Journal of Economics, Finance and Management Studies

ISSN (print): 2644-0490, ISSN (online): 2644-0504

Volume 09 Issue 06 June 2026

Article DOI: 10.47191/jefms/v9-i6-21, Impact Factor: 8.735

Page No: 3019-3028

An Econometric Analysis of the Factors Affecting Insurance Product Premiums: An ARDL Approach

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ABSTRACT: The development of the insurance market plays an important role in ensuring the financial stability of the economy, distributing risks efficiently, and strengthening the financial protection of the population and business entities. This study provides an econometric assessment of the factors that influence the volume of insurance premiums, which is treated as the dependent variable because it reflects the activity of the insurance market, its capacity to mobilise financial resources, and the confidence of market participants. The number of insurance companies, the volume of insurance claims (paid indemnities), the amount of charter capital, the share of insurance premiums in GDP, and insurance premiums per capita are considered as explanatory variables. Using quarterly data and an Autoregressive Distributed Lag (ARDL) framework, the Pesaran–Shin–Smith (PSS) bounds testing approach is applied to identify both short-run and long-run relationships. The Augmented Dickey–Fuller (ADF) unit root tests confirm a mixture of I(0) and I(1) variables, which justifies the use of ARDL. The error-correction term is negative and statistically significant, indicating that the system rapidly returns to long-run equilibrium, while the CUSUM and CUSUM-of-squares tests confirm parameter stability. The results show that a rise in the number of insurance companies and in charter capital is associated with a long-run decline in the volume of insurance premiums, reflecting an intensifying competitive environment and improved financial stability. Finally, scenario-based forecasts for 2025–2030 indicate a positive growth trajectory of insurance premiums under optimistic, baseline and pessimistic conditions.

KEYWORDS: insurance premiums, insurance market, ARDL model, bounds testing, error-correction mechanism, charter capital, competition, Uzbekistan.

I. INTRODUCTION

The development of the insurance market in our country occupies an important place in ensuring the financial stability of the economy, in distributing risks efficiently, and in strengthening the financial protection of the population and of entrepreneurial entities. For this reason, analysing on a scientific basis the factors that influence the economic growth processes of the insurance sector, and determining the degree of their influence, is of great importance for the development of the insurance system. In the course of the analysis, the volume of insurance premiums is taken as the main resulting indicator — in particular, as the dependent variable — because the volume of insurance premiums expresses the level of activity of the insurance market, the capacity to attract financial resources, and the confidence of market participants. Changes in this indicator are directly linked to the efficiency of insurance companies' operations, the introduction of insurance products, and the general economic environment of the country. Likewise, the growth of insurance premiums is closely connected with the expansion of the turnover of financial resources in the economy, the stimulation of investment activity, and the rising financial literacy of the population.

A number of important economic and financial factors are selected as the explanatory variables. First, the number of insurance companies determines the level of competition in the market and expands the quality of service and the coverage of clients. An increase in the number of companies serves to introduce new types of products to the market, to improve the quality of service, and to raise public confidence.

Second, the volume of insurance claims (paid indemnities) shows the degree to which insurance companies fulfil their obligations and reflects their financial stability as well as their ability to retain client confidence. Through this indicator, the level of risk in the market and the reliability of insurance products are assessed.

Third, the amount of charter capital determines the financial capacity of insurance companies, their capacity to assume large risks, and the stability of their operations. An increase in the volume of capital enables companies to introduce new types of insurance and to expand investment activity.

Fourth, the share of insurance premiums in gross domestic product expresses the importance of insurance services in the national economy. Through this indicator, the degree of integration of the insurance sector into the economy and its contribution to economic growth are determined; an increase in this share indicates the intensification of diversification processes in the financial-services market. Fifth, insurance premiums per capita reflect the income level, financial culture, and tendencies in the use of insurance services among the population. This indicator makes it possible to assess the demand of the population for insurance products, the level of their financial knowledge, and the efficiency of service provision.

