

# *Identification of the priority instruments affecting regulations on the development of insurance in the framework of international requirements*

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*Abstract.* The article identified features of the international regulation of insurance development in different countries based on the recommendations of the International Association of Insurance Supervisory (IAIS) and the Directives of the European Union (EU). In the article the role of the system of own risk assessment and solvency (Own Risk and Solvency Assessment, ORSA) of insurance companies for the development of insurance is established, as it has become the main concept of the Directive 2009/138 /EU of the European Parliament and the Council on the introduction and implementation of the activities of insurance and reinsurance (Solvency II).

On the basis of the hierarchy analysis method there are set priorities of the regulatory impact of Solvency II on the insurance development (illustrated with an example of Ukraine), which proved to be relevant regarding implementation of regulation and supervision in the insurance by risk assessment and solvency of insurance companies.

*Keywords:* international experience, insurance companies, regulation, supervision, risk assessment, Solvency II.

*JEL Codes:* G22, G28.

## **1. Introduction**

Insurance is an important sector of the economy that provides insurance protection to citizens, creates resources for long-term investments and provides the growth

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of financial wealth of the population. The development and promotion of the insurance market, maintenance of its stability as well as reliability of insurers constitute a strategic task of the government.

Nowadays, the process of expansion of insurance companies' activities as well as globalization of insurance market are observed within the international environment. Growth of the international insurance market causes the necessity to improve the system regarding its supervision and to develop the new methods of regulation. That is why the research of international experience on regulation and supervision of insurance companies' activities is a topical issue.

The entry into the global financial system requires a gradual transition to state supervision and regulation based on international principles set by the agreements and standards of international organizations. Thus, the study and implementation of a range of activities and innovations at the state level aimed at introducing new conditions in the insurance industry that do not change the fundamentals of the system, but lead to the elimination of problems and contradictions in the insurance market is relevant. Therefore, the establishment of an effective governmental regulation of financial market is based on enhancing the quality of its governmental regulation in order to ensure more pondered, consolidated and prudential supervision; harmonization of requirements for the insurance market members with EU Directives and strengthening control over the implementation of the prudential requirements with further increase of the reliability of the participants in this market; standardizing the legislation on regulation of insurance companies in accordance to EU Directives. The grounded necessity of social insurance identifies the need of effective functioning of the insurance market, which in the first line leads to the increase of the amount of insured people, their property, interests and rights, minimizing government costs for catastrophic events and what's most important, creating mechanisms to prevent negative consequences due to the investment way of development of prior spheres of society lives using modern market infrastructure and different financial instruments [Achkasova 2015].

When imposing international experience on insurance market regulation, there appears a problem of non-compliance between international and national law, which makes international methods of regulation ineffective on the insurance market.

The study aims to determine the preferred instrument of regulatory impact on the development of insurance in accordance with international requirements.

The following tasks are aimed:

- establishing the international standards for risk assessment and solvency of insurance companies;
- determining the features of EU Solvency II requirements;
- prioritizing the regulatory influence of the development of Solvency II on insurance (with an example of Ukraine).

Subject of research – theoretical foundations of the determination of advantages regarding implementation of insurance regulation by risk assessment and solvency of insurance companies.

Methodological basis of the study is the hierarchy analysis method by T. Saaty used for identification of the priority instruments of regulatory impact on the development of insurance following international requirements. In studying and generalization of scientific research, methods of comparison, analysis and synthesis were used.

## **2. Aspects of regulation and supervision based on the recommendations given by the International Association of Insurance Supervisors**

Currently, there are problems significantly affecting solvency of the insurance companies, and thus their reliability and stability, namely reassessment of insurance liabilities, improper capital management, inadequate determination of insurance rates, inappropriate insurance coverage of existing insurance liabilities, discrepancies between corporate governance and internal controls. Under the influence of the above factors, from among 85 European insurance companies which were under the persistent insurance control of the regulatory authorities, 20 were liquidated through bankruptcy proceedings [Bezruchko, Pacurija, Belova 2007].

