



COMPREHENSIVE IMPROVEMENT OF THE INSTITUTIONAL FRAMEWORK FOR ENTREPRENEURIAL RISK INSURANCE

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ABSTRACT	KEYWORDS
This article examines four interrelated research contributions to improving the institutional framework for entrepreneurial risk insurance. It integrates functional instruments for aligning insurance premiums and the composition of insurance products with risk exposure; econometric assessment of the relationship between portfolio composition and insurers' profitability; an institutional mechanism governing relations between insurers and business entities; and a comprehensive modernisation approach encompassing marketing, customer service, flexible pricing, and operational transparency. The analysis draws on insurance-market indicators for 2022–2025, regression estimates, and reported implementation outcomes. Taken together, these findings provide an integrated framework connecting risk assessment and product design with portfolio profitability and the institutional quality of insurance services [1].	Entrepreneurial risk, insurance institution, premium rating, insurance portfolio, portfolio optimisation, institutional mechanism, marketing, customer service, risk management.

Introduction

Entrepreneurial activity takes place amid risks associated with uncertainty about economic outcomes, counterparties' behaviour, the fulfilment of financial obligations, asset preservation, and business continuity. A view of risk management confined to prevention cannot adequately capture the economic consequences of adverse events. Insurance makes it possible to express potential losses in financial terms, assess the probability of their occurrence, and arrange compensation subject to pre-agreed conditions. Accordingly, insurance is considered not merely a discrete financial instrument but an institutional system of recurring relationships for managing entrepreneurial risks [1].

The increasing significance of insurance protection for businesses is associated with economic uncertainty, digital transformation, technological and cyber risks, and the expansion of international commercial relations. Although global insurance premiums have increased, questions concerning the correspondence between insurance products and actual risks, the balance of interests between insurers and policyholders, and operational efficiency remain unresolved. These persistent imbalances provide an economic rationale for institutional improvement [1].

The research problem is not limited to changing premium rates or raising the share of individual products. When a premium does not adequately reflect the probability and financial consequences of

the insured event, tension may arise between the insurer's financial sustainability and the affordability of protection for the policyholder. Conversely, if decisions about the product mix are based solely on premium income, the relationship between portfolio profitability and the quality of insurance coverage may be overlooked. These considerations call for joint analysis of premium rating, portfolio composition, and institutional governance.

The objective of this article is to present the economic substance, methodological foundations, and practical interconnections of four research contributions aimed at the comprehensive improvement of entrepreneurial risk insurance. The analytical sequence proceeds from risk-sensitive premium setting and product configuration to evaluating the relationship between insurance-portfolio composition and profit, then to restructuring insurance relationships and implementing the institutional mechanism through marketing, services, flexible pricing, and transparency [1].

The scope of the analysis is deliberately confined to the quantitative indicators, econometric models, directions of influence, and implementation outcomes established in the underlying research. No additional statistical series, company-level cases, alternative parameter estimates, or unreported efficiency measures are introduced. This boundary preserves the substantive meaning of the four contributions and prevents unsupported extrapolation from the available evidence [1].

Literature Review

The economic concept of entrepreneurial risk has developed across several schools of thought. Classical interpretations connected risk with uncertainty in market prices and the entrepreneur's responsibility for capital investment. Subsequent approaches incorporated the measurability of risk, the relationship between expected returns and potential losses, information asymmetries, and economic agents' behaviour. Knight's distinction between risk and uncertainty constitutes a principal theoretical foundation for this discussion [2].

A neo-institutional perspective interprets these issues through the distribution of information and the incentives of economic agents. Kahneman and Tversky examined behavioural dimensions of decision-making; Akerlof addressed informational problems; and Stiglitz and Spence explored information and the organisation of economic relationships. Their shared relevance to entrepreneurial insurance lies in demonstrating how differences in information access and decision-making shape both risk assessment and responses to risk [3], [4], [5], [6].

Understanding insurance as an institution of risk management follows from these theoretical considerations. An enterprise may be unable to eliminate every risk, yet it can assess identifiable exposures, prepare for adverse events, and limit their financial consequences through insurance coverage. Organising this relationship on a continuous basis requires contracts, insurance funds, valuation standards, information exchange, and clear procedures for claims settlement. Institutional effectiveness therefore depends not only on indemnity payments but also on the organisational and economic conditions under which coverage is provided [1].

Table 1. Evolution of theoretical approaches to entrepreneurial risk

School of economic thought	Principal dimension of entrepreneurial risk
English school of economics	Uncertainty in market prices and entrepreneurial responsibility for risk
Classical political economy	Risks relating to capital investment, competition, and the division of labour
Neoclassical approach	Risk measurability and different forms of uncertainty
Institutionalism	Information, and the classification of internal and external risks
Keynesian school	Rationality in decision-making and the classification of risks
Neo-institutionalism	Behaviour, information, indemnification, and insurance as an institution

Source: Reorganised by the author from the theoretical classification underlying the study [1].

