THE COMPARISON OF THE CZECH AND SLOVAK INSURANCE MARKET

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Abstract

The insurance market is one of the essential parts of financial markets. Among other things, insurance companies act as built-in stabilisers of financial markets. The importance of this market was also confirmed during the recent financial crisis that began in 2007. The development of the insurance market reflects not only the development of regulation and macroeconomic variables but also modern new trends and risks that are constantly emerging. It must be added that the Czech and Slovak insurance markets underwent similar developments in the first years after the division of Czechoslovakia into the Czech and Slovak Republics. However, it is a question of how the development of these similar insurance markets looked over the last half-decade when the Czech and Slovak Republics underwent further exciting developments. The article aims to compare the development of these similar insurance markets over the last half-decade and detect significant differences. The paper will mainly focus on the following indicators: market concentration, development of gross premiums written in life and non-life insurance, insurance penetration and insurance density.

Key words: gross premiums written, market analysis, market concentration.

JEL Code: A12, B41, G22

Introduction

Currently, few authors deal with the comparison of the development of insurance markets, among the most important publications we can include Dawd & Benlahga (2023), the main article was dedicated to the study, thereby resolving the debate on the relationship between the development of insurance and economic growth by providing new evidence on the insurance industry. Also worth mentioning are the very elaborate articles on the insurance markets of Great Britain by Mamatzakis et al (2023), on the insurance market of Hungary (Varga & Madari, 2023), the insurance market of Croatia (Andelinovic, M. et al, 2022) and from non-European insurance markets, mention the article dealing with the influence of macro-economic factors on non-life insurance sector in India (Chakraborty, A. & Das, A. K., 2022). In recent years, no prominent authors have yet to deal with research comparing the Czech and Slovak insurance markets.

The Czech and Slovak Republics have undergone similar political and economic development. The article aims to evaluate the results of a comparative analysis of the development of the insurance markets of these countries over the past five years, where the impact of the COVID-19 pandemic can be noted. Considering data availability for the Slovak insurance market, only a five-year time series was selected. The main goal of the work will be fulfilled using the following scientific methods: the calculation and subsequent comparison of fundamental indicators of insurance markets will be carried out, including market concentration, development of gross premiums written in life and non-life insurance, insurance penetration and insurance density. Secondary data will be used to process the analyses. In the Czech insurance market, apart from the supervisory body Czech National Bank and the Ministry of Finance of the Czech Republic, a professional organisation that brings together insurers in the Czech Republic, namely the Czech Insurance Association, deals with the development tendencies of the insurance market of the Czech Republic. The same is true in Slovakia, where there is a professional organisation Slovak Association of Insurance Companies. Data from the Czech and Slovak Statistical Office will also be used. Statgraphics Centurion XVIII statistical software will also be used for data processing.

1 Elementary Insurance Indicators in the Comparison of the Czech and Slovak Insurance Market

By Daňhel et al. (2005), several insurance indicators (market concentration, development of gross premiums written in life, non-life and total insurance, insurance penetration and insurance density) can be used to capture the development of the insurance market.

An essential indicator of the insurance market is the concentration of the insurance market, which tells us, among other things, how many insurance companies have what market share and the sums of the most significant percentages of the first insurers and the given concentration.

Gross premium written expresses the premium payable under insurance contracts. Using this indicator, it is possible to express the level of the insurance market and this indicator. It is a measure of the performance of insurance companies in the market.

Given that the size of the country also influences the gross premium written, it can be used as other indicators in comparing insurance markets with other countries. Firstly, we can mention insurance penetration which expresses insurance premiums in % of GDP, and secondary, insurance density, which measures premiums per capita.

1.1 The Market Concentration

Market concentration refers to the degree to which the market is agglutinated or consolidated in a certain number of entities. It tells us how many major firms account for how much market share. The degree of market concentration provides valuable information about the structure of the market and its effect on the level of competition.