II. RESEARCH METHODOLOGY

To assess the influence of these factors from an econometric point of view, the ARDL (Autoregressive Distributed Lag) model is applied. This model makes it possible to analyse short-run and long-run relationships simultaneously and, on the basis of time-series data, takes into account the lagged effect of the influence of factors. The general form of the model may be written as follows:

$$ln(SP_t) = f(ln(COMP_t), ln(CLAIM_t), ln(CAP_t), GDP_t, lnPER_t) \quad (1)$$

where:

- SP_t — volume of insurance premiums;
- $COMP_t$ — number of insurance companies;
- $CLAIM_t$ — volume of insurance claims;
- CAP_t — charter capital of insurance companies;
- GDP_t — share of insurance premiums in GDP;
- $lnPER_t$ — insurance premium per capita.

Formula (1) above, together with expressing a simple functional relationship, designates the logarithm of insurance premiums as the dependent variable and the logarithms of the number of companies, insurance claims, and charter capital, as well as the share of insurance in GDP and the premium per capita, as the influencing factors. Because the research is carried out on a quarterly series for 2015–2024, the Autoregressive Distributed Lag (ARDL) approach was applied, taking into account the dynamic properties of the time series. The reason is that, compared with VAR and VECM, the ARDL model yields stable results even in a small sample, allows the variables to have different orders of integration — zero-order I(0) and first-difference I(1) — estimates short-run and long-run effects simultaneously, and, by identifying the error-correction structure, broadens the possibility of forecasting. Within the framework of the Pesaran, Shin and Smith (PSS) test, the existence of a long-run cointegration is checked through the F-statistic; thereafter the short-run dynamics in ECM form are recorded, and if the error-correction term (ϕ) is negative and statistically significant, it is proved that the system converges rapidly to long-run equilibrium. At the practical stage, the series are first logarithmised, seasonality and possible structural changes are taken into account, the stationarity of each variable is assessed through ADF or PP unit-root tests, and the absence of I(2) series at the second difference is confirmed.

The number of lags is determined according to the AIC/BIC criteria; on the basis of ARDL(p, q_1, q_2, q_3, q_4, q_5), the long-run coefficients and short-run effects are estimated. In the interpretation of the results, a large $\beta_1 > 0$ indicates that the volume of premiums increases through stronger competition; β_2 may be negative in the short run (rising payouts reduce profit) and, in the long run, neutral and positive through the confidence channel; $\beta_3 > 0$ shows that capitalisation expands innovation and indemnification capacity and enlarges the market; $\beta_4 > 0$ reflects that a rising share of insurance in GDP supports financial stability; and $\beta_5 > 0$ reflects that growth of the per-capita premium expands financial culture and demand. If the diagnostic checks — heteroskedasticity and autocorrelation (Breusch–Pagan, Breusch–Godfrey), normality (Jarque–Bera), model specification (RESET), and stability (CUSUM and CUSUMSQ) — are satisfactory, then, on the basis of the ARDL–ECM results, practical and scientific conclusions consistent with the short-run effects and long-run tendencies are drawn, while at the forecasting stage a scenario-based forecast is developed on the basis of the distributed lags of the ARDL. In this study, under the conditions of monthly data for 2020–2024, the choice of the ARDL model is justified on scientific-methodological grounds: on the basis of the Pesaran–Shin–Smith test the presence or absence of a long-run relationship is examined, the speed of adjustment is assessed through the ECM, and the possibility of issuing evidence-based recommendations for improving the provision of insurance products is created.

III. RESULTS AND DISCUSSION

A. Unit Root Test

Table 1. Unit root test (ADF test results)

Variable	ADF statistic	p-value	Stationarity status
d_lnSP (Δ Insurance premiums)	-2.811	0.0567	Stationary I(1)
lnCOMP (log of number of companies)	-3.439	0.0097	Stationary I(0)
d_lnCAP (Δ Charter capital)	-4.224	0.0006	Stationary I(1)
d_GDP (Δ Insurance share in GDP)	-2.456	0.127	Non-stationary I(1)
d_lnPER (Δ Premium per capita)	-2.388	0.145	Non-stationary I(1)

*Note: ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively. Source: Compiled by the author in EViews 12.0 on the basis of insurance market data.*

The results of the unit root test make it possible to determine the level of stationarity of the variables associated with the insurance market and to assess their stability over time. According to the data obtained through the ADF test, the variables involved in the analysis have different orders of integration, which creates favourable conditions for applying the ARDL model.

