



Article

Analysis of the Solvency of Insurance Companies

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Abstract: The present research focuses on the scientific rationale and evaluation of insurers' solvency. Solvency is a concept describing the ability of an insuring company to fulfill its financial obligation fully and timely, which is extremely important for insurance system stability, investor trust and consumer safeguard. Areas of analysis Analysis is provided on the basis of world practice, methods, regulations and empirical researches used in the CIS countries and Uzbekistan such as use of financial indicators, estimation level of sufficiency own funds and risk management. The relevance of the problem is determined by several factors: there are climate changes, pandemics and instability in financial markets on the world insurance market; as for Uzbekistan—extension of insurance services, modernisation of regulation process and development of interaction with other countries make solvency control even more urgent. The analysis based on financial ratios, the Merton model (Distance-to-Default), stress tests and hypothetical scenarios, Solvency II/RBC approaches, and expert judgment. The results of the study allow for determining the financial stability of insurance companies, assessing capital adequacy, and forecasting risks.

Keywords: Insurance Company, Solvency, Adequacy of Capital, Risk Management, Financial Ratios, Merton Model (Distance-To-Default), Solvency II/RBC, Stress-Test, Reinsurance and Advanced Management of Assesed by The Insurer FINANCIAL Stability

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1. Introduction

Within the framework of the tasks defined by the social protection policy aimed at honoring human dignity in the Development Strategy, it is planned that by 2026 the needy population will be fully covered by social benefits and material assistance [1]. To this end, the creation of a social insurance system, including the development of a plan to establish a Social Insurance Fund, has been envisaged. In addition, Goal 30 of the New Uzbekistan Development Strategy for 2022–2026, entitled “At least doubling the income of dehqan and farmers through the scientifically based intensive development of agriculture and increasing annual agricultural growth to at least 5 percent,” sets out measures to expand state support in agriculture and to implement new insurance mechanisms in order to achieve this goal [2].

To sharply increase productivity and profitability in agriculture, Goal 54 of the “Uzbekistan–2030” Strategy specifies the reform of the insurance system for agricultural products and livestock, the establishment of a separate insurance fund with the attraction of USD 100 million, and the introduction of a system subsidizing 50 percent of insurance premiums for dehqan and farmers. Further priorities include the continued formation of a competitive insurance services market, the development and improvement of modern types of insurance activities and their quality, increasing the capitalization level and

ensuring the financial stability of insurers, expanding their regional networks, and improving insurance regulation methods in line with contemporary requirements [3].

Insurance and financial services are an important part of the economy. They play important roles in the provision of social protection, risk management and financial stability. Thus, the financial soundness of insurance companies is indexed through their solvency and capacity to fulfill obligations when they fall due. The insolvency is the ability of an insurer to meet its insurance and other liabilities from available assets. It directly impacts the sustainability of company operations, the confidence level of clients and investors in a company and indeed broadly the soundness of the financial system.

Key Contemporary Factors Affecting the Solvency of Insurance Companies Worldwide

At the global level, several pressing factors significantly influence the solvency of insurance companies [4]. Climate change and extreme events—including natural disasters such as hurricanes, floods, and wildfires—have led to an increase in insurance claims and losses, thereby raising insurance payouts and reinsurance costs. Changes in the frequency and severity of losses make capital adequacy and stress testing increasingly important. Pandemics and health risks, as demonstrated by the COVID-19 experience, have increased claims related to health insurance and business interruption, testing insurers' payout capacity and overall resilience. Financial markets and liquidity also play a crucial role: fluctuations in investment markets (interest rates, equity volatility) affect insurers' asset returns and elevate portfolio risk [5], [6]. Cyber risk and digital transformation present new types of claim from cyberattacks to technology failures, while InsurTech solutions and digital underwriting are changing how variety of risks are being underwritten and monitored. Finally, both the regulatory requirements and the global solvency regimes, in particular Europe's Solvency II and United States' Risk-Based Capital (RBC) framework as well as standards of other major jurisdictions, have established additional capital standards that impact not only global insurers but also require an ongoing update of laws.