In October 2011, the International Association of Insurance Supervisors (IAIS) approved the worldwide insurance market supervision standards *Insurance Core Principles, Standards, Guidance and Assessment Methodology* (ICP). This document describes the basic elements that must be present in the supervisory regime to create the financially effective insurance sector and to ensure proper level of protection of the policyholder's rights. In particular, ICP (Insurance Core Principles) 2011 introduced a new principle „Enterprise Risk Management for Solvency Purposes” (ICP 16) which involves the establishment by supervisors of the requirements to enterprise risk management for solvency purposes. This principle provides introduction into the business the processes for the insurance companies based on the Own Risk and Solvency Assessment System (ORSA). ORSA provides regular assessment of the adequacy of the insurance company risk management and its current and possible future solvency. Assessment held by the insurance company should be consistent with the nature, scale and complexity of risks arising from its activities [IAIS 2011].

Such document was already published by IAIS in 2003, entitled *Insurance Core Principles and Methodology* [IAIS 2003]. However, new edition has several fundamental differences that are considered to be innovations to the insurance market regulation system.

IAIS was established in 1994 to combine interests and provide necessary conditions for the exchange of information between insurance supervisors in different countries [Reverchuk, Yavorska 2009]. Members of this international organization are insurance supervisors from over 140 countries.

Senior management of the insurance company is responsible for the implementation and realization of ORSA.

Insurance supervisor requires coverage by the ORSA system of all foreseeable and relevant material risks, including at least underwriting risk, credit risk, market risk,

transaction risk and liquidity risk, as well as additional risks arising from membership in the group. That is, the insurer must consider in its ORSA all significant risks which could affect its ability to fulfill the obligations to the policyholder, in particular to assess the impact of future changes in the economic conditions and other external factors. Assessment also requires identifying the relationship between risk management and the level and quality of the required and available financial resources.

The supervisor requires the insurer, under ORSA [NAIC 2013]:

- a) to determine the overall financial resources required to manage the insurance company and to meet own risk of the company, as well as to prove that supervisory requirements are met;
- b) to substantiate its actions on risk management, given the economic capital, regulatory capital requirements and financial resources;
- c) to assess quality and adequacy of capital resources to meet regulatory capital requirements and any additional capital requirements;
- d) to analyze own ability to continue its activities, risk management and financial resources required for this purpose shall be assessed in a much larger time horizon than the commonly used regulatory capital requirements;
- e) to combine with uninterrupted analysis of insurance company the quantitative and qualitative elements in the medium- and long-term business strategy of the insurer, as well as forecasts of its future financial position and analysis of its ability to meet regulatory capital requirements in the future.

The supervisor is required to verify risk management processes of the insurance company and its financial position, including ORSA. If necessary, the supervisor may require strengthening the processes of risk management, solvency assessment and capital management. Currently, the ORSA concept is at various stages of implementation in the United States of America (USA), Europe and in a number of other countries.

In 2008, the US National Association of Insurance Organizations (NAIC) launched the Solvency Modernization Initiative (SMI) – a critical self-analysis to improve standards of solvency of the insurance companies. SMI focuses on key issues such as capital requirements, governance and risk management, group supervision, accounting and financial reporting, as well as reinsurance activities. Within the framework of SMI, the role of risk-based capital (RBC) index was reevaluated. This index is a key in the system of solvency assessment of the insurance companies in the United States of America. NAIC decided to supplement the capital assessment system with additional criteria that evaluate prospective solvency of the insurance companies. To this end it was decided to incorporate the ORSA elements in the RBC system. In March 2012, NAIC adopted the document entitled *ORSA. Guidance for Use* stating that the insurance company or the insurance group will be obliged to perform ORSA at least once a year to assess the adequacy of the risk management of the insurance company, as well as its current and probable future solvency [NAIC 2016]. ORSA will apply to all insurance companies in USA which gross premiums exceed 500 million USD.

