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Abernikhina I.

*Ph. D. in Economics, Associate Professor,
Associate Professor of Department of Finance,
National Metallurgical Academy of Ukraine, Dnipro, Ukraine;
e-mail: irina.abernikhina@gmail.com; ORCID ID: 0000-0003-0692-1276*

Toporkova O.

*Ph. D. in Economics, Associate Professor,
Associate Professor of Department of Accounting and Taxation,
Dnipro National University of Railway Transport named after Academician V. Lazaryan, Ukraine;
e-mail: toporkova1975@gmail.com; ORCID ID: 0000-0003-0956-3638*

Sokyrinska I.

*Ph. D. in Economics, Associate Professor,
Associate Professor of Department of Finance,
National Metallurgical Academy of Ukraine, Dnipro, Ukraine;
e-mail: sokirinska@gmail.com; ORCID ID: 0000-0001-6140-8518*

Shylo L.

*Ph. D. in Economics, Associate Professor,
Associate Professor of Department of Accounting and Taxation,
Dnipro National University of Railway Transport named after Academician V. Lazaryan, Ukraine;
e-mail: 1954shilo@gmail.com; ORCID ID: 0000-0003-3235-1377*

METHODICAL APPROACHES FOR ASSESSING THE FINANCIAL STABILITY OF INSURANCE COMPANIES

Abstract. The article summarizes arguments and counterarguments within the framework of a scientific discussion concerning the methodological ensuring for assessing the financial stability of insurance companies. The main purpose of the conducted study is indexes arrangement by which it is possible to assess the financial stability of an insurance company in accordance with the criteria (factors, sources) of its ensuring. Systematization of literary sources and approaches for solving the problem in managing the financial stability of an insurance company to ensure its stable development has shown that this issue remains unresolved to the full extent and requires detailing and indexes arrangement that can be used to assess the financial stability and determine its level.

Actuality in solution of this scientific problem lies in the fact that financial stability of insurance companies is an important precondition for their survival in modern conditions, a factor of providing the insurance protection and maintaining the achieved standard of living of the population, full and timely performance of insurance obligations, effective and competitive functioning of the insurer in the future. In the article studies on the management of the financial stability of an insurance company on the basis of indexes arrangement of its assessment are performed in the following logical sequence: characteristic of the main tendencies in the development of the insurance market of Ukraine in recent years is outlined; the necessity of management of the financial stability of insurance companies is grounded in order to ensure their sustainable economic development; approaches to the definition in the essence of the financial stability of an insurance company are considered and the definition by Ukrainian researcher N. V. Tkachenko is adopted as the basis. On the basis of the analysis of recent scientific publications, theoretical and methodological developments by modern researchers, the authors of the article selected six groups of criteria for ensuring the financial stability, according to which the ratios for assessing the financial stability of insurance companies of these participants in financial markets are systematized and methodologically substantiated.

The results of the research can be useful for managers and staff of insurance organizations, government oversight of insurance activities, teachers of economic specialties.

Keywords: financial stability, insurance company, methodological approaches, assessment of financial stability.

JEL Classification C1, G22, O16

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Аберніхіна І. Г.*кандидат економічних наук, доцент,
доцент кафедри фінансів**Національної металургійної академії України, Дніпро, Україна;
e-mail: irina.abernihina@gmail.com; ORCID ID: 0000-0003-0692-1276***Топоркова О. А.***кандидат економічних наук, доцент,
доцент кафедри обліку і оподаткування**Дніпровського національного університету залізничного транспорту
імені Академіка В. Лазаряна, Україна;
e-mail: toporkova1975@gmail.com; ORCID ID: 0000-0003-0956-3638***Сокиринська І. Г.***кандидат економічних наук, доцент,
доцент кафедри фінансів**Національної металургійної академії України, Дніпро, Україна;
e-mail: sokirinska@gmail.com; ORCID ID: 0000-0001-6140-8518***Шило Л. А.***кандидат економічних наук, доцент,
доцент кафедри обліку і оподаткування**Дніпровського національного університету залізничного транспорту
імені Академіка В. Лазаряна, Україна;
e-mail: 1954shilo@gmail.com; ORCID ID: 0000-0003-3235-1377*