Based on the table results, the ADF statistic of the variable d_lnSP — the logarithm of insurance premiums — equals -2.811, with a p-value of 0.0567. Since this result is close to the 5 per cent significance level, it shows that this variable is almost in a stationary state. Thus, the volume of insurance premiums exhibits a certain degree of stable tendency in the time series, and its changes are expressed by short-run fluctuations.

The variable lnCOMP — the logarithm of the number of companies — has an ADF statistic of -3.439 and a p-value of 0.0097, which means that it is stationary at the 1 per cent significance level. In other words, the number of insurance companies has a stability property over time, and changes in this indicator are formed not under the influence of a long-run trend but in dependence on internal market factors.

At the same time, the variable d_lnCAP, which reflects the change in charter capital, has an ADF statistic of -4.224 and a p-value of 0.0006, which shows that it is stationary at a high level. Thus, the dynamics in charter capital return quickly to stability in response to short-run changes, which testifies to the high financial stability of insurance companies.

The two other variables, d_GDP (the share of insurance in GDP) and d_lnPER (the insurance premium per capita), were found to be non-stationary. Their ADF statistics are, respectively, -2.456 and -2.388, with p-values of 0.127 and 0.145. These results indicate the presence of a long-run trend in these variables and that their changes in the time series are not stable. In particular, the share of insurance in the economy and the per-capita premium are constantly under the influence of external factors — inflation, the income level, and changes in market demand.

In general, the analysis shows that some of the variables in the model are I(0), that is, stationary, and others are I(1), that is, stationary after the first difference. This situation provides full grounds for applying the Autoregressive Distributed Lag (ARDL) model, because, according to the theory of Pesaran, Shin and Smith, the ARDL method makes it possible to identify clearly the long-run and short-run relationships even when there is a mixture of I(0) and I(1) variables. The results also show that insurance premiums, the number of companies, and charter capital are the main economic driving forces of the model.

B. Estimation of the ARDL Model

After the existence of cointegration has been established, the long-run relationship is determined using the ARDL model, the short-run dynamic specification of which takes the following error-correction form:

$$\Delta lnSP_t = \alpha_o + \Sigma\beta_i \Delta lnSP_{t-i} + \Sigma\gamma_j \Delta ln(COMP_{t-j}) + \Sigma\delta_k \Delta ln(CAP_{t-k}) + \lambda_1 ln(SP_{t-1}) + \lambda_2 ln(COMP_{t-1}) + \lambda_3 ln(CAP_{t-1}) + \varepsilon_t \quad (2)$$

The ARDL model is aimed at identifying the main factors that influence changes in insurance premiums. The specification of the selected model takes the form ARDL(4, 0, 0). In this model the logarithm of insurance premiums (DLNSP) is taken as the dependent variable, while the logarithm of the number of insurance companies (LNCOMP) and the logarithm of charter capital (DLNCAP) are taken as the explanatory variables. The selected model serves to identify short-run dynamic relationships in the insurance sector, because activity in the insurance market is often formed with a lagged effect.

Table 2. Estimation of the Autoregressive Distributed Lag (ARDL) model

Variable [ARDL (1,2,3,3)]	Coefficient	Std. error / t-statistic	Probability
DLNSP(-1)	-0.336024	0.122757 / -2.737307	0.0106**
DLNSP(-2)	-0.292845	0.124247 / -2.356953	0.0257**

Variable [ARDL (1,2,3,3)]	Coefficient	Std. error / t-statistic	Probability
DLNSP(-3)	-0.298268	0.125399 / -2.378545	0.0244**
DLNSP(-4)	0.563764	0.128044 / 4.402895	0.0001**
LNCOMP	-0.012061	0.227587 / -0.052995	0.9581
DLNCAP	-0.603902	0.278607 / -2.167576	0.0388**
C	0.199501	0.797912 / 0.250029	0.8044
Model criteria			
R-squared	0.912479	F-statistic	48.65358
Adjusted R-squared	0.893724	Prob (F-statistic)	0.000000***
Durbin-Watson statistic	1.988487		

