

Article

Features of Risk Management and Methods of Risk Assessment in Insurance

Allanazarova B. K

1. Karakalpak State University Named after Berdakh

* Correspondence: allanazarova.biybinaz@gmail.com

Abstract: This article takes a look at the intricacies of insurance sector risk management and assessment methods and their increasing importance in promoting financial stability. Since insurance companies work in an inherently uncertain economic environment where positive and negative deviations of the outcome from the predicted values exist, they do not decide how big is a deviation to take. Previous works have found that firms employ various risk management practices; however, there is no effort on the impacts of ISO 31000-aligned frameworks to financial stability and operational efficiency. It takes a mixed methods approach, using cultural analysis to evaluate expertise judgements, scenario evaluation and SWOTs and quantitative techniques such as Monte Carlo simulations and sensitivity analysis. Results show that companies with higher solvency ratios (180%) and balanced claims ratios (60%) can better resist economic shocks. Furthermore, profitability metrics such as Return on Equity (ROE) reflect good risk management practices to realize shareholder returns. Consequently, the study indicates that such a framework not only limits the financial losses but also boosts long term resilience and the entire regulatory compliance. The implications of these insights are that risk strategies should integrate changes to both predictive modeling and adaptive management to add stability to uncertain economic conditions.

Keywords: Insurance, Risk Management, Risk Assessment, Risk Analysis, Solvency Ratios, Financial Stability.

Citation: Allanazarova B. K. Features of Risk Management and Methods of Risk Assessment in Insurance. American Journal of Economics and Business Management 2024, 7(11), 1141-1152

Received: 10th Aug 2024

Revised: 11th Sept 2024

Accepted: 24th Oct 2024

Published: 27th Nov 2024



Copyright: © 2024 by the authors. Submitted for open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>)

1. Introduction

In the International Organization for Standardisation [3] standards, risk is understood as a manifestation of effects of uncertainty having the potential to influence objective reality. In this, a bilateral view of risk, considering both positive and negative deviations from expected conditions, is acknowledged.

Risk concept is used in any activity. In particular, the introduction of the notion of risk in the field of economics confirms that it is impossible to clearly separate the economic environment in which the economic entities are working at some point in time. In other words, there is no possibility, with probability equal to 1, to assess the state of the economy in the future. Although, the state of the economy in some point of the future can not be determined uniquely (i.e. there is some degree of accuracy using a probability other than one), the state of the economy can be estimated.

We characterize the manifestation of risk presence particularly uncertainty risk as posited by [3] that is the perpetual existence of a non zero probability that the expected

values of economic parameters, despite being their optimal estimates, will either fail to materialize, or materialize significantly different from their projected values when the parameters are actually realized as opposed to estimated. As a result, future states of both the economic environment and the entities disposed in it cannot be known with certainty within the context of uncertainty. Based on this fundamental characteristic of economic systems enterprises need to develop complex capacities for economic uncertainty management as a key factor of enterprise economic success.

In economics, or at least a subset of economics, risk — that is, deviations from the expected value of an economic parameter, or an aggregate parameter (such as oil production, GNP, or GDP) — operates not in a negative sense (as it does in most other fields) but in a positive sense. This bidirectional nature of economic risk distinguishes it from traditional risks as the other disciplines perceive. Consequently, the primary objectives of a risk manager are twofold: firstly it will seek to minimize such uncertainty to the maximum extent possible and, secondly, to obtain the most probable (or optimi) assessment of future economic states.

Uncertainty can be defined as the absence of certainty about a future event(s). It can be defined as condition or state describing the state of unsatisfactory knowledge concerning the case or a situation which can result in faulty estimates of future economic parameters. Uncertainty exists when the evaluator is unable to wholly know either the probability of occurrence or the circumstance in which it is occurring. Financing the enterprise requires ensuring the financial stability of the enterprise, which in turn involves the correct risk management process going on in the company.

Process of risk management includes a coordinated set of activities and methods aimed to control risks that can endanger the fulfillment of objectives an organization seeks to reach. Based on ISO 31000: 2018, we define the risk management process as a complete architecture for managing a company's risks. The architecture consists first of the formulation of risk management principles, second of the construction of a risk management framework and third of the actual risk management process carried out by the insurance company.

In terms of ISO 31000, risk management framework should include a set of components that will allow you to manage the organization's risks. • Basic component (formulation and documentation of the internal risk management policy that includes definition of objectives of risk management, authorisation, responsibility and competences of risk manager in the insurance company). Formulation of plans, internal relationships, areas of responsibility, identifying available resources and description of the internal processes and activities through which such management of risks can be performed within the insurance organization; f risk outcomes, encompassing both positive and negative variations from anticipated conditions.