МЕТОДИЧНІ ПІДХОДИ ДО ОЦІНКИ ФІНАНСОВОЇ СТІЙКОСТІ СТРАХОВИХ КОМПАНІЙ

Анотація. Узагальнено аргументи і контраргументи в межах наукової дискусії з питання методичного забезпечення оцінки фінансової стійкості страхових компаній. Основною метою проведеного дослідження є систематизація показників, за якими можна здійснити оцінку фінансової стійкості страхової компанії відповідно до критеріїв (факторів, джерел) її забезпечення. Систематизація літературних джерел і підходів до розв'язання проблеми управління фінансовою стійкістю страхової компанії для забезпечення її стабільного розвитку засвідчила, що це питання залишається невирішеним повною мірою і потребує деталізації та систематизації показників, за якими можна провести оцінку фінансової стійкості та визначити її рівень.

Актуальність розв'язання наукової проблеми полягає в тому, що фінансова стійкість страхових компаній є важливою передумовою їх виживання в сучасних умовах, фактором забезпечення страхового захисту та підтримання досягнутого рівня життя населення, повного і своєчасного виконання страхових зобов'язань, ефективного й конкурентоздатного функціонування страховика в майбутньому. Дослідження питання управління фінансовою стійкістю страхової компанії на основі систематизації показників її оцінки здійснено в такій логічній послідовності: надана характеристика основним тенденціям розвитку страхового ринку України в останні роки; обґрунтовано необхідність управління фінансовою стійкістю страхових компаній з метою забезпечення їхнього сталого економічного розвитку; розглянуто підходи до визначення сутності фінансової стійкості страхової компанії та прийнято за основу визначення української дослідниці Н. В. Ткаченко. На основі аналізу останніх наукових публікацій, теоретичних і методологічних напрацювань сучасних дослідників виділено шість груп критеріїв забезпечення фінансової стійкості, за якими систематизовані та методично обґрунтовані коефіцієнти оцінки фінансової стійкості страхових компаній як суб'єктів фінансового ринку.

Результати проведеного дослідження можуть бути корисними для керівників і персоналу страхових організацій, органів державного нагляду за страховою діяльністю, викладачів економічних спеціальностей.

Ключові слова: фінансова стійкість, страхова компанія, методичні підходи, оцінка фінансової стійкості.

Формул: 0; рис.: 0; табл.: 5; бібл.: 20.

Introduction. Today, the insurance institute is one of the mechanisms for protection against unfavorable events of all market participants. The ongoing reforms in the medical sphere and the sphere of pensions are gradually increasing the demand for medical and funded pension insurance. At the same time, the economic instability of production sphere, the low population income level, accompanied by a decrease in the volume of insurance premiums from the insurer, the imperfect legislative framework does not create the basis for the sustainable economic development of insurance companies. Due to the complexity and variety of external and internal financial relations, there is a need for highly effective financial management of an insurance company, which is a prerequisite for ensuring its financial stability.

The financial stability is one of the most important characteristics in the behavior of any organization in the situation of external and internal changes. The stability of insurance companies is not only an important prerequisite for their survival in modern conditions, but also the key to successful implementation of their mission and strategic objectives in activity [1, p. 31].

A sufficient level of the financial stability of insurers is a main prerequisite:

- providing insurance protection for social reproduction and maintaining the achieved standard in living of the population;
- complete and timely fulfillment of insurance obligations;
- effective and competitive functioning of the insurer in the future;
- development of the country's economy as a whole [2, p. 89].

The foregoing actualizes the issue in improving of methodological approaches to assessing the financial stability of insurance companies in modern economic conditions.

Research analysis and problem statement. The question of managing the financial stability of an insurance company and its methodological approaches to its assessment are highlighted in the scientific publications of domestic scientists, in particular the problem of ensuring the financial stability of an insurance company, directions of improvement and comparative approaches to the assessment of the financial stability of insurance companies were investigated in publications by M. V. Balytska, H. O. Velychko, V. M. Oliynyk, N. M. Stashkevych, O. S. Stashkevych, N. V. Tkachenko. Discussion questions of the criteria (sources, factors) for ensuring the financial stability are considered and justified in the publications of O. R. Kryvytska, M. V. Chychylynskyi, R. Pikus.