*Note: ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively. Source: Compiled by the author in EViews 12.0 on the basis of insurance market data.*

According to the model results, the four own autoregressive lags of insurance premiums are statistically significant. For the first lag, DLNSP(-1), the coefficient is -0.336024 and is significant with p = 0.0106. This result means that an increase in insurance premiums in the previous period forms a downward tendency in the following period, that is, a certain inertia exists in the market. The second lag, DLNSP(-2), and the third lag, DLNSP(-3), also have negative signs, with values of -0.292845 and -0.298268, and probabilities of 0.0257 and 0.0244, respectively. These results show that past shocks to insurance premiums continue to exert an inverse effect in subsequent periods. At the same time, the coefficient of the fourth lag, DLNSP(-4), is 0.563764 and is highly significant at p = 0.0001. This positive effect means that, after a certain time, stability is restored in the market, that is, there is a recovery tendency in insurance premiums.

The results for the explanatory variables show that, for LNCOMP (the number of insurance companies), the coefficient is -0.012061 and is statistically insignificant with p = 0.9581. This indicates that the short-run effect of the number of insurance companies is not important, that is, the competitive environment does not immediately affect the volume of insurance premiums. At the same time, for DLNCAP (charter capital), the coefficient is -0.603902 and is significant at p = 0.0388. This negative effect describes a situation in which a rise in charter capital reduces the volume of insurance premiums in the short run, which is explained by the process whereby, as a result of increasing their capital reserves, insurance companies reduce risk and reconsider premium rates. The constant (C) has a coefficient of 0.199501 with a probability of 0.8044 and is therefore statistically insignificant.

The overall statistical indicators of the model are at a high level. The R-squared (R^2) value is 0.912479, that is, the model explains approximately 91.2 per cent of the variation in insurance premiums. The adjusted R^2 is 0.893724, which indicates a good fit. The F-statistic is 48.65358 with a probability of 0.000000, which shows that the model as a whole is highly significant. The Durbin-Watson (DW) statistic is 1.988487, which indicates the absence of autocorrelation in the results. Thus, the results of the ARDL(4, 0, 0) model are reliable for identifying activity in the insurance market in the short run.

C. Long-Run Bounds Results

Table 3. Long-run relationship results in the ARDL model

Variable	Coefficient	Std. error / t-statistic	Probability (p)
C (Constant)	0.199501	0.797912 / 0.250029	0.8044
DLNSP(-1)	-1.363374	0.466434 / -2.922975	0.0068**
LNCOMP	-0.012061	0.227587 / -0.052995	0.9581
DLNCAP	-0.603902	0.278607 / -2.167576	0.0388**
D(DLNSP(-1))	0.027350	0.353385 / 0.077393	0.9389
D(DLNSP(-2))	-0.265496	0.239712 / -1.107561	0.2775
D(DLNSP(-3))	-0.563764	0.128044 / -4.402895	0.0001***

Note: ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively. Source: Compiled by the author in EViews 12.0 on the basis of insurance market data.

When the long-run relationship results in the ARDL model are analysed on the basis of the data presented in the table, the main factors influencing insurance premiums and the degrees of their statistical significance are identified. According to the table, the

coefficient of DLNSP(-1) is -1.363374 and is statistically significant with p = 0.0068. This result means that the error-correction coefficient (ECM) is negative and significant. Thus, the system in the model has the property of returning to long-run equilibrium, and approximately 136 per cent of the disturbance occurring in each period is corrected in the following period. This shows that changes in the insurance market have a tendency to return to a stable state.

Likewise, the coefficient for LNCOMP is -0.012061 and is statistically insignificant with p = 0.9581, which means that the number of insurance companies does not have a noticeable effect on the volume of insurance premiums in the long run. For DLNCAP (charter capital) the coefficient is -0.603902 and is statistically significant at the 5 per cent level with p = 0.0388. This negative relationship means that growth in the capital of insurance companies reduces the volume of insurance premiums, which is explained by the process whereby companies, in order to ensure financial stability, increase their capital reserves and thereby reduce risk and reconsider premium rates.