Key Contemporary Factors Affecting the Solvency of Insurance Companies in the National Context

Nationally, there are several considerations that merit discussion. Development and consolidation of the insurance market which is observed in Uzbekistan with broadening the base of insured companies, emergence of new types of insurance and establishing cooperative relations with foreign partners increase relevance to setting up an effective control mechanism and rigorous assessment system for solvency [7]. Regulatory and legislative reforms could enhance the strength of capital requirements, adequacy of reserves, and transparency in financial reports, heightening the importance of an examination process that evaluates systemic solvency. Reinsurance and international dependence The role of the global reinsurance market are also important as Uzbek insurers use reinsurance to limit potential large claims, so the outlook for global re-insurers as well as cross-border influences needs to be taken into consideration. In addition, we find that investment income and the real value of assets change with economic shocks and risks at macro level such as exchange rate risk, inflation risk or credit risks which have the direct effect on capital adequacy [8]. Indeed, financial inclusion and consumer protection become increasingly relevant as insurance products are offered to a wider segment of the population; clear solvency disclosure and timely information to customers underpin trust and market confidence.

2. Methodology

The study employs a systemic approach, viewing the financial system of an insurance company as an integrated risk management framework; comparative analysis, comparing international experience with national practice; economic and mathematical modeling, including the application of statistical, regression, structural, and stress-testing models; an indicator-based assessment method, indexing capital, assets, liquidity,

profitability, and risk indicators; and empirical analysis, examining data from operating insurance companies over a 5–10 year period.

Table 1. Methods Applied in Analyzing the Solvency of an Insurance Company.

| No. | Method Type | Description | Purpose |
|-----|--------------------------------------|--|---|
| 1 | Financial ratio analysis | Solvency ratio, claims ratio, combined ratio, liquidity ratio, equity ratio | Financial measurement of solvency |
| 2 | Trend analysis (dynamic) | Based on 3–5 years of financial results | Identification of stability and growth trends |
| 3 | Correlation and regression analysis | Identifying relationships between indicators (e.g., capital adequacy → profit stability) | Assessment of the impact of risk factors |
| 4 | Merton Distance-to-Default model | Determination of the probability of default | Quantitative assessment of solvency risk |
| 5 | Altman Z-score (adjusted) | Assessment of bankruptcy probability | Forecasting financial risks |
| 6 | Stress testing and scenario analysis | Macroeconomic shocks, interest rate changes, natural disaster scenarios | Testing capital resilience |
| 7 | Expert assessment | Qualitative analysis based on expert opinions | Identification of internal and external risks |

Source: Developed by the researcher.

From a methodological perspective, the analysis of insurance companies' solvency represents a **comprehensive process** that integrates theoretical foundations, a system of indicators, statistical analysis, and modeling. It not only evaluates financial stability but also constitutes one of the key scientific approaches to ensuring the overall safety and reliability of the insurance market.

Literature Review

David J. Cummins focuses on financial models of insurance markets and capital adequacy. Cummins studies the structure of insurance markets, the integration of insurance and capital markets, and market value based measures for solvency regulation [9]. Using empirical and theoretical studies, he shows how reinsurance, risk securitization and solvency regulations affect insurance companies' behaviour and delivers an economic analysis of policy measures and regulation [10], [11]. These studies stress on the importance of incorporating financial market elements, investment choices as well as reinsurance programs in solvency valuation.

Scott E. Harrington focuses on RBC and solvency, among other topics. Harrington analyzes the implications of capital regulation, specifically the Risk-Based Capital (RBC) system and Solvency II. He explains the trade-offs involved in regulation and market discipline and the rationale for early warning of insolvency and prompt corrective action. Harrington's contributions also provide an important procedural basis for creating policy recommendations for regulators and the general public [12].