German researchers M. Maske, B. Hirsch and M. Sohn considered insurers' remuneration, taking into account the significant level of risk inherent in the insurance industry [3]. G. Dutta, Harish V. Rao, S. Basu and Manoj Kr. Tiwari studied the issues of management of life insurance companies [4]. P. A. A. Cafasso, J. L. Chela and H. Kimura paid attention to the distribution of capital of insurance companies using stochastic models [5].

The financial institutions activities are associated with a certain set of risks inherent in the financial services market [6]. The question of rating grades of the financial stability of insurers and its managing with taking into account the impact of the most specific risks in this industry has been actively studied in recent years by many European researchers [7—10].

The main purpose of the article is to arrange the indexes by which it is possible to assess the financial stability of an insurance company according to the criteria (factors, sources) of its ensuring.

Research methodology and methods. The methodological tools of the conducted research are empirical and theoretical research methods (abstraction and concretization, analysis, synthesis, induction, deduction, analogy, logical methods, a method of systematization, grouping and generalization).

Research results. The concept of the financial stability of an insurance company is very complex and multidimensional. Its peculiarity is that for its interpretation it is impossible to use standard approaches, suitable for other enterprises. This is due to the specifics of the insurance companies' activity, whose organization of finances differs from the organization of finances of other business entities. Since the insurance legislation, in particular the Law of Ukraine «On Insurance», does not provide any definition of the «financial stability of an insurance company»,

during the last decade researchers have been discussing the theoretical definition of this category in the scientific publications.

Analysing the achievements of modern scientists, researchers Tkachenko N. V. [1, p. 32], Velychko H. O., Stashkevych N. M., Stashkevych O. S. [11, p. 80] and others distinguish groups of scholars, whose views in one or another planes coincide with the defining the essence of the «financial stability of an insurance company».

On the basis of the contradictions discovered in the research process, Tkachenko N. V. formulated the own definition in the essence of «financial stability of insurance companies», under which the researcher understands such state of organization of its cash flows (input and output), in which an insurance company is capable timely and fully comply with the obligations undertaken to all market participants, subject to the influence of adverse factors (internal and external) during a certain time, as well as to adapt constantly to changes in the economic environment [12, p. 47; 1, p. 33]. The authors of the article fully agree with this definition and take it as the basis for their study.

Factoring in the specifics of the insurance companies' activity, there are two types of the financial stability, as well as two sides from which it can be estimated, namely: the financial stability of an insurance company as a legal entity engaged in economic activity for the provision of services; the financial stability of an insurance company in accordance with the requirements for insurance companies as participants of the financial market [13, p. 357; 11].

The financial stability of an insurance company as a legal entity consists in an effective relationship of own and borrowed capital in the structure of financial resources of an insurance company that is able to provide the required level of solvency and liquidity.

The authors's conducted research concerning the recent scientific publications, theoretical and methodological developments of Ukrainian researchers, have made it possible to distinguish the main criteria (factors, sources) of ensuring the financial stability of an insurance company (*Table 1*).

Table 1

**Criteria (factors, sources) for ensuring the financial stability
of an insurance company, highlighted by modern researchers**