Studies of practical risk-management instruments approach hedging and insurance from complementary perspectives. Belikov and Shipitsina, along with Dolgikh, discuss instruments for managing financial risks [7], [8]. Mansurova, Davletshina, and Yaltonskaya examine insurance as an instrument of enterprise economic security [9]. Together, these studies demonstrate that insurance involves operational and organisational dimensions in addition to compensation for financial losses. The role of institutional quality in insurance markets has been examined by Akinlo and Idachaba and by Horvey and Odei-Mensah. Yin, Liu, Yao, and Chen have also analysed the relationship between insurance demand and risk exposure [10], [11], [12]. These perspectives help establish the theoretical foundations for interpreting international insurance practice and for designing products responsive to the requirements of insured enterprises [1].

Domestic research has also addressed the development of the insurance market, investment portfolios, and insurance business lines. Relevant contributions include Zoirov's work on insurance organisations' investment portfolios, Abduraxmonov's conceptual analysis of insurance-sector development, and Baymuratov's examination of mechanisms governing insurance activity [13], [14], [15]. These studies place the operations of insurers within a broader financial and institutional environment.

The principal research gap emerging from this literature is the frequent treatment of risk assessment, premium setting, portfolio profitability, and institutional relationships as separate managerial tasks. The present article integrates these issues as a single system. Its four contributions address different yet interdependent levels of this system: insurance products, portfolio structure, market relationships, and the institutional conditions for service delivery [1].

Research Methodology

The methodological framework combines a neo-institutional approach with systematisation and classification, problem-oriented and comparative analysis, tabular and graphical presentation, SWOT analysis, horizontal and trend analysis, correlation and regression methods, structural-functional analysis, and economic-mathematical modelling. These methods are applied in a complementary sequence: first, the economic foundations of insurance relationships are identified; second, changes in product and portfolio composition are assessed; and third, the institutional mechanism of modernisation is examined [1].

The research object is the institutional framework for entrepreneurial risk insurance in Uzbekistan. Its subject consists of the organisational, managerial, financial, and economic relations arising in the process of improving that framework. The analysis therefore considers insurers' profits, pricing, and portfolios alongside businesses' interests in effective risk protection. Distinguishing these perspectives makes it possible to formulate the principle of balancing the interests of the insurer and the insured.

The empirical evidence encompasses changes observed among leading international insurers in 2022–2023, developments in Uzbekistan's insurance portfolio during 2022–2025, and the composition of selected product groups in mid-2025. The relationships between insurance-portfolio composition and profits are interpreted using two regression equations estimated in the original research. No new observations, alternative coefficients, or statistical significance measures absent from the available findings are calculated here [1].

Table 2. Criteria for assessing the effectiveness of the insurance institution

Criterion	Economic meaning of the assessment
Comprehensiveness of risk coverage	Consistency between enterprise exposures and insurance products
Adequacy of insurance coverage	Extent to which insurance conditions address potential losses
Service accessibility and speed	Procedures for obtaining and receiving insurance services
Accuracy of risk assessment	Evidence-based measurement of event probability and loss severity
Verification of insured events	Reliability of event-related evidence and documentation
Adequacy of insurance funds	Financial resources available to meet insurance obligations
Insurance-related costs	Economic justification of costs incurred by insurers and policyholders

Source: Compiled by the author using the assessment criteria adopted in the study [1].

Methodologically, the criteria in Table 2 serve not only to describe outcomes but also to clarify how the four research contributions are connected. Improved premium setting and product composition relate to the accuracy of risk assessment and the justification of expenses; portfolio optimisation concerns financial performance and coverage adequacy; the institutional mechanism addresses accessibility, service speed, and claims verification; and comprehensive modernisation seeks to improve these criteria consistently and jointly. They are therefore examined as distinct components of one institutional process.

Results and Discussion

1. Risk-based premium setting and optimisation of insurance-product composition

The first research contribution consists of a functional set of instruments for optimising entrepreneurial risk insurance. These instruments improve the mechanisms of premium rating and the composition of insurance products while accounting for risk levels and the characteristics of entrepreneurial activity. Rather than treating the premium as an isolated numerical parameter, the approach integrates the probability of financial losses, the stability of the insurance fund, insurers' costs, and market relationships into a coherent decision-making system [1].

An insurable entrepreneurial risk must be expressible in monetary terms, have an assessable probability of occurrence, and be linked to a contractually specified event and associated loss. These three characteristics determine the information necessary for premium setting. Without a monetary measure of losses, the basis for calculating a premium remains unclear; without an estimate of event probability, expected claims cannot be substantiated; and without precise contractual boundaries, policyholders and insurers may hold conflicting expectations about coverage [1].

