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**DEVELOPMENT OF
RISK TYPES OF
INSURANCE IN
UKRAINE UNDER
CONDITIONS OF
UNCERTAINTY IN
THE CONTEXT OF
EUROPEAN
INTEGRATION****Abstract**

The dominant direction of economic development in the 21st century is digital transformation, which is fundamentally changing all areas of economic activity, including the insurance market. However, there are additional turbulent conditions that also affect the functioning of the risk insurance sector, including economic restructuring, changes in the regulatory authority (in accordance with the law) and regulatory and legislative ensuring. Under such uncertainty, additional research is needed on modelling the development of risky insurance through the improvement of new insurance products, the development of which will have a positive impact on the formation of a competitive market of risk types of insurance in Ukraine in the context of European integration. In

the course of the study, the main directions of development of the global risk insurance market are identified. The institutional and regulatory framework of Ukraine in the field of insurance is characterised. The main basic EU directives regulating insurance activities and aimed at maintaining a sufficient level of solvency of insurance companies and controlling it are identified. An analysis of the most common and significant global risk over the past three years is carried out. The impact of the insurance sector on the economic development of countries is analysed and an economic-mathematical model of the relationship between the volume of gross insurance premiums and gross domestic product is built. The peculiarities of the insurance market functioning under conditions of uncertainty are revealed. The main trends for the insurance sector in Ukraine in the context of digitalisation are presented. The dynamics of changes in the gross receipts of insurance payments (premiums, contributions) and insurance payments for risk types of insurance and life insurance in Ukraine are characterised. It is established that the Ukrainian insurance market is fundamentally different from the insurance market of other analysed countries, since the Ukrainian market is dominated by risk insurance, which accounts for more than 95% of the total volume of earned insurance premiums and insurance payments/compensations. The model of development of risk insurance in Ukraine is built.

Keywords: *insurance, regulatory-legal ensuring, institutional support, European Union, Ukraine, development dominants, correlation-regression analysis, modelling.*

Introduction

Sustainable development of country and, in particular, its economic stability are influenced by a number of factors, one of which is the state of financial market. At the current stage of formation, there are certain financial, economic, political and social constraints that have a comprehensive impact on financial markets. A well-developed financial system increases the efficiency of financial decisions and improves the allocation of resources in the economy, which contributes to economic growth.

Financial development contributes to long-term economic growth, even though it can lead to economic downturns in the short term due to financial crises. In recent decades, the importance of the economy has increased, mainly due to the liberalisation of financial systems,

globalisation and conglomeration of financial markets. The role of the insurance sector and its contribution to economic growth has been highly recognised by academia and major international organisations such as UNCTAD, the World Bank and the International Monetary Fund.

The development of an efficient and reliable insurance market and insurance ecosystem as a component of the financial market and financial ecosystem of Ukraine requires significant efforts from all stakeholders, as it serves as a kind of airbag against the impact of possible factors for the country's economic stability. This necessitates a vector orientation in the development of the insurance market, including the development of new products.

In the context of digitalisation, informatisation, convergence and uncertainty in Ukraine and globally are developing of professional activities such as outsourcing, auditing, provision of medical services by private companies, including IT medicine, management of crowdfunding and crowdinvestment platforms, activities using natural resources, etc. Therefore, given the novelty of their activities, the lack of practical experience of these professional representatives can lead to significant losses for all participants in economic processes. Particular attention should be paid to such risks, where insurance can be seen as a method of risk reduction and indirect concern for the safety of members of the economic community, and taking into account the accumulated foreign experience, trying to adapt parts of it in the domestic market.

Research on the issues of modelling the development of risks insurance under conditions of uncertainty is reflected in the works of many domestic and international scholars. In particular, they define the theoretical foundations of the insurance market development, study the issues of digitalisation as a competitive advantage, transformation of the insurance market in the context of digital technologies, the development of the financial system under the influence of Covid-19 and in the process of forming the insurance ecosystem, the peculiarities of the insurance market functioning under uncertainty, its development trajectory and current development dominants.

Currently, scientists from different countries identify different main directions of development of the global market of risk types of

insurance, but the main ones are shown in Figure 2.1. The first area is the development of deposit insurance and credit union lending, which are an essential part of the financial protection process in many countries. Credit unions depend on the volume of deposits. Therefore, it is necessary to ensure that depositors are protected from negative consequences that may arise as a result of the ineffective operation of such organisations, especially in the face of financial market instability, exchange rate volatility, riskiness, etc.

insurance deposits	• aimed at reducing the risk of non-repayment or insolvency risk in respect of deposits and loans
insurance of geopolitical risks	• aimed at mitigating the risk of impact on the financial development of the insured under conditions of geopolitical uncertainty
directors and officers liability insurance	• aimed at reducing the risk of financial losses of companies caused by making erroneous management decisions on the organisation and conduct of business
insurance risks of the cyber insurance	• aimed at mitigating the risk from the use of information technology in the conduct of operational activities

Figure 2.1 Key trends in the development of the global risk insurance market

Source: compiled and built by the authors

For example, I. Hasan, L. Liu, E. Saunders, G. Zhang in their research, prove that during the financial crisis of 2007-2009, credit spreads increased and corporate lending became more severe, especially for foreign borrowers (Hasan *et al.*, 2022). They also found that banks in countries with deposit insurance in place reduced their overall credit spreads to a lesser extent and recovered more quickly from the crisis. In addition, analysing the impact of deposit insurance on the volume, structure and quality of credit union lending, other researchers (Nguyen *et al.*, 2022) found that an increase in the maximum coverage of insured deposits led to credit unions providing more loans due to a decrease in their quality.

Researchers in Southeast Asia (Noman *et al.*, 2022), who study the impact of the indirect function of competition on the relationship between deposit insurance and banks' risk-taking during the economic crisis in these countries, found that deposit insurance reduces banking risk in the absence of competition by reducing both credit risk and insolvency risk. However, it has the effect of increasing banking risk, which leads to a weakening of banking stability in a highly competitive environment. This, in turn, leads to a weakening of banking instability through deposit insurance during the financial crisis.

In European countries, when assessing the distribution of EDIS losses, taking into account various sources of systemic risk, interconnected bank assets, and the sensitivity of the results to the riskiness of the bank portfolio, researchers (Fernández-Aguado *et al.*, 2022) found that the interconnectedness of banks in different countries has a significant impact on the accumulation of losses in the final distribution. Similarly, a deterioration in the quality of bank portfolios leads to a significant reduction in the ability of funds to absorb losses, i.e., a negative impact on stability during an economic downturn.

The insurance sector and insurance business at all levels of the market (local, regional, national, international, global) are characterised by systemic risk, which insurance companies are committed to in the formation of a global interconnected system (Clemente & Cornaro, 2022). Therefore, based on the experience gained during the financial crisis, banking regulation has changed significantly in several areas at the national and international levels, which serves as a prerequisite for the integration of systemic insurers with their simultaneous identification by certain criteria. Such integration will help insurance regulators to take into account significant aspects of systemic risk.

It is equally important in the world to take into account geopolitical events and risks that affect the financial development of the insurance business. Therefore, the authors of (Hemrit & Nakhli, 2021), who conducted a study of short-term and long-term asymmetric responses of insurance premiums, concluded and showed that geopolitical risk has an asymmetric and nonlinear effect. At the same time, most developing countries are subject to a much greater

impact in the long run. The research shows that it is necessary to take into account the impact of such risks on the dynamics of insurance premiums in order to minimise the risk of geopolitical uncertainty.

The third area is “the development of directors and officers liability insurance (D&O insurance), which is aimed at providing protection against financial losses of companies caused by erroneous management decisions on the organisation and conduct of business. The cost of such insurance is significant, given the growing popularity of this insurance programme, which raises certain questions about its effectiveness. However, the use of this type of insurance facilitates internal monitoring and audits of directors and officers, for which external directors are more likely to be hired to implement the control mechanism, based on the assessment of which decisions are made on the reward or punishment of companies by the insurer. The research of scientists in (Liao, Chuang, & Wang, 2022) allowed to confirm and argue for the improvement of management monitoring simultaneously with the purchase of D&O insurance, which benefits shareholders and helps to reduce the cost of financing optimisers, especially when external governance is weak” (Demianchuk & Maslii, 2022).

In the context of global digitalisation, the transfer of risks to the cyber insurance industry for insurance is becoming increasingly popular (Demyanchuk, Maslii, & Stankova, 2018; Malavasi *et al.*, 2022), which is the fourth area and is due to the growing dependence of businesses, enterprises, authorities, and regulators on information technology, as any failure will negatively affect the ability of these entities to perform their tasks.

The insurance services market is steadily evolving rapidly in most countries of the world, including Ukraine: the volume of insurance premiums received and their percentage of GDP are increasing (Demianchuk, Zhuravel, & Melnyk, 2021). Despite the growth of one market indicator, the Ukrainian insurance market can be described as operating in an unstable environment, which leads to untimely fulfilment of obligations to policyholders, imperfect structure, and weak development of reinsurance. At the same time, there is a lack of public confidence in the insurance institution, which provokes low demand for insurance services despite the large supply.

Among the Ukrainian scholars studying various issues of

insurance market development, it is worth highlighting the study of the economic nature of insurance market security, which allowed the authors (Prikazyuk & Motashko, 2015) to identify the main factors affecting the security of the insurance market and to propose a set of measures aimed at its further development. Insurance of liability for environmental pollution from the consequences of industrial activity should be distinguished as a separate link [Wang et al., 2021].

In order to develop commercial trade between the countries, Vietnamese scientists are studying the issue (Van Dat & Huy, 2021) of expanding the insurance market with ancillary policies for insurance of employees in the banking and insurance sector in accordance with the FTA or EVFTA agreements. Another important issue is the study of monopoly insurance, which plays an important role in providing municipalities and companies with refinancing opportunities (Jayasuriya Daluwathumullagamage, 2021). This paper identified the main failures, success factors, and the need for insurance in the future, as well as explored the potential of monopolies during the pandemic, which helped them develop a framework for monopoly management and regulation. As monopoly insurance has a significant impact on taxpayers, public policy and bond investors.

The study of the insurance market of Ukraine and its trends allowed the authors of (Demianchuk & Drozdyna, 2021) to determine the cyclical nature of development. Using a randomised R/S analysis (Babenko-Levada, 2021), the authors confirmed the stability of the insurance market dynamics and its fractal similarity in six out of ten indicators of the insurance market development. At the same time, they confirmed the trend break at the moment of transition from one fractal to another. This allowed them to predict the next potentially crisis periods for the Ukrainian insurance market.

Ukraine's insurance market has every opportunity to unlock its potential and, as a result, to function successfully and develop further. Due to the past mistakes of the state authorities in introducing an effective mechanism for providing services in the insurance market, there are still many points for improving the insurance processes. Increasingly, economic development at the global level determines the prospects and challenges "facing the insurance sector of each individual country. This is especially true

for domestic insurers that are active in several markets. The complication of interactions between participants is due to the awareness of the post-financial crisis, as financial instability in one region can spread and affect operations in another (Sova, 2018). Improving the level of competition in the domestic insurance market will primarily be facilitated by addressing macroeconomic issues that go beyond insurance activities”.

Therefore, taking into account the existing developments of world and Ukrainian scientists, additional research is needed on modelling the development of risk types of insurance, taking into account the constantly changing operating conditions, improvement of new insurance products, the development of which would have a positive impact on the formation of a competitive market for risk types of insurance in Ukraine.

