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DOI <https://doi.org/10.26661/2414-0287-2021-4-52-21>**METHODOLOGY OF ASSESSMENT OF FINANCIAL RISKS  
OF INSURANCE COMPANIES OF UKRAINE****Shcheblykina I.A., \*Shcheblykina Z.V., Danilova O.A.***Zaporizhzhia National University**Ukraine, 69600, Zaporizhzhia, Zhykovsky str., 66**\*Bogdan Khmelnytsky Melitopol State Pedagogical University**Ukraine, 72300, Melitopol, Getmanska str., 20**innasheblykina@gmail.com*

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**Key words:**

risk, insurance company, financial risk, financial condition, financial ratios, stability, diversification, balance sheet, business activities

This article defines the classification of financial risks of an insurance company in the conditions of functioning of the Ukrainian market of insurance products and gives a list of appropriate methods for each type of risk. Dedicated definition of «risk management». Specific risk management tasks for insurance companies are highlighted. Methods of managing and minimizing risks of insurance companies are described. Methods of compensation of financial risks of insurance companies are investigated. Possible causes of such risks have been identified. The factors of the financial crisis in the insurance company are indicated. Analyzed models for assessing the bankruptcy of insurance companies, namely: Ukrainian models or those models that take into account the specifics of enterprises in Ukraine and models that should be used in analyzing the activities of the insurance company, taking into account its financial statements. The models of bankruptcy risk assessment – Tereshchenko's model and Zaytseva's model, as models that take into account the specifics of the functioning of Ukrainian enterprises, are designed either for the Ukrainian market or for the entire post-Soviet space. A comprehensive analysis of the formulas for analyzing the possibility of bankruptcy of enterprises and identified those that are correct for use with the reporting of insurance companies operating in the market of insurance services in Ukraine. It is noted that among the methods of eliminating the risks inherent in the insurance company, we can highlight the following: risk limitation; risk distribution; reservation of funds; collecting information on future events and results. It is investigated that to minimize the existing financial risks, which cannot be completely eliminated in the insurance company, such methods are used as risk avoidance; risk localization.

**МЕТОДОЛОГІЯ ОЦІНКИ ФІНАНСОВИХ РИЗИКІВ СТРАХОВИХ КОМПАНІЙ УКРАЇНИ****Щебликіна І.О., \*Щебликіна З.В., Данилова О.А.***Запорізький національний університет**Україна, 69600, м. Запоріжжя, вул. Жуковського, 66**\*Мелітопольський державний педагогічний університет імені Б. Хмельницького**Україна, 72300, м. Мелітополь, вул. Гетьманська, 20***Ключові слова:**

ризик, страхова компанія, фінансовий ризик, фінансовий стан, фінансові коефіцієнти, стійкість, диверсифікація, баланс, діяльність суб'єктів господарювання

У даній статті визначена класифікація фінансових ризиків страхової компанії в умовах функціонування українського ринку страхових продуктів та приведений перелік відповідних методів за кожним видом ризику. Виділене визначення поняття «ризик менеджмент». Виділено специфічні завдання управління ризиками для страхових компаній. Охарактеризовані методи управління та мінімізації ризиків страхових компаній. Досліджено методи компенсації фінансових ризиків страхових компаній. Виявлені можливі причини настання таких ризиків. Зазначено чинники настання фінансової кризи у страховій компанії. Проаналізовані моделі оцінки настання банкрутства страхових компаній, а саме: українські моделі або ті моделі, що враховують специфіку функціонування підприємств на території України та моделі, які доцільно використовувати при аналізі діяльності страхової компанії, з урахуванням особливостей її фінансової звітності.

Досліджені моделі оцінки ризиків настання банкрутства – модель Терещенко і модель Зайцевої, як моделей, що враховують специфіку функціонування українських підприємств, розраховані або саме на український ринок, або на весь пострадянський простір. Проведено комплексний аналіз формул аналізу можливості банкрутства підприємств і виділено ті, що є коректними для використання зі звітністю страхових компаній, які функціонують на ринку страхових послуг України. Зазначено, що серед методів усунення ризиків, які притаманні страховій компанії, можна виокремити такі: лімітування ризиків; розподіл ризику; резервування коштів; збір інформації щодо майбутніх подій та результатів. Досліджено, що для мінімізації наявних фінансових ризиків, які неможливо повністю усунути у страховій компанії, застосовуються такі методи, як ухилення від ризиків; локалізація ризиків.