Among the largest insurance companies with the most significant shares in the Czech insurance market is Generali Česká pojišťovna with a share of 26%, then Kooperativa pojišťovna with a share of 23.1%, then there is an insurance company with a market share of 11.3%, namely Allianz pojišťovna, followed by insurance companies with a share of over 8 %: ČSOB Pojišťovna (8.5%) and Česká podnikatská pojišťovna (8.1%). Then UNIQUA with 8% market share and NN Životní pojišťovna with 3.3%. Other insurance companies with less than 3% share make up 11.7% of the market. Interestingly, a decline follows the first two insurance companies with a share above 20%. The third largest insurance company has only a little more than 11%. Regarding measuring the concentration of the largest insurance company, Figure 3 shows the results of the analysis of the market share of the Top 1 to Top 5 insurance companies in the Czech Republic and Figure 4 for Slovakia.

**Fig. 1: Market shares based on written premiums in 2021, Czechia**
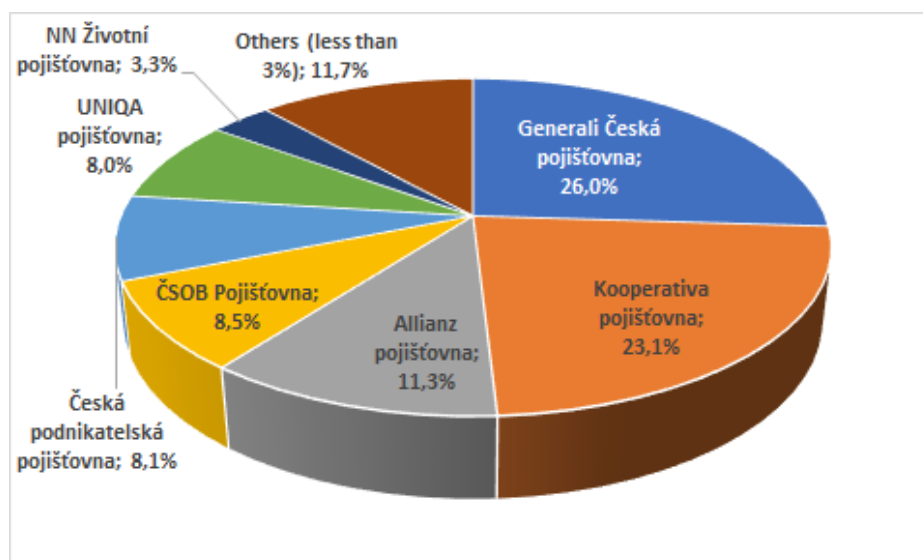
Source: self from CIA (2022)

Among the largest insurance companies in the Slovak insurance market, as shown in Figure 2, is Allianz - Slovenská poisťovňa, a. s. with a share of 25.4%, followed closely by KOOPERATIVA poisťovňa, a. s., Vienna Insurance Group with a slightly smaller share of 25.2%, followed by Generali Poisťovňa, a branch of an insurance company from another

member state with 12.7% and UNIQA poišťovna, a.s., a branch of an insurance company from another member state with 10.6%, followed by insurance companies with a market share of less than 10% namely Union poišťovňa, a. s. (5.3%), NN Životná poišťovňa, a. s. (5.0%), MetLife Europe d. a. c., a branch of an insurance company from another member state (4.0%), ČSOB Poišťovňa, a. s. (4.0%), Komunálna poišťovňa a. s., Vienna Insurance Group (3.8%) and others with smaller market shares than 3%, account for 3.9% of the market share.