Materials and Methods

The study is based on a combination of general scientific and special methods of cognition of the theoretical, methodological and conceptual foundations of the development of the insurance market of Ukraine in conditions of uncertainty and with due regard for European integration. The conceptual-methodological basis of the work is the fundamental provisions of world and Ukrainian scholars on the theory and practice of insurance market development, which served as the basis for identifying the main directions of development of the global market for risk types of insurance. The information base of the study was formed by the regulatory-legal documents of the European Union and Ukraine, based on the analysis of which their institutional and institutional ensure was determined. At the beginning of the study, the author outlines the main directions of development of the global insurance market, the basic provisions of the regulatory-legal and institutional framework of the European Union and Ukraine in the context of European integration and the implementation of relevant regulatory changes. The empirical stage of the study consists in conducting a study of the impact of the insurance sector on the economic development of countries. Using correlation-regression analysis, an economic-mathematical model of the relationship between the volume of gross insurance premiums and gross domestic product is built on the basis

of statistical information from 36 countries over the past 21 years (664 observations directly). Based on a structural analysis the volumes of insurance premiums in OECD countries, the dominants of the development of risk classes of insurance are identified. Given that the insurance industry is directly related to risks and requires constant review of management decisions at all levels of regulation, the conditions of uncertainty in which the Ukrainian insurance market operates and develops are outlined. Monitoring of the development of risk types of insurance in Ukraine, which allows determining at what stage the Ukrainian market is, is necessary to build a model of risk types of insurance development in Ukraine and to demonstrate the relationship between the development of the market for risk types of insurance services, market participants and society. The statistical data used are those of the European Insurance and Occupational Pensions Authority, the Motor (Transport) Insurance Bureau of Ukraine, the National Bank of Ukraine, the Organisation for Economic Co-operation and Development, the World Bank, the World Economic Forum, the Statistical Organisation of the European Commission, and the Japanese multinational company “Nippon Telegraph and Telephone”.

Results and Discussions

1. Regulatory, legal and institutional ensure of the insurance markets of Ukraine and the European Union

The main institutional entity that carries out state regulation, supervision, licensing in the insurance market (insurers (reinsurers), insurance (reinsurers) brokers) in Ukraine is the National Bank, which, according to (On Amendments to Certain..., 2019), took over such functions from the National Commission for State Regulation of Financial Services Markets from 01.07.2020. The purpose of the changes is to update the outdated legislative framework, digitalise and revive public confidence in the non-banking financial institutions sector, implement a financial ecosystem, intensify the protection of the rights and interests of consumers of relevant services and further innovative development of the non-banking services market.

The institutional framework of the insurance sector based on the structure of insurance regulation and supervision, in particular, the

basic conditions that form the legislation (regulatory framework), policy regulation and non-legislative regulation; institutional structure; risk-based supervision, prudential and market regulation. The main strategic documents in the field of insurance market development in Ukraine are the “Strategy for the Development of the Financial Sector of Ukraine until 2025” (National Bank of Ukraine, 2021) and the White Paper “The Future of Insurance Market Regulation” (National Bank of Ukraine, 2020). The legal-regulatory framework for the insurance sector consists of four components, including regulations defining the provisions of general regulation, licensing and registration, supervision and inspection, and reporting.

Currently, Ukraine is introducing “a new model of insurance market regulation that will take into account the provisions of EU directives, international IAIS principles, and global practices, and will be implemented gradually during the transition period” (National Bank of Ukraine, 2021). In order to integrate Ukraine’s financial market “*into the European financial area, the National Bank of Ukraine is working to increase the level of cooperation with the supervisory authorities of EU member states. In particular, in the field of regulation and supervision of banks and non-bank financial institutions, as well as strengthening cooperation with the European Banking Authority (EBA) and the European Insurance and Occupational and Pensions Authority (EIOPA), the European Central Bank (ECB)*” (National Bank of Ukraine, 2022). Also necessitates the development and implementation of a regulatory framework for the insurance sector that is in line with European standards and international practice. This will facilitate the development of the insurance sector, in particular by addressing the problem of public and citizen distrust in this area. In such an environment, there should be economic regulation that restrains potential market power and increases efficiency while protecting consumers and maintaining quality and other standards.

As the regulatory environment changes, the insurance technology industry is also changing. In the future, for example, third-party data providers will provide consumer information to insurers without providing detailed data. Insurers will receive only the information they need and avoid the regulatory issues that often accompany a more robust data set. In the current insurance regulatory framework,

InsurTech can be helpful in meeting compliance requirements. InsurTech is basically a technological innovation that allows companies in the insurance industry to do their jobs more efficiently, while maintaining optimal levels of compliance and customer service.

Given that most of the information processed and used by insurance companies is confidential and its integrity must be preserved, certain types of technology are required, for example:

- homomorphic computing (an advanced data encryption tool that allows you to work with information without the need for decryption);

- multi-party computing (breaking data into meaningless parts, allowing different people with different computers to come together to operate on those parts without even seeing the whole);

- hybrid computing (a combination of the first two);

- private set intersection (a cryptographic method of encrypting data by which two parties can compare their encrypted data sets to determine the intersection);

- secure, searchable encryption (secure, searchable encryption uses a server to search encrypted data, extracting only the information relevant to your search; all other information remains confidential).

These cryptographic protocol technologies help to maintain privacy and regulatory compliance, which is the gold standard in the insurance industry, as consumers own their data and have the right to consent to how it is used. That is why it is so important for insurers to keep track of where consumer data is stored and how it is used, which can present a completely new set of challenges. There is many data to manage, so using InsurTech to work on the process now can help mitigate a crisis later – and ensure compliance when data privacy laws come into effect in our country.

The main regulatory act governing the insurance market and insurance in Ukraine is the Law of Ukraine “On Insurance”, which was adopted on 18 November 2021 and will be in force from 01 January 2024, insurance is “legal relations for the protection of insurance interests of individuals and legal entities (insurance protection) in the insurance of risks related to life, health, disability and pension provision, with the ownership, use and disposal of

property, with compensation by the insured for damage caused to a person or his/her property, as well as damage caused to a legal entity in the event of insured events specified in the insurance contract, at the expense of funds formed by payment of insurance premiums (payments, contributions) by insurers, income from the placement of such funds and other insurer's income received in accordance with the law" (On Insurance, 2021).

The main amendments and additions provided for by the new version of the Law are as follows:

1. Requirements for new insurers to enter the market. Insurers that intend to enter the insurance market must have a transparent ownership structure and provide information on the owners of significant shareholdings. The founders of an insurance company must have a good business reputation and satisfactory property and financial standing. When registering, insurers must submit a development plan for the next three years. The requirements for corporate governance of an insurance company will become proportional, i.e. the higher the level of significance, the more requirements. The importance of compliance, risk management, actuarial and internal audit functions is increasing. These individuals, as well as the insurance company's executives, must meet certain qualification requirements for professional suitability. It also establishes a differentiated approach to the minimum amount of capital: 1.8 million dollars USA for life insurance companies and insurers licensed to insure loans and certain types of liability, and 1.2 million dollars USA for other insurers.

2. Solvency requirements. Two solvency approaches are established: basic (Solvency II), which will be applied to insurers providing life insurance, licensed to insure loans and certain types of liability; and simplified (Solvency I). Within three years of the new Law "On Insurance" coming into force, all insurers are required to bring their solvency levels in line with the requirements of the simplified approach. It also provides for the calculation indicators of minimum capital and solvency capital. The minimum capital must ensure coverage of unforeseen losses in the course of the insurer's operations for one year. The solvency capital assumes a higher probability of risk occurrence compared to the previous indicator and will be introduced gradually.

3. Requirements for licensing activities, in particular, it is envisaged to obtain only one license instead of several for each type of activity. The NBU will license insurance companies by class of insurance. Insurers will have the opportunity to change the scope of their licenses by adding new classes or reducing the list of classes. The Law sets out 18 classes for non-life insurance and 5 classes for life insurance. However, the ban on combining life insurance and other types of insurance remains unchanged.

4. Requirements for insurance intermediaries who are required to registering with the unified register. The Law sets requirements for their level of competence and areas of training, as well as the need to disclose certain information to consumers of insurance services. In order to protect their funds, insurance intermediaries are required to open special accounts to receive insurance premiums paid by insureds.

5. Requirements for termination of operations. Insurers may withdraw from the market either compulsorily or voluntarily (e.g. through liquidation, reorganisation or transfer of the insurance portfolio). The Law establishes the grounds for declaring an insurer insolvent and revoking its insurance license, in which case it will be subject to a forced exit from the market. A temporary administration may be introduced to protect the interests of consumers. Insurers may also transfer insurance contracts to another insurance company, and the transfer of assets and liabilities will be subject to the NBU's consent and supervision.

6. Requirements for supervision and regulation under the risk-based approach. The main purpose of such supervision is to assess the future and current solvency of an insurer, as well as to identify risks and threats to the latter in the course of its operations at the initial stages. To this end, the NBU will take various supervisory actions: measures of influence and early intervention, as well as corrective measures. All of them can be used to restore and improve the financial condition of an insurance company.

7. Requirements for the sale of insurance services and insurance contracts. Insurers must inform insureds of all the terms and conditions of insurance contracts, including the amount of the insurance premium, the deadline for its payment and liability for violation of this deadline; as well as information on the cost of the

insurance service and the part of the commission paid by the client (Motor (Transport) Insurance Bureau of Ukraine; National Bank of Ukraine).

The same Law provides for the introduction of a clear classification of insurance, which allows for a clearer distinction between property and liability insurance. Such a classification of insurance types, which has long been used in developed countries, helps to organise the risk management system of enterprises in various sectors of economic activity.

In general, the regulatory framework for insure the insurance sector in Ukraine consists of four components (Figure 2.2), including regulations that define the provisions of general regulation, licensing and registration, supervision and inspection, and reporting.

The European insurance market is regulated based on:

1) basic EU directives regulating insurance activities – establishing uniform principles for the formation of reserve funds, assessment of the insurer's financial condition; principles for the ratio of an insurance company's assets to its liabilities; forms and deadlines for reporting, etc.;

2) directives aimed at maintaining and controlling a sufficient level of solvency of insurance companies – setting requirements for the amount of capital, financial resources of the insurer, control and reporting systems.

The EU Basic Directives (European Union) introduced a common terminology for insurance legislation in the EU countries; formed a single classification of insurance types; divided insurance companies into those engaged in risk insurance and those engaged in life insurance; unified requirements for the composition and formation of insurance reserves; divided risks into large and mass risks, as well as depending on the principle of insurance (active and passive); established common principles for assessing the financial condition of insurers; determined that supervision of insurance activities is carried out depending on the type of risk, and that insurers are supervised by the state registration authorities of the insurer; established reporting requirements for insurance companies; introduced a single licence for EU insurers; introduced mutual recognition of the EU insurance regulatory systems; liberalised investment activities of insurers.

General regulation	<input type="checkbox"/> Constitution of Ukraine <input type="checkbox"/> Civil Code of Ukraine <input type="checkbox"/> Commercial Code of Ukraine <input type="checkbox"/> Tax Code of Ukraine <input type="checkbox"/> On financial services and state regulation of financial services markets <input type="checkbox"/> On insurance <input type="checkbox"/> On compulsory insurance of civil liability of owners of land vehicles <input type="checkbox"/> etc.
Licensing and registration	<input type="checkbox"/> On financial services and state regulation of financial services markets <input type="checkbox"/> On compulsory insurance of civil liability of owners of land vehicles <input type="checkbox"/> Issues related to compulsory state insurance for certain types of insurance <input type="checkbox"/> On approval of the Regulation on requirements to the ownership structure of financial service providers <input type="checkbox"/> etc.
Supervision and inspections	<input type="checkbox"/> On approval of the Regulation on the procedure for supervising non-bank financial groups on a consolidated basis <input type="checkbox"/> On approval of the Regulation on organising, conducting and drawing up the results of inspections of non-banking financial services market participants <input type="checkbox"/> On approval of the Regulation on the procedure for imposing administrative fines <input type="checkbox"/> etc.
Reporting	<input type="checkbox"/> On accounting and financial reporting in Ukraine <input type="checkbox"/> On the audit of financial statements and audit activities <input type="checkbox"/> The procedure for submitting financial statements <input type="checkbox"/> On approval of the Rules for preparation and submission of reports by non-banking financial services market participants to the National Bank of Ukraine <input type="checkbox"/> etc.