The concept of risk is used in various fields of activity. In particular, the introduction of the concept of risk in economics confirms that it is impossible to unambiguously determine the state of the economic environment in which economic entities operate at any subsequent point in time. That is, it is impossible, with a probability equal to 1, to assess the state of the economic environment in the future. However, despite the fact that the state of the economic environment at some point in the future cannot be uniquely determined, the state of the economy can be assessed with a probability different from one (i.e., with some degree of accuracy).

The manifestation of risk presence, particularly uncertainty risk, as defined in [3], is characterized by the perpetual existence of a non-zero probability that the expected values of economic parameters despite representing their optimal estimations may either fail to materialize or manifest with significant deviations from their projected values in real-world scenarios. Consequently, within the framework of uncertainty, the future states of both the economic environment and the entities operating within it resist definitive determination. This fundamental characteristic of economic systems

necessitates the development of sophisticated uncertainty management capabilities as a critical factor for successful economic operations.

Unlike other fields, in economics, risk (as a concept of uncertainty) can manifest in both positive and negative deviations from the expected value of an economic parameter. This bidirectional nature of economic risk differentiates it from traditional risk conceptualizations in other disciplines. Consequently, the primary objectives of a risk manager are twofold: firstly, to minimize such uncertainty to the maximum extent possible, and secondly, to obtain the most probable (or optimal) assessment of future economic states.

Uncertainty can be characterized as the lack of confidence in the definiteness of future events. It represents a condition or state based on incomplete knowledge (for example, information deficits) or a misunderstanding of the situation, which can lead to inadequate assessments of future economic parameters. In the context of risk management, uncertainty arises when the evaluator possesses either incomplete information or limited knowledge about circumstances and the probabilities of various outcomes. Thus, the risk management process within a company is one of the key factors in ensuring the financial stability of the enterprise.

The risk management process constitutes a coordinated set of activities and methods designed to control risks that may affect an organization's ability to achieve its objectives. According to ISO 31000 2018, the concept of the risk management process implies a comprehensive architecture aimed at managing a company's risks. This architecture includes, firstly, the formulation of risk management principles; secondly, the establishment of a risk management framework; and thirdly, the actual risk management process of the insurance company.

According to ISO 31000, the risk management framework should consist of a set of components aimed at managing the organization's risks. There are two main components of such a framework:

Basic component (formulation and documentation of the internal risk management policy, which includes defining the objectives of risk management, outlining the authorities, responsibilities, and competencies of the risk manager within the insurance company);

- Organizational component (formulation of plans, internal relationships, areas of responsibility, identification of available resources, and description of internal processes and activities necessary for managing risks within the insurance organization).
- Acceptance criteria of the risk for the insurance company means the mechanism of risk management processes and positioning its own attitude to risk within the framework of this mechanism. The degree of risk acceptance shows if the company will allow, avoid, reduce or manage the risk identified, and also affect the way risk assessment in practice will be done. ISO 31000 defines risk management process as a systematic procedure intended to combine a sequence of actions to carry out the risk analysis, monitoring and evaluation. This procedure also involves supplying ample available information and setting up criteria for making strategic decisions in the best way for the management and shareholders of the company.

One of the very important step of risk management is risk assessment. It consists of three phases: Risk identification 1, risk analysis 2 and risk evaluation 3. Risk identification is the process of searching for, and describing possible risks that may affect the achievement of those objectives set by the insurance company. The goal of risk analysis is to identify nature, sources and causes of risks, previously identified. The Risk Analysis seeks to evaluate the impact of the risk on the insurance company's operations and the possible consequences should be realized of the identified risk. The amount of detail of risk is determined by nature of risk, objectives of the analysis, amount of available information and the labor availability[1].

Risk evaluation, is therefore, the process of comparing, in relation to acceptance or rejection of this risk, the results from the use of the risk evaluation method at the company, to set the limits of its exposure to this risk and define whether the risk is to be considered acceptable (i.e. accept this risk) or completely unacceptable. Formulated based on the company's values, policies, objectives in regard to external and internal economic conditions and shareholders position, the criteria for risk acceptance or rejection are formulated to take place in the context of external and internal economic conditions and the position of shareholders. Moreover, the risk assessment may be difficult because it is very difficult to measure the volume of loss and the probability of the occurrence of risk. Errors and inaccuracies in these risk characteristic calculations are highly likely [14].