Premium determination follows four consecutive stages. First, a net premium rate is established to reflect expected payments arising from insured events, taking account of loss severity and the probability of occurrence. Second, a risk loading is determined to maintain the financial resilience of the insurance fund under adverse scenarios. Third, the insurer's variable and fixed operating expenses and target financial results are assessed. Fourth, these components are combined into the final insurance premium rate [1].

Table 3. Economic logic of the stages of insurance-premium determination

Stage	Main activity	Institutional outcome
1. Net premium rate	Estimate expected losses and potential claims payments	Monetary measurement of risk
2. Risk loading	Allow for adverse scenarios and insurance-fund sustainability	Capacity to absorb losses
3. Expense assessment	Estimate operating expenses and financial objectives	Economic basis of premium determination
4. Final premium setting	Combine the components within applicable rules	Operational insurance price

Source: Compiled by the author from the four-stage approach to premium rating [1].

This sequence ensures that the price of insurance is not divorced from the underlying risk. The net premium reflects expected losses; the risk loading provides a margin for adverse outcomes; and cost estimation accounts for the conditions necessary to sustain the insurer's operations. The final premium encompasses all these components. A low rate is therefore not invariably evidence of efficiency, just as a high rate does not automatically imply stronger protection. The central criterion is consistency between the premium, the insured risk, and the conditions of service [1].

The second component of the functional instruments is the realignment of product composition. For leading insurers, increasing the share of coverage against material damage and general liability has been identified as a promising direction. This finding emphasises that premium rating and product composition are inseparable: changes in portfolio risk exposures also require reassessment of expected losses and the insurer's cost structure. The link between products and pricing consequently provides the methodological foundation for the second contribution, which addresses portfolio optimisation through economic-mathematical analysis [1].

International comparative evidence indicates that in 2023, relative to 2022, insurance premiums rose by 17.15%, claims payments by 10.84%, commissions by 6.05%, and gross operating expenses by 10.56%. The faster growth in premiums than in these expenditure categories constitutes the principal empirical argument for connecting functional optimisation with insurers' financial outcomes. Over the

same period, the share of entrepreneurial risk insurance in the product portfolios of leading insurers increased by 15.87% [1].

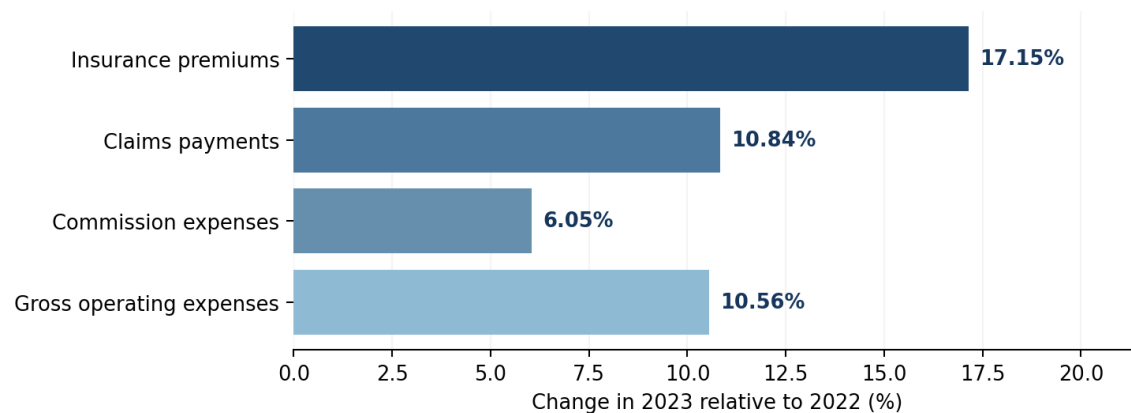


Figure 1. Changes in key indicators of leading insurers (2023 compared with 2022)

Source: Author's visualisation of the reported growth rates [1].

The movements presented in Figure 1 do not, on their own, establish the absolute level of insurer profits; rather, they illustrate the relative orientation of premium and product-mix optimisation. Where premium income grows faster than claims and operating expenditure, the scope for coordinated management of pricing and product composition expands. This conclusion, however, does not imply that insurers should understate risks or restrict legitimate coverage. Accurate, risk-sensitive assessment remains central to the proposed approach [1].

Implementation of the first contribution was reported by JSC APEX INSURANCE in its certificate No. A/415 dated 19 June 2026. The application of the functional instruments was associated with a 6.8% improvement in the accuracy of risk assessment, a 4.5% increase in insurance-portfolio profitability, and a 12% reduction in the proportion of loss-making contracts. These reported indicators are retained without assuming an unreported baseline or calculation methodology [1].

2. Economic-mathematical optimisation of the relationship between portfolio composition and profit

The second contribution improves the mechanism for optimising an insurance portfolio by evaluating the functional relationship between portfolio composition and insurers' profits using an economic-mathematical model. The analysis thus moves beyond general product policy to the allocation of business across specific insurance classes. Identifying the most profitable directions within compulsory insurance constitutes a direct outcome of this contribution [1].