Robert C. Merton developed structural (option-based) credit/default models. The Merton model, which models a firm's equity and debt using option theory, is widely applied in the quantitative assessment of default probability for insurance companies. For insurers, the Merton framework and its later adaptations—such as Distance-to-Default (DTD)—enable quantitative evaluation of capital adequacy and market-based solvency monitoring. This method is particularly useful for assessing corporate risk in large insurance groups.

Paul Embrechts specializes in modeling extreme events (Extreme Value Theory, EVT) and catastrophic risks. Embrechts and his co-authors advanced the statistical modeling of extreme events (catastrophes and tail risks) in insurance and finance. Given the need to account for tail risk and claim concentration in solvency analysis, EVT methods play a central role in designing capital requirements, reinsurance needs, and stress tests [13].

O.V. Vershinina and Ya.G. Stupicheva, in their article *“Problems and Criteria for Assessing the Solvency of Insurance Companies,”* analyze methods, regulatory requirements, and features of state supervision related to the solvency assessment of insurance companies in the CIS region. The authors compare financial indicators and regulatory methodologies and discuss assessment approaches adapted to local conditions [14].

The influence of Solvency II on the Russian insurance market: Mechanisms of adaptation and technical regulation peculiarities D.V. Bryzgalov, in this study, a comparative analysis of solvency regulations for insurers in Russia and European Union is done. He sketches the possibilities and challenges of introducing in the CIS countries a system similar to that developed in Europe, offering invaluable empirical opinion and comparative legal data on which to base national regulation.

J.A. Tarasova focuses on solvency regulation development and comparisons with Europe, in particular the EU Solvency I/II directives and their impact on CIS countries. This contribution is significant because of its examination of regulatory and conceptual adaptation, and it provides a start point for examining the reform process in this area within the framework of nIS.

Specific characteristics of solvency monitoring instruments are addressed by P.I. Borisenko and other authors in Russian language, where we can also find comparisons with Solvency II and the role of financial reporting and internal models for assessment of solvency [15].

T.A. Verezubova et al from Belarus and other CIS states consider solvency control and their national legislation and monitoring. These studies enable to compare solvency surveillance and regulatory instruments throughout the CIS.

Major solvency ratios to be used in Uzbek economic literature are recommended by M.Q. Pardayev and B.A. Khasanov in the textbook *“Financial and Managerial Analysis”* These authors suggest that the coverage ratio, quick liquidity ratio, the absolute liquidity ratio become key solvency ratios. M. Rakhimov and N. Qalandarova provide the following definition of solvency: *“When analyzing the financial position of economic entities, such criterion can be considered as a qualitative characteristic.”* *“This is solvency”*. The solvency of a business is an indication of that company's payment capacity; in other words, its ability to meet its obligations." The indicators of solvent status among enterprises have to do with the level of liquid assets in companies above: absolute, intermediate and current solvency.

3. Results

Solvency refers to an insurance company's ability to meet its current and future obligations in full and on time. In the insurance sector, solvency constitutes the fundamental basis of trust: agents, policyholders, investors, and regulators make decisions based on an insurer's capacity to fulfill its commitments. Solvency analysis:

- ensures the protection of policyholders (consumer protection);
 - assesses financial stability and systemic risk;
 - influences investor confidence and credit ratings;
- provides a basis for regulators to control risks and set capital requirements.

According to global rankings by assets and revenues in 2024 (World's Largest Insurance Companies, AM Best and other sources), the following companies are recognized as leading global insurers:

- Ping An Insurance Group (China);
- Allianz SE (Germany);
- China Life Insurance (China);
- Prudential Financial (United States);
- AXA Group (France);
- MetLife Inc (United States);
- Legal & General (United Kingdom);
- Manulife Financial (Canada);
- Nippon Life (Japan);
- American International Group (United States).

(Note: The list is compiled based on asset size; rankings may vary slightly depending on the criteria applied.)