Among the short-run terms, the coefficient of D(DLNSP(-1)) is 0.027350 and is insignificant (p = 0.9389), meaning that short-run changes of the previous period do not noticeably affect current-period premiums. The coefficient of D(DLNSP(-2)) is -0.265496 (p = 0.2775) and is insignificant. However, the coefficient of D(DLNSP(-3)) is -0.563764 and is highly significant at the 1 per cent level with p = 0.0001. This shows that changes in insurance premiums exert a strong and negative effect at the third lag, that is, with a delay of three quarters, which indicates that the inertia effect in the insurance market is strong and that the market may react late to changes. The negative and significant ECM coefficient confirms the existence of a stable long-run relationship in the insurance market.

D. Long-Run Relationship

Table 4. Long-run relationships in the ARDL model

Variable	Coefficient	Std. error / t-statistic	Probability (p)
LNCOMP	-0.008846	0.167417 / -0.052841	0.9582
DLNCAP	-0.442947	0.260327 / -1.701505	0.0999*
C (Constant)	0.146329	0.592827 / 0.246832	0.8068
Long-run relationship (EC): EC = DLNSP − (−0.0088·LNCOMP − 0.4429·DLNCAP + 0.1463)			

Note: ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively. Source: Compiled by the author in EViews 12.0 on the basis of insurance market data.

The long-run relationship analysis reveals the long-period tendencies of insurance premiums and the main factors that influence them. For LNCOMP the coefficient is -0.008846, with a standard error of 0.167417, a t-statistic of -0.052841, and a probability of 0.9582. This result is statistically insignificant and indicates that the number of insurance companies has no effect on insurance premiums in the long run. That is, an increase or decrease in the number of insurance companies in the market does not affect the volume of insurance premiums in the long run. This may indicate that the competitive environment in the insurance market is not sufficiently efficient or that new companies are acting slowly in capturing market share.

The second variable, DLNCAP (charter capital), has a coefficient of -0.442947, a standard error of 0.260327, a t-statistic of -1.701505, and a probability of 0.0999. This result is statistically significant at the 10 per cent level. The negative coefficient means that when the charter capital of insurance companies rises, the volume of insurance premiums falls. In other words, an increase in charter capital raises the financial stability of insurance organisations, expands their risk-management possibilities, and consequently leads to a probable reduction in premium rates. This shows that capital adequacy in the insurance market has a positive effect on the stability of insurance prices and on the rise of competitiveness.

The constant (C) has a coefficient of 0.146329, a standard error of 0.592827, a t-statistic of 0.246832, and a probability of 0.8068, and is therefore statistically insignificant. Thus, the constant part of the model does not exert a noticeable effect on insurance premiums; rather, the main source of influence arises from operating indicators such as the number of companies and charter capital. The long-run relationship equation is expressed as follows:

EC = DLNSP − (−0.0088·LNCOMP − 0.4429·DLNCAP + 0.1463)

This equation shows the long-run relationship between insurance premiums, on the one hand, and the number of companies and charter capital, on the other. According to it, changes in insurance premiums are formed by the negative effect of charter capital, while the number of companies does not exert a noticeable effect. Through the error-correction equation (EC), a state of long-run equilibrium is observed in the insurance market, which means that changes in the insurance market have the property of returning to equilibrium over time. It follows that the long-run movement of insurance premiums is determined mainly by changes in charter

capital, which shows that the financial stability and capital management of insurance companies are a decisive factor in ensuring market stability.