Figure 2.2 Regulatory-legal support of Ukraine in the insurance sector

Source: compiled by the authors based on data from (National Bank of Ukraine)

An important area is the directives aimed at maintaining and controlling a sufficient level of solvency of insurance companies. These functions in the EU are implemented through the “Solvency” project, whose main objective is to introduce requirements for insurer’s own funds based on an assessment of investment risk in the system as a whole.

Comparing the regulatory framework for insurance in the EU and Ukraine, it should be noted that Ukraine is gradually introducing some elements of the EU's insurance framework. For example, the new version of the Law of Ukraine "On Insurance" provides for the issuance of a single license to insurers and the grouping of insurance by classes, sets solvency requirements in accordance with Solvency I (simplified approach) and Solvency II (basic approach), and requires the calculation of minimum required capital and solvency capital, which are components of the first component of Solvency II.

However, Ukraine's legislative framework in the insurance sector has not yet fully reached the level of EU countries, so it needs to be constantly improved. For example, Ireland has established an Insurance Indemnity Fund at the legislative level, to which each insurer is obliged to pay 2% of gross premiums (National Bank of Ukraine, 2022). In view of this, it would be advisable for Ukraine to create a specialised institution at the state level – the Insurance Benefits Guarantee Fund, which would serve as protection for insurers in case of insolvency of an insurance company.

2. Analysis of the global risk insurance market

2.1. Correlation-regression analysis of the global insurance market development

Given the riskiness of the insurance sector, it is advisable to consider the most global risks, which are defined by the conditions of global or world uncertainty and affect all areas of economic activity, especially the insurance sector, since its task is to prevent possible losses of individuals and legal entities as a result of unforeseen events. The most influential are global risks, the dynamics of their change, as well as changes in the probability of their occurrence and country.

Thus, for 2022, the specialists of the public company Allianz SE, which is a German financial multinational corporation whose main activity is insurance, annually compile a business risk rating and identify the largest global risks (Figure 2.3).

Given the very rapid digitalisation processes over the past few years, which the world has been experiencing in all areas, they provide not only great development opportunities but also create threats to the internal (related to the actions of insiders) and external

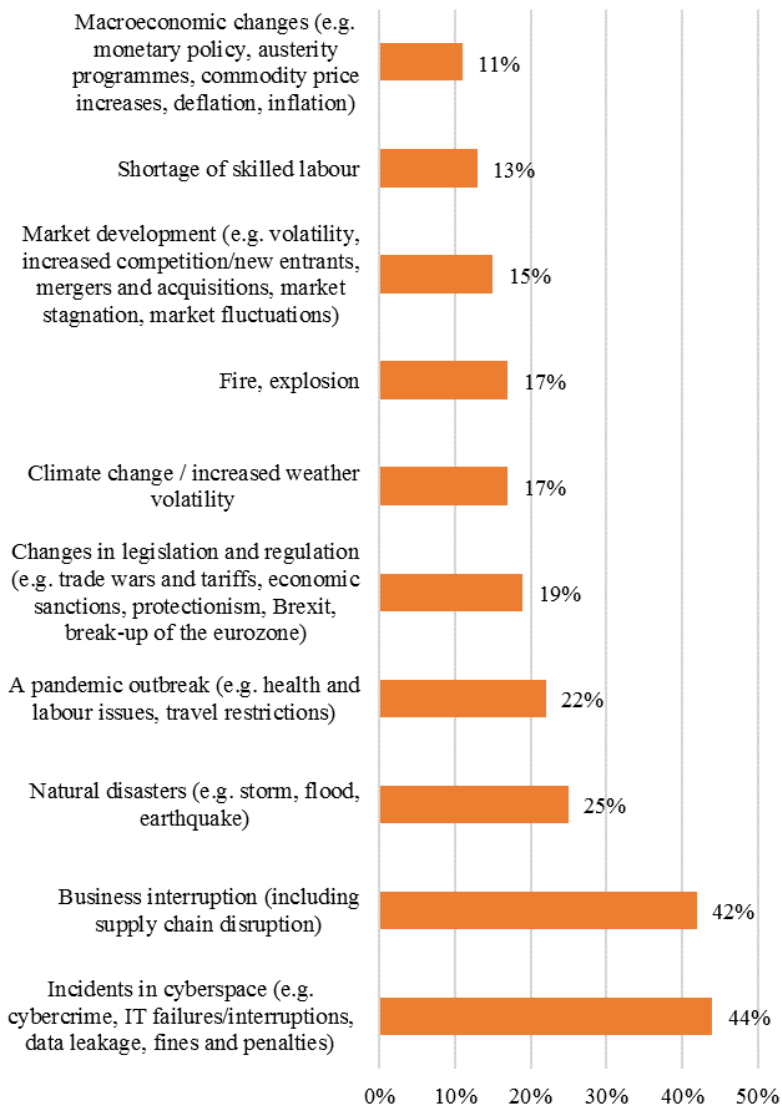


Figure 2.3 Global risks for 2022

Source: compiled by the authors based on data from (European Union)

(related to distant stakeholders) emanating from the assets and technologies used by certain entities. And it is the risk of cyber incidents that has remained the most influential risk for several years in a row. This conclusion was reached by experts of the World Economic Forum, which took into account the opinion of more than 12.000 risk managers of global enterprises and country leaders who identified critical short-term risks for their 124 countries, which serve as a basic basis for decision-making at the national level and provide an idea of how short-term national priorities can compare with global risks and prospects (World Economic Forum, 2020-2022).

The second strongest risk is the risk of business interruption (including supply chain disruption), which has become quite acute with the onset of the global Covid-19 pandemic, as closed borders and inability to travel have posed serious threats to the world's logistics processes. Existing inequalities and uneven economic recovery in different countries may exacerbate social divisions and geopolitical tensions. The above also has a significant impact on environmental risks: "climate change", "extreme weather", "loss of biodiversity", which is the third largest global risk. In the future, this could lead to debt crises and geo-economic confrontation. It also leads to an increase in social risks in the form of "erosion of social cohesion", "livelihood crises" and "deterioration of psychological health".

It should be noted that the economic consequences of the pandemic are exacerbated by imbalances in the labour market, education and skills, which may have negative consequences around the world. Growing insecurity as a result of economic difficulties, the increasing effects of climate change, political instability and military escalation in various countries (especially Ukraine) are already prompting millions of people to leave their homes in search of a better future abroad in their home countries. Therefore, experts identify "forced migration" as a major long-term problem for many countries. In view of all this, a divergent economic recovery is needed, which can be facilitated by the development of the insurance sector.

To present the impact of the insurance sector on the country's economic development, we are analysing the dynamics of changes in net premiums earned in some countries of the world, as well as their share in the GDP of these countries (Tables 2.1-2.2).

Table 2.1

Dynamics of net written insurance premiums earned and payments for non-life insurance in the European Union in 2019-2021, million EUR

Country	Net written insurance premiums earned			Insurance payments		
	2019	2020	2021	2019	2020	2021
Austria	8111.60	8356.55	8614.12	4857.63	4768.55	5089.19
Belgium	14223.41	13615.67	15596.70	8365.56	7380.14	9221.31
Bulgaria	1612.22	1677.29	1740.24	799.62	785.45	782.56
Croatia	788.69	854.37	957.52	394.06	447.35	484.05
Cyprus	386.23	389.30	406.79	205.72	172.24	191.52
Czech Republic	3218.86	3322.04	3771.38	1745.23	1686.18	1915.32
Denmark	8501.60	8974.23	9606.16	5402.02	5367.04	5493.07
Estonia	553.67	484.01	501.50	322.37	281.40	315.09
Finland	3240.00	3532.61	3723.63	2013.28	1979.27	2132.12
France	105382.26	105619.79	111663.33	70645.54	70567.33	75710.52
Germany	105244.04	108818.39	113169.75	65916.56	68795.53	70728.93
Greece	1662.62	1692.99	1712.91	750.51	670.23	731.10
Hungary	1452.42	1423.78	1512.74	612.07	562.21	572.67
Iceland	476.56	407.43	460.97	385.54	329.01	343.78
Ireland	14627.34	19040.41	21997.97	8826.55	12462.57	13461.81
Italy	30401.54	30125.88	30939.48	17657.94	15607.18	17559.52
Latvia	356.45	332.27	331.37	228.76	198.32	212.03
Liechtenstein	599.29	633.75	685.84	424.33	354.94	325.55
Lithuania	448.99	481.43	530.46	248.90	259.75	313.65
Luxembourg	9547.60	9960.97	10882.46	5992.41	6045.95	6284.13
Malta	1543.61	1513.92	2254.48	646.02	713.34	1221.94
Netherlands	59975.55	61768.35	62549.80	53631.89	54823.76	55950.00
Norway	4268.50	4506.62	4193.94	3691.44	3807.59	3852.76
Poland	8041.30	7702.26	7944.00	4151.97	3911.93	4011.14
Portugal	3716.59	3725.70	3994.53	2225.47	2016.48	2230.02
Romania	1123.58	1149.02	1190.84	675.97	636.00	687.22
Slovakia	969.02	981.52	850.45	487.89	448.29	385.06
Slovenia	1774.56	1889.04	1917.19	1182.26	1200.41	1206.46
Spain	31486.26	31978.10	32925.37	20675.17	19742.15	21265.02
Sweden	10273.05	11347.63	10561.93	7478.82	7713.62	7135.94
Average value	14466.91	14876.84	15572.93	9688.05	9791.14	10327.12

Source: compiled by the authors based on data from (European Insurance and Occupational Pensions Authority)

Table 2.2

Dynamics of net written insurance premiums earned and payments by countries under life insurance of the European Union in 2019-2021, million EUR

Country	Net written insurance premiums earned			Insurance payments		
	2019	2020	2021	2019	2020	2021
Austria	7637,24	7661,97	7791,52	8742,62	9271,42	8576,34
Belgium	17083,43	15895,61	17013,09	17827,34	18766,59	18032,56
Bulgaria	135,79	139,60	128,05	63,63	76,62	80,37
Croatia	410,62	348,09	384,51	326,45	380,91	405,53
Cyprus	325,41	350,42	390,40	234,95	242,82	220,67
Czech Republic	1738,98	1620,40	1702,37	1457,57	1203,82	1335,87
Denmark	19104,85	21280,89	22453,44	17320,53	19458,97	20095,10
Estonia	213,21	232,50	263,80	99,17	107,28	139,69
Finland	6022,85	4022,94	5105,80	7617,26	4366,78	4114,54
France	169098,06	135554,50	170451,52	142880,18	136335,14	148781,68
Germany	149159,26	152722,38	155681,63	112930,12	112752,97	116647,51
Greece	2083,03	1964,24	2278,43	1396,06	1343,03	1584,47
Hungary	1509,86	1427,22	1592,65	1267,32	1082,11	1152,00
Iceland	38,02	36,65	42,65	12,93	11,44	11,18
Ireland	35738,43	38669,98	49412,34	30227,51	29295,15	33012,76
Italy	105826,96	101234,39	106050,09	76412,39	76463,08	76333,88
Latvia	118,71	117,64	112,77	85,33	78,65	94,05
Liechtenstein	2073,73	1957,65	1294,46	2019,82	2211,30	2195,22
Lithuania	121,76	129,55	140,00	74,10	74,32	90,46
Luxembourg	19739,14	18666,73	24685,37	11979,83	12578,08	12465,17
Malta	1981,58	2328,66	3053,46	1482,16	1761,35	2316,53
Netherlands	15037,15	13916,67	13427,61	21100,64	20066,03	20107,85
Norway	11334,38	10490,11	17757,70	13015,42	10201,63	17360,88
Poland	4764,06	4294,96	4517,87	4312,34	3838,03	4075,25
Portugal	6524,73	4059,29	7210,14	5844,97	7482,10	8205,48
Romania	383,85	371,35	424,44	195,12	214,53	228,53
Slovakia	962,44	880,07	729,90	759,24	630,59	559,12
Slovenia	467,77	438,81	464,62	421,53	430,22	419,99
Spain	28680,40	21026,38	24860,54	26022,11	24038,19	25017,38
Sweden	19463,76	23270,53	33343,00	13497,95	15373,34	19146,25
Average value	20925,98	19503,67	22425,47	17320,89	17004,55	18093,54

Source: compiled by the authors based on data from (European Insurance and Occupational Pensions Authority)

It is worth noting that non-life insurance accounts for approximately 40-44% (in terms of earned insurance premiums) of the total insurance market and has a positive growth trend. Thus, the amount of net premiums earned in the EU insurance market is increasing annually: from 1063103 million EUR in 2019 to 1142079 million EUR in 2021. The amount of claims is also increasing: from 810268 million EUR in 2019 to 852619 million EUR in 2021. Over 3 years, the amount of net written insurance premiums earned by 7.81%, compared to a slightly lower increase in claims by 6.60%.