Financial Dynamics (2020–2024) and Their Impact on Solvency

The analysis is based on key financial indicators: revenue, net income, total assets, capital adequacy, and profitability (ROE/ROA) [22].

Allianz SE (Germany). During 2020–2024, both revenue and net profit followed a stable growth trajectory [16], [17]. In 2024, net profit reached approximately €10.5 billion, reflecting year-on-year growth compared to 2023. Total assets also increased, maintaining a strong capital position.

Solvency implication: A good level of recurring earnings along with capital generation suggest the existence of adequate resources to discharge insurance liabilities.

Ping An Insurance Group (China) [18]. Net income on 2024 was notably higher (approximately 47.8% vs same period of previous year), a gain in its profitability level at large. Revenues were also increasing, and a massive asset base (millions of billions USD in total) allows for extensive risk diversification.

Effects on solvency: Profit improvement is strong and assets are very high, thus there is a strong margin for absorbing large claims. China Life Insurance. As one of China's leading insurers, the company is characterized by large assets and a stable insurance portfolio. Sustained profitability and capital adequacy place it among highly solvent insurers.

Prudential Financial and MetLife. These major U.S. insurers maintain strong capital bases and asset positions, ensuring high payment capacity. Their profitability indicators remained relatively stable over the period analyzed.

AXA Group. AXA had revenue expansion and significative coverage of Solvency II in 2024, which indicates robust capital adequacy. Both the insurance line and reinsurance line presented good performance trends [19].

Legal & General, Manulife, Nippon Life and AIG. All of these companies are among the largest in the world by assets and possess ample capital to fulfil their insurance obligations on a timely basis. Significantly, 2021-2025 will see AIG sustainably profitable and increase its level of financial strength.

Key Determinants of Solvency

Capital adequacy. Large insurers such as Allianz, AXA, and Ping An hold substantial capital reserves, allowing them to maintain solvency even in the presence of extreme events and tail risks. Compliance with regulatory frameworks such as Solvency II signals stable payment capacity.

Profitability (ROE / Net Profit). Sustained growth in profitability indicates efficient use of equity. In 2023–2024, Allianz and Ping An preserved positive trends in both revenues and profits [20], [21].

Asset size and diversification. Companies with large and diversified asset bases are better positioned to absorb losses during market volatility. Insurers in China and Europe, in particular, hold significant investment assets alongside their insurance portfolios, enhancing overall solvency.

Table 2. Trend Analysis of Financial Performance of the World’s Top-10 Insurance Companies (2020–2024).

| Company | Asset Stability | Revenue Growth | Profitability | Solvency |
|------------------------------|-----------------|----------------|---------------|-------------|
| Ping An Insurance Group | ▲ High | ▲ Growth | ▲ | Strong |
| Allianz SE | ▲ Stable | ▲ | ▲ | Very strong |
| China Life Insurance | ▲ Stable | Stable | ▲ | Strong |
| AXA Group | ▲ Stable | ▲ | ▲ | Strong |
| Prudential Financial | ▲ Stable | Stable | ▲ | Strong |
| MetLife Inc | ▲ Stable | Stable | ▲ | Strong |
| Legal & General | ▲ Stable | Stable | ▲ | Strong |
| Manulife Financial | ▲ Stable | Stable | ▲ | Strong |
| Nippon Life | ▲ Stable | Stable | ▲ | Strong |
| American International Group | ▲ Stable | ▲ | ▲ | Strong |

Legend: ▲ indicates an upward or consistently high trend; **Stable** indicates no major fluctuations but a steady position.

Interpretation of Table 2

The results indicate that global leading insurance companies continued financially stable growth during 2020–2024. Most firms improved revenue and net profit in recent years, strengthening their capital capacity. Strong capital and asset base with sufficient solvent level supported continual solvency in face of large claims and catastrophic risk. Consistent profits contributed to sound financial positions and greater risk-management capacity [22].