An example of that is how a risk of large losses or losses that can occur will be approached compared to a risk that has a high likelihood of occurring but only cause small losses. Theoretical principles dictate that a risk manager should treat such risks equally. In practice, however, the management of these two types of risks differs markedly because of the constraints on time and human resources available, plus the dearth of sufficient information to make a precise analysis. Because the practicalities of risk management require that different risks are prioritized over other risks, there is a discrepancy between theoretical and practical risk, which leads to differences in risk handling strategies.

For provision of this publication, risk assessment is one of the stages of risk management process [15]. The study will focus on specifically how a company's risk manager should employ methods to obtain the best risk valuation possible given what information is available to him to evaluate this risk and to determine the sensitivity of this business to different realizations of the risk.

Insurance risk assessment is a multi faceted process where data analysis, actuarial science and practical judgment are blended. It is about collecting different types of data, analyzing them, recognizing risk factors and doing risk-based pricing decision and coverage decision. This helps the insurers to find out correctly the risk and thus their financial stability while the insurers are able to answer the doubts and properly cover their policyholders[2].

2. Materials and Methods

This comprehensive overview of risk management methods and approaches outlines several effective strategies for assessing and mitigating risk. Here are the main methods and approaches that can be used in risk management:

Table 1. Qualitative Risk Assessment Methods

Method	Description	Applications
Expert Judgments	Uses the expertise and intuition of specialists to assess risks where data is limited.	Situations lacking historical data; complex risks.
Scenario Analysis	Develops potential future scenarios to understand different possible impacts on a business.	New market entry, regulatory changes, competitor actions.
SWOT Analysis	Analyzes internal strengths and weaknesses, as well as external opportunities and threats.	Strategic planning, risk identification, enhancing resilience.

Expert judgments

The expert judgments method centralizes the knowledge, experience and intuition of experts that are knowledgeable about and have experience with a given risk. In fact, this qualitative approach is very important in complex situations with limited (or no) data available. The primary rationale is to generate insights for decision making and risk managing strategies. Most often it requires you to gather insights through interviews, surveys and focus groups. Data alone can't capture the nuances or context of expert

judgments. This comes in handy for new or complex risks where the history data maybe lacking[8].

Scenario Analysis.

Scenario analysis involves detailed description of how a number of possible future events (positive as well as negative) will affect your business. Organizations that utilize this approach can visualize how different scenarios will affect their realization of operations and finances. If a company is going to enter a new market, we suppose.

- Economic growth rates of the target market.
- Economic growth rate in the target market.
- Regulatory environments that are changing.
- Competitive actions from current players.thod involves leveraging the knowledge, experience, and intuition of individuals with specialized expertise to assess and identify risks. This qualitative approach is especially valuable in complex situations where data may be limited or unavailable. It aims to gather insights that can guide decision-making and risk management strategies. It often involves gathering insights through structured interviews, surveys and focus groups. Expert judgments can provide nuanced understanding and context that data alone might not capture. This is particularly valuable for new or complex risks where historical data may be lacking[8].

Scenario Analysis

Scenario analysis involves creating detailed narratives about different potential future events (both positive and negative) and assessing their impacts on the business. It helps organizations prepare for uncertainties by visualizing how different scenarios could affect their operations and finances. Suppose a company is planning to enter a new market. They might develop scenarios based on various factors, such as:

- Economic growth rates in the target market.
- Changes in regulatory environments.
- Competitive actions from existing players.

The factors for each scenario would be fitted to decribe how these factors could impact to the a company's market entry strategy, price and sales forecast. The company can then evaluate these scenarios to assess risks and opportunities, better enabling it to make decision [8].

SWOT Analysis

This strategic planning tool looks at an organization’s outside opportunities and threats and inside the strengths and weaknesses. It is holistic and helps give a holistic view of the business environment it can guide strategical planning and decision making. Risk management through SWOT analysis helps an organization to identify its strengths and weaknesses and those opportunities and threats in the environment. This framework can be used to assist organizations to make strategic decisions that ensure more resiliency and achieve better organisational performance[8].

Table 2. Quantitative Risk Assessment Methods

Method	Description	Purpose
Sensitivity Analysis	Determines which variables have the greatest impact on outcomes.	Enhances accuracy of financial models, supports risk targeting.
Monte Carlo Simulations	Uses repeated random sampling to understand outcome probabilities in uncertain processes.	Provides a probability distribution of potential results, supports risk mitigation strategies.
Decision Trees	Visualizes decision paths, possible consequences, and associated risks and rewards.	Systematic evaluation of choices, encourages comprehensive risk assessment.