Source/author	Criteria (factors, sources)
Forecasting the financial stability of an insurer [14, p. 5]	The financial stability of an insurance company can be determined by statement of: — sufficient and paid-up share capital; — reasonably and clearly calculated insurance tariffs; — effective reserve policy and operating reinsurance system
Balytska M. V. [15, p. 5]	The main basis of the financial stability of an insurer is: — equity and reasonable tariff policy; — sufficiency of insurance reserves; — effective investment policy and reinsurance operations
Velychko H. O., Stashkevych N. M., Stashkevich O. S. [11, p. 80]	The main criteria for ensuring the stable activity of an insurer include: — equity capital adequacy and balanced tariff policy; — balance of the insurance portfolio and a safe reinsurance program; — adequate methods for formation of insurance reserves; — optimal investment policy and a high level of solvency
Pikus R., Balytska M. [16, p. 8]	There are five main sources that ensure the financial stability of an insurer: — equity capital adequacy and insurance reserves, calculated in due course and guaranteeing insurance payments; — asset placement (investment policy); — single risk limitation (reinsurance) and tariff policy
Balytska M. V. [2, p. 90]	In order to fully satisfy the interests of insurers, insurance companies must be provided with financial stability that guarantees: — solvency and capital adequacy; — the availability of insurance reserves and funds; — the organized risk management process
Lapishko M. L., Danylykiv K. P., Dobosh N. M. [17, p. 228]	The main components for ensuring the financial sustainability of the insurance company include: — sufficient equity capital and balanced tariff policy; — insurance portfolio balanced by volume and risk; — effective placement of insurance reserves

Source: compiled by the authors according to [2; 11; 14—17].

The authors of the article offer to generalize and consolidate existing criteria for the financial stability of insurance companies in scientific researches and to further systematize coefficients according to such groups of criteria:

- the criterion of available paid-up share capital;
- the criterion of adequacy and accumulation of equity;
- criterion of the availability and sufficiency of insurance reserves volume;
- the criterion of the availability of a valid reinsurance system;
- the criterion of the availability of a reasonable, balanced tariff policy;
- the criterion of solvency and liquidity of an insurance company.

According to six criteria, the authors of the article propose to systematize and methodically substantiate the ratios of assessing the financial stability of an insurance company according to the requirements for insurance companies as participants of the financial market (Tables 2–5).

Formation of the capital in an insurance company is a process of attracting the financial resources, managing their movement and transforming into specific forms of capital that are capable in ensuring its financial stability at any given time. The equity of an insurance company plays an important role both at the stage of establishing an insurance company and in the process of its operation [12, p. 88].

Systematization of the coefficients in the financial stability of an insurance company by the criterion of available paid-in share capital and the criterion of adequacy and accumulation of equity is given in Table 2.

Table 2

**Ratios of evaluation of financial stability of an insurance company
by the criterion of adequacy and accumulation of equity capital (author’s systematization)**

Ratios	Formula for calculation	Characteristic
Capital adequacy ratio or own financial security ratio	$R_{ca} = \frac{C}{A},$ <p><i>C</i> — capital of an insurance company; <i>A</i> — total assets of an insurance company; $C = A - IA - O,$ where <i>A</i> — assets of an insurance company (balance sheet currency); <i>IA</i> — intangible assets; <i>O</i> — the long-term and current obligations of an enterprise</p>	It characterizes the level of equity adequacy. With an increase in ratio to one, the insurer’s solvency increases
Saving ratio	$R_s = \frac{GF}{EC},$ <p>where <i>EC</i> — equity capital; <i>GF</i> — a guarantee fund. $GF = AC + RC + UP,$ where <i>AC</i> — additional capital; <i>RC</i> — reserve capital; <i>UP</i> — undistributed profit</p>	It characterizes the funds of an insurance company that are not included in the payment of insurance obligations, but aimed at maintaining and developing
Ratio of financial potential of an insurance company	$R_{fp} = \frac{IR + C}{NIP},$ <p>where <i>IR</i> — insurance reserves; <i>C</i> — capital; <i>NIP</i> — net insurance premiums</p>	It characterizes the ability of an insurance company to make the necessary insurance payments under unfavorable conditions for the insurer (for example, a high level of loss ratio)

Source: compiled by the authors according to [12; 14; 18–19].

Consequently, the availability and adequacy of equity (capital adequacy ratio) allows the insurer not only to cover the negative effects of business risk, but also to ensure the continuity of its activities (financial potential rate).

It is known that the presence of the insurance company’s equity in the part that accounts for the guarantee fund, in fact, represents free reserves (their level is evidenced by the saving ratio), and therefore allows an insurance company to take on risks of higher insurance costs.

Therefore, it can be argued, and the authors agree in this with Tkachenko N. V. that the value of equity capital of an insurance company is of great importance in ensuring its financial stability [12, p. 90—91].