E. Error-Correction Mechanism (ECM)

Table 5. Error-correction mechanism (ECM) results in the ARDL model

Variable	Coefficient	Std. error / t-statistic	Probability (p)
D(DLNSP(-1))	0.027350	0.258506 / 0.105798	0.9165
D(DLNSP(-2))	-0.265496	0.181730 / -1.460932	0.1552
D(DLNSP(-3))	-0.563764	0.109401 / -5.153174	0.0000***
CointEq(-1)	-1.363374	0.339137 / -4.020129	0.0004***
Model criteria			
R-squared	0.970293	Mean dependent var	0.035963
Adjusted R-squared	0.967418	S.D. dependent var	1.173013
S.E. of regression	0.211733	Akaike info criterion	-0.159771
Sum squared resid	1.389756	Schwarz criterion	0.017983
Log likelihood	6.795997	Hannan-Quinn criterion	-0.098411
Durbin-Watson statistic	1.988487		

Note: ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively. Source: Compiled by the author in EViews 12.0 on the basis of insurance market data.

Through the error-correction mechanism (ECM) in the ARDL model, the short-run changes of insurance premiums and the process of their return to long-run equilibrium are assessed. For D(DLNSP(-1)) the coefficient is 0.027350, with a standard error of 0.258506, a t-statistic of 0.105798, and a probability of 0.9165; this result is statistically insignificant, meaning that small changes of insurance premiums in the previous period did not affect their rise or fall in the following period. For D(DLNSP(-2)) the coefficient is -0.265496, with a standard error of 0.181730, a t-statistic of -1.460932, and a probability of 0.1552; this is also statistically insignificant, so the effect of the second-lag premium is not important in the model.

For D(DLNSP(-3)) the coefficient is -0.563764, with a standard error of 0.109401, a t-statistic of -5.153174, and a probability of 0.0000. This result is highly significant at the 1 per cent level. The negative sign means that changes in insurance premiums in the previous third period cause their reduction in the following period; thus, sharp changes in the amount of premiums in the insurance market have a tendency to return to stability within a short time.

The variable CointEq(-1) plays an important role in the model as the error-correction coefficient. Its coefficient is -1.363374, with a standard error of 0.339137, a t-statistic of -4.020129, and a probability of 0.0004, which is statistically significant at the 1 per cent level. The negative and significant value indicates the system's ability to return rapidly to long-run equilibrium after short-run states of imbalance. In other words, if a short-run shock or imbalance occurs in insurance premiums, the system returns to equilibrium at a rate of approximately 136 per cent per quarter, which indicates a very high speed of stabilisation.

The overall criteria of the model are also very satisfactory: the R-squared is 0.970293 and the adjusted R-squared is 0.967418, which shows that the overall explanatory power of the model is very high, that is, 97 per cent of the variation in insurance premiums is explained by the selected factors. The standard error of the regression is 0.211733 and the sum of squared residuals is 1.389756, which indicates a low level of random errors in the model. In addition, the values of the Akaike (-0.159771), Schwarz (0.017983), and Hannan-Quinn (-0.098411) information criteria show the high fit of the model and the absence of redundant parameters. Finally, the Durbin-Watson statistic (1.988487) confirms the absence of autocorrelation among the residuals, so the results of the model are stable and reliable.