Non-life insurance premiums accounted for 41-43% of total earned premiums during the period under review, compared to life insurance, whose net earned premiums accounted for 57-59% of total premiums. The structural ratio of insurance payments by type of insurance remains consistent with the indicator of earned premiums, but amounts to 35-37% for non-life insurance and 63-65% for life insurance.

In 2019-2021, the largest earned premiums and payments paid in the non-life sector were in Germany: 113169.75 million EUR and 70728.93 million EUR, respectively. The smallest amount of premiums was collected in Latvia during the period under review, with the amount decreasing annually: from 356.45 million EUR in 2019 to 331.37 million EUR in 2021. The smallest non-life payments were paid in Cyprus – 191.52 million EUR in 2021. In life insurance, the largest premiums earned and payments paid were in France: 170451.52 million EUR and 148781.68 million EUR, respectively. The lowest amount of premiums and payments during the period under review was in Iceland: 42.65 million EUR and 11.18 million EUR, respectively. The average amount of premiums earned in the EU countries was 19.000 million EUR, and the amount of payments paid was 14.000 million EUR.

Using the available statistical information, let us trace the relationship between gross domestic product and gross insurance premiums in some countries. The results are shown in Figure 2.4.

Statistical information from 36 countries over the past 21 years (664 observations directly) was used in the process of calculations and observations using correlation-regression analysis to build an economic-mathematical model of the relationship between gross insurance premiums (GIP) and gross domestic product (GDP) (2.1).

$$GDP = 7,3611 \cdot GIP + 321710 \quad (2.1)$$

There is a close, straightforward relationship between the studied indicators with a correlation degree of 1.0. The standard error is 505599.33 million dollars USA. The coefficient of determination R^2 for the regression equation is 0.9691. The F-value and P-value are both 0, which means that the equation is statistically significant at the 99% confidence level. Statistical significance is also confirmed at the 99% level of reliability by the absence of a change in the sign of the free term (constant) of the equation when moving from the “bottom 99%” to the “top 99%” column.

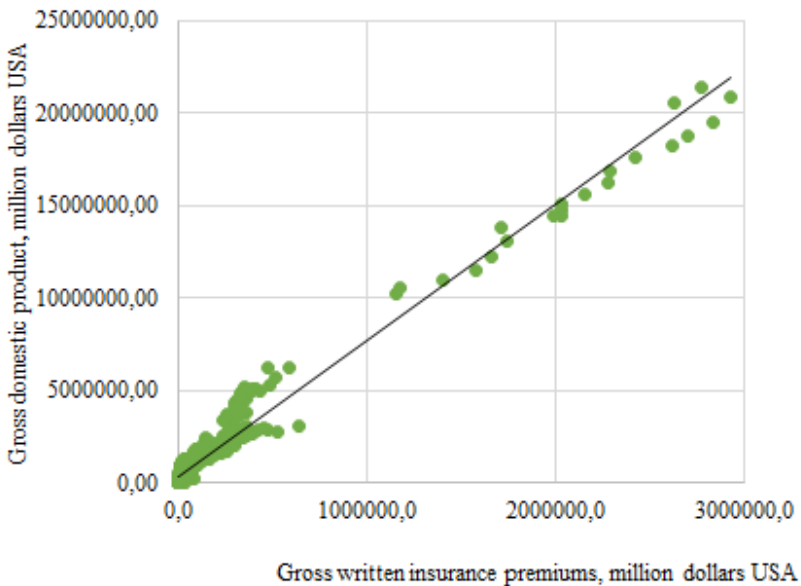


Figure 2.4 The relationship between gross domestic product and gross written insurance premiums in some countries

Source: built by the authors

Thus, the obtained interdependence can be considered reliable and suitable for use in further analysis and forecasting of the global and risk types of insurance market in Ukraine.

2.2. Dominants of the development of risk types of the global insurance market

The ongoing uncertainty and changing operating environment for insurance companies around the world is a breeding ground for risk awareness, and it is amplifying the impact of the two megatrends of climate and demographic changes, which will continue to be the main drivers of demand for risk protection. The pandemic and the war in Ukraine are wake-up calls for better risk management and even greater demand for protection. The industry must succeed in maintaining its economic and social relevance by offering innovative solutions to new and growing risks.

Insurance and affordability issues are likely to become increasingly important in the coming years. This requires a level of creativity and cooperation with all stakeholders, customers, carriers and policy makers, even beyond previous efforts. Currently, the largest risk insurance subsectors of the global insurance market in terms of premiums written are property and casualty (P&C) and health insurance, which account for almost half of the risk insurance market.

These conclusions are based on the analysis of non-life insurance premiums in some countries over 11 years (2010-2020) by classes defined by law in the countries of the Organisation for Economic Co-operation and Development (OECD). Table 2.3 shows the volume of insurance premiums for 2020 by types risk class of insurance in the context of some OECD countries and their structural ratio, as shown in Figure 2.5.

Property and casualty insurance grew by 4.7% during 2020, while increasing its market share to 31% of global premiums. Mature markets – North America, Western Europe and developed Asia-Pacific region – accounted for 61% of the absolute growth in P&C premiums during the period. The emerging markets of Latin America, Asia-Pacific region (Japan Insurance Outlook, 2020) and Africa registered the fastest growth rates of 13%, 9% and 8% respectively. The largest contributor to the absolute growth of P&C premiums in 2020 was the USA (38%), mainly due to an increase in motor insurance premiums. China accounted for 20% of the absolute growth. In China, certain government policies have led to growth in liability, agriculture, credit and warranty products. Similarly, the Indian government is pushing to increase coverage of crop insurance products.

Table 2.3

Volumes of insurance premiums by types risk classes of insurance in some OECD countries in 2020, million dollars USA

Country	Insurance							
	vehicles	marine, aviation and other transport	cargoes	fire and other property damage	material damage	general liability	accident and health insurance	other than life insurance
Belgium	4 348	79	105	3 511	622	1 023	4 145	987
Chile	929	250	0	1 731	110	67	101	791
Czech Republic	2 224	38	:	1 109	127	717	548	90
Denmark	2 968	191	:	3 722	291	532	2 583	272
Estonia	413	15	:	196	30	31	77	5
Finland	1 447	109	50	950	24	200	1 181	158
France	26 435	59	:	21 596	2 202	3 335	62 796	190 293
Germany	34 647	3 177	:	35 409	2 218	14 356	57 700	6 337
Greece	1 081	44	0	459	49	102	363	157
Iceland	273	20	0	116	1	31	55	0
Ireland	2 294	568	:	1 817	890	1 544	2 924	25
Israel	3 982	13	51	1 428	113	1 054	2 174	153
Italy	17 817	344	185	6 544	1 168	3 743	7 035	1 447
Japan	48 659	951	1 828	19 016	4 071	6 225	9 193	1 491
Korea	16 617	597	:	234	1 720	967	33 752	32 801
Lithuania	452	1	4	149	30	27	90	5
Latvia	365	3	3	109	24	24	95	12
Luxembourg	706	87	108	412	673	252	257	38
Mexico	4 754	2 047	:	260	657	619	4 930	1 614
Norway	2 803	1 706	:	2 810	40	389	1 269	1 037
Poland	6 029	92	:	1 955	446	654	846	368
Portugal	1 791	34	22	971	112	145	2 125	161
Slovakia	839	0	0	355	2	92	121	-214
Slovenia	681	19	9	324	49	88	882	49
Spain	12 462	282	214	1 163	203	1 177	11 628	12 104
Switzerland	6 620	380	:	4 507	814	2 183	15 450	950
Turkey	3 721	169	166	2 352	144	275	1 687	32
United Kingdom	15 325	7 942	:	25 058	4 397	17 126	8 226	2 781
USA	296 108	2 211	30 246	171 403	22 482	147 883	892 512	2 845

Source: compiled by the authors based on data from (OECD)

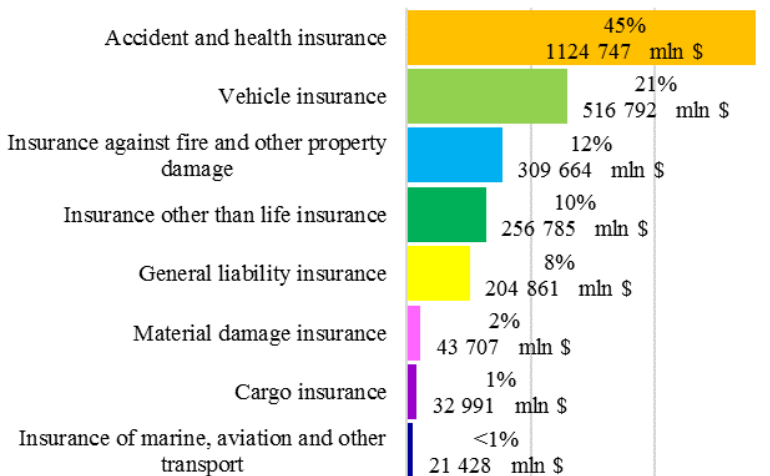


Figure 2.5 The structural ratio of insurance premiums by types risk class according to some OECD countries in 2020

Source: built by the authors

In 2020, motor insurance accounted for 45% of global P&C premiums, continuing to contribute to the overall growth of the industry. However, growth in this product line slowed from the 6% CAGR recorded from 2013 to 2018 to 4% in 2020. Meanwhile, every other P&C product line saw higher growth rates during 2020 compared to 2013-18. Global underwriting profitability reached 99% in 2018, when claims payments reached an all-time high due to natural disasters around the world, particularly in the USA. The net combined ratio improved slightly to 96% in 2019 and 97% in 2020.

Property and casualty insurance is also present and developing in Ukraine, but health insurance is not as deeply developed as in other countries. Thus, health insurance remains the fastest growing segment: it reached 6.9% and 5.9% growth in 2018 and 2019 respectively, and accounted for about 26% of global insurance premiums in 2019. Top performing regions in terms of contribution per EUR 69 the absolute growth in total healthcare premiums in 2019 was driven by North America – up 63%, and Asia-Pacific region – up 22%. North America is the largest private healthcare market in terms of premiums and has consistently contributed to

global healthcare premium growth, with an increase of 5% in 2019. Developed markets in Western Europe and developed countries in Asia-Pacific region grew by 4% in 2019.