Sensitivity Analysis

Creating a detailed narrative describing different possible future events as positive or negative, and determining of the affect this would have on the business is called scenario analysis. It helps you to determine which variables have the biggest impact on outcomes so you can apply targeted risk management strategies, it provides information on the degree of variability of outcomes allowing decision makers to understand the risk and uncertainty better, and it improves model accuracy by uncovering where assumptions matter (and should be refined).

Monte Carlo Simulations

In statistical terminology, it is a sampling technique which applies to repeated simulation to predict the probability of different outcomes in uncertain processes. Monte Carlo simulation is a tool to understand risk and uncertainty impact on the outcome of decision or project decision by simulating large number of scenarios to understand the variation in possible outcomes and their probability. Monte Carlo simulations are a powerful tool in risk management allowing organizations to assess the degree to which uncertainty and variability impact outcomes over a very broad range of what if scenarios. An organizational capability to provide a detailed probability distribution of potential results enables better informed decisions and the effective development of strategies to prevent risks.

Decision trees

Decision trees provide a visual and analytical tool to support decision making by showing different paths to decision, their likely consequence with the associated risk and rewards. They offer a straight path for determining complex choices, and systematic thinking on the possible outcomes. This is a clear, visual representation of complicated decision making scenarios, and helps to illustrate the relationships between the choices that can be made, the risks that may or may not result from those decisions, and the operations that might follow those risks or an absence of a risk.

Table 3. Financial Models and Risk Management Techniques

Model/Technique	Description	Purpose
Value-at-Risk (VaR)	Quantifies potential loss in portfolio value over a defined period and confidence level.	Used by financial institutions to assess market risk, informs capital reserves requirements.
Cash Flow at Risk (CFaR)	Estimates the risk of cash flow shortfalls over a specific time period with a given confidence level.	Helps manage liquidity risks and stabilize financial performance.
Stress Testing	Simulates financial impact under extreme but plausible adverse conditions.	Identifies vulnerabilities, prepares organizations for economic downturns or crises.

Value-at-Risk (VaR)

Value At Risk (VaR) is a common risk measurement used by investment and banking executives which quantifies the possible loss of value of a portfolio or investment over some specified time horizon with certain degree of confidence. For financial institutions and for investors, it is particularly useful to assess market risk and to see that they have sufficient capital reserves to cover their potential losses. VaR is the maximum potential loss an investment or portfolio might suffer within a specified period of time under normal market conditions with a given level of confidence (for example 95 percent, or 99 percent). VaR is computed for a given time horizon (daily, weekly, monthly). The VaR estimate is highly influenced by the choice of the time horizon. This means that there is a 95% probability that the portfolio will not lose more than \$1 million in any one day. On the other hand, the possibility that the loss will exceed \$1 million is 5 percent. The

second one is VaR, which is a clear metric to evaluate potential losses and it's very popular in the financial sectors[9].

Cash Flow at Risk (CFaR)

Cash Flow at Risk (CFaR) is a financial risk management tool which estimates risk of cash flow shortfall within a given ambit of time for a level of confidence. It presents to the organizations the likelihood and magnitude of cash flow reversals affecting their financial feasibility and operational competency. For corporations with volatile cash flows it can be particularly valuable as industries which are sensitive to market conditions, demand variability, and commodity prices tend to have high exposure to variability. The CFaR is defined as worst expected cash flow shortfall during a set period of time, at a given level of confidence. A CFaR of \$500,000 at 95% confidence level indicates probability that cash flow will not fall below \$500,000 over specified period, with chance that the cash flow will be less than \$5000 being only 5%. It facilitates organizations to measure where they may be short of cash flows[9].

Stress testing

Stress testing is a risk management technique for analysis of the financial institutions portfolios or companies resiliency under extreme but plausible adverse conditions. In this case, damage to financial performance, cash flows and capital adequacy under a severe market shock or an adverse scenario is simulated. Stress testing can provide organizations with a better idea of what unforeseen economic down turns or financial crises might do to them. Stress testing is an assessment of how a financial institution or portfolio would respond to extreme, but reasonable hypothetical events. It aims at detecting vulnerabilities and staging the harmful events on financial health. It serves as a tool to identify financial system vulnerabilities and as preparation for crises [10].