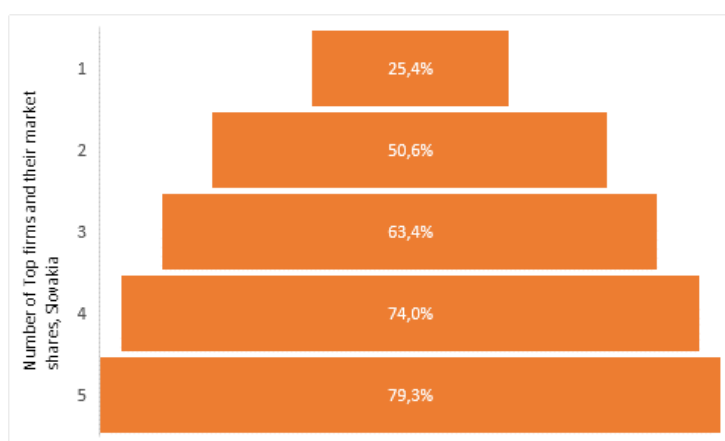**Fig. 2: Market shares based on written premiums in 2021, Slovakia**
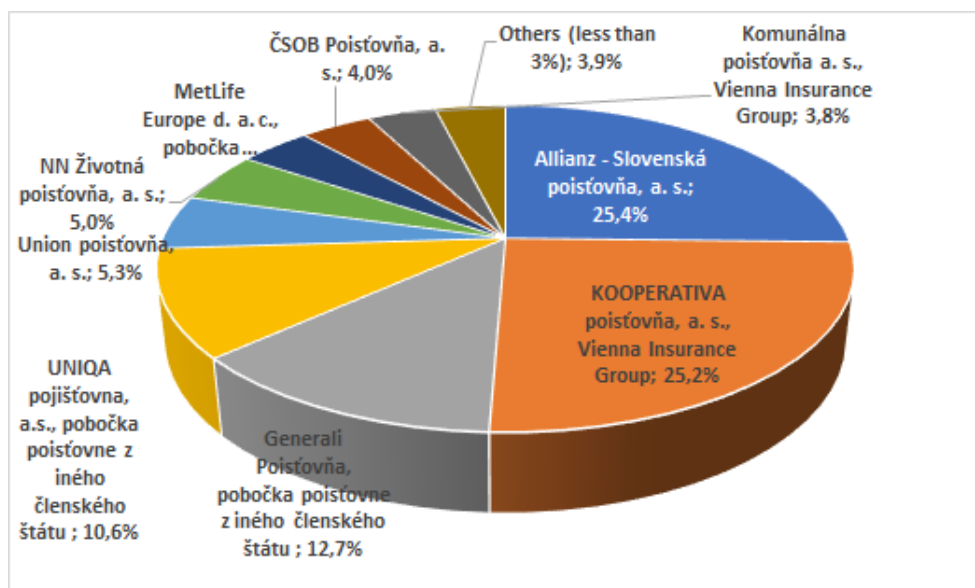
Source: self from SLASPO (2023)

Fig. 3: Top 1 to Top 5 insurance companies in 2021, Czechia
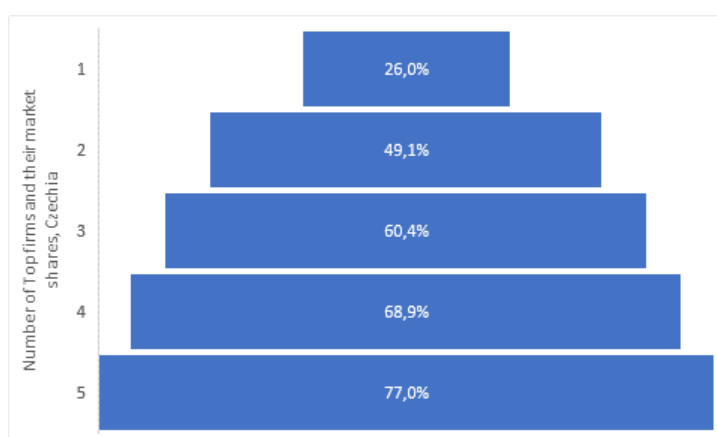
Source: self from Fig. 1