The average combined ratio of the global health insurance market remained stable at around 98% from 2015 to 2019. Net claims ratios in most Western European countries, including France, Germany (Germany Insurance Outlook, 2020), Italy, Spain and the United Kingdom, remained stable in the range of 70% to 85% from 2015 to 2019. The net loss ratio in the USA was also stable at 86% in that period. However, in some emerging markets, such as India, the net claims ratio decreased from 102% in 2015 to 93% in 2019. Net premiums earned in India grew faster than claims during this period. Overall, the expense ratio for most countries has remained stable over the past few years. The USA and Western European countries recorded some of the lowest net expense ratios from 2015 to 2019, with a 13% ratio in the USA.

3. The Ukrainian risk insurance market

3.1. The functioning of the Ukrainian insurance market in the face of uncertainty

In the context of economic restructuring, changes in the regulatory authority (in accordance with the law) and regulatory and legislative ensure, i.e., in the context of institutional changes, in the process of digitalisation (Demianchuk & Drozdyna, 2022) and the Internetisation of most business processes of functioning in such turbulent conditions, which are constantly changing in an uncertain direction, it is advisable to study these conditions of activity for the development of risk types insurance. All these processes complicate the operating conditions for insurance organisations and require their adaptation to new conditions, in which one of the most important tasks remains to ensure sustainable and stable development.

When institutional and institutional changes take place, there is no 100% probability of the consequences of decisions made under such conditions, but there is a probability for each of their alternatives. However, during martial law in the country, unfortunately, it is not possible to imagine or predict any probability of certain outcomes under alternative scenarios.

All decisions made by leading experts in various areas of economic activity are directly related to certain risks and

uncertainties. Insurance is a sector that is directly related to risk and uncertainty and differs significantly from other areas of economic activity, which leads to specific features in insurance management. However, risk differs significantly from uncertainty. Thus, risk is “a situation when the outcome of a process is unknown, but its possible alternative consequences are known; there is a possible danger, an action at random, which requires: on the one hand, courage in the hope of a happy ending, and on the other hand, consideration of the material justification of the degree of risk (lack of 100% certainty). Uncertainty, on the other hand, is a situation in which the probability of obtaining different results is unknown; a property of the decision-making object, which is expressed in its unreasonableness, ambiguity, which leads to insufficient possibility of analysis, understanding, determination of its present and future state”.

The essence of uncertainty is that “in the presence of an unlimited number of states of objective conditions, it is impossible to assess the probability of occurrence of each of these states due to the lack of assessment methods. The criterion for choosing decisions in these circumstances is determined by the inclinations and subjective assessments of the decision maker. In this case, the task is to reduce uncertainty by reducing it to risk. And in this case, an important role is played by asking questions such as (Reshetylo & Fedotova, 2020):

- 1) how large is the existing uncertainty?
- 2) what should be done to reduce it?
- 3) what are the costs of reducing it?
- 4) what is the degree of uncertainty in the course of implementing a particular course?”

Decisive decisions remain with the management of insurance companies and the assistance of the regulatory authority, which they have to make in rapidly changing (extreme) circumstances. The information base for decision-making includes the goals and objectives of insurance companies providing risk insurance services; their state (technical, economic, social, innovation, investment, etc.); development features (patterns, trends, mechanisms of functioning); forecasts of changes in the socio-economic and political situation; alternative strategies and decisions on functioning and development, taking into account the consequences of implementing alternatives, etc.

The foreign insurance market is developing rapidly thanks to innovative InsurTech and FinTech technologies. A well-organised insurance market infrastructure and insurance culture contribute to business revitalisation and solving social problems (Demianchuk & Drozdyna, 2021). This is the motivation for the introduction of these technologies in Ukrainian business to join the world level of development of socio-economic relations and entrepreneurial activity, and the steps to implementation are reflected in strategic documents: The Strategy for Sustainable Development of Ukraine until 2030, the National Economic Strategy, the Strategy for Digital Development, Digital Transformation and Digitalisation of the Public Finance Management System until 2025.

In Ukraine, the most popular types of insurance are related to road safety (MTPL, CTP, CASCO, Green Card, etc.), so most InsurTech developments are directed at insurance companies with a relevant specialisation. Since November 2019, the MTIBU has been operating an innovation hub to promote startups in the financial and insurance industry and road safety. One of the successful projects selected is “My Policy”, a mobile application used to draw up an electronic protocol in the event of a road accident (Motor (Transport) Insurance Bureau of Ukraine). As the introduction of the latest technologies in Ukraine has its own priority features, and the range of InsurTech projects is not yet extensive. In the context of digitalisation, the main trends for the insurance sector in Ukraine are (Demianchuk, Maslii, & Gdanova, 2021; Klapkiv, 2018):

- omnichannel communications – a single environment with online and offline contact channels using various gadgets;
- chatbots – virtual consultants that provide information assistance to customers at any time;
- Big Data – analysis and processing of large amounts of information about policyholders and victims;
- digital versions of insurance policy – an electronic format of an insurance service document that has the same valid data;
- Blockchain – a system of remote access to data that is the most trusted for the reliability of online product storage.

In general, innovative technologies create a competitive environment for insurance companies to try to be the most advanced, which is reflected in the financial results of companies, in saving

time on typical operations, using social networks as an alternative channel for the distribution of products and services, reengineering business processes and diversifying products and services. The vast majority of insurers use the Internet not only as an additional channel for selling insurance services (Kobko, 2019), but also for virtual scaling and online growth. When using ERP and CRM systems, insurance companies can increase the technological efficiency of business processes by automating and optimising customer communication processes to build a highly efficient online business.

Thus, achievements in the field of InsurTech are the most modern and effective tools for business, as digital systems are essential for business entities, including insurance companies. Information technology contributes to positive changes in insurance business processes in Ukraine, thereby creating the preconditions for the development of the organisation and systematic operation of a full-fledged business in a virtual environment with a synergistic effect. Currently, the Ukrainian insurance market is focused on the maximum possible transition to online, which is the beginning of a new vision of doing insurance business.

Under the influence of the development of innovative technologies, the insurance market is undergoing significant changes, which are reflected in the qualitative changes in the activities of insurance companies that have chosen the vector of digital development. The experience of foreign insurance markets shows that a well-established insurance market actively contributes to business development and solving social problems (On Approval of the Regulation on Financial Monitoring by Institutions, 2020). This is a certain incentive for achieving the European level of development of socio-economic relations, entrepreneurship and revitalisation of the investment climate in Ukraine.

The introduction of technologically innovative economic solutions capable of introducing qualitative changes in the insurance market in the activities of insurance companies will contribute to economic stabilisation and economic growth by accumulating financial resources, creating additional jobs and reducing the impact of risks. Therefore, the peculiarities of the functioning of the Ukrainian insurance market under conditions of uncertainty require further study.

The insurance market is of significant importance in the Ukrainian economy, as an unregulated system of state supervision makes it impossible for insurance market participants to function effectively. This necessitates ensuring an adequate level of national supervision and control over insurance activities in Ukraine to enable the evolution of insurance services and the integration of the domestic insurance market into the global insurance space. Therefore, it is necessary to study the interdependence of the level of economic development and the volume of gross insurance premiums in different countries.

3.2. Monitoring the development of risk types insurance in Ukraine

The evolution of market relations and the creation of new means of communication between all business entities go hand in hand with the probable occurrence of unexpected situations in which the degree of risk increases at each stage. Insurance has been the most effective method of risk management for many centuries. It contributes to the stability of society and guarantees that owners will receive compensation in case of loss of property or income (Sholoiko, 2017).

The insurance market is one of the leading components of the financial system, as it is responsible for redistributing risks in the economy, ensuring a receptive environment for the efficiency of enterprises, both internal and external, and reducing the overall level of risk (Zhuravka & Vasylichuk, 2017). Therefore, attention should be paid to the ratio of the number of financial sector institutions to their assets (Table 2.4). In particular, it can be seen that the number of non-bank financial institutions, such as credit unions, financial companies, and pawnshops, is much higher than that of banks, and their assets are much lower, despite the risk activities of insurance companies that are also part of them.

The Ukrainian market is mostly represented by insurance companies providing direct risk insurance. Of the total number of companies, their number was 251 in 2018, 210 in 2019, 190 in 2020, and 142 in 2021. According to R. Kornyliuk, such a rapid reduction (by more than 40%) is due to the voluntary withdrawal of licences and the withdrawal of inactive companies from the market (Kornyliuk, 2022).

Table 2.4

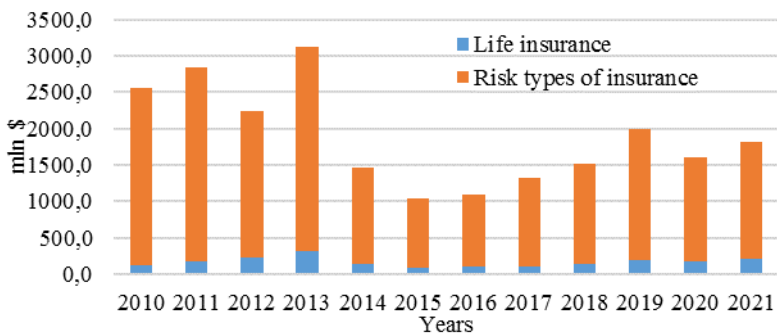
Dynamics of changes in the number of banks, non-bank financial institutions and insurance companies in Ukraine and their assets in 2018-2021

Institutions	Criteria	Years			
		2018	2019	2020	2021
Total	Assets, mln. USD	56 141	72 875	73 579	84 980
	Number of companies	2 015	1 955	1 867	1 687
Insurance companies	Assets, mln. USD	2 293	2 696	2 296	2 332
	Number of companies	281	233	210	155
Banks	Assets, mln. USD	49 108	63 045	64 468	75 296
	Number of companies	77	75	73	71
Credit unions	Assets, mln. USD	80	106	82	84
	Number of companies	358	337	322	278
Financial companies	Assets, mln. USD	4 526	6 848	6 596	7 157
	Number of companies	940	986	960	922
Pawnshops	Assets, mln. USD	134	180	137	111
	Number of companies	359	324	302	261

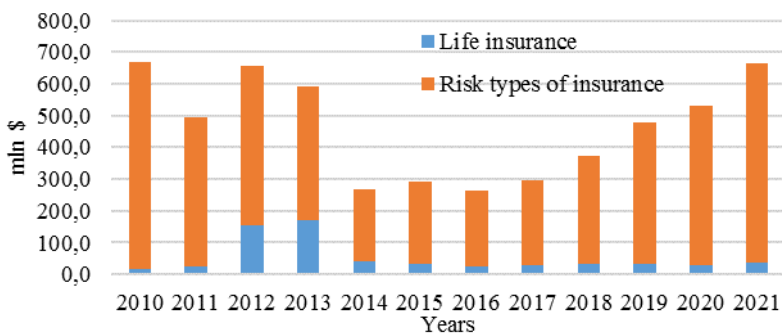
Source: compiled and calculated by the authors based on data from (National Bank of Ukraine, 2022)

Among other financial institutions, insurance companies hold only 2-4% of the total assets in the market, which is a rather negative situation given the riskiness of their activities, as there is also a tendency for these assets to decrease in the total market. However, this can also be explained by a decrease in the number of companies.

It should be noted that the structure of the Ukrainian insurance market is very different compared to the structure of the insurance markets of other countries previously analysed, where life insurance and risk insurance almost occupy the same positions. At the same time, the Ukrainian market (Figure 2.6) is dominated by the risk insurance market, which accounts for more than 95% of the total amount of earned insurance premiums and insurance payments / compensations.



a) gross receipts of insurance payments (premiums, contributions)



b) insurance payments

Figure 2.6 Dynamics of changes in gross receipts of insurance payments (premiums, contributions) and insurance payments for risk types insurance and life insurance in Ukraine in 2010-2021

Source: compiled by the authors based on data from (National Bank of Ukraine)

Among risk types of insurance, insurance premiums are higher for voluntary types of insurance (76.5%) than for compulsory types, which account for only 23.5%. However, compulsory insurance prevails in terms of the number of contracts concluded. Therefore, it can be said that voluntary insurance brings the greatest effect to insurance companies (Table 2.5), but the amount of payments under these contracts is also more significant.