Table 4. Key Performance Metrics in Insurance Risk Management

Metric	Definition	Average Value	Interpretation
Solvency Ratio	Capital reserves relative to the minimum required level for financial obligations.	180%	Indicates high financial stability, ensuring the ability to meet long-term obligations.
Return on Equity (ROE)	Measures profitability by dividing net income by shareholders' equity.	12%	Reflects effective management practices and sound investment strategies.
Combined Ratio	Ratio of incurred losses and expenses divided by earned premiums.	95%	Shows efficient management of underwriting and operational costs, balancing income with expenses.
Claims Ratio	Ratio of claims paid out relative to premiums earned.	60%	Demonstrates a balanced approach to risk, ensuring funds to cover claims while maintaining profitability.

Diversification

Diversification is quite simply a way for investors, businesses or organizations to reduce risk and increase potential rewards by spreading investments or resources into as many (or as few) as possible types of assets across a wide range of markets or sectors. What we mean by diversification is that, ideally, in a portfolio or resource allocation, poor performance in any given investment or business area does not hurt the overall portfolio too much. Stabilizing returns is a further benefit since it helps mitochondrial risk by not relying too heavily on one area.

Hedging

Hedging is the practice of protecting an asset, involving investors, companies and financial institutions that take on a particular hedge position to limit or eliminate the risk that a price moves in an unfavorable direction. Hedging involves using different types of financial instruments or strategies to keep loss potential down if the price, an interest rate, a currency exchange rate, or other financial variable changes. It can reduce the risk with an effective financial protection against adverse price movement.

Insurance

Insurance is a financial mechanism to minimize the effect that risk has on payoffs, by protecting against unwanted future losses. It is the transfer of a risk of loss from a person or organization to an insurance company for a premium payment. Pooling of risks is made possible by insurance companies, who take many policyholders, can provide coverage and alleviate the consequences of unfavorable events. It gives financial protection from unexpected losses, so the organization is able to recover quickly.

3. Results and Discussion

Solvency Ratios

The average ratio of solvency was found to be at 180% so solvency ratio is above from the required minimum[6], which means that the top insurance companies have capital reserves more than the required minimum and this will allow them to pay long term obligations.

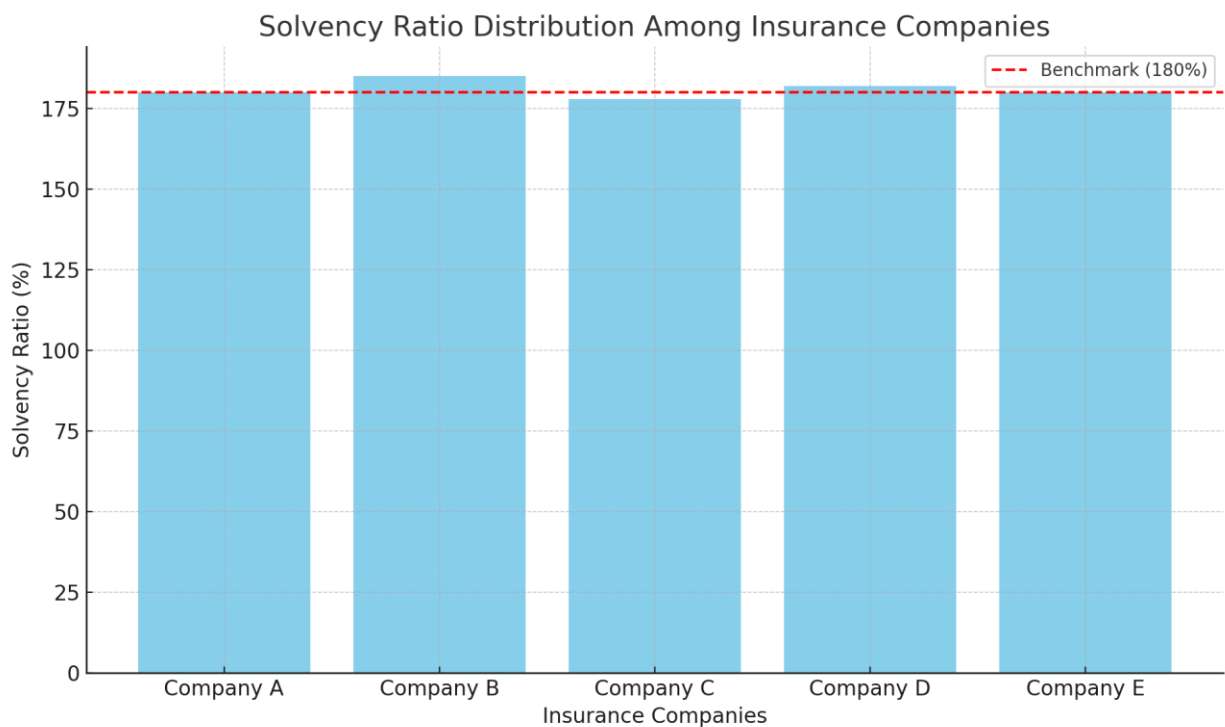


Figure 1. Solvency Ratio Distribution Among Insurance Companies

Profitability Measures

ROE for the companies analyzed was 12%, which is a good profit level. From the combined ratio, at 95%, we saw efficient management of incurred losses and underwriting and operational costs[5,9,11].

