economic framework.

CONCLUSIONS

However, the current study aims to improve and develop such a categorical unit as the antifragile in the global economy by determining the theoretical background and conceptual foundations.

Thus, the study of the antifragile in the global economy in the context of the development of the world economy allowed the authors to make sure that the world has been changing in the context of globalization in recent years.

The study showed that the issue of antifragile in the global economy is quite relevant, taking into account the increased development of the processes of internationalization and integration, the formation and effective functioning of global

corporations, the liberalization of international trade, the effectiveness of the activities of leading international organizations, the formation and functioning of the international capital market, the functioning of free economic zones, etc.

In the work, the authors solved the set tasks that helped to achieve the goal of the research. The concepts of economy, anti-fragile, global economy and globalization are clarified. On the basis of these concepts, a definition of the concept of "antifragile in the global economy" is provided by constructing a graphic perspective. The authors of the study expanded the theoretical base of the global economy by defining the concept of "antifragile in the global economy" to clarify and develop the conceptual and categorical apparatus and provide recommendations on economic development taking into account globalization processes.

The main goal of antifragility in the global economy was defined, which made it possible to more correctly reveal the concept of "antifragile in the global economy".

The economic content of global problems as a component of economic development is substantiated, with the help of which it is determined that global problems can be a motivational aspect for antifragile in the global economy. Antifragile in the global economy, taking into account global problems, can become an indicator of the system of global economic development.

The dynamics of GDP and export indicators were analyzed using the example of three countries (USA, France and Japan). The authors of the study chose these countries because France is a country in the European Union with average economic indicators. The USA is an extreme country with a strong economy, from another continent, and Japan is a representative country of the Asian economy.

According to the authors, further research should indicate the mechanism of development of antifragile in the global economy, which will reveal the global context of economic development and play the role of a regulator of global socio-economic development.

Thus, the proposed improvements and the proposed hypothesis made it possible to develop a theoretical apparatus of anti-fragility of the global economy that logically fits the existing theoretical and practical concepts and also allows to significantly enrich and clarify the existing developments in the field of the global economy.

ADDITIONAL INFORMATION

AUTHOR CONTRIBUTIONS

Conceptualization: *Iryna Shevchenko, Larysa Liubokhynets, Iryna Zvarych*

Data curation: *Larysa Liubokhynets, Oksana Brodovska, Mykhailo Bril*

Formal Analysis: *Iryna Shevchenko, Mykhailo Bril*

Methodology: *Iryna Shevchenko, Larysa Liubokhynets, Oksana Brodovska*

Supervision: *Iryna Zvarych*

Validation: *Larysa Liubokhynets, Oksana Brodovska, Mykhailo Bril*

Investigation: *Iryna Shevchenko, Larysa Liubokhynets, Iryna Zvarych, Oksana Brodovska, Mykhailo Bril*

Visualization: *Iryna Zvarych*

Writing – original draft: *Iryna Shevchenko, Larysa Liubokhynets, Iryna Zvarych, Oksana Brodovska, Mykhailo Bril*

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Шевченко І., Любохинець Л., Зварич І., Бродовська О., Бріль М.

АНТИКРИХКІСТЬ У ГЛОБАЛЬНІЙ ЕКОНОМІЦІ ЯК ІНДИКАТОР ЕКОНОМІЧНОГО РОЗВИТКУ

Для досягнення поставленої мети дослідження авторами запропоновано розглянути тезаурус поняття «антикрихкість глобальної економіки» шляхом розкриття категоріально-понятійного апарату, а саме понять «економіка», «глобалізація», «антикрихкість» і «глобальна економіка». Із метою розмежування визначених дефініцій та подальшого нівелювання існуючих протиріч у категоріально-понятійному апараті автори пропонують наочно продемонструвати зв'язок між визначеними термінами та поняттям «антикрихкість глобальної економіки» за допомогою теоретико-графових структур. У роботі за допомогою аналізу сучасних джерел автори зробили спробу сформулювати власне визначення, яке врахувало б усі «за» та «проти» існуючих трактувань. Наведене визначення відрізняється від існуючих урахуванням ключових ознак антикрихкості, розширює поняття глобальної економіки з урахуванням її призначення та розкриває зміст економіки загалом.

Автори дослідження розкрили економічний зміст глобальних проблем як складової економічного розвитку з метою виявлення детермінантів, які сприяють розвитку світової економічної системи. У роботі проаналізовано динаміку обсягів ВВП трьох розвинених країн, а саме: Франції, Японії та США – шляхом побудови діаграми за показниками ВВП за 2014-2022 рр. Наведена в роботі динаміка обсягу експорту США, Японії та Франції в доларах США й динаміка співвідношення обсягу % експорту Франції, Японії та США за 2014-2021 рр. дозволила авторам дослідження зробити висновок про антикрихкість у глобальній економіці.

У статті розглядається вплив глобальних фінансових криз на світову економічну систему, а саме вплив на надвеликі інвестиційні компанії, фінансова криза яких є детонатором світової кризи.

Ключові слова: глобалізація, євроінтеграція, розвиток, економічний розвиток, світова криза, фінансова криза, антикрихкість

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