### Statement of the problem

Unlike ordinary companies, insurance companies, firstly, have financial risks associated with the operation and operation of the enterprise as an independent entity, and secondly, the insurance company has accepted risks, namely the risks taken to service specific risks (portfolio of risks) from individuals and legal entities and risks accepted for reinsurance from other insurance companies, insurance companies and associations. Preventing the risks of the insurance company is not only an effective way to manage the company's activities, but also the direct operational activities, the purpose of the enterprise. Thus, for this type of financial entities, the economic problem covered in this course work is very relevant and has the highest practical significance.

### Analysis of recent studies and publications

Financial market activities are always associated with certain risks. Financial risks can be related to the activities of the entity, as well as may exist objectively, regardless of the entity's wishes and arise due to changes in the economy (for example, due to cyclical economic development, government fiscal and monetary policy measures, etc.). In this regard, the problems of minimizing financial risks, the causes and factors of their occurrence are devoted to the work of such scientists as: Tkachenko A.M., Yakos I.S., Ponomarenko T.V., Gerasimova I.Y., Tereshchenko O.O., Zhikhov O.B., Balyasna Yu. S., Rynasnykh E.G. etc. Despite the significant contribution of these scientists, it should be noted the need for further research on the assessment of financial risks that arise in the course of insurance companies.

### Objectives of the article

The purpose of the article is to analyze the financial risks of business entities – insurance companies, as well as possible ways to control and overcome these risks with a preliminary study of the correct methods of assessment and control, to find possible ways to improve existing risk management measures.

### The main material of the research

For integrated financial risk management, an entity, in our case an insurance company, must properly assess all risks present in the enterprise, identify target risks that need to be eliminated (provided that these risks are completely

eliminated) or containment (provided that the risks cannot be eliminated permanently). To properly analyze the financial risks of the entity must adhere to a clearly defined regulatory sequence, namely: identify the causes of fluctuations in the amount of specific risk studied, analyze the identified factors, assess financial performance related to this type of risk, set the maximum allowable level for of the studied risk, to analyze individual, targeted operations of the entity under the conditions of the selected maximum allowable level of risk and, as a last point, to develop or improve existing measures to reduce risks [1].

Analysis of the financial condition of enterprises, in particular insurance companies, is formed by four main methods: vertical, horizontal, trend and ratio. Several methods can be used in one analysis table.

According to the general classification of risk analysis methods, financial risk analysis methods are divided into qualitative and quantitative analysis, which in turn is divided into economic-statistical, calculation-analytical, expert and analog. variations and others. The difference between these methods should also be noted. In turn, the calculation and analytical methods of calculating the financial risks of the entity are the most common, as they are simplified for general understanding, developed and derived to universal formulas and operate simple economic concepts. This method includes: analysis of the stability of the enterprise, cost recovery and break-even analysis.

The normative method is a set of basic financial ratios. A positive feature of this method is the convenience and simple technology of calculating the coefficients by this method. The presence of risk of financial stability is determined by the coefficients: solvency, debt, autonomy, financial stability, financial leverage and self-sufficiency [2]. To assess the availability of credit and internal solvency risks of the insurance company, the following ratios are used: total liquidity, term liquidity, absolute liquidity and maneuverability of own funds. Currency risk is studied by observing the dynamics of fluctuations in foreign exchange rates, provided that the company has some financial settlements in currencies other than national, may also purchase equipment, etc. [1; 3].

Currency risk is studied by observing the dynamics of fluctuations in foreign exchange rates, provided that the company has some financial settlements in currencies other than national, it is also possible to purchase equipment and so on. Almost the same can be said about interest rate, price and tax risks. As these are external risks, we can only

observe fluctuations in interest rates, tax and fee rates and overall pricing in the insurance market and minimize losses from sharp fluctuations in these indicators by providing sufficient reserves.

The financial management of the entity is the driving force behind the life and development of the enterprise. In turn, one of the most important elements of this process is the management of financial risks, which is ensured by the development and implementation of a model of control and management of existing (characteristic) financial risks at the enterprise. Such control is separated into the functional and organizational unit of financial management. Also in the economic literature it is often distinguished as «risk management» (Risk Management).