At the same time, *ORSA. Guidance for Use* is not an executive document. Each ORSA will be unique and vary depending on the risks that are specific for each insurance company. Insurance companies subject to the ORSA requirements are instructed to examine their own risk profile in three main sections: Section 1 – ‘Description of risk management system’ of the insurance company which should include the high-level conclusion of own risk management system, including risk appetite, tolerance, limits and internal control; Section 2 – ‘Assessment of the insurer’s risk’ which should reflect the details of risk assessment of the insurance company (qualitative and quantitative assessment parameters) under usual and stressful conditions; Section 3 – ‘Group of risk capital and future solvency assessment’ where the insurance companies will demonstrate that existing and future capital will be sufficient to support the identified risks [Blanchard 2012].

In Australia, in 2012, the Australian Prudential Regulation Authority (APRA) developed the Internal Capital Adequacy Assessment Process (ICAAP). The requirements contained in the ICAAP are equivalent to the ORSA system [Willis Tower Watson 2012]. As seen from the title of the document, ICAAP is a process in which the company ensures that its activities fully correspond to its capital level. ICAAP combines the risk and capital management activities to support business decisions.

ICAAP contains the requirements concerning consistency of size and structure of the insurance company with the level of complexity of its activities; conformity of the company’s policies, its transactions, personnel and control system to properly identify, measure, monitor and control risks related to the company’s activities on a regular basis, and to possess proper capital according to risks; maintenance of a long-term strategy to ensure sufficient capital; processes to ensure that the ICAAP is taken into account when making business decisions [Kwon, Manton 2015].

APRA notes that the ICAAP provisions are basic in the insurance company’s risk exposure management system, so it makes sense to change the level of detail depending on the nature, complexity and scale of the risks inherent to a particular insurance company.

Positive international experience in risk-based approach to the assessment of insurers has been accounted for by changing the vector of the methodology development of the solvency of insurance companies in Europe.

### **3. Features of regulation and supervision of insurance based on Solvency II Directive**

To correct the problems related to solvency margin approach, the EU has developed a new approach known as Solvency II (a risk-based approach, which depends on supervision based on risk management).

In Europe, the ORSA system has become the main concept of Directive 2009/138/EC of the European Parliament and of the Council concerning implementation and pursuit of insurance and reinsurance activities (Solvency II), developed by the European Insurance and Occupational Pensions Authority (EIOPA).

The application of the Solvency II regime within the European area begins at 1 of January 2016. At Mid-April 2016 the first prudential reporting by insurers under Solvency II is issued with reference to the first day of application.

The main objective in the implementation of this Directive is to establish the European capital requirements, risk management standards, uniform requirement for reporting and financial disclosure systems. Own risk and solvency assessment is an integral part of business strategy and is always taken into account in the strategic decision making of the company. Under Solvency II, supervisory authorities should require the insurance and reinsurance companies to possess appropriate own funds to meet solvency capital requirement [EIOPA 2016].

The main objective of the new solvency requirements of Solvency II is to eliminate the differences between the systems of insurance regulation of EU members' activity and the introduction of more effective supervisory approach [Raport AON 2011].

The implementation of EU Directive in Ukraine should neutralize or reduce numerous risks to which insurers are exposed in their work. This process is not complete. There is no doubt that the introduction of new standards will be a dynamic and long-term process and shall require insurers to develop and calibrate management instruments, depending on their activities [Pukała 2016].

Under Solvency II the insurance companies should implement ORSA and make it an integral component of their risk management system. This will allow the link between risk and capital and will require the active participation of senior management personnel.

Own risk assessment that may be treated as part of the management system, aims at:

- a) improvement of risk management system;
- b) better understanding of the overall capital adequacy and capital allocation;
- c) harmonization of risk and capital management systems.

Under Solvency II, ORSA includes the following aspects [Directive European Parliament 2009]:

- a) total amount of capital according to risks of the insurance company;
- b) compliance with capital requirements and technical regulations;
- c) using appropriate methodology to depict the risk profile when calculating solvency capital requirement (SCR); this requirement applies equally to users of both standard formula, and internal models.

It should be noted, that accordance of own funds with solvency capital requirement is determined using solvency ratio (SR). Solvency ratio is calculated by dividing the amount of the insurer's own funds by SCR.