Changes in Uzbekistan's insurance portfolio confirm that composition should not be interpreted separately from profitability. During 2022–2025, premiums from compulsory insurance decreased by 15.39%, while the associated profits fell by 17.29%. Over the same period, premiums from voluntary insurance increased by 28.92%, and profits in that segment rose by 33.02%. These contrasting developments are considered in relation to the ongoing optimisation of portfolio composition [1].

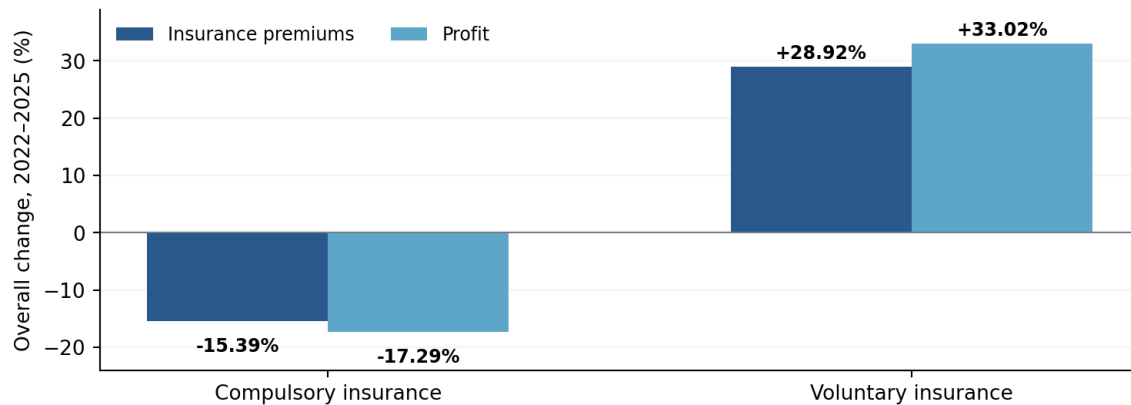


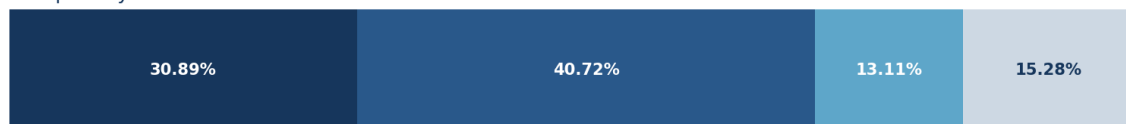
Figure 2. Changes in entrepreneurial risk insurance indicators in Uzbekistan, 2022–2025

Source: Author’s visualisation of changes across the full 2022–2025 period [1]. The values are cumulative changes for the period, not annual observations.

Two observations emerge from this pattern. First, premiums and profits moved in the same direction within each segment, although their rates of change differed. Second, the product compositions influencing profitability were not identical in compulsory and voluntary insurance. The analysis therefore employs segment-specific regression models rather than assuming a uniform rule of portfolio optimisation [1].

In mid-2025, the compulsory-insurance portfolio was concentrated in employers’ civil liability insurance (30.89%), motor vehicle owners’ third-party liability insurance (40.72%), and construction and installation risk insurance (13.11%). Together these three classes accounted for 84.72% of the portfolio. This concentration explains why the regression specification focuses on the shares of these three principal product categories [1].

Compulsory: three main classes account for 84.72%



Voluntary: three selected classes account for 31.34%

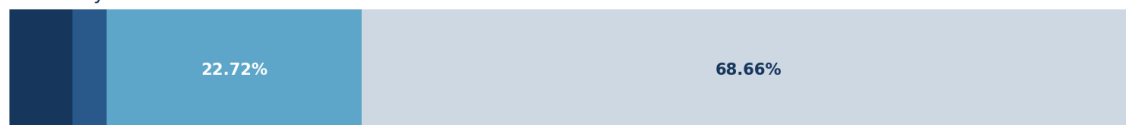


Figure 3. Shares of selected products in compulsory and voluntary insurance portfolios

Source: Compiled from the product shares reported for mid-2025 [1]. The light-shaded residual represents the proportion of other products calculated from the reported shares.

The combined share of the three selected categories in voluntary insurance was substantially smaller, at 31.34%. These comprised land motor vehicle insurance (5.60%), goods-in-transit insurance (3.02%), and credit insurance (22.72%). The difference indicates an important structural distinction between segments: the selected categories dominate the compulsory portfolio, whereas their combined share in voluntary insurance is comparatively limited [1].

