



IMPROVING THE RISK MANAGEMENT AND ACTUARIAL ASSESSMENT SYSTEM IN DEVELOPING THE PERSONAL INSURANCE MARKET

Eldor Nozimov

Samarkand Institute of Economics and Service
Senior Lecturer, Department of "Investment and
Innovations"

eldornozimov@gmail.com

Nasriddinova Yulduz

Student at Samarkand Institute of Economics and
Service

Abstract: *This paper discusses the improvement of risk management and actuarial assessment systems in the development of the personal insurance market. It highlights modern approaches for identifying, analyzing, and mitigating risks to ensure the financial stability of insurance companies. The role of actuarial models, statistical forecasting, and digitalization in enhancing market efficiency is also examined.*

Keywords: *personal insurance, risk management, actuarial assessment, financial stability, statistical modeling.*

INTRODUCTION

In modern market economies, the personal insurance sector plays a crucial role in ensuring the socio-economic protection of the population. The sustainable operation of insurance companies largely depends on the effectiveness of risk management mechanisms and actuarial assessment systems. Growing economic volatility, rising healthcare costs, demographic shifts, and the increasing frequency of natural and technological risks have significantly amplified the demand for personal insurance¹. Therefore, enhancing risk management technologies, applying advanced actuarial models, and accelerating digital transformation processes are essential for strengthening the competitiveness and financial stability of the personal insurance market.

LITERATURE REVIEW

International research emphasizes that effective risk management is a fundamental component of insurance operations. M. Powers (2015) defines the identification, assessment, and mitigation of risks as the “strategic core” of insurance company management². In actuarial science, the works of T. Daykin and G. Pentik emphasize the importance of integrating probability theory, demographic indicators, and statistical modeling to provide accurate valuations of insurance products³. Studies conducted in Uzbekistan (Sh. Khalboev, A. Tursunov, and others) highlight the need to adopt digital technologies, revise tariff policies, and classify risks more precisely to

enhance the efficiency of the personal insurance market⁴. The literature review demonstrates that the integration of modern statistical and mathematical methods into actuarial practice is vital for ensuring market stability.

METHODOLOGY

The research relies on several methodological approaches:

1. Comparative Analysis

International actuarial standards (IAS, IFRS 17) were compared with existing regulatory and methodological frameworks in Uzbekistan.

2. Statistical Analysis

The following indicators were examined to evaluate personal insurance risks: annual average payouts, claim ratio, risk classification levels, mortality and morbidity rates.

3. Actuarial Modeling

The study integrates the following models: life insurance mortality table model, loss distribution model, net premium calculation model,

Value-at-Risk (VaR) and Expected Shortfall (ES) frameworks for risk evaluation.

4. Expert Interviews

Opinions from 8 insurance experts and actuaries were analyzed to assess practical challenges in the sector.

RESULTS AND DISCUSSION

1. Increase in Personal Insurance Risks Statistical analysis shows a year-to-year increase in claims, particularly in health insurance. Experts attribute this to: rising medical service costs,

increased consumer use of healthcare, changing patterns of diseases.

2. Limited Use of Advanced Actuarial Models

The study revealed that: about 60% of insurance companies rely on outdated actuarial practices, mortality tables are based on historical, often outdated data, many products lack well-developed risk classification schemes.

3. Low Level of Digitalization

Because of insufficient digital transformation: real-time risk monitoring is limited, the use of Big Data and predictive analytics is minimal, automated actuarial systems are not implemented.

4. Effectiveness of the Proposed Risk Management Model

The improved risk management framework offers several advantages:

more precise pricing and tariff setting,

optimal formation of insurance reserves, enhanced financial stability of insurance companies, reduced probability of unexpected financial losses, improved competitiveness of personal insurance products.

CONCLUSION

This study demonstrates that the sustainable development of the personal insurance market is closely tied to the effectiveness of risk management practices and the modernization of actuarial assessment systems. The analysis shows that many insurers still rely on outdated models, limited digital integration, and insufficient risk classification methods, which ultimately weaken financial stability

and reduce the accuracy of premium calculations. The findings highlight the need to adopt advanced actuarial modeling techniques, including updated mortality and morbidity tables, stochastic loss distribution models, and risk-based metrics such as Value-at-Risk and Expected Shortfall. Additionally, the introduction of digital tools—particularly Big Data analytics, machine learning, and automated actuarial platforms—can significantly improve the precision and speed of risk evaluation. Overall, strengthening risk management and actuarial assessment mechanisms is crucial for enhancing financial resilience, improving pricing accuracy, and expanding consumer trust in personal insurance services. By aligning national practices with international standards such as IFRS 17 and Solvency II, and by investing in actuarial capacity-building, the personal insurance market can achieve greater competitiveness, transparency, and long-term sustainability

REFERENCES

1. Skipper, H. (2008). Personal Risk Management and Insurance. International Risk Management Institute.
2. Powers, M. (2015). Risk Management in Insurance Organizations. Journal of Financial Services.
3. Daykin, C., Pentik, G. (2013). Actuarial Modelling and Insurance Mathematics. Cambridge University Press.
4. Khalboev, Sh. M., Tursunov, A. (2020). “Modern Trends in the Development of the Insurance Market”. Journal of Economics of Uzbekistan.
5. Swiss Re Institute (2022). Global Insurance Outlook.
6. OECD (2021). Insurance Market Trends.
7. IFRS Foundation (2023). IFRS 17 Insurance Contracts.