Table 3

**Ratios for assessing the financial stability of an insurance company
by the criterion for the availability and sufficiency of the level of insurance reserves**

Ratios	Formula for calculation	Characteristic
Equity coverage ratio of insurance reserves	$K_c = \frac{EC}{IR},$ where <i>EC</i> — equity capital; <i>IR</i> — insurance reserves (including reserves transferred to reinsurance)	It characterizes the ability of an insurance company to make payments under insurance contracts in the amount exceeding the volume of insurance reserves
Sufficiency ratio of insurance reserves	$R_{sir} = \frac{IR}{NIP},$ where <i>IR</i> — insurance reserves; <i>NIP</i> — net insurance premiums (with the deduction of premiums transferred to reinsurance)	It characterizes the sufficiency of the insurance reserves in a company to meet its insurance obligations
Liquidity ratio of insurance reserves	$R_{lir} = \frac{HLA}{IR},$ where <i>IR</i> — insurance reserves; <i>HLA</i> — highly liquid assets	It shows the proportion of highly liquid assets in the total amount of insurance reserves, and characterizes how quickly, if necessary, an insurance company will be able to transform insurance reserves into cash and fulfill its obligations under insurance contracts.
Deficit (surplus) of insurance reserves	$D/S_{ir} = ARR - AAFR$ where <i>D/S_{ir}</i> — deficit (surplus) of insurance reserves; Deficit (surplus) of insurance reserves <i>ARR</i> — the amount of required reserves; <i>AAFR</i> — the actual amount of the formed reserves; $ARR = \frac{FR_{pp} \cdot EIP_{cp}}{EIP_{pp}},$ where <i>FR_{pp}</i> — formed insurance reserves for the previous period; <i>EIP_{cp}</i> — earned insurance premiums of the current period; <i>EIP_{pp}</i> — earned insurance premiums of the previous period	It characterizes the deficit or surplus of insurance reserves formed in the current period compared to the previous period

Source: compiled by the authors according to [13; [18—20].

Table 4

**Ratios of assessing the financial stability of an insurance company
by the criterion of a functioning reinsurance system**

Ratios	Formula for calculation	Characteristic
Own premium retention rate	$R_{opr} = \frac{AGP - APTR}{AGP},$ where <i>AGP</i> — the amount of gross premiums; <i>APTR</i> — the amount of premiums transferred to reinsurers	It characterizes the part of the sum insured, within which an insurance company is responsible for the insured risk, transferring the rest to reinsurance
Reinsurance dependency ratio	$R_{dr} = \frac{APTR}{AGP},$ where <i>APTR</i> — the amount of premiums transferred to reinsurers; <i>AGP</i> — the amount of gross premiums	It characterizes the share of reinsurers in the insurance activity of a company. The optimum value is 5—50%

Table 4 (continued)

Ratios	Formula for calculation	Characteristic
Retention ratio in indemnity	$R_{ri} = \frac{IP - IPCR}{IP},$ where IP — insurance payments; $IPCR$ — insurance payments compensated by reinsurers	It characterizes a part of insurance indemnities directly paid by an insurance company without taking into account the payments compensated by reinsurers.
Ratio of reinsurers' participation in insurance reserves	$R_{prir} = \frac{SRIP}{IR},$ where $SRIR$ — the share of reinsurers in insurance reserves; IR — the total amount of insurance reserves	It characterizes the company's dependence on the implementation of its obligations on the reliability of reinsurers
Ratio of the financial stability of the insurance fund	$R_{fs}^{if} = \frac{\sum I + \sum AR}{\sum C},$ where $\sum I$ — the amount of income for the tariff period; $\sum AR$ — the amount of funds in the reserve funds; $\sum C$ — the amount of costs for the tariff period	The normal state of the financial stability of an insurance organization should be considered if $R_{fs}^{if} > 1$, that is, when the amount of income, taking into account the balance in the reserve funds, exceeds all expenses of the insurer. With an increase in the stability factor of the insurance fund, the financial stability of insurance operations will also grow

Source: compiled by the authors according to [12; 14; 18—20].