2.1. Regression findings for the compulsory insurance portfolio

Using observations for 2022–2025, the relationship between profit and the shares of the three main compulsory-insurance categories is expressed as follows [1]:

$$Y_m = -4,817,960.2149 + 65,852.0649X_1 + 51,843.5456X_2 + 67,839.5565X_3. \quad (1)$$

Here, Y_m denotes the profit indicator for compulsory entrepreneurial risk insurance; X_1 is the share of employers' civil liability insurance; X_2 is the share of motor vehicle owners' third-party liability insurance; and X_3 is the share of construction and installation risk insurance. The explanatory variables are expressed in percentage terms. All coefficients retain their originally estimated values [1].

The estimated coefficients are 65,852.0649 for X_1 , 51,843.5456 for X_2 , and 67,839.5565 for X_3 . According to the economic interpretation of the model, a one-percentage-point increase in the corresponding product share, with the other variables held constant, is associated with a change in profit of UZS 65,852.0649 million, UZS 51,843.5456 million, and UZS 67,839.5565 million, respectively. These are model-based marginal associations, not guaranteed gains for each individual insurer [1].

Table 4. Main compulsory-insurance categories and regression coefficients

Product category	Portfolio share, %	Coefficient, UZS million
Employers' civil liability	30.89	65,852.0649
Motor vehicle owners' third-party liability	40.72	51,843.5456
Construction and installation risks	13.11	67,839.5565
Three selected categories combined	84.72	—

Source: Product shares and regression coefficients from Equation (1) [1].

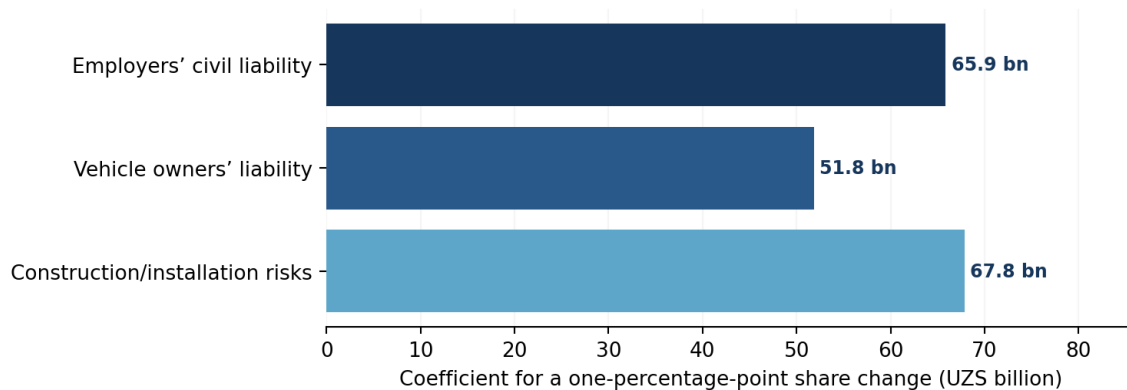


Figure 4. Profit coefficients associated with a one-percentage-point change in compulsory product shares

Source: Visualisation of Equation (1) coefficients expressed in UZS billions [1].

The positive coefficients in the compulsory-insurance model provide the economic rationale for increasing the relative weight of the three identified categories. However, portfolio shares sum to a fixed total; any expansion of one category must therefore be accompanied by a corresponding reduction elsewhere. The model should consequently be viewed as identifying directions for portfolio

rebalancing rather than suggesting unlimited gains with unchanged portfolio size or risk composition. This qualification is essential for a cautious interpretation of the econometric findings.

The portfolio-optimisation approach has also been introduced into the practice of JSC APEX INSURANCE. The proposed composition assigns shares of 30.89%, 40.72%, and 13.11% to employers' liability, motor vehicle owners' liability, and construction and installation risks, respectively, with the corresponding model coefficients informing product selection. This prioritises expected financial outcomes over simple growth in the volume of insurance products [1].

2.2. Regression findings for the voluntary insurance portfolio

The distinguishing feature of the model for voluntary insurance is that the coefficients linking the shares of three selected products to profit are negative. The recommended strategy for compulsory insurance therefore cannot be transferred mechanically to voluntary insurance. The corresponding relationship for voluntary insurance is specified as follows [1]:

$$Y_v = 28,428,950.0565 - 441,837.0444Z_1 - 5,798,941.4026Z_2 - 168,077.7435Z_3. \quad (2)$$

Here, Y_v represents profit from voluntary entrepreneurial risk insurance; Z_1 denotes the portfolio share of land motor vehicle insurance (class 3); Z_2 is the share of goods-in-transit insurance (class 7); and Z_3 is the share of credit insurance (class 14). The explanatory shares are expressed as percentages. Other things being equal, the negative coefficients indicate a reduction in the modelled profit indicator as the shares of these selected products increase [1].

The model associates a one-percentage-point increase in Z_1 with a decrease in profit of UZS 441,837.0444 million; the corresponding increase in Z_2 with a decrease of UZS 5,798,941.4026 million; and the increase in Z_3 with a decrease of UZS 168,077.7435 million. These coefficients describe modelled associations rather than deterministic results applicable equally to all market participants. The substantive finding is that the direction of portfolio adjustment differs between the compulsory and voluntary segments [1].