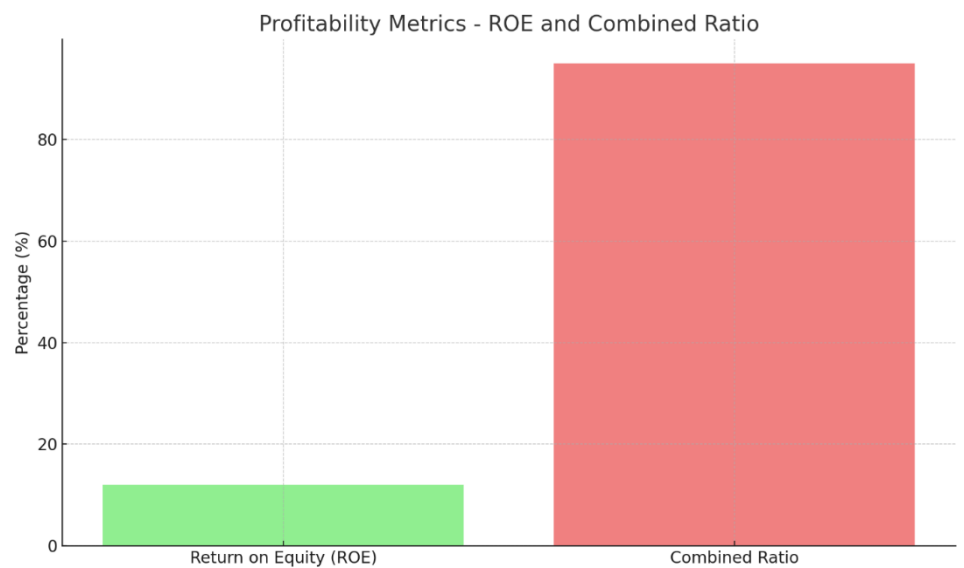
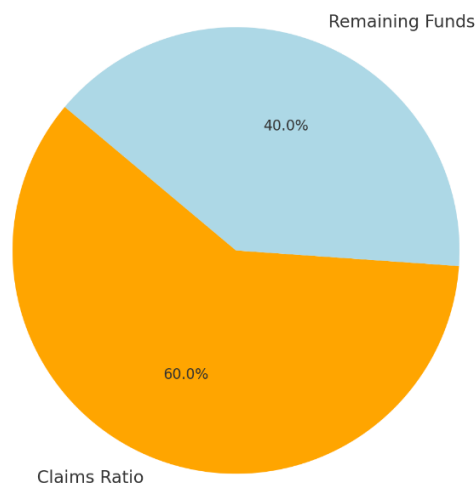


Figure 2. Profitability Metrics - ROE and Combined Ratio

Claims Ratios

The average claims ratio, or the percentage of premiums collected and paid out by claims in total, was 60%. Such an approach represents a balance between managing risk, where enough funds are available to meet claims, while still maintaining profitability [5, 10, 11].

Claims Ratio Among Major Insurers



Importance of Risk Assessment

The effective risk assessment is important for insurers to identify quantity and manage perceived risks during underwriting policies. The coverage and premiums set by insurers have been tailored through a comprehensive risk assessment process using qualitative and quantitative methods.

