

**Methodological Guideline
of the Financial Market Supervision Units of Národná banka Slovenska
of 24 April 2023, No 3/2023
on assessing the amount of premiums for compulsory motor third party liability
insurance**

This Methodological Guideline is issued by the financial market supervision units of Národná banka Slovenska (hereinafter “NBS”), in accordance with point 3 of Section 1(3)(a) of Act No 747/2004 on financial market supervision, as amended, in order to specify the method of assessing whether premiums are determined in a way that takes into account the provisions of Act No 381/2001 on compulsory motor third party liability insurance (and amending certain laws), as amended (hereinafter “the Compulsory MTPL Insurance Act”).

**Article 1
Premium**

(1) Under Section 8(1) of the Compulsory MTPL Insurance Act, an insurer is obliged to charge a premium at a level sufficient for all the insurer’s obligations to be met in full.

(2) The premium must be sufficient to cover insurance claims and costs related to compulsory motor third party liability insurance (hereinafter “MTPL insurance”). When assessing the sufficiency of a premium to cover insurance claims, NBS considers the combined ratio of gross loss and gross expense ratios (without adjustment for reinsurance).

(3) The earned premium is the sum of total premiums which the insurer is entitled to in connection with the coverage of insurance risks during the assessment period. The earned premium does not include the premium intended to cover future risks. Indicators of premium sufficiency are based on the earned premium minus the levy or estimated levy paid to the special account of the Ministry of Interior of the Slovak Republic as shown in template S.05.01 Premiums, claims and expenses.

**Article 2
Loss ratio**

(1) “Loss ratio” means the ratio of the costs of insurance claims and the earned premium. In the assessment of premium sufficiency, it is appropriate to use the ratio of total insurance claims, also referred to as the “ultimate loss”, and the total earned premium.

(2) As total insurance claims in respect of individual loss years are only known after several years when all claims have been reported and paid, the total insurance claims need to be estimated using appropriate actuarial methods. Estimated values must not be used for those periods for which observed (actual) values are already available.

(3) Chain-ladder methods are appropriate for the estimation of total insurance claims. The construction of an insurance claims triangle and the chain-ladder method are described in Annexes 1 and 2. Where the scope of data permits, losses should be considered in homogeneous groups; in the case of MTPL insurance, this means breaking them down into property damage and bodily injury since there can be significant differences between the frequency and pay-outs of such items. Where appropriate, annuities paid from MTPL insurance should also be considered separately.

Where such breakdown is not appropriate, for example if the assumptions of use of chain-ladder methods are not met, the breakdown is not required. The amount of insurance claims shall also reflect compensation for insurance claims received by the insurer.

(4) The method of calculating total insurance claims shall be identical to the method of calculating liabilities from incurred insurance claims; however, in the case of a more prudent approach, such liabilities can be adjusted so that their value corresponds to the best estimate without additional prudence. Such adjustment must be justified and documented. If several methods are considered appropriate, total insurance claims may be calculated based on the results of multiple methods. It is also appropriate to use alternative methods to verify the calculated value. This guideline does not describe all possible methods, which does not mean that methods not described herein must not be used. The choice of a method for calculating the best estimate of future cash flows for insurance claims, as well as possible adjustments thereof for the assessment of premium sufficiency, must be documented by the insurer in accordance with Article 265 of Commission Delegated Regulation (EU) 2015/35 supplementing Directive 2009/138/EC of the European Parliament and of the Council on the taking-up and pursuit of the business of Insurance and Reinsurance (Solvency II).

Article 3 Expense ratio

(1) “Expense ratio” means a ratio of the costs for insurance services in MTPL insurance and the earned premium. Where an insurer cannot directly allocate costs to MTPL insurance, they must be allocated using a suitable key. The method of cost reallocation should be documented, and any changes thereto must be justified.

(2) Insurers providing MTPL insurance pay annual contributions intended for the operation of the Slovak Insurers’ Bureau (hereinafter “the Bureau”), which are used to cover the Bureau’s costs and settle claims under Section 24(2) of the Compulsory MTPL Insurance Act. The annual contribution and costs / income resulting from liabilities / claims in relation to the Bureau should be recognised as costs.

Article 4 Combined ratio

“Combined ratio” means the ratio of insurers’ costs under Article 3(3) and total insurance claims under Article 2(3) to the earned premium. A formula for the calculation of the combined ratio is set out in Annex 3.

Article 5 Final provisions

(1) This methodological guideline repeals Methodological Guideline No 3/2020 of the financial market supervision units of Národná banka Slovenska of 18 May 2020 on assessing the amount of premiums for compulsory motor third party liability insurance.

(2) The methodological guideline is effective from the date of its publication.

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Annex 1 to Methodological Guideline No 3/2023

Construction of the loss development triangle

Any loss in the portfolio of MTPL insurance contracts is paid either in the “accident year”, which is the year of occurrence of the event causing the insurance claim, or in the following years (hereinafter a “development year”). If a breakdown by development years is not methodologically appropriate (e.g. due to a short history), the period of the insured event and the development of the insurance claim may be broken down by quarters, or, where appropriate, an external data source may be used, e.g. market development factors. A loss development triangle can either be constructed on the basis of data on payments of insurance claims only, or these payments can be supplemented by changes in the liability for incurred and reported losses; in this latter case, the calculation must be based on the “incurred” principle. The insurance claim amounts in the triangle must be adjusted for any salvage and subrogation receipts of the insurer.