Table 5. Selected voluntary-insurance categories and regression results

Product category	Portfolio share, %	Coefficient, UZS million
Land motor vehicle insurance (class 3)	5.60	-441,837.0444
Goods-in-transit insurance (class 7)	3.02	-5,798,941.4026
Credit insurance (class 14)	22.72	-168,077.7435
Three selected categories combined	31.34	—

Source: Voluntary-insurance product shares and Equation (2) coefficients [1].

The estimated model supports a reduction in the relative portfolio shares of the three selected voluntary-insurance classes. It does not imply that voluntary insurance as a whole should contract: during 2022–2025, both premiums and profits in the voluntary segment increased. Rather, the recommendation is to reconsider the internal weight of categories negatively associated with profit. The distinction between overall segment expansion and the optimisation of its internal composition must therefore be maintained [1].

Considered jointly, the regression equations justify a differentiated rather than a standardised approach to selecting insurance products. For compulsory insurance, increasing the weight of three major

positively associated categories is recommended; for voluntary insurance, the three negatively associated product shares should be rebalanced. This strengthens the link between profit management and portfolio quality, while translating the risk-sensitive pricing and product-alignment principles of the first contribution into specific management decisions [1].

A measurement limitation requires explicit acknowledgement. In the descriptions accompanying the original model equations, the profit variable is labelled in ‘billions of dollars’, whereas the subsequent economic interpretation presents coefficients in ‘millions of Uzbek soums’. To avoid imposing an unsupported correction, the equations and numerical coefficients are reproduced without alteration; the financial effects discussed in the text follow the stated interpretation in UZS millions. The unit discrepancy should be considered when applying these model results [1].

3. Modernising institutional relationships between insurers and business entities

The third contribution is an institutional mechanism designed to improve organisational and economic relationships between insurers and business entities, increase the adaptability of insurance services, and strengthen the capacity to manage entrepreneurial risks. The focus thus shifts from individual premium rates and product shares to the interaction of participants in the insurance market. The central objective of the mechanism is to balance the interests represented within the entrepreneurial risk insurance segment [1].

An approach relying solely on standardised product packages and rigid premium rates may not provide sufficient flexibility to meet the specific needs of business entities. The proposed mechanism instead emphasises better organisation of the insurance process and closer communication between insurers and policyholders. It envisages continued adjustment of product characteristics, ease of access, financial incentives, and the reliability of verification procedures for insured risks and events [1].

The mechanism is structured according to a ‘tree of objectives’. Its first task is to make insurance products more attractive through portfolio optimisation. The second is to retain policyholders and develop long-term relationships by improving service accessibility and convenience. The third is to increase the financial benefits of insurance services through premium optimisation. The fourth is to reinforce reliability and broaden insurance participation by increasing the accuracy of risk assessment and the verification of insured events [1].



Shared objective: balance of interests between insurers and policyholders

Figure 5. Logical interrelationships among the four research contributions

Source: Conceptual synthesis of the four research contributions [1].

A distinguishing feature of this institutional mechanism is that insurance companies themselves become active agents of market modernisation. This does not disregard the regulatory environment; rather, it seeks to strengthen participants’ initiative and coordinated action within existing rules.

Insurers are expected to align improvements in portfolio composition, premium determination, customer-service quality, and verification procedures instead of addressing them as unrelated tasks [1]. The effectiveness of the mechanism cannot be reduced to risk-sensitive premium rates or a profitable product mix. When contracts remain difficult to conclude, insured events are verified inconsistently, or customer communication is discontinuous, the benefits of the first two contributions may be constrained. The third contribution therefore establishes the organisational conditions required to implement the preceding financial and quantitative decisions. Information generated by risk assessment and portfolio analysis is translated into service quality through institutional relationships.

Table 6. Tree of objectives for institutional modernisation

Objective	Main instrument	Expected economic implication
Increase product attractiveness	Optimisation of the product portfolio	Insurance offering responsive to business needs
Retain policyholders	Improving service accessibility and convenience	Long-term insurance relationships
Improve financial value	Premium-rating optimisation	Appropriate rates and balanced profitability
Enhance trust and participation	Accurate risk assessment and event verification	Adequate and justified insurance coverage

Source: Compiled from the tasks specified in the institutional mechanism [1].

An important condition for implementation is the adjustment, rather than indiscriminate contraction, of the insurance portfolio in response to customer needs and financial capacity. Flexibility does not simply mean permitting insurers to raise premiums or allowing policyholders to demand lower prices. It means a system for reconciling the expectations of both parties. Excessively high premiums can weaken insurance accessibility, while excessively low premiums can expose the insurer to financial losses [1].