Table 5

Ratios of assessing the financial stability of an insurance company by the criterion of solvency and liquidity

Ratios	Formula for calculation	Characteristic
Absolute liquidity ratio	$R_{al} = \frac{HLA}{CO},$ where HLA — highly liquid assets; CO — current obligations of an insurance company	It characterizes the ability of an insurance company to fulfill its obligations under insurance contracts without additional involvement of external financing (debt securities issue, attracting bank lending, etc.)
Current liquidity ratio	$R_{cl} = \frac{WA}{CO},$ where WA — current (working assets) assets; CO — current obligations of an insurance company	
Index of the current solvency of an insurance company	$R_{cs} = \frac{IP - APTR}{IP - OE},$ where R_{cs} — current solvency ratio; IP — insurance premiums; $APTR$ — the amount of premiums transferred to reinsurers; IP — insurance payments; OE — operating expenses	It characterizes the sufficiency of funds in the form of insurance premiums to cover current expenses for insurance payments and payment of current expenses for insurance business
Calculated indexes of solvency margin of an insurance company	$ASM = A - A_i - T,$ where ASM — actual solvency margin (net assets); A — total assets; A_i — the amount of intangible assets; T — total obligations. $SSM1 = 0.18 \cdot (AP - 0.5 \cdot APR),$ where $SSM1$ — standard estimated solvency margin based on insurance premiums; AP — the amount of insurance premiums received during the reporting period; APR — the amount of insurance premiums transferred to reinsurance during the reporting period. $SSM2 = 0.26 \cdot (AP - 0.5 \cdot APR),$ where $SSM2$ — standard estimated solvency margin based on insurance premiums; AP — the amount of insurance payments made by the insurer during the reporting period; APR — the amount of insurance payments compensated by reinsurers during the reporting period	

Source: compiled by the authors according to [12; 18—20].

The main goal of insurance pricing is to balance the basic insurance equation, according to which the amount of the insurance premium should equivalently reflect possible losses, cover all expected expenses from insurance and provide targeted profit during the insurance period [19, p. 185]:

In view of the specifics of the insurance companies' activity in attracting funds of citizens and legal entities, they have special requirements for ensuring solvency. In particular, the Law of Ukraine «On Insurance» regulates:

- a) the minimum level of paid-up share capital in cash;
- b) the availability of the guarantee fund of the insurer in terms of additional and reserve capital and retained earnings;
- c) creation of insurance reserves sufficient for future payment of insurance sums and insurance indemnities; directions of placement of insurance reserves in assets of certain categories that meet the requirements of quality and diversification; correct application of the calculation methodology for insurance reserves; sources of forming the insurance reserves (attracted financial resources (insurance premiums));
- d) the need to exceed the actual solvency margin of the insurer over the estimated regulatory solvency margin (solvency margin) [11, p. 79].

Therefore, we share N. Tkachenko's view on the introduction of such indexes as: 1) «minimum solvency margin» (the minimum level of capital adequacy of obligations), which is defined as the excess of the actual solvency margin over the regulatory one. If the insurer's solvency level is lower than the minimum, the undeniable involvement of the insurance supervisor in the activities of the insurer in order to stabilize the status of an insurance company and its recovery should be provided by current legislation; 2) «solvency control level» (it is determined at the level of at least 25% excess of the value of the actual solvency margin over the regulatory one and is an indicator for supervisory authorities to deploy preventive actions aimed at preventing the insurer's negative solvency consequences) [12, p. 179].

Conclusions. The authors of the article, based on the critical analysis of theoretical and methodological developments of modern researchers, generalized the criteria for ensuring the financial stability of insurance companies.

Studies of methodological and methodological issues in assessing the financial stability of insurance companies allowed the authors to detail and systematize the ratios, which are proposed to assess the financial stability. The main scientific result of this study is the systematization of the ratios for assessing the financial stability of an insurance company, their methodological substantiation and the definition of the essential characteristics of each ratio.

Prospects for further developments in this area are establishment of the recommended normative values of the ratios for assessing the financial stability of insurance companies, using the methods of mathematical statistics and expert methods for evaluating, taking into account the specifics of their activities.

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