Table 2.5

Dynamics of changes in gross receipts of insurance payments (premiums, contributions), payments (indemnities), number of concluded life insurance and risk insurance contracts in Ukraine in 2010-2021

Years	Life insurance		Risk types of insurance					
	Gross receipts of insurance payments (premiums, contributions), mln. USD	Insurance benefits, including annuity payments and redemption payments, mln. USD	Gross receipts of insurance payments (premiums, contributions), mln. USD			Insurance payments / reimbursements, mln. USD		
			total	voluntary	mandatory	total	voluntary	mandatory
2010	113.86	16.33	2437.26	2437.00	0.25	651.24	651.24	0.00
2011	168.51	23.77	2671.23	2258.72	412.50	469.11	464.09	5.02
2012	226.39	155.79	2021.87	2021.51	0.36	501.98	501.98	0.00
2013	309.86	170.16	2817.73	2817.72	0.01	419.92	419.92	0.00
2014	136.97	39.19	1322.37	1317.31	5.06	229.47	229.47	0.00
2015	91.11	34.63	942.77	942.77	0.00	258.06	258.05	0.00
2016	101.36	25.16	984.52	984.51	0.01	240.45	240.45	0.00
2017	103.81	27.28	1225.09	1219.79	5.30	270.67	270.67	0.00
2018	141.08	32.41	1377.77	1368.36	9.40	340.13	340.13	0.00
2019	195.22	31.80	1793.67	1696.14	97.54	446.11	446.11	0.00
2020	177.49	29.17	1420.26	1115.68	304.59	502.36	370.72	131.64
2021	215.63	37.00	1606.63	1229.73	376.91	627.96	473.77	154.19

Source: compiled by the authors based on data from (National Bank of Ukraine)

Comparing the share of insurance payments in the volume of insurance premiums received, it is determined that there is an upward trend in this indicator. For example, in 2014, the amount of insurance payments under voluntary risk insurance (Figure 2.7) was 17.42% of gross insurance premiums, and in 2021 the value of this indicator was 38.53%. Also, during the analysed period, there was a significant change in the number of compulsory insurance contracts, the number of which has halved over the past two years.

When analysing the structure of gross insurance premiums, it is necessary to highlight the elements of the insurance portfolio by the most common types of insurance. Thus, according to the results of 2020, more than a third of the insurance portfolio belongs to

transport types (19% of hull insurance, 13% of MTPL, 3% of Green Card and liability insurance). Health insurance (16%) and life insurance (11%) are consistently among the top types of insurance in Ukraine, unlike liability insurance (3%) and financial risks (3%). At the same time, the volume of insurance premiums under voluntary financial risk and professional liability insurance contracts is only about 14% of the total volume of insurance payments for voluntary insurance other than life insurance. Of these, 12.4 million dollars USA was received in insurance premiums for credit insurance and 106.0 million dollars USA for financial risks.

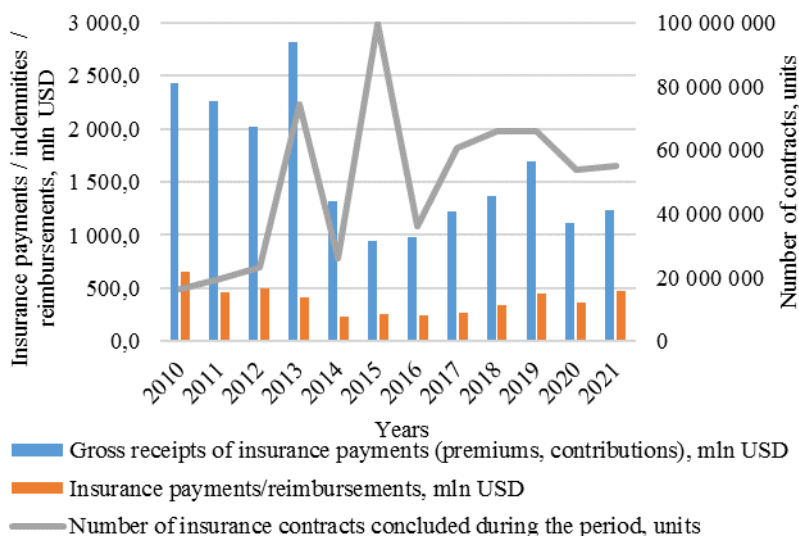


Figure 2.7 Dynamics of changes in gross receipts of insurance payments (premiums, contributions), insurance payments / indemnities and the number of concluded voluntary insurance contracts for risk types of insurance in Ukraine in 2010-2021

Source: compiled by the authors based on data from (National Bank of Ukraine)

In 2021, the situation is slightly different. The largest volume of insurance premiums for voluntary insurance was received from land transport insurance (except for railway transport) – 32%, health insurance (continuous health insurance) – 19%, and property insurance (other than provided for in clauses 7-12) – 11%.

Approximately the same income was received from medical expenses, accidents, financial risks, fire risks and cargo and baggage insurance. In compulsory insurance, the majority of insurance premiums are generated in the area of motor third party liability insurance (67% under domestic contracts and 17% under international contracts). An additional 10% of insurance premiums are generated by civil aviation insurance. The share of premiums ceded for reinsurance increased in the last quarter of 2021 and amounted to 19%. Of these, 56% belong to non-resident reinsurers.

Analysing the volume of insurance payments / reimbursements, it can be noted that their level continued to grow, and the largest volume of payments among voluntary insurance services was received by clients for insurance of land transport, except for railway transport, the share of which in the total volume was 39%. Pandemic policies related to health insurance (continuous health insurance), which remained popular throughout the year, accounted for 27% of total insurance payments. The third group of risks was fire and natural disaster risks, which accounted for 16% of total insurance payments. In compulsory insurance, almost all payments are paid under motor third party liability insurance (84% under domestic contracts and 15% under international contracts).

Given that insurance services are provided by insurance companies, it is advisable to analyse the TOP 5 companies that form the majority of the market. Thus, the leaders in the field of vehicle insurance against loss, damage or theft (19.17% market share) and property insurance (11.07% market share) are ARKS Insurance Company. Green card sales (28.50% market share) and insurance against fire risks and natural disasters (11.85% market share) are sold by PJSC IC USG. Voluntary health insurance (12.62% market share) and accident insurance (12.58% market share) – PJSC IC Unica. PJSC IC VUSO is the leader in financial risk insurance (4.84% market share); PJSC IC Alfa Insurance – health insurance in case of illness (22.17% market share); Alliance Ukraine LLC – cargo and luggage insurance (5.58% market share).

Currently, the Ukrainian insurance market is at the stage of gradual progressive integration into the global insurance system in conditions of uncertainty and instability (Demianchuk & Gurzhiy, 2018; Demianchuk et al., 2019). Insurers are actively looking for

alternative solutions to reduce risks and implement a system of sustainable movement towards European and global standards of insurance business. The foreign experience provides an opportunity to assess the quality of the latest development trends in insurance and to adopt them. Insurance activity in our country, like most other areas, is still based on ad hoc decisions instead of the adoption of modern regulations and their implementation. Methodological ensure in terms of regulations, development strategies, and their practical implementation are the stages of improving the insurance business processes. Therefore, successful progress in the insurance area requires the development and implementation of appropriate measures aimed at ensuring the efficiency and profitability of insurance activities.

The Strategy for the Development of the Insurance Market of Ukraine in 2012-2021 (Strategy, 2012) is now at the last third stage and provides for the implementation of the following measures: completion of the modernisation of the state regulation of the insurance market; updating the regulatory framework of the leading insurance areas based on the accumulated experience; and making the Ukrainian insurance market part of the global financial market. Unfortunately, it cannot be said that these measures have been implemented in practice, as the above factors restraining insurance development are still present in the insurance culture, and in the context of integration into the global financial community, it is necessary to implement foreign insurance practices. An example of such an update is the White Paper “The Future of Insurance Market Regulation” (National Bank of Ukraine, 2020).

Maintaining the stability of the financial sector, which is the main environment for insurance companies, is based on real and continuous regulatory supervision of these financial institutions. To improve the situation in the Ukrainian insurance market, the government is implementing a methodological set of measures to create a new model of insurance market regulation based on international practices.

4. A model for the development of risk types insurance in Ukraine in the context of European integration

Insurance activities contributes to competitiveness and the development of trade and commerce by increasing creditworthiness

and reducing the overall amount and cost of capital required, and by reducing overall risk – allowing businesses to enter new business ventures and take on additional risk. Insurance activities replace and complement public sector spending on safety programmes, and contribute to loss prevention directly by investing in loss prevention programmes either such as medical research, fire or road safety, or indirectly by linking insurance premiums to loss experience.

Insurers, in addition to their core functions, i.e., risk transfer and compensation services, perform the same functions as other financial intermediaries. The development of insurance contributes to economic growth in several ways: by increasing the liquidity and availability of total capital in the economy, and even the efficiency of capital allocation. In addition, empirical evidence from developed countries shows that insurers are among the main employers and investors. Thus, they can have a positive impact on important factors of economic growth, such as the private savings rate, the percentage of savings used for investment, and the marginal productivity of investment. Their activities, like those of banks, can contribute to economic growth. Therefore, the model for the development of risk types insurance in Ukraine should take into account the above arguments and contain the principles that should guide the risk type's insurance sector and the tools for implementation (Figure 2.8).

The proposed model for the development of risk types of insurance is a description of theoretical and practical tools, the use of which is aimed at the comprehensive development of insurance market players. The purpose of development is to improve the welfare of the population and business entities of the country. The objectives of such development may include:

- influence on the adoption and improvement of the quality of decisions related to the activities, life and development of the population;
- increasing the public activity of the population;
- changing the role of the population and business entities on the insurance market;
- taking into account the needs of the population of different social groups and business entities in various spheres of economic activity;

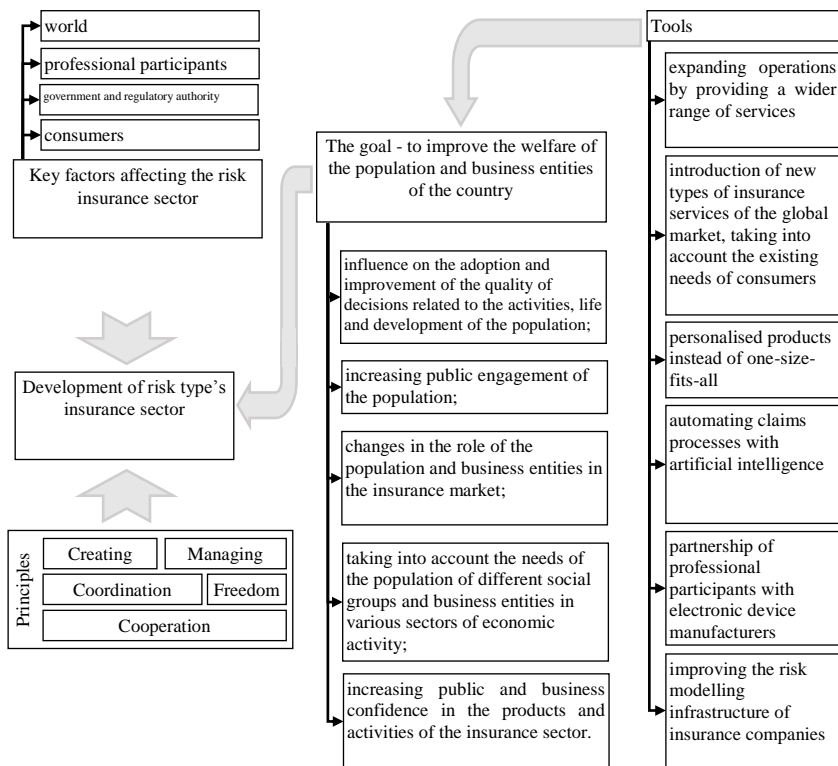


Figure 2.8 Model for the development of risk types of insurance

Source: compiled by the authors

– increasing the confidence of the population and business entities in the products and activities of the insurance sector.