Fig. 4: Top 1 to Top 5 insurance companies in 2021, Slovakia
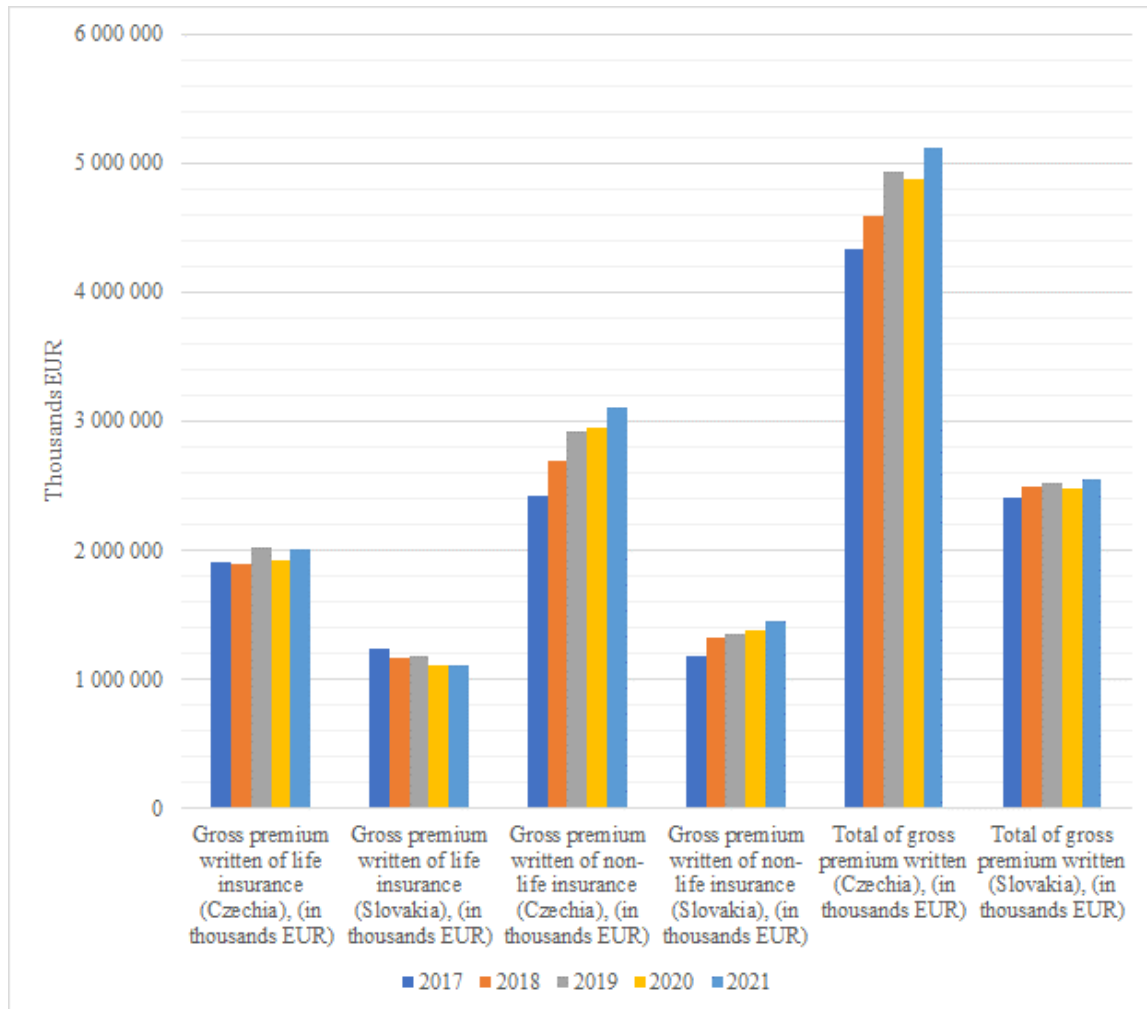

Source: self from Fig. 2

As Figures 3 and 4 illustrate, the concentration of insurance companies on the insurance market in the Czech and Slovak Republics is very similar.

1.2 The Development of Gross Premium Written

The following Fig. 5 contains data about the development of the insurance market in comparison to the Czech and Slovak Republic in the years 2017–2021 using the graphics expression of gross premium written in life and non-life insurance. For the comparison, it was necessary to unify the currency. Considering the international nature of the comparison, the currency EUR was chosen. The written gross premiums for the Czech Republic stated in Czech crowns were recalculated using the applicable average annual exchange rate to EUR. From these values is an apparent increasing trend of total gross premium written. From percentage shares, see Fig. 6 changing life and non-life insurance proportions for the Czech insurance market and Fig. 7 for the Slovak insurance market. Although there is a higher percentage share of gross premiums written for non-life insurance, we can see a faster trend of growth in gross premiums written for life insurance.

The total gross premium written in the Czech Republic grew from these values except in 2020. In 2020, the decline in gross premiums written was caused by a drop in gross premiums written in life insurance (premiums written in non-life insurance continued to grow). There was a similar development in the total gross prescribed insurance premiums in the Slovak Republic, where a smaller decrease was also noticeable in 2020. However, it is clear from the graph that in the Slovak insurance market in other years, the total premiums written grew slower than in the Czech Republic.