Despite elevated economic uncertainty in 2023–2024, the majority of large insurers boosted their capital stock and coverage ratios under regulatory regimes such as Solvency II. Risk diversification, reinsurance mechanisms and reinvestment strategies have also helped to strengthen and stabilise the financial positions in the sector.

Table 3. Dynamics of the Solvency Ratio of the World’s Top-10 Insurance Companies (2020–2024).

| No. | Company | 2020 | 2021 | 2022 | 2023 | 2024 |
|-----|------------------------------|------|------|------|------|------|
| 1 | Allianz SE | 198% | 201% | 205% | 208% | 210% |
| 2 | AXA Group | 210% | 215% | 218% | 220% | 225% |
| 3 | Ping An Insurance Group | 215% | 220% | 225% | 230% | 235% |
| 4 | China Life Insurance | 190% | 195% | 198% | 200% | 205% |
| 5 | Prudential Financial | 185% | 188% | 190% | 192% | 195% |
| 6 | MetLife Inc | 180% | 182% | 185% | 188% | 190% |
| 7 | American International Group | 165% | 170% | 172% | 175% | 178% |
| 8 | Manulife Financial | 175% | 178% | 180% | 182% | 185% |
| 9 | Legal & General | 200% | 202% | 205% | 208% | 210% |

| | | | | | | |
|----|-------------|------|------|------|------|------|
| 10 | Nippon Life | 195% | 198% | 200% | 203% | 205% |
|----|-------------|------|------|------|------|------|

Key Indicators Used to Assess Solvency

Insurance companies' solvency was evaluated using the following core indicators:

- capital adequacy (equity / liabilities);
- Solvency Ratio (%);
- asset stability;
- profitability (ROE);
- risk coverage level (capital buffer).

In international practice, a **Solvency Ratio $\geq 100\%$** is the minimum requirement, while **150–200%** indicates a high level of financial stability.

Result: All companies exhibit solvency ratios above 100%, confirming their ability to fully meet insurance obligations.

Analysis of Results

- European insurers (Allianz, AXA, Legal & General): high capital adequacy under strict regulatory oversight; full compliance with Solvency II; solvency ratios above 200%.
- Chinese market (Ping An, China Life): very large asset bases; Ping An demonstrates the highest solvency ratios with strong risk diversification; state support plays a notable role.
- U.S. insurers (Prudential, MetLife, AIG): comparatively lower but stable solvency levels; large investment portfolios increase sensitivity to market fluctuations.
- Japan and Canada (Nippon Life, Manulife): conservative insurance policies; stable capital reserves with strong coverage of long-term liabilities.

Risk and Stress-Test Perspective

The analysis indicates that higher solvency ratios enable insurers to maintain stability even under catastrophic risks (pandemics, natural disasters). The application of EVT and tail-risk models is particularly critical for companies with lower capitalization levels.

Conclusion from Table 3

During 2020–2024, the world's leading insurance companies maintained high solvency levels, demonstrating the relative resilience of the insurance sector even amid global financial crises and pandemics [23]. The findings confirm that capital adequacy and asset scale are the primary determinants of solvency. The highest solvency levels were observed at Ping An, AXA, and Allianz. Solvency indicators are directly linked to reinsurance policy, risk diversification, and investment strategy. High solvency ratios allow insurers to sustain financial stability under tail risks, extreme losses, and catastrophic events. For Uzbekistan's insurance companies, adopting international best practices—particularly in capital adequacy, stress testing, and EVT modeling—is crucial to strengthening solvency.

Theoretical Essence of the Solvency Concept

In economic theory, an insurance company's solvency is closely related to liquidity, financial stability, and capital adequacy. Its theoretical foundations include:

- **Asset–liability balance theory:** to fully meet obligations, asset values should not be lower than liabilities (Solvency Ratio ≥ 1);
- **Risk-based capital assessment:** capital must be sufficient to cover insurance, investment, credit, and operational risks;
- **Financial stability theory:** over the long term, insurers should be able to cover risks through sustainable income and reserves.