To assess the solvency of insurance companies a standard method of calculating the required effective capital developed by the European organization of insurance and pensions was used and presented in QIS5 Technical Specifications. The technique involves extensive use of default values when calculating the required effective capital. In particular, the correlation coefficients and mean-square deviation are

met in all calculation formulas of individual components of SCR. The data points are calculated at the European level and also listed in QIS5 Technical Specifications. On the one hand, the large database and methodological support allow European authorities to perform such calculations. But on the other hand, such default values don't take sufficient account of the peculiarities of each country.

According to Directive 2009/138/EU Solvency II required solvency capital must cover at least the following risks: insurance risk for non-life insurance; life insurance risk; health insurance risk; market risk; credit risk; operational risk.

The main risk which is taken into account in calculating the basic level of capital required to support and develop business is insurance risk. This risk reflects possible losses associated with the structure of the insurance portfolio, and measures through vibrations losses on certain classes of insurance, which the insurance company deals with.

In Solvency II the solvency ratio helps to assess capital adequacy of the insurance company. Capital adequacy characterizes solvency of the insurance company and testifies its ability to cover losses and fulfill obligations towards counteragents and policyholders at its own expense.

Where the solvency ratio is less than 0.75, financial position of the insurance company is deemed critical, from 0.75 to 0.99 – anxious, more than 1 – the insurance company has sound financial position [OTCFIn 2013].

SCR is the target capital level, which is set high enough for early prevention of the insurer's insolvency. To calculate SCR the insurance companies can use the standard formula recommended by the EIOPA, or the internal model.

Own funds shall be defined as funds at the disposal of the insurance company to ensure fulfillment of obligations under all agreements in case of unforeseen events, given the requirements of the regulatory authority. Under Solvency II, own funds include capital assets (excess of assets over liabilities, attracted liabilities) and additional own funds (unpaid portion of the share capital or initial funds which were not used; letters of credit and letters of guarantee any other legally binding payments received by insurance or reinsurance companies).

Thus, ORSA requires the insurance companies to provide their own assessment of their current and future risk through the process of self-evaluation of internal risk and this will allow regulators to form an expanded view of the insurer's ability to resist financial stress. Currently, ORSA is an innovation in the regulation of the insurance market, which is being implemented in many countries: in USA by supplementing RBC; in Australia through ICAAP, which is similar to ORSA; in Europe as the basic concept of Solvency II Directive.

Thus, one aspect of ORSA is to determine the adequacy of own funds to cover solvency capital requirement that reflects all risks of the insurance company, through calculation of the solvency ratio. International experience in calculating SCR is deemed promising in the regulation of the insurance market of Ukraine and is expected to be implemented by adopting appropriate legislation.

#### 4. The European vector of changes in state regulation of insurance market development in other countries (with the example of Ukraine)

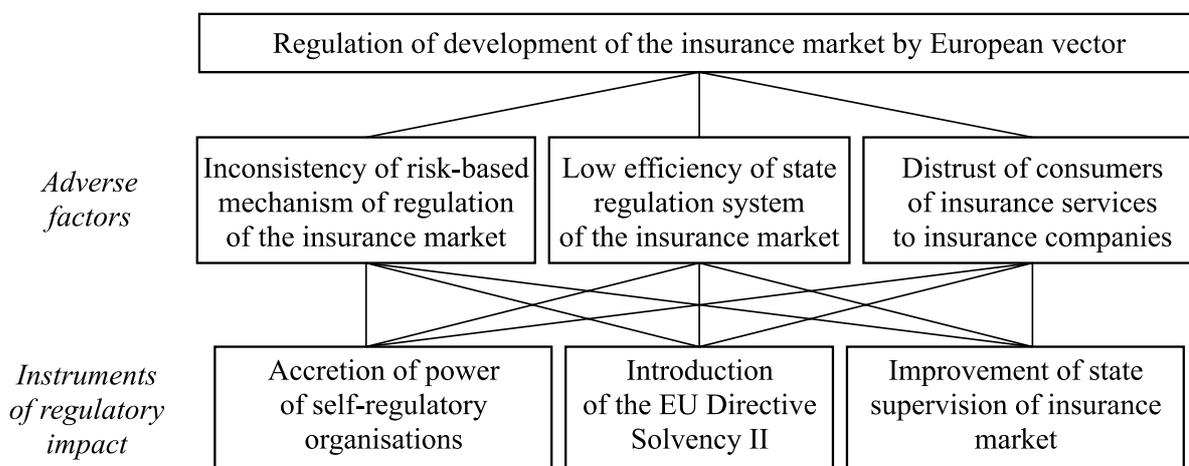
The development of the insurance industry needs to establish an effective system of civil relations that is possible only with high-quality provision of state regulation that provides targeted and consistent application of the state package of measures to create an effective system of relations of the insurance market to raise the degree of protection of property interests of policyholders and to increase investment potential of the insurance industry.