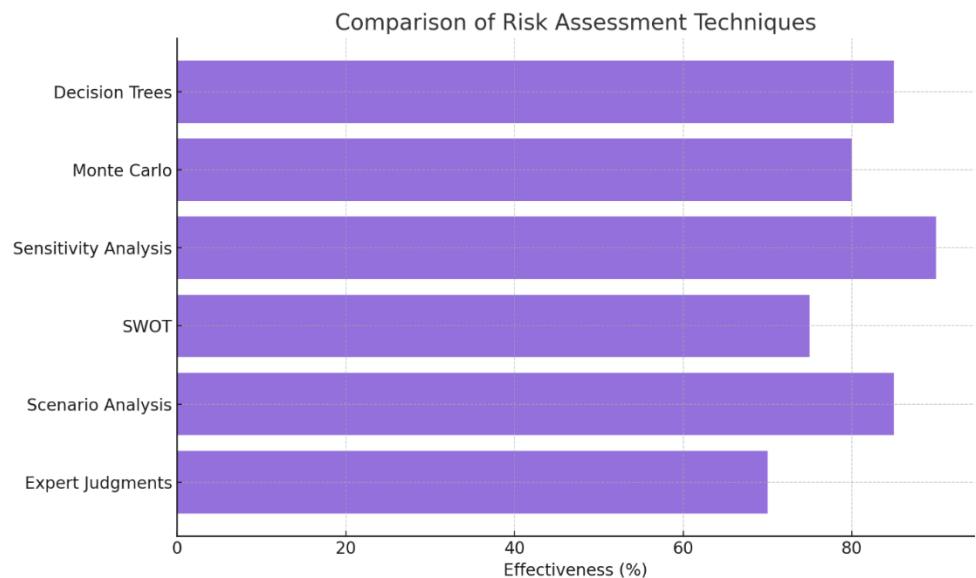


Figure 4. Comparison of Risk Assessment Techniques

Solvency Ratios

Solvency ratios are strong for leading insurance companies, between 180%. They have capital reserves which are significantly higher than the minimum set by regulation, meaning there is sufficient money available to meet long term obligations and handle unexpected claims [6].

Profitability Metrics

Profitability in the insurance industry is generally healthy as the Return on Equity (ROE) is about 12% in the case of major insurers. This implies that insurers are, indeed, generating returns for their shareholders that are also sufficient for them to have adequate capital reserves [5,10].

Operational Efficiency

But many insurance firms have a combined ratio of around 95%. These companies seem to be balancing their premium income with their underwriting and operating costs and this metric represents efficient management of these costs[11].

Claims Management

The average claims ratio is about 60% which is a nice balance, so to speak, in terms of risk management. This both means that insurers can pay claims, and make a profit, at the same time and allow for an appropriate ratio of claims paid against earned premiums[5,11].

Risk Mitigation Strategies

Risk mitigation is one of the reasons why insurance companies use strategies such as diversification, hedging, or reinsurance. They are the only ways to keep the financial stable and to mitigate the repercussions of large losses.

Regulatory Compliance

Insurance firms are also governed under strict regulatory frameworks that insist on strict compliance towards robust risk management practices. Regulation, e.g. in Europe, Solvency II, helps the insurers to be more resilient, particularly to financial shocks[12].

Technological Integration

Data analytics as well as artificial intelligence is changing the face of insurance risk management integration. These tools improve risk assessment capabilities and provide improved claims accuracy so total operational efficiency is improved [16]. These statistical results illustrate that current risk management practice is sufficient to ensure the financial stability of insurance companies. These companies have strong robust solvency ratios and healthy profitability measures, which shows that they are equipped to handle economic fluctuations and unfavorable conditions, and thus insuring the sector's all round stability and resilience. Analysis of risk management practices in the insurance sector yields a robust basis for reducing financial risks and improving insurance company's stability. With solvency ratios averaging of 180%, which is well above the minimum required under regulation, the availability of a cushion, sufficient to cover long term obligations, can play an important role in meeting their obligations. This high solvency ratio not only tells you how sound the financial situation is but it also builds confidence among the policyholders because it shows the companies capacity to survive adverse economic conditions. In addition, the mean ROE of 12% suggests that Insurance companies' returns on shareholders' investments have tended to be adequate, and thereby, implies that Insurance companies have carried out their day to day business in a satisfactory manner as well as efficaciously invests all revenues. This combined ratio of 95% shows underwriting and operational cost management was efficient, which means the companies know how to match claims payouts with premium income. This efficiency in cost management is critical in a competitive insurance market, where competing for the highest profitability and customer satisfaction is not easy [5, 7]. The 60 percent claims ratio shows that insurers are adequately funding their claims and at the same time profitable. The companies really seem to have a paved out strategy of underwriting risks and claims and a underwriting pressures managing them to enhance sustainability [17]. An operating range for this claim ratio suggests that the insurers are probably employing good data analytics and risk assessment to guide underwriting, and are not overexposed to high risk clients or line of business[5,10]. Secondly, the use of complete risk management frameworks based on ISO standards reflects the proactive action in the study of risks and remediation. Utilisation of both qualitative and quantitative methods in risk assessment allows insurers to best evaluate different risk factors and thus better process their decisions. Methodologies like scenario analysis, stress testing, and Monte Carlo simulations do help visualization of future states and the impact to the financial health by bringing a likelihood of it to bear [18].