This goal and objectives can be achieved by adhering to certain principles:

1. Creating – maintaining not only a competitive base, but also stimulating and encouraging insurance companies to compete in various types of risk insurance.

2. Managing – maintaining the autonomy and stability of the country's market, which is related to the stability of the banking sector of the financial sector, which is able to resist the strong impact of global changes.

3. Freedom – the ability of insurance companies to choose a free direction of development while maintaining control over the market.

4. Coordination – approval of organisational processes within the sector with the establishment of effective interconnection and communication between all major factors affecting the risk insurance sector, avoiding strict control and excessive bureaucracy.

5. Cooperation – achieving synergies in the activities of all insurance industry players at different levels.

Given that the development of insurance contributes to economic growth in several ways: by increasing the liquidity and availability of the economy's total capital, and even the efficiency of capital allocation, it is advisable to reflect the relationship between the development of the risk insurance market, market participants, and society (Figure 2.9). In addition, empirical data from developed countries shows that insurers are among the main employers and investors. Thus, they can have a positive impact on important factors of economic growth, such as the private savings rate, the percentage of savings used for investment, and the marginal productivity of investment. Their activities, like those of banks, can contribute to economic growth.

In addition, in the process of achieving the goal and fulfilling the objectives for the development of risk types of insurance under conditions of uncertainty, it is necessary to use a number of tools, in particular:

- expanding its activities by providing a wider range of services and introducing new types of insurance services in the global market, taking into account the existing needs of consumers. These include: professional insurance, bank insurance, deposit insurance, geopolitical risks, directors and officers liability, cyber insurance industry risks, etc.;

- personalised products instead of universal ones. The digital economy is making usage-based, on-demand and all-in-one insurance services increasingly relevant. Customers therefore prefer personalised insurance cover to the one-size-fits-all products that are currently available in sufficient numbers. Flexible coverage options, microinsurance and peer-to-peer insurance will become viable options in the long term. Reinsurers will provide risk capital directly to digital brands, and regulatory frameworks will allow for shorter value chains. A deeper understanding of customer behaviour will lead to more accurate risk assessment, personalised premiums and

value on a consistent basis for better customer experience and brand loyalty, and reduce false claims;

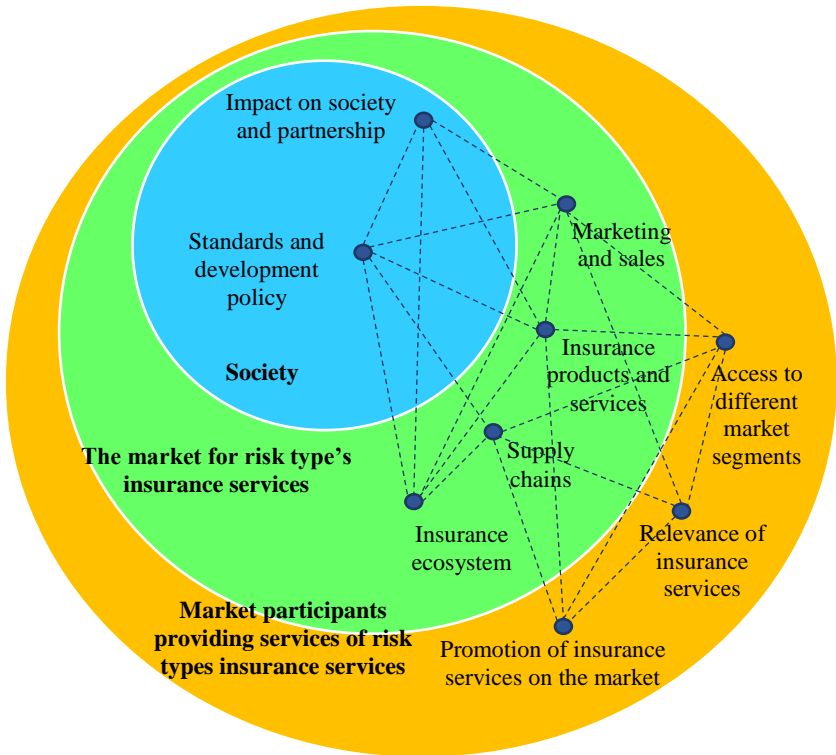


Figure 2.9 A model of the relationship between the development of the market services for risk type's insurance, market participants and society

Source: compiled by the authors

– automation of claims processes using artificial intelligence. Robotic process automation (RPA) and artificial intelligence will be central to the insurance industry, driven by new data channels, better data processing capabilities and advances in artificial intelligence algorithms. Artificial intelligence eliminates brokers and paperwork, and its behavioural economics capabilities minimise fraud, resulting in reduced time, effort and costs. In underwriting, artificial intelligence allows for accurate risk identification and higher

profitability. Artificial intelligence can be used to automate policy servicing and claims management for faster and more personalised customer service. Artificial intelligence and automation will significantly impact and improve business results in terms of customer experience, cost optimisation, operational efficiency, market competitiveness and new business models;

- partnerships of professional participants with electronic device manufacturers and InsurTech companies, taking into account risk types of insurance. Insurance companies will be able to receive accurate, real-time data on individual consumer losses. This will help them respond proactively with timely and highly personalised interventions. A variety of sensors will be able to provide mobile alerts to both the insurer and its customers to help resolve problems quickly and in an informed manner. Unmanned aerial vehicles and image processing technology will increasingly enable insurers to obtain high-definition images for remote and accurate property valuation and analysis. In addition, insights will be built by linking data sets to create a more detailed view of individual risk profiles and protect insurers from new risks. Predictive analytics can also be used to model complex customer behaviour, achieve improved pricing accuracy and significantly reduce decision-making time. This will lead to new models and revenue streams to increase profitability and reduce operating costs. The customer experience will be enhanced through value-added offerings;

- improving the risk modelling infrastructure of insurance companies. Increase efficiency and reduce costs and duplication in the risk modelling and data ecosystem through the continued development of open platforms, an industry-wide interoperability programme and advocacy for open standards. This will enable risk owners to develop the local risk insights that are so important to their risk management strategies.

Conclusions

The carried out research allowed identifying the main directions of development of the global market of risk types of insurance, in particular: deposit insurance (aimed at reducing the risk of non-repayment or insolvency risk with respect to deposits and loans), geopolitical risk insurance (aimed at reducing the risk of impact on the financial development of the insured entity in conditions of

geopolitical uncertainty), directors and officers liability insurance (aimed at reducing the risk of financial losses of companies caused by erroneous management decisions on organisation and conduct of business) and cyber insurance industry risk insurance (aimed at reducing the risk of using information technology in the course of operating activities). The paper describes the institutional ensure for activities in the field of risk types of insurance in Ukraine, which consists in a successful combination of state insurance market regulation and risk-oriented supervision, regulatory support, political and non-legislative regulation, and institutional structure. The paper presents the regulatory framework of Ukraine in the field of insurance, which consists of four components, in particular, legal acts defining the provisions of general regulation, licensing and registration, supervision and inspection, and reporting. The authors identifies the main basic EU directives regulating insurance activities and aimed at maintaining and controlling a sufficient level of solvency of insurance companies. Given that insurance companies process and use confidential information in their activities and the integrity of which must be preserved, it is determined that certain types of technological innovations (computing) should be used in the functioning of insurance companies, in particular: homomorphic, multilateral, hybrid, private set intersection, secure encryption with search capability.

An analysis of the most common and significant global risks over the past three years is carried out, on the basis of which it is determined that the greatest concerns are cyber incidents, business interruption, natural disasters and pandemic outbreaks. An analysis of the dynamics of changes in net earned premiums in some countries of the world, as well as their share in the GDP of these countries, is carried out to present the impact of the insurance sector on the country's economic development. The paper traces interdependence of gross domestic product and volumes of gross insurance premiums of some countries of the world, which showed the existence of a close straight-line relationship with the highest degree of correlation. Using the correlation-regression analysis of the development of the global insurance market under conditions of uncertainty, an economic-mathematical model of the relationship between the volumes of gross insurance premiums and gross

domestic product is built at the 99% level of reliability. The paper analyses the volumes of insurance premiums of risk insurance classes by OECD countries over the past 11 years, in particular, vehicle insurance, marine, aviation and other transport insurance, cargo insurance, fire and other property damage insurance, property damage insurance, general liability insurance, accident and health insurance, and non-life insurance. Based on this analysis, it was found that almost half of the premiums are generated by property and accident insurance and health insurance. The structural ratio of insurance premiums by types of risk classes is presented.

The features of functioning of the insurance market under conditions of uncertainty are disclosed. The paper defines the essence of uncertainty, which lies in the fact that in the presence of an unlimited number of states of objective conditions, it is impossible to assess the probability of occurrence of each of these states due to the lack of assessment methods. The conditions of uncertainty include economic restructuring, changes in the regulatory body, regulatory and legislative ensure, digitalisation and internetisation of business processes in the insurance market. The paper presents the main trends for the insurance sector in Ukraine in the context of digitalisation, in particular: omnichannel communications, chatbots, Big Data, digital insurance policy options and Blockchain. In general, innovative technologies create a competitive environment for insurance companies to try to be the most advanced, which is reflected in the financial results of companies, saving time on typical operations, using social networks as an alternative distribution channel for products and services, reengineering business processes and diversifying products and services. The paper analyses the dynamics of changes in the number of banks, non-bank financial institutions of Ukraine and insurance companies and the volume of their assets, which allowed to establish a rapid decrease in the number of insurance companies and a reduction in the volume of their assets. The dynamics of changes in the gross receipts of insurance payments (premiums, contributions) and insurance payments for risk types of insurance and life insurance in Ukraine are characterised. It is established that the Ukrainian insurance market is fundamentally different from the insurance market of other analysed countries, since the Ukrainian market is

dominated by risk insurance, which accounts for more than 95% of the total volume of earned insurance premiums and insurance payments / compensations. Based on the analysis of the structure of gross insurance premiums, the most common types of insurance in Ukraine were identified, in particular, transport insurance (hull insurance, MTPL, Green Card and liability insurance), health insurance and risk life insurance.

The paper builds a model of development of risk types of insurance, which is a description of theoretical and practical instruments, the use of which is aimed at comprehensive development of insurance market players in order to improve the welfare of the population and business entities of the country. The model is based on adherence to certain principles, including creating, managing, freedom, coordination and cooperation. The main factors influencing the risk insurance sector are identified. The paper substantiates the tools for achieving the goals and objectives of the model for the development of risk types of insurance, including: expansion of activities by providing a wider range of services and introduction of new types of insurance services in the global market, taking into account the existing needs of consumers; personalised products instead of universal ones; automation of claims processes using artificial intelligence; partnership of professional participants with manufacturers of electronic devices and InsurTech companies; improvement of the risk modelling infrastructure.

References:

1. Дем'янчук М. А., Гуржий К. С. *Трансформація страхового ринку в умовах розвитку цифрових технологій. Інфраструктура ринку.* 2018. Вип. 25. С. 272–278.
2. Дем'янчук М. А., Дроздина А. А. *Пріоритетні інформаційно-технічні зміни на страховому ринку України. Дослідження фінансових інституцій та інструментів розвитку держави, територій та суб'єктів господарювання: теоретичні, методологічні та практичні аспекти: зб. матеріалів VI міжн. наук.-практ. конф., м. Одеса, 18 лют. 2022 р. Одеса: Бондаренко М. А., 2022. С. 129–131.*
3. Дем'янчук М. А., Дроздина А. А. *Точки біфуркації на траєкторії розвитку страхового ринку в умовах цифровізації економіки. Ефективна економіка.* Київ, 2021. DOI: 10.32702/2307-2105-2021.1.101.