Based on tasks that are presented in the Agreement on Association between Ukraine, on one hand, and the European Union, European Atomic Energy Community and their members, on the other hand [Ukrainian Government 2015], the following instruments of regulatory impact are selected: improving the quality of state regulation of the insurance market; the introduction of the EU Directive Solvency II; accretion of power of self-regulatory organizations.

In order to prioritize regulatory instruments of influence on the development of insurance in Ukraine, the authors suggested using the hierarchy analysis method by T. Saaty that is an instrument of system analysis. Unlike other methods of system analysis, the hierarchy analysis method by T. Saaty provides calculation of priorities of alternative solutions to the main goal. A better alternative is considered with the highest priority value. The main advantage of this method is the ability to study complex problems of decision making.

To assess the priority of instruments of regulatory impact on the development of insurance in Ukraine a model of regulation of the development of insurance market was built with the use of the hierarchy analysis method by T. Saaty [Liamiec, Teviashev 2004] by European vector (with the example of Ukraine) (Figure 1).

Figure 1. Model of regulation of the development of insurance market by European vector (with the example of Ukraine)



Source: authors' elaborations.

As shown in Figure 1 model of regulation of the insurance market by European vector (with the example of Ukraine) is three-tiered and includes the purpose – regulation of the development of insurance market by European vector; adverse factors and instruments of regulatory impact.

The hierarchical model allows determining by pairwise comparison the priority-oriented instruments of regulatory impact on the development of insurance to offset the adverse factors (inconsistency of risk-based mechanism of regulation of the insurance market, low efficiency of state regulation system on the insurance market; distrust of insurance services' consumers towards insurance companies).

Table 1 presents the calculation of the hierarchy analysis method by T. Saaty of global priorities for instruments of regulatory impact on the development of insurance in Ukraine.

*Table 1. Determination of priority-oriented instruments of regulatory impact on the development of insurance in Ukraine*

Instruments of regulatory impact	Inconsistency of risk-based mechanism of regulation of the insurance market	Low efficiency of state regulation system of the insurance market	Distrust of consumers of insurance services to insurance companies	Priority level	Priority rank
	0,297	0,616	0,087		
Accretion of power of self-regulatory organizations	0,583	0,090	0,077	0,235	3
Introduction of the EU Directive Solvency II (Based on ORSA)	0,136	0,557	0,160	0,397	1
Improvement of the state supervision of insurance market	0,281	0,353	0,763	0,367	2

Source: authors' elaborations.

As shown in the Table 1, the adverse factors have the following priority: inconsistency of risk-based mechanism of regulation of the insurance market – 0.297, low efficiency of state regulation system on the insurance market – 0.616, a distrust of insurance services' consumers towards insurance companies – 0.087 respectively. Thus, it may be concluded that the low efficiency of state regulation of the insurance market hampers the development of insurance.

It is established, that the regulatory impact instruments have the following priority: accretion of power of self-regulatory organizations – 0.235, introduction of the EU Directive Solvency II (based on ORSA) – 0.397, improvement of the state supervision of insurance market – 0.367.