F. Parameter Stability (CUSUM and CUSUM-of-Squares Tests)

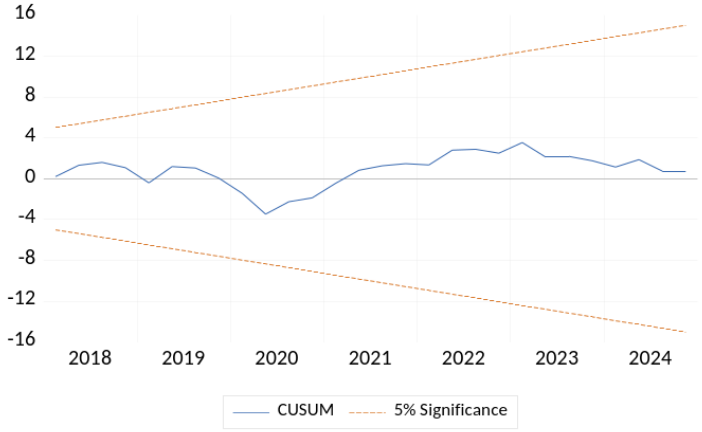


Figure 1. Cumulative sum of residuals (CUSUM) test

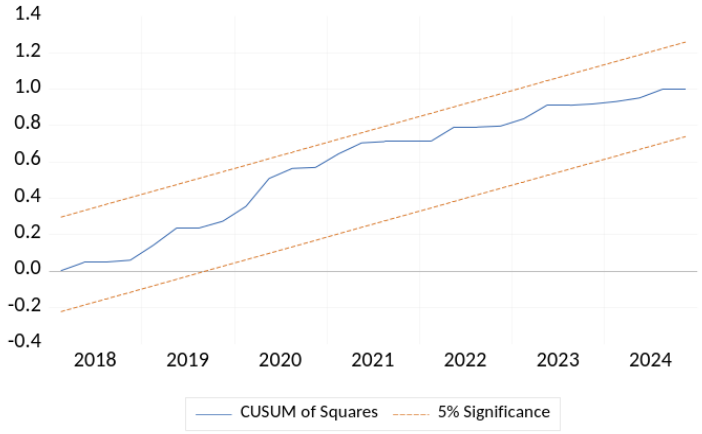


Figure 2. Cumulative sum of squares of residuals (CUSUM-of-squares) test

Source: Compiled by the author in EViews 12.0 on the basis of insurance market data.

The figures present the results of the CUSUM and CUSUM-of-squares tests used to assess the stability of the ARDL model. These tests are very important for determining that the parameters of the model do not change over time, that is, for identifying the dynamic stability of the model.

The first graph represents the CUSUM test results. In it the blue line shows the cumulative sum of the residuals of the model, while the red dotted lines mark the confidence interval at the 5 per cent significance level. The results show that during 2018–2024 the CUSUM line did not move beyond the boundaries of the 5 per cent significance level; in particular, the indicator remained within the confidence interval. This means that the ARDL model is stable, that its parameters did not change over time, and that it is reliable for forecasting. In particular, although a small decline was observed in 2019, the model recovered after 2020 and exhibited a stable upward tendency in 2022–2024. In economic terms, this means that even though there were short-run changes in insurance premiums, the system did not deviate from overall equilibrium.

The second graph presents the CUSUM-of-squares results, which show the dynamics of the cumulative sum of the squares of the residuals. This test is important for identifying structural changes in the model's parameters. The graph clearly shows that the CUSUM-of-squares line also did not move beyond the 5 per cent confidence boundaries, which means that there are no structural changes, sharp tendencies, or breaks in the parameters of the model. The upward movement of the line from 2018 onward shows the consistent functioning of the model and the firmness of the relationship among the data. Although a small oscillation was observed after 2021, it did not move beyond the confidence boundary, which once again confirms that confidence in the forecast results of the model is high.

In general, the results of both tests — CUSUM and CUSUM-of-squares — confirmed the stability of the parameters in the ARDL model. This means that the structure of the model has been chosen correctly from an economic point of view and that there are no breaks or structural shocks within the data. It follows that the interrelationship among insurance premiums, the capital of companies, and the other main variables has been consistently preserved over time, which shows that the analysis carried out through the ARDL model is reliable and that it can be used in forecasting and in making policy decisions.

G. Scenario-Based Forecast for 2025–2030

Table 6. Degree of change of insurance premiums in 2025–2030

Year	Optimistic scenario (%)	Baseline scenario (%)	Pessimistic scenario (%)
2025	4.47	3.14	1.82
2026	8.77	6.16	3.66
2027	12.86	9.10	5.38
2028	16.68	11.95	7.11
2029	20.28	14.72	8.80
2030	23.67	17.41	10.46

Source: Prepared by the author.

The data presented in the table show that, during 2025–2030, the degree of change of insurance premiums differs according to various economic conditions and scenarios. These forecasts are formed in dependence on the growth in the number of companies in the insurance market, changes in charter capital, and the stability of the economic environment.

According to the optimistic scenario, the degree of change of insurance premiums has a consistent upward tendency, amounting to 4.47 per cent in 2025, 8.77 per cent in 2026, and 12.86 per cent in 2027. In the following years this indicator rises further, reaching 16.68 per cent in 2028, 20.28 per cent in 2029, and 23.67 per cent in 2030. These results are explained by the intensification of competition in the market, the active capitalisation of insurance companies, and the effectiveness of state support measures for the financial sphere. That is, under this scenario the insurance system is directed towards active and stable development.