Accurate risk evaluation and verification of insured events are the concluding elements of the mechanism. Properly documented events can make claims settlement more transparent, while clearly defining excluded or insufficiently documented circumstances can reduce conflicting expectations. The institutional mechanism consequently treats adequate coverage, fund sustainability, and confidence in insurance services as interdependent outcomes.

Implementation information reported by JSC APEX INSURANCE indicates that the developed mechanism was associated with a 7.9% improvement in the effectiveness of insurance protection and a 6.9% expansion in service coverage. These results illustrate how mathematical portfolio rebalancing may be complemented by improvements in the quality of relationships between insurance-market participants [1].

4. Comprehensive modernisation through marketing, service development, flexible pricing, and transparency

The fourth research contribution identifies complementary directions for the comprehensive modernisation of the insurance institution. They comprise the development of marketing mechanisms, the expansion of customer-service functions, greater flexibility in premium policy, and increased

transparency in insurance operations. Whereas the third contribution provides a mechanism for reorganising relationships among market participants, the fourth identifies the practical directions through which this mechanism can be implemented in day-to-day insurance operations [1].

The marketing component involves investigating business entities' requirements for risk protection and adapting insurance services accordingly. Marketing in this context is not restricted to advertising or the expansion of sales. Its institutional significance lies in developing a more precise understanding of policyholders' potential losses and the characteristics of the protection they require. This direction builds directly on the risk-based pricing and product-selection instruments described in the first contribution [1].

The service component is intended to strengthen the insurer's customer-oriented practices. Convenience in service delivery encompasses contract formation, the provision of information about insured risks, the verification of insured events, and the claims-settlement process. Retention and the development of long-term policyholder relationships are therefore linked to service accessibility. Customer service is not considered merely an operating expense but an instrument for reinforcing institutional trust [1].

Flexible premium policy seeks to make insurance financially appropriate for business entities. The possibility of broadening the customer base through collective insurance arrangements covering the risks of groups of enterprises is also recognised. This component remains directly linked to the factors underlying the first contribution: expected risk exposure, the resilience of the insurance fund, and economically justified expenses should guide the price of protection [1].

Operational transparency entails strengthening information exchange between insurers and policyholders, taking account of their shared interests, and increasing the precision of risk assessment and claims verification. It requires the contractual boundaries of insured events to be established in advance, obligations to be discharged consistently, and decisions relating to coverage to be sufficiently comprehensible to the parties [1].

Table 7. Four complementary dimensions of comprehensive institutional modernisation

Dimension	Implementation	Connection to other contributions
Marketing	Investigate insurance needs and develop suitable offerings	Risk-sensitive pricing and product mix
Customer service	Customer-oriented processes and convenience	Continuity of institutional relationships
Flexible premiums	Pricing reflecting risks and associated expenses	Portfolio profitability and product selection
Transparency	Event verification and information exchange	Trust in insurance relationships

Source: Author's synthesis of the proposed dimensions of comprehensive modernisation [1].

The distinguishing theoretical property of the four dimensions is that they are not substitutes. Marketing may identify policyholders' needs, yet access remains restricted if service procedures are burdensome. Convenient services cannot maintain a balance of interests if premiums do not reflect risk. Even appropriate prices and efficient service may fail to establish trust when information exchange is opaque. Modernisation must therefore be implemented as a coordinated system rather than a collection of unrelated improvements [1].

Digital instruments, including digital marketing, data processing, and the automation of insurance services, may facilitate these dimensions of institutional improvement. They are not treated as a separate research contribution in this article; rather, they are considered organisational and technical instruments that can support marketing, customer service, and transparency within the fourth contribution. This maintains the article's focus on the four interrelated findings examined here [1].

The implementation results reported by JSC APEX INSURANCE associate comprehensive modernisation with an 8.1% increase in the rate of contract renewals and a 12% improvement in customer loyalty. These indicators complement the third contribution's outcomes for protection effectiveness and service coverage by addressing the continuity of insurer–policyholder relationships [1].

Discussion: the four contributions as an integrated institutional framework

The relationship among these contributions is more substantive than a simple sequence of actions. The first establishes how insurable risks should be valued and reflected in insurance products. The second shows how the portfolio shares of those products relate to insurers' profits. The third embeds quantitative and financial decisions in a continuing system of arrangements between insurers and business entities. The fourth develops the marketing, service, pricing, and transparency conditions required for such arrangements to function. Together, they form a conceptual progression from risk assessment to institutional effectiveness [1].

This progression begins with estimating the probability of losses and defining the scope of insurance coverage. The more accurately risks are expressed in monetary terms, the better grounded premium determination becomes. Because pricing influences product competitiveness and the structure of costs, it also plays an important role in assessing portfolio profitability. Nevertheless, portfolio-level optimisation does not automatically produce consistently effective protection unless contractual and service relationships improve. The institutional mechanism and comprehensive modernisation measures address precisely this organisational dimension.