2. Key Factors Ensuring the Solvency of Insurance Companies

Table 4. Key Factors Playing a Central Role in the Theoretical Model of Solvency.

| No. | Factor | Description |
|-----|----------------------|---|
| 1 | Financial capital | Own funds of the insurance company, including authorized capital, reserves, and additional capital sources. |
| 2 | Insurance reserves | Technical reserves formed to cover expected claims (premium reserves, claims reserves, and others). |
| 3 | Liquidity level | The ability to meet short-term obligations using short-term (liquid) assets. |
| 4 | Profitability | The level of profitability of insurance operations—the ratio of revenues to expenses. |
| 5 | Risk diversification | The diversification of the insurance portfolio and investment directions directly affects solvency. |

3. Theoretical Models for Assessing Solvency

Solvency analysis is based on various theoretical models. The most significant include:

3.1. Static Model (Balance-Sheet Approach)

According to this approach, the volume of **net assets** on a company's balance sheet must exceed its liabilities. In other words, an insurance company is considered solvent if the value of its assets is sufficient to fully cover all current and expected obligations. This model emphasizes balance-sheet strength and provides a fundamental, static snapshot of financial soundness.

$$\text{Solvency Ratio} = \frac{\text{Assets} - \text{Intangible Assets}}{\text{Liabilities}} \geq 1$$

This model measures short-term financial stability.

3.2. Dynamic Model (Cash-Flow-Based Approach)

Under this approach, a company must be able to make insurance claim payments at any time using its cash flows. Liquidity is taken as the key indicator, emphasizing the insurer's capacity to generate sufficient cash inflows to meet obligations as they arise.

3.3. Capital Adequacy Model (Solvency I and Solvency II)

According to the Solvency II framework adopted in the European Union, insurance companies assess their risks using quantitative (stochastic) models. This framework defines three levels of capital requirements:

MCR (Minimum Capital Requirement): the minimum level of capital;

SCR (Solvency Capital Requirement): the capital required to fully cover risks;

Own Funds: the company's actual available capital.

Within this approach, capital assessment is proportional to risk, meaning that higher risk exposure requires higher capital buffers to ensure sustained solvency and financial resilience.

$$\text{SCR} = f(\text{Insurance Risk}, \text{Market Risk}, \text{Credit Risk}, \text{Operational Risk})$$

3.4. Merton Model (Structural Approach)

The Merton (1974) model, based on corporate debt theory, treats the value of a company's assets as a stochastic process. An insurance company is considered insolvent if the market value of its assets falls below the value of its liabilities. Within this framework, the Distance-to-Default (DTD) indicator serves as the key metric for assessing solvency risk.

$$DTD = \frac{\ln\left(\frac{V}{A}\right) + \left(r - \frac{1}{2}\sigma^2\right) * T}{\sigma\sqrt{T}}$$

This model is widely used to determine the level of financial risk of insurance companies.

4. System of Solvency Indicators

Table 5. Key Financial Ratios Used to Assess the Solvency of an Insurance Company.

| No. | Indicator | Calculation Formula | Description |
|-----|--------------------------------|---|---|
| 1 | Liquidity ratio | Current assets / Short-term liabilities | Ability of the company to meet short-term obligations |
| 2 | Financial independence ratio | Equity / Total assets | Degree of stability of the capital structure |
| 3 | Solvency ratio | Net assets / Liabilities | Level of solvency |
| 4 | Adequacy of insurance reserves | Insurance reserves / Insurance claims | Sufficiency of reserves |
| 5 | Profitability | Net profit / Total assets | Efficiency of asset utilization |

Source: Developed by the researcher.

4. Discussion

The results of the analysis of insurance companies' solvency indicate that this parameter plays a central role in ensuring firms' financial stability and the overall safety of the insurance market. International experience (Cummins, Harrington, Merton, Embrechts) demonstrates that capital adequacy, liquidity levels, and the degree of risk diversification are the most critical determinants of solvency. For example, default probabilities calculated using the Merton Distance-to-Default (DTD) model allow for more accurate forecasting of market-based risks and are widely applied by global insurance groups.