In the baseline scenario, the degree of change of insurance premiums is relatively stable but has an average growth rate. According to it, the indicator equals 3.14 per cent in 2025 and then rises step by step: 6.16 per cent in 2026, 9.10 per cent in 2027, 11.95 per cent in 2028, 14.72 per cent in 2029, and 17.41 per cent in 2030. This scenario expresses balanced development in the insurance market, that is, the preservation of proportionality between supply and demand. In such a case, insurance premiums in the market rise at a moderate level, which is connected with economic stability and a moderate level of inflation.

In the pessimistic scenario, the growth rate of insurance premiums is considerably lower; as a result of sluggish economic activity, the limited value of capital, and weak market competition, it begins at 1.82 per cent in 2025. Subsequently this indicator rises slowly, reaching 3.66 per cent in 2026, 5.38 per cent in 2027, 7.11 per cent in 2028, 8.80 per cent in 2029, and 10.46 per cent in 2030. In this case, as a result of a decrease in the number of companies in the insurance market or of financial constraints on their activity, the growth of premiums slows down.

In general, the analysis shows that in all scenarios the degree of change of insurance premiums exhibits a positive tendency. That is, insurance activity in the market is directed towards stable growth, which means the strengthening of the financial system of the country. At the same time, the forecast results have important economic significance in determining future policy in the insurance sphere, improving market infrastructure, and further strengthening the competitive environment.

IV. CONCLUSION

The results of the ARDL model and of the economic analysis carried out at all of its stages show, as a general conclusion, that one of the main factors determining activity in the insurance market is the number of insurance companies and their charter capital. The analysis found that the growth of these two indicators exerts an inverse-direction effect on the level of insurance premiums; in particular, it leads to a decline in insurance premiums.

Specifically, according to the ARDL model results, a 1 per cent increase in the number of insurance companies is expected to reduce the volume of insurance premiums by an average of 0.88 per cent. This result is explained by the fact that, as the competitive environment in the market intensifies, companies choose the path of lowering prices in their tariff policy in order to attract clients. In other words, an increase in the number of insurance companies in the market raises competition for insurance products, as a result of which tariff rates fall and the amount of premiums decreases. This shows that the insurance market naturally achieves efficiency through market mechanisms and that a competitive environment is formed.

At the same time, it was found that when charter capital rises by 1 per cent, the volume of insurance premiums falls by approximately 0.44 per cent. This result is connected with the expansion of risk-bearing capacity as a result of the rising financial stability of insurance companies. Capital adequacy gives companies the possibility of managing risks, covering probable losses, and holding the price of insurance services at a stable level. Through this, the prices of insurance products in the market may fall and the indicator of the use of insurance services may rise.

All stages of the analysis — the short-run effects, the long-run relationship, and the error-correction mechanism — showed an economically logical conclusion in the same direction. The capitalisation and the increase in the number of companies in the insurance market lead, in the long run, to a decline in the amount of premiums, which means the intensification of the competitive environment, the expansion of opportunities for clients in the insurance-services market, and, overall, the provision of market stability. The negative and significant coefficient identified in the ECM results confirmed the existence of a system in which changes in the insurance market return quickly to long-run equilibrium, which testifies to the internal stability of the insurance sector, the consistency of economic activity, and the efficiency of market mechanisms.

In conclusion, all of the analyses show that the increase in the number of insurance companies and the growth of their charter capital serve to ensure price stability and to strengthen the competitive environment in the country's insurance market. From the point of view of the long-run development of the insurance sphere, the provision of financial stability, and the expansion of the possibility for the population and business entities to use insurance services, this is a very important economic result. The scientific significance of this analysis is that, by identifying the main factors influencing insurance premiums, it determines the directions for ensuring the stability of the insurance sphere within the country's financial system, and the results can serve as an important scientific basis in the development of state policy for the development of the insurance sector.

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