4. Дем'янчук М. А., Журавель О. В., Мельник К. С. Фінансова система України під впливом Covid-19. Інвестиції: практика та досвід. 2021. № 10. С. 13–21. DOI: 10.32702/2306-6814.2021.10.13.
5. Дем'янчук М. А., Маслій Н. Д., Жаданова Ю. О. Страхова екосистема України: забезпечення розвитку страхових компаній. Економічний вісник НТУУ «Київський політехнічний інститут»: економіка: наук. фах. журнал. 2021. № 18. DOI: 10.20535/2307-5651.18.2021.230064.
6. Дем'янчук М. А., Маслій Н. Д. Сучасні домінанти розвитку міжнародного і глобального ринку страхового бізнесу. Стратегічні орієнтири розвитку економіки, фінансів, обліку і права: матеріали міжн. наук.-практ. конф. м. Полтава, 30 липня 2022 р. Полтава, 2022. С. 31–34.
7. Журавка О. С., Васильчук А. Ю. Аналіз сучасного стану страхового ринку України. Ефективна економіка. 2017. № 3. URL: <http://www.economy.nauka.com.ua/?op=1&z=5493> (date of access: 16.11.2021).
8. Клапків Ю. М. Мобільні додатки в онлайн дистрибуції страхових послуг. Наукові праці : наук. журн. / Чорном. нац. ун-т ім. Петра Могили (Економіка). Миколаїв, 2018. Т. 302. Вип. 290. С. 42–47.
9. Кобко Р. В. Структурна динаміка у розвитку страхового ринку України. Проблеми системного підходу в економіці: гроші, фінанси і кредит. Київ, 2019. № 3 (71). С. 134–142. DOI: 10.32782/2520-2200/2019-3-57.
10. Корнилюк Р. Як змінюється ринок страхування в Україні. URL: <https://www.epravda.com.ua/columns/2022/01/26/681790/> (date of access: 25.10.2022).
11. Моторне (транспортне) страхове бюро України. Інноваційний хаб МТСБУ розпочав відбір іншуртех-стартапів. URL: http://www.mtsbu.ua/ua/presscenter/news/157151/?utm_source=fb (date of access: 13.02.2022)
12. Національний банк України. Біла книга. Майбутнє регулювання ринку страхування в Україні. Київ, квітень 2020. URL: https://bank.gov.ua/admin_uploads/article/White_paper_insurance_2020.pdf?v=4 (date of access: 18.11.2021).
13. Національний банк України. Нагляд. Регулювання ринку небанківських фінансових послуг. Страхування. URL: <https://bank.gov.ua/ua/supervision/regulation-nonbank-fs-market/insurance> (date of access: 13.10.2021).
14. Національний банк України. Огляд небанківського фінансового сектору. Травень 2022. URL: <https://bank.gov.ua/ua/news/all/oglyad-nebankivskogo-finansovogo-sektoru-traven-2022-roku> (date of access: 13.10.2021).

- 25.10.2022).
15. Національний банк України. Про Національний банк. Міжнародне співробітництво. Європейська інтеграція. URL: <https://bank.gov.ua/ua/about/international/euro-integration> (date of access: 25.10.2022).
 16. Національний банк України. Статистика. Наглядова статистика. URL: <https://bank.gov.ua/ua/statistic/supervision-statist> (date of access: 25.10.2022).
 17. Національний банк України. Стратегія розвитку фінансового сектору України до 2025 року. Березень 2021. URL: https://bank.gov.ua/admin_uploads/article/Strategy_FS_2025.pdf?v=4 (date of access: 28.11.2021)
 18. Про внесення змін до деяких законодавчих актів України щодо удосконалення функцій з державного регулювання ринків фінансових послуг: Закон України від 12.09.2019 р. № 79 ІХ. Дата оновлення: 28.04.2020. URL: <https://zakon.rada.gov.ua/laws/show/79-20#Text> (date of access: 28.11.2021)
 19. Про затвердження Положення про здійснення установами фінансового моніторингу: Постанова Правління Національного банку України від 28.07.2020 р. № 107. Дата оновлення: 15.01.2021. URL: <https://zakon.rada.gov.ua/laws/show/v0107500-20#Text2> (date of access: 28.11.2021)
 20. Про страхування: Закон України № 1909-ІХ від 18.11.2021 р. Дата оновлення: 18.11.2021. URL: <https://zakon.rada.gov.ua/laws/show/1909-20#Text> (date of access: 28.10.2022).
 21. Решетило В.П., Федотова Ю.В. Невизначеність та ризик: співвідношення понять та специфіка прийняття рішень. Проблеми системного підходу в економіці. Вип. №3(77)-2, 2020. С. 149–154. DOI: 10.32782/2520-2200/2020-3-41.
 22. Сова О. Ю. Основні тренди страхового ринку України. Вчені записки Університету «КРОК». 2018. №3 (51). С. 59-67.
 23. Стратегія розвитку страхового ринку України на 2012-2021 роки: Розпорядження Загальних зборів Членів УФУ від 30.03.2012 № 12. URL: http://ufu.org.ua/files/strateg/UFU_strategiya_rozvitku_strahrinku_2012-2020.pdf (date of access: 27.10.2021).
 24. Шолойко А. С. Сутнісна характеристика інфраструктури страхового ринку. Науковий вісник Ужгородського національного університету: міжнародні економічні відносини та світове господарство. 2017. № 14 (2). С. 186-190. URL: http://www.visnyk-ekonom.uzhnu.uz.ua/archive/14_2_2017ua/40.pdf (date of access: 13.10.2021).
 25. *Germany Insurance Outlook (2020). Trends and imperatives shaping*

- the life and non-life markets. URL: https://assets.ey.com/content/dam/ey-sites/ey-com/en_gl/topics/insurance/insurance-outlook-pdfs/ey-global-insurance-outlook-germany.pdf (date of access: 08.08.2022).
26. Japan Insurance Outlook (2020). Trends and imperatives shaping the life and non-life markets. URL: https://assets.ey.com/content/dam/ey-sites/ey-com/en_gl/topics/insurance/insurance-outlook-pdfs/ey-global-insurance-outlook-japan.pdf (date of access: 08.08.2022).
 27. Babenko-Levada V. (2021). Development of the insurance market in Ukraine and forecasting its crises. *Investment Management and Financial Innovations*. Vol. 18(3). P. 385–396. DOI: 10.21511/imfi.18(3).2021.32.
 28. Clemente G.P., & Cornaro A. A. (2022). Multilayer approach for systemic risk in the insurance sector. *Chaos, Solitons & Fractals*. Vol. 162. Article Number 112398. DOI: 10.1016/j.chaos.2022.112398.
 29. Demianchuk M., Makhamadali B. H. o'g'li, Kotlubai V., & Shramko H. (2019). The influence of globalization and integration processes on the activity of insurance organizations. *Economics. Ecology. Socium*. Vol. 3. No 3. P. 53–64. DOI: 10.31520/2616-7107/2019.3.3-7.
 30. Demyanchuk M., Maslii N., & Stankova V. (2018). Cyber–insurance as a tool for minimizing the informational risks of the enterprise in the conditions of global economic development and society informatization. *Economics: time realities*. Odessa, No. 5(39). P. 41–51. DOI: 10.5281/zenodo.2570060 (date of access: 08.08.2022).
 31. European Insurance and Occupational Pensions Authority. Insurance statistics. URL: https://www.eiopa.europa.eu/tools-and-data/statistics-and-risk-dashboards/insurance-statistics_en#Cross-borderpremiums (date of access: 25.10.2022).
 32. Fernández-Aguado P.G., Martínez E.T., Ruiz R.M., & Ureña A.P. (2022). Evaluation of European Deposit Insurance Scheme funding based on risk analysis. *International Review of Economics & Finance*. Vol. 78. P. 234–247. DOI: <https://DOI.org/10.1016/j.iref.2021.11.013>.
 33. Hasan I., Liu L., Saunders A., & Zhang G. (2022). Explicit deposit insurance design: International effects on bank lending during the global financial crisis. *Journal of Financial Intermediation*. Vol 51. Article Number 100958. DOI: 10.1016/j.jfi.2022.100958.
 34. Hemrit W., & Nakhli M.S. (2021). Insurance and geopolitical risk: Fresh empirical evidence. *The Quarterly Review of Economics and Finance*. 2021. Vol. 82. P. 320–334. DOI: 10.1016/j.qref.2021.10.001.
 35. Jayasuriya Daluwathumullagamage D. (2021). Icarus of the 21st century: Bond/monoline insurance. *Qualitative Research in Financial Markets*. DOI: 10.1108/QRFM-07-2020-0122.
 36. Liao T.-L., Chuang H.-L., & Wang J.-Y. (2022). Directors' and

- officers' liability insurance and the pricing of seasoned equity offerings. *International Review of Economics & Finance*. Vol. 80. P. 12–26. DOI: 10.1016/j.iref.2022.02.005.
37. Malavasi M., Peters G.W., Shevchenko P.V., Trück S., Jang J., & Sofronov G. (2022). Cyber risk frequency, severity and insurance viability. *Insurance: Mathematics and Economics*. Vol. 106. P. 90–114. DOI: 10.1016/j.insmatheco.2022.05.003.
 38. Nguyen L.H., Wilson J.O.S., Le T.Q., Luu H.N., Nguyen T.-A., & Vo Vi.X. (2022). Deposit insurance and credit union lending. *Journal of Financial Stability*. Vol. 60. Article Number 101003. DOI: 10.1016/j.jfs.2022.101003.
 39. Noman A.H.M., Hassan M.K., Pervin S., Isa C.R., & Sok-gee C. (2022). The mediating role of competition on deposit insurance and the risk-taking of banks in ASEAN countries. *Research in International Business and Finance*. Vol. 59. Article Number 101551. DOI: 10.1016/j.ribaf.2021.101551.
 40. Organization for Economic co-operation and development. *Insurance business written in the reporting country*. URL: <https://stats.oecd.org/Index.aspx?DataSetCode=PT5#> (date of access: 25.10.2022).
 41. Prikazyuk N., & Motashko T. (2015). Security of the Insurance Market of Ukraine and the Determining Factors. *Procedia Economics and Finance*. 2015. Vol. 27. P. 288–310. DOI: 10.1016/S2212-5671(15)01001-1.
 42. Van Dat N., & Huy D. T. N. (2021). Enhancing competitiveness of insurance companies after vietnam enter new FTA. *Webology*. Vol. 18 (Special Issue). P. 617–629. DOI: 10.14704/WEB/V18SI05/WEB18250.
 43. Wang J., Guo Q., Wang F., Aviso K. B., Tan R. R., & Jia X. (2021). System dynamics simulation for park-wide environmental pollution liability insurance. *Resources, Conservation and Recycling*. Vol. 170. Article Number 105578. DOI: 10.1016/j.resconrec.2021.105578.
 44. World Economic Forum. *The Global Risks Report 2020*. URL: https://www3.weforum.org/docs/WEF_Global_Risk_Report_2020.pdf (date of access: 25.10.2022).
 45. World Economic Forum. *The Global Risks Report 2021. 16th Edition*. URL: https://www3.weforum.org/docs/WEF_The_Global_Risks_Report_2021.pdf (date of access: 25.10.2022).
 46. World Economic Forum. *The Global Risks Report 2022. 17th Edition*. URL: https://www3.weforum.org/docs/WEF_The_Global_Risk_s_Report_2022.pdf (date of access: 25.10.2022). Official website of the European Union. URL: https://eur-lex.europa.eu/search.html?scope=EURLEX&text=insurance&lang=en&type=quick&qid=1675792527346&DTS_SUBDOM=LEGISLATION (date of access: 25.10.2022).