Thus, introducing a system of assessment of the solvency of insurers based on Solvency II is a priority regulatory impact on the development of insurance in Ukraine, which is accepted as a basis for improving the state supervision of insurance companies, its rules are included in the new Ukrainian draft of law 'On insurance' [Ukrainian Government 2015], including requirements to assess capital adequacy.

For the gradual introduction of European standards to assess the solvency of insurers the state needs to develop practical recommendations for adapting the methodology of Solvency II (standard formula for calculating the required effective capital) to the control system in Ukraine.

EU standard calculations of the required capital of insurance companies do not take into account the peculiarities of each country. It is worth noticing that within IPT EIOPA to calculate the standard deviation of the risk for non-life insurance a pan-European approach was used based on the combined data in Europe, characterized by heterogeneity, and significant differences between states are not taken into account [EIOPA 2011].

Therefore, to determine possible mean-standard deviation ( $\sigma$ ) for risk of premiums and reserves for the calculation of the required solvency capital for insurance companies the authors conducted an experiment to adapt Solvency II to the operating conditions of the insurance market in Ukraine [Vnukova, Achkasova, Skorik 2013].

To this end, mean-square deviation risk of premiums for non-life insurance is calculated on the basis of accounting data of domestic insurers that are in the top 100 insurance companies in terms of gross premiums.

To calculate the standard deviation of risk of premiums applied the provision of EIOPA [CEIOPS 2010].

The size of mean-standard deviation ( $\sigma$ ) for risk of premiums and reserves determined on the basis of statistics of insurance companies of Ukraine significantly exceeded planned in the EU Directive Solvency II values of mean-standard deviation, it shows a greater riskiness of insurance business in Ukraine and requires from insurance companies larger solvent capital.

## 5. Conclusions

Analysis of the international experience to implement methods of the state regulation and supervision of insurance companies' activities enabled to identify the tendency in the gradual transition from traditional methods to regulate insurance market to the methods based on own assessment of risks and solvency of insurance companies.

The given direction of improvement of state regulation of insurance market is stipulated by International Association of Insurance Supervisors under the title Own Risk and Solvency Assessment (ORSA). ORSA oversees regular assessment of ad-

equacy of risk management of an insurance company as well as its current and possible future solvency. In the European Union, the given system is fulfilled through introduction of Solvency II Directive.

In the framework of integration of countries into the EU insurance environment, Solvency II may be considered as the base to perform reforms of the regulation system of the insurance market, as determined by experiment conducted by method of T. Saaty with the example of Ukrainian insurance companies' adaptation to EU requirements.

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## *Identyfikacja priorytetowych instrumentów wpływających na skutki regulacyjne w zakresie rozwoju ubezpieczeń w świetle wymogów międzynarodowych*

**Streszczenie.** W artykule zostały przedstawione aspekty rozwoju międzynarodowych doświadczeń w zakresie regulacji rynków ubezpieczeniowych w różnych krajach, bazujące na rekomendacjach Międzynarodowego Stowarzyszenia Nadzorów Ubezpieczeniowych (IAIS) oraz dyrektywach Unii Europejskiej. Została przedstawiona rola systemu własnej oceny ryzyka i wypłacalności (Own Risk and Solvency Assessment, ORSA) zakładów ubezpieczeń w obszarze rozwoju ubezpieczeń, która jest jednym z ważniejszych elementów Dyrektywy 2009/138/EC Parlamentu Europejskiego oraz Rady ds. wdrożenia i realizacji działalności w zakresie ubezpieczeń i reasekuracji (Solvency II).

Na podstawie zastosowanej metody analizy hierarchii zostały określone priorytety wpływu regulacji Solvency II na rozwój ubezpieczeń (na przykładzie Ukrainy), co pokazało aktualność wprowadzenia regulacji i nadzoru w ubezpieczeniach w zakresie oceny ryzyka oraz wypłacalności zakładów ubezpieczeń.

**Słowa kluczowe:** doświadczenie międzynarodowe, zakłady ubezpieczeń, regulacje, nadzór, ocena ryzyka, Solvency II.

**Kody JEL:** G22, G28.