The system of methods and measures for risk management and control is mainly internal methods. It is the internal mechanisms of control and elimination of financial risks that are the system of reducing the negative consequences that are inherent and have been identified in the enterprise. Internal minimization measures address almost all possible risks (full risk-portfolio). The appropriate use of internal mechanisms is due to the great flexibility and speed in the adoption, implementation and implementation of anti-risk measures perspective risks, decision-making is determined by the specifics of the studied enterprise, its financial capabilities, market position, structural organization, and its implementation is more efficient and appropriate [4].

The main task of the management staff of the enterprise after identifying existing financial risks is prompt and effective elimination (or minimization, in the absence of the possibility of complete elimination). The following methods can help to eliminate risks: insurance, limitation, risk allocation, diversification, provisioning of funds (formation of trust funds) in favor of unforeseen costs, as well as gathering information about future choices and its results.

Insurance is one of the most common methods of managing financial risks for businesses (in countries where the insurance system operates), but at the same time this type of insurance is more complex and problematic due to the process of its organization. According to the Law of Ukraine «On Insurance», this type of insurance refers to voluntary insurance, as well as property [5]. However, despite the distribution of characteristics, the legislation does not have a clear definition of «financial risks». The maximum allowable limit on possible costs in the event of a risk outcome.

A method such as diversification is to reduce risks, including financial, by allocating cash between this risk and other risks that are less likely to occur or less costly if incurred. Reservation as a method of controlling and eliminating financial risks accumulation of a certain calculated amount of money, which is purposefully accumulated to cover possible risks and in case of a certain risk, a certain amount of money from this reserve fund is spent to cover these costs. in comparison with other methods listed above and is mostly subjective.

In turn, slightly different methods are used to minimize the financial risks of business entities (Table 1).

If the occurrence of adverse financial events (financial risks) within the entity cannot be overcome or reduced for the most part for the occurrence of a favorable situation for further operational activities, the so-called methods of compensation of financial risks are used, namely:

- creation of mutual support and assistance funds or associations between autonomous divisions of companies or partner companies;
- reservation of a share of free financial assets of the enterprise to provide a «financial cushion» or self-insurance in case of need;
- fight against industrial and economic espionage, sabotage;
- introduction of a system of fines and incentives for operational actions to overcome cases of occurrence or prevention of financial risks;
- extraordinary issue of preferred shares (additional financing);
- implementation or improvement of the strategic planning process, revision and redistribution of plans based on previous mistakes;
- development of a new or improvement of the existing marketing system;
- lobbying for state bills to protect business from certain types of risks, support small, medium and large businesses in conditions of uncertainty and the presence of large risks [8].

In case of imperfect management of the insurance company, there may be a threat of bankruptcy, which may lead to the complete closure of the insurance company.

The factors of the financial crisis in the insurance company include: incorrectly performed actuarial calculations; errors in the calculation of acceptable risks for reinsurance; risky ways of investing temporarily free funds owned by the insurance company or accepted for temporary maintenance; formation of reserves in

Table 1 – Methods of minimizing risks in financial management

Method	Characteristic
Risk dissipation	Carried out by diversifying the activities of the enterprise.
Avoidance of risks	Refusal to cooperate with unreliable partners, refusal to work on risky projects, search for guarantors.
Risk localization	Demarcation of the system of rights and responsibilities so that the consequences of risk situations do not affect the implementation of management decisions.
Minimize risks or keep risk within acceptable limits	– determining the minimum size of highly liquid assets of the enterprise, setting the maximum amount of borrowed funds in business; – limiting the concentration of risks; – obtaining certain guarantees from counterparties in the provision of commercial loans and borrowings; setting the maximum amount of a deposit placed in one bank.

insufficient quantities to ensure the stability of the insurance company; the presence of an unbalanced insurance portfolio, which will further stimulate increased risks; incurring significant losses on insurance and investment activities of the company. All these factors increase the insurance company's losses or disrupt its balance sheet structure in such a way that the company will gradually lose its competitiveness and solvency until the moment of complete bankruptcy.