The relation between the accident year, a claim’s development year and the year of pay-out is as follows: Accident year + development year = pay-out year

Insurance claims for losses that occur in year “i” and are paid in year “k”, where i and k acquire values 0, 1, 2, ..., are referred to as $Z_{i,k}$. If the last known pay-out year is year “n”, the observed values are $Z_{i,k}$, where $i+k \leq n$. Based on these values, a loss development triangle of (incremental) insurance claims should be constructed as shown in Figure 1. Large losses/pay-outs should be excluded from loss triangles if they would distort the predictions. A tail factor should be added where necessary. Any adjustments to the values of insurance claims must be documented.

Figure 1: Loss development triangle of (incremental) insurance claims

Accident year	Development year (period between the accident and pay-out)					
	0	1	2	3	...	n
0	$Z_{0,0}$	$Z_{0,1}$	$Z_{0,2}$	$Z_{0,3}$...	$Z_{0,n}$
1	$Z_{1,0}$	$Z_{1,1}$	$Z_{1,2}$	$Z_{1,3}$...	
2	$Z_{2,0}$	$Z_{2,1}$	$Z_{2,2}$	$Z_{2,3}$		
3	$Z_{3,0}$	$Z_{3,1}$	$Z_{3,2}$			
...				
N	$Z_{n,0}$					

The cumulative losses for observed values labelled $S_{i,k}$ are calculated as the sum of insurance pay-outs $Z_{i,l}$ using the following formula: $S_{i,k} = \sum_{l=0}^k Z_{i,l}$.

Figure 2: Loss development triangle of cumulative insurance claims

Accident year	Development year (period between the accident and pay-out)					
	0	1	2	3	...	n
0	$S_{0,0}$	$S_{0,1}$	$S_{0,2}$	$S_{0,3}$...	$S_{0,n}$
1	$S_{1,0}$	$S_{1,1}$	$S_{1,2}$	$S_{1,3}$...	
2	$S_{2,0}$	$S_{2,1}$	$S_{2,2}$	$S_{2,3}$		
3	$S_{3,0}$	$S_{3,1}$	$S_{3,2}$			
...				
n	$S_{n,0}$					

To estimate the total insurance claims for the individual accident years (the “ultimate loss”), it is necessary to estimate the unknown values of insurance claims (the grey part of the triangle).

Annex 2 to Methodological Guideline No 3/2023

Estimating total insurance claims using a chain-ladder method

Chain-ladder methods are based on the assumption that there is a development trend in pay-outs depending on the development year, starting from the accident year, and which can be represented by development factors.

1. Basic chain-ladder method

This section contains a description of a chain-ladder method. The term “chain-ladder” may refer either to a basic type of chain-ladder methods or to a group of these methods.

Development factors must be calculated from a cumulative loss triangle:

$$f_k = \frac{\sum_{i=0}^{n-k-1} S_{i,k+1}}{\sum_{i=0}^{n-k-1} S_{i,k}}, 0 \leq k \leq n - 1$$

or if the triangle of development factors is calculated as $f_{i,k} = S_{i,k+1}/S_{i,k}$, then f_k is the average of all $f_{i,k}$ for $i = 0, \dots, n-k-1$.

The calculated development factors are then used to complete the loss triangle and thus the total insurance claims.

2. Modified chain-ladder method

As the development factors $f_{i,k}$ can indicate a trend, which can be easily detected based on a graphical visualisation, any such trend should be reflected in the resulting development factor f_k by using a modified chain-ladder method. There may be several reasons, e.g. the growth of a portfolio or a change in a claims settlement system. Different mathematical methods can be used to take account of possible trends in development factors, for example a weighted average or extrapolation.

3. Chain-ladder method with inflation

Inflation is not considered directly in the basic chain-ladder method. To take it into account, historical data must be adjusted for inflation and, conversely, projections should include an estimate of future inflation. On the other hand, it is necessary to consider what type of inflation affects total losses (loss adjustment expense inflation, vehicle repair price inflation or increase of bodily injury annuities).

Annex 3 to Methodological Guideline No 3/2023

Calculation of the gross combined ratio

The formula for calculating the gross combined ratio is as follows:

$$\textbf{Gross combined ratio} = \textbf{Gross loss ratio} + \textbf{Gross expense ratio}$$

Abbreviations used:

property damage (hereinafter “PD”)

bodily injury (hereinafter “BI”)

$$\textbf{Gross loss ratio} = \frac{\textbf{Gross claims incurred}}{\textbf{Gross premium earned}}$$

Gross claims incurred (if it is possible to separate PD and BI) =

PD with prediction - received compensation for incurred PD claims (salvage and subrogation) + BI with prediction - received compensation for incurred BI claims (salvage and subrogation)

Costs for the Bureau = the Bureau contribution + change in the balance of liabilities to the Bureau (- change in the balance of claims on the Bureau, if relevant)

$$\textbf{Gross expense ratio} = \frac{\textbf{Gross MTPL insurance service costs} + \textbf{Costs for Bureau}}{\textbf{Gross premium earned}}$$