The four research proposals reinforce one another economically, but their implementation indicators should not be combined into a single aggregate effect. For example, the reported 6.8% change in the accuracy of risk assessment is not the same measure as the 4.5% change in portfolio profitability. Similarly, the 7.9% change in protection effectiveness cannot be added to the 12% change in customer loyalty. Each indicator captures a distinct outcome and jointly the indicators illustrate different dimensions of institutional performance [1].

Table 8. Four research contributions implemented at JSC APEX INSURANCE

Research contribution	Reported implementation indicator
1. Functional instruments	Risk-assessment accuracy: +6.8%; portfolio profitability: +4.5%; share of loss-making contracts: –12%
2. Portfolio optimisation	Compulsory insurance: shares of 30.89%, 40.72%, and 13.11%, together with corresponding profit coefficients
3. Institutional mechanism	Effectiveness of insurance protection: +7.9%; service coverage: +6.9%
4. Comprehensive modernisation	Contract-renewal rate: +8.1%; customer loyalty: +12%

Source: Compiled from the reported implementation results documented in JSC APEX INSURANCE certificate No. A/415 of 19 June 2026 [1].

Table 8 demonstrates that each contribution has a distinct set of outcome measures. The first emphasises assessment accuracy and profitability; the second addresses the financial composition of the insurance portfolio; the third concerns the extent and effectiveness of insurance protection; and the fourth focuses on the continuity of customer relationships. The theoretical and practical dimensions are thus aligned: the inquiry progresses from what should be measured to how the portfolio should be structured and, ultimately, to the institutional relationships through which the proposed improvements can be realised.

The figures describing portfolio changes in 2022–2025, product shares in mid-2025, and implementation outcomes in 2026 represent different observation periods and should not be combined as though they formed a single time series. Accordingly, the discussion distinguishes differences in reference periods and units of observation. This treatment protects the substantive meaning of the reported figures and helps prevent unwarranted statistical generalisation [1].

Conclusions and Recommendations

The findings demonstrate that improving the institutional framework for entrepreneurial risk insurance cannot be achieved solely by modifying premium policy, product composition, or the quality of customer service in isolation. The four contributions examined here are complementary components of an integrated institutional solution. Their shared economic rationale is to coordinate financial protection against risks with insurers' profitability, portfolio structure, and a sustainable balance of interests among market participants [1].

First, premiums should be determined in direct relation to the probability of insured events, expected losses, the precautionary reserves of the insurance fund, and insurers' operating costs. The four-stage premium-setting approach is meaningful when implemented alongside the alignment of product composition with the characteristics of entrepreneurial activities. Reported implementation outcomes include improvements of 6.8% in risk-assessment accuracy and 4.5% in portfolio profitability, together with a 12% decline in the share of loss-making contracts [1].

Second, managing insurance portfolios requires differentiated decisions for compulsory and voluntary segments. Positive regression coefficients are reported for employers' civil liability (30.89% of the compulsory portfolio), motor vehicle owners' liability (40.72%), and construction and installation risks (13.11%). Negative coefficients are estimated for selected voluntary-insurance products covering land motor vehicles, goods in transit, and credit risks. The general objective of expanding insurance protection must therefore be combined with segment-specific approaches to optimising the composition of products [1].

Third, the financial performance of an insurance portfolio cannot develop sustainably without attention to the quality of relationships between insurers and business entities. Product attractiveness, service convenience, the financial appropriateness of premiums, and the reliability of claims verification should be coordinated within a tree-of-objectives framework. The implementation of this mechanism has been associated with a 7.9% improvement in the effectiveness of insurance protection and a 6.9% expansion of service coverage [1].

Fourth, comprehensive modernisation requires the simultaneous development of marketing, customer service, adaptive premium setting, and operational transparency. These dimensions perform complementary functions: marketing identifies demand; customer service sustains relationships; flexible pricing supports the balance of economic interests; and transparency strengthens confidence

in risk assessment and indemnification. Reported outcomes include an 8.1% increase in contract renewals and a 12% improvement in customer loyalty [1].

In practical terms, insurers should assess the financial consequences of risk together with their premium policies and product selections. Portfolio-rebalancing decisions should reflect the different directions identified by the models for compulsory and voluntary insurance. At the same time, insurer–policyholder relationships should be strengthened through accessible services, reliable documentation of insured events, and consistent information exchange. These recommendations do not constitute additional independent research claims; they express the operational implications of the four integrated contributions examined in this article [1].

In conclusion, the integration of the four research contributions is crucial to improving the institutional framework for entrepreneurial risk insurance. Precise risk assessment and corresponding premium determination inform portfolio composition; portfolio-level financial outcomes support the reconciliation of insurers' and business entities' interests; and the institutional mechanism is implemented through marketing, service development, flexible pricing, and transparency. This integration constitutes the central theoretical and applied result of the article.

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