Due to the special specifics of the operation of the company under study, among all the models for assessing the onset of bankruptcy, we need to highlight:

- namely Ukrainian models or those that take into account the specifics of the operation of enterprises in Ukraine;

- models that should be used in the analysis of the insurance company, the features of its financial statements.

After analyzing the existing models for assessing the risks of bankruptcy (both domestic and generally accepted foreign) can be identified as appropriate to use in this case, the following models: Tereshchenko model [7] and Zaitseva model [8]. These models take into account the specifics of the functioning of Ukrainian enterprises, designed either for the Ukrainian market or for the entire post-Soviet space.

Regarding Tereshchenko's model, it should be noted that it is based on analytical data of the national economy taking into account the industry affiliation and structure of enterprises, industry reference values of coefficients in the model allows to identify crises in enterprises in various sectors of the national economy. But despite the fact that this model is the most popular for use in Ukraine, it has several negative features: it shows the exclusive presence or absence of a crisis in the company relative to the calculated financial indicators, which makes it impossible to diagnose early pre-crisis phenomena. Integrated indicator from – 0,9 to 0,9 does not provide high accuracy in assessing the financial condition of the enterprise.

Model Tereshchenko O.O. is determined by the formula:

$$Z = 1,5X_1 + 0,08X_2 + 10X_3 + 5X_4 + 0,3X_5 + 0,1X_6, \quad (1)$$

where  $X_1$  – the ratio of cash receipts to liabilities;  $X_2$  – the ratio of balance sheet currency to liabilities;  $X_3$  – the ratio of net income to the average annual amount of assets;  $X_4$  – the ratio of profit to revenue;  $X_5$  – the ratio of inventories to revenue;  $X_6$  – the ratio of revenue to fixed capital.

The obtained values of  $Z$  can be integrated as follows:  $Z > 2$  – the company is financially stable and it is not threatened with bankruptcy;  $1 < Z < 2$  – the company has disturbed the financial balance (financial stability), but it is not threatened with bankruptcy if the transition to crisis management;  $0 < Z < 1$  – the company is threatened with bankruptcy if it does not take remedial action;  $Z < 0$  – the company is semi-bankrupt.

Zaitseva's model has the advantage that it is easy to calculate and also suitable for use by companies that are not issuers of securities or have stopped issuing new ones for a long time. Also, the condition for using this model is that it is relevant for companies that are already in a state

of crisis. In many publications, this feature of this model is described as its disadvantage, but in the case of this study it will be appropriate. Zaitseva's model for assessing the risk of bankruptcy of the enterprise is as follows:

$$K = 0,25X_1 + 0,1X_2 + 0,2X_3 + 0,25X_4 + 0,1X_5 + 0,1X_6, \quad (2)$$

where  $X_1$  – Coop (loss ratio of the enterprise, characterized by the ratio of net loss to equity);  $X_2$  –  $Kz$  (ratio of accounts payable and receivable);  $X_3$  –  $Ks$  (ratio of short-term liabilities and most liquid assets, this ratio is the inverse of the absolute liquidity ratio);  $X_4$  – Chickens (loss of sales of products, characterized by the ratio of net loss to sales of these products);  $X_5$  –  $CFL$  (financial leverage ratio (financial risk) – the ratio of borrowed capital (long-term and short-term liabilities) to own sources of financing);  $X_6$  –  $Kzag$  (asset load factor as a value inverse of the asset turnover ratio, – the ratio of total assets of the enterprise (balance sheet currency) to revenue).

To determine the probability of bankruptcy, it is necessary to compare the actual value ( $Kfact$ ) with the normative value ( $Kn$ ), which is calculated by the following formula:

$$Kn = 0,25 \times 0 + 0,1 \times 1 + 0,2 \times 7 + 0,25 \times 0 + 0,1 \times 0,7 + 0,1 \times X_6. \quad (3)$$

If the actual coefficient is higher than the normative ( $Kfact > Kn$ ), then the probability of bankruptcy is extremely high, and if less, the probability of bankruptcy is negligible.

All other domestic models (such as the model of the Ministry of Finance of Ukraine, IDEA) and foreign models can't be used due to lack of data required for the calculation or incorrectness of these calculations due to the specifics of some indicators of the insurance company.