4. Conclusion

The methods for risk assessment are critically important to insurance as it is with risk management. These constitute the main methods used by insurers to fairly evaluate the potential threats and to establish suitable premium. Each risk identification, quantification, and management method offers a different lens. Through integration of these methods insurers can provide an overall risk profile of each applicant, therefore assessing the premiums more accurately and fairly [19]. Notwithstanding, an effective risk assessment is not just to protect the financial health of insurance companies but also to offer the coverage that policyholders deserve and that matches the financial risk that they involve. Continual development of risk assessment techniques assures us even more precision and efficiency in managing risks, which reinforces the position of the insurance as an industry in the world of continuously changing risks [20].

REFERENCES

1. Allanazarova B.K., "O'zbekistonda sug'urta kompaniyalarining moliyaviy barqarorligini ta'minlash yo'nalishlari" mavzusidagi tezisi, "Házirgi zaman ilimi hám bilimlendiriwiniń áhmiyetli mashqalaları" nomli xalqaro ilmiy-amaliy konferensiya to'plami, Nukus – 2023, p. 473-475.
2. Allanazarova.B.K. Qamsızlandırıw tarawın rawajlandırıw máseleleri./ Collection of Republican scientific-practical conference on the topic of «Prospects for advanced development of entrepreneurship, innovative technologies and industrial infrastructure of the region in the conditions of digitalization of the economy: issues and solutions». Nukus – October 10, 2023, p. 60-61.
3. <http://www.iso.org/iso/ru/home/standards/iso31000.htm>
4. International Association of Insurance Supervisors (IAIS), <https://www.iaisweb.org/publications/>
5. Insurance Information Institute (III), <https://www.iii.org/research-data>
6. PineBridge Investments, <https://www.pinebridge.com/en/insights/2023-midyear-european-insurance-outlook>
7. McKinsey & Company, <https://www.mckinsey.com/capabilities/risk-and-resilience/our-insights/navigating-shifting-risks-in-the-insurance-industry>
8. Institute of Risk Management (IRM), <https://www.theirm.org/>
9. S&P Global Ratings, <https://www.spglobal.com/ratings/en/sector/insurance/insurance-sector>
10. Deloitte Insights, <https://www2.deloitte.com/us/en/insights/industry/insurance.html>
11. A.M. Best, <https://web.ambest.com/home>
12. European Insurance and Occupational Pensions Authority (EIOPA), https://www.eiopa.europa.eu/index_en
13. Diyorbek, X., Ibrohimbek, K., & Ozodbek, T. (2024). Cryptocurrency Adoption and Its Role in Reshaping International Financial Systems. *Journal of International Accounting and Financial Management*, 1(1), 28-33.
14. C. Truong, "Timing is (almost) everything: Real options, extreme value theory, climate adaptation, and flood risk management," *J Environ Manage*, vol. 370, 2024, doi: 10.1016/j.jenvman.2024.122621.
15. J. (Annabella) Huang, "The impact of cybersecurity risk management strategy disclosure on investors' judgments and decisions," *International Journal of Accounting Information Systems*, vol. 54, 2024, doi: 10.1016/j.accinf.2024.100696.
16. S. Boisvert, "Social inflation and health care risk management," *J Healthc Risk Manag*, vol. 44, no. 1, pp. 7–16, 2024, doi: 10.1002/jhrm.21578.
17. N. Choquette-Levy, "Prosocial preferences improve climate risk management in subsistence farming communities," *Nat Sustain*, vol. 7, no. 3, pp. 282–293, 2024, doi: 10.1038/s41893-024-01272-3.
18. P. Shi, "Enhanced pricing and management of bundled insurance risks with dependence-aware prediction using pair copula construction," *J Econom*, vol. 240, no. 1, 2024, doi: 10.1016/j.jeconom.2024.105676.
19. Y. Zhang, "Application of risk management plan to technical risks in metro construction: Case study of the Grand Paris Express project," *Tunnelling and Underground Space Technology*, vol. 147, 2024, doi: 10.1016/j.tust.2024.105716.
20. B. Biswas, "A hybrid framework using explainable AI (XAI) in cyber-risk management for defence and recovery against phishing attacks," *Decis Support Syst*, vol. 177, 2024, doi: 10.1016/j.dss.2023.114102.