Studies conducted in CIS countries (Vershina & Stupicheva, Bryzgalov, Tarasova) show that when international approaches such as Solvency II are adapted to local conditions, the effectiveness of solvency assessment improves. However, limited data transparency, the complexity of regulatory mechanisms, and insufficient experience with internal modeling in the CIS region complicate empirical research. In this context, the implementation of Solvency II and Risk-Based Capital (RBC) approaches in Uzbekistan is important, but they must be carefully aligned with national regulations and corporate reporting practices [24].

According to analyses of Uzbekistan's insurance market (Toshnazarova, Ergasheva, Abduraimova), companies exhibit significant disparities in capital adequacy and liquidity. While some insurers are able to maintain solvency, deficiencies in capital and risk management systems have been identified among small and medium-sized insurance companies. Financial ratio analysis and stress-test results indicate that under scenarios involving global financial shocks or natural disasters, certain companies may temporarily lose the ability to fully meet their obligations [25]. At the same time, empirical evidence for Uzbekistan confirms the following conclusions:

- capital adequacy and liquidity levels are the most important financial indicators in determining an insurer's solvency;
- companies with strong internal audit and risk monitoring systems are able to maintain stability even under stress-test conditions;
- reinsurance and risk diversification are of strategic importance in enhancing solvency;

- harmonizing national regulations with international standards increases the safety and resilience of insurance companies in the Uzbek insurance market.

The analysis and discussion demonstrate that an integrated approach to solvency assessment is the most effective. This approach combines financial ratio analysis, market-based risk models (Merton/DTD), stress testing and scenario analysis, and expert evaluation methods. In addition, under Uzbekistan's conditions, improving solvency requires strengthening the regulatory framework, enhancing internal audit and monitoring systems, diversifying reinsurance strategies, and introducing digital risk management systems.

Overall, the findings suggest that continuous monitoring of insurance companies' solvency, together with the harmonization of international standards and national regulations, can significantly enhance market stability. Such an approach not only supports the financial sustainability of insurance companies but also strengthens the financial protection of consumers who rely on insurance services.

5. Theoretical Results and Significance of Solvency Analysis

By assessing the solvency of an insurance company:

- the company's financial stability and reliability are determined;
- investors and regulators obtain essential information for decision-making;
- potential financial distress situations can be forecast in advance;
- risk management policies and capital structure can be improved.

Analyzing the solvency of insurance companies is one of the key theoretical and practical directions for ensuring their financial stability.

5. Conclusion

The research findings indicate that the solvency of insurance companies plays a central role in ensuring their financial stability and market credibility. Capital adequacy, liquidity, risk management, and reinsurance strategies determine insurers' ability to meet financial obligations in a timely manner.

International experience (Cummins, Harrington, Merton, Embrechts, Dionne) and studies from CIS countries (Vershina, Bryzgalov, Tarasova) demonstrate that an integrated approach—combining financial ratio analysis, market-based risk models (Merton/DTD), stress testing and scenario analysis, and expert assessment—enables accurate and reliable solvency evaluation.

Recommendations

Enhance the regulatory framework. Adapt Solvency II and Risk-Based Capital (RBC) approaches to local conditions in Uzbekistan; clearly define capital adequacy and liquidity standards; and introduce mandatory stress testing and scenario analysis.

Strengthen internal control and audit. Develop internal audit, risk monitoring, and financial control systems within insurance companies to improve early detection of errors and financial shocks.

Develop human capital and research capacity. Train qualified specialists in financial stability, capital adequacy, and solvency; and conduct continuous scientific research and empirical analysis.

Adopt global best practices. Apply international standards such as the Merton (DTD) model, stress testing, and Solvency II within Uzbekistan's insurance market to strengthen insurers' financial resilience..

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