## Conclusions

Financial risks are present in all companies that have their own financial structure, budget, income and expenses – this is an integral part of their economic activity. But despite the presence of such a factor as risk, all still have some inequality in the formation and amount of financial risks available to enterprises. Such inequality is formed due to many factors, but the fundamental and cardinal is the specifics of the sphere of work of enterprises.

Regarding the methods of eliminating the risks inherent in the insurance company, we can highlight:

- risk limitation, at this enterprise, as well as at all other insurance companies, the general limit on quantity of risks in service (both in quantitative, and in monetary terms), and also a limit of the maximum admissible volume of an insurance portfolio (and each risk) is established. separately), which can be accepted from one client);

- risk allocation (this term can be understood as a common practice for insurance, namely reinsurance – providing part (the difference between the amount of risk and the limit that can take on the processing of the insurance company) taken for insurance risk to another insurance company to share responsibility for this risk in the event of an insured event);

- reservation of funds (is also a common and mandatory method of eliminating financial risks in insurance activities;

is to create a reserve fund, the money from which will be used in the event of an excessive number of insured events);

– the process of forming forecasts for future trends in the occurrence of insured events, which serves as a basis for further application of methods of limitation and reservation).

The following methods are also used to minimize the existing financial risks that cannot be completely eliminated at the enterprise:

– risk avoidance (this refers to the stage of consideration of clients' applications for acceptance of their risks for processing by the insurance company. At this point the

company assesses the client's risks in detail and decides whether it is appropriate to accept such risk, whether it will be possible in the event of an insured event and then provides the result to the client in the form of consent or evasion of acceptance for processing of this risk);

– localization of risks (choosing the maximum amount of coverage that the company can pay (in terms of processing the risk) or lose (in case of risk from the activities of the enterprise itself), each maximum amount of payments is calculated for each risk separately. After choosing the maximum amount of payments, the company has no right to exceed it).

### References

1. Tkachenko, A.M., & Yakos I.S. (2008). Metody otsinky pidpriemnytskogo ryzyku [Methods of business risk assessment]. *Ekonomichnyi visnik Donbasu*. Vol. 3. P. 136–139. [in Ukrainian]
2. Ponomarenko, T.V. (2016). Systematyzatsiya pidkhodiv do otsiniuvannya ekonomichnoi stiihosti pidpriemstva [Systematization of approaches to assessing the economic stability of the enterprise]. *Naukovii visnik Khersoskogo derzhavnogo universitetu. Seriya: Ekonomichni nauki*. Vol. 16(3). P. 43–47. [in Ukrainian]
3. Berzhanir, I.A. (2016). Diagnostika pokaznykiv likvidnosti pidpriemstv. Finansove zabezpechennia stalogo rozvitku ekonomiky Ukrainy [Diagnosis of liquidity indicators of enterprises. Financial support of sustainable development of the economy of Ukraine]. Uman : FOP Zhovtiy O.O. [in Ukrainian]
4. Gerasimova, I.Yu. (2016). Upravlinnia finansovymy ryzykamy strachovykh kompanii z metoiu zabezpechennia ekonomichnoi bezpeky [Financial risk management of insurance companies to ensure economic security]. *Ekonomichnyi prostir*. Vol. 11. P. 112–125. [in Ukrainian]
5. Zakon Ukrainy «Pro strachuvannya» [The Law of Ukraine «On the insurance»]. Retrieved from <https://zakon.rada.gov.ua/laws/show/85/96-%D0%B2%D1%80> [in Ukrainian]
6. Zhikhor, O.B., & Baliaska, Yu.S. (2011). Upravlinnia finansovymy ryzykamy ta metody ich neutralizatsii na pidpriemstvi [Management of financial risks and methods of their neutralization at the enterprise]. *Finansovo-kredytna diialnist: problem teorii ta praktyky*. Vol. 2. P. 149–153. [in Ukrainian]
7. Tereshchenko, O.O. (2004). Antykryzove finansove upravlinnia na pidpriemstvi [Anti-crisis financial management at the enterprise]. Kyiv : KNEU. [in Ukrainian]
8. Riasnych, E.G. (2018). Modeli diagnostyky ta prognozuvannya bankrutstva [Bankruptcy diagnosis and prediction models]. *Visnik Khmel'nitskogo natsionalnogo universitetu*. Vol. 2. P. 30–33. [in Ukrainian]