Fig. 5: The Development of the Insurance Market in Comparison to the Czech and Slovak Republic in the years 2017–2021

Source: self from CIA (2022) and SLASPO (2023)

For a more detailed analysis of the development of gross premiums written for the Czech and Slovak insurance market, statistical characteristics from elementary characteristics of time series (Hindls et al, 2007) will be used: the first difference, the second difference, the growth coefficient, the growth rate, the increase rate, the average absolute gain and the average growth coefficient.

Absolute gain (the first difference) (1) expresses the change indicator's value of the indicator at time t to time $t-1$.

$$\Delta_t^{(1)} = y_t - y_{t-1} \tag{1}$$

The average absolute gain (2) represents the average annual change in the value of the indicator for the period studied.

$$\bar{\Delta} = \frac{(y_2-y_1)+(y_3-y_2)+\cdots+(y_T-y_{T-1})}{T-1} = \frac{\sum_{t=2}^{T}\Delta_t^{(1)}}{T-1} = \frac{y_T-y_1}{T-1} \qquad (2)$$

The second difference (3) reflects increases or decreases in the value of the first differences.

$$\Delta_t^{(2)} = \Delta_t^{(1)} - \Delta_{t-1}^{(1)} \qquad (3)$$

The growth rate (4) expresses how many times the value of the indicator changed.

$$k_t = \frac{y_t}{y_{t-1}} \qquad (4)$$

Provided this indicator has multiplied 100 times, it characterizes by how many percent of the value at time $t-1$ increased at time t. This coefficient is also named the growth rate (T_{ty}).

The average growth coefficient (5) is calculated as the geometric mean of individual coefficients of growth. Growth rates are also used as criterion to find an appropriate trend function.

$$\bar{k} = \sqrt[T-1]{k_2 \cdot k_3 \cdot \ldots \cdot k_T} = \sqrt[T-1]{\frac{y_2}{y_1} \cdot \frac{y_3}{y_2} \cdot \ldots \cdot \frac{y_T}{y_{T-1}}} = \sqrt[T-1]{\frac{y_T}{y_1}} \qquad (5)$$

The increase rate (6) expresses the percentage change in the value of the indicator.

$$\delta_{y_t} = T_{y_t} - 1 \qquad (6)$$

The analysis results using the above-mentioned essential characteristics of time series for total gross premium written for the Czech market are shown in Tab. 1 and for the Slovak market in Tab. 2.

Tab. 1: Elementary statistical characteristic of total gross premium written, Czechia

Years (t)	Total of gross premium written, Czechia (in thousands EUR (y_t))	$\Delta_t^{(1)}$	$\Delta_t^{(2)}$	k_t	T_{yt}	δ_{yt}
2017	4 326 926.62	×	×	×	×	×
2018	4 592 357.72	265 431.10	×	1.06	106.13	6.13
2019	4 930 910.17	338 552.46	73 121.36	1.07	107.37	7.37
2020	4 870 799.58	-60 110.60	-398 663.05	0.99	98.78	-1.22
2021	5 110 869.29	240 069.72	300 180.31	1.05	104.93	4.93

Source: self from CIA (2022)

From the below analysis results (see Tab. 1 and Tab. 2), the total gross premium written decreased in the Czech Republic and Slovakia in 2020, although the decrease in volume was

greater in the Czech Republic, but in proportion to the values of the previous year, the decline was more noticeable in Slovakia.

Tab. 2: Elementary statistical characteristic of total gross premium written, Slovakia

| Years (t)	Total of gross premium written, Slovakia (in thousands EUR (y_t))	$\Delta_t^{(1)}$	$\Delta_t^{(2)}$	k_t	T_{yt}	δ_{yt}
2017	2 412 139	×	×	×	×	×
2018	2 492 643	80 504.08	×	1.03	103.34	3.34
2019	2 523 108	30 464.11	-50 039.97	1.01	101.22	1.22
2020	2 478 370	-44 737.74	-75 201.85	0.98	98.23	-1.77
2021	2 554 639	76 269.25	121 006.99	1.03	103.08	3.08

Source: self from SLASPO (2023)

Fig. 6: The percentage share of gross premium written of the life and non-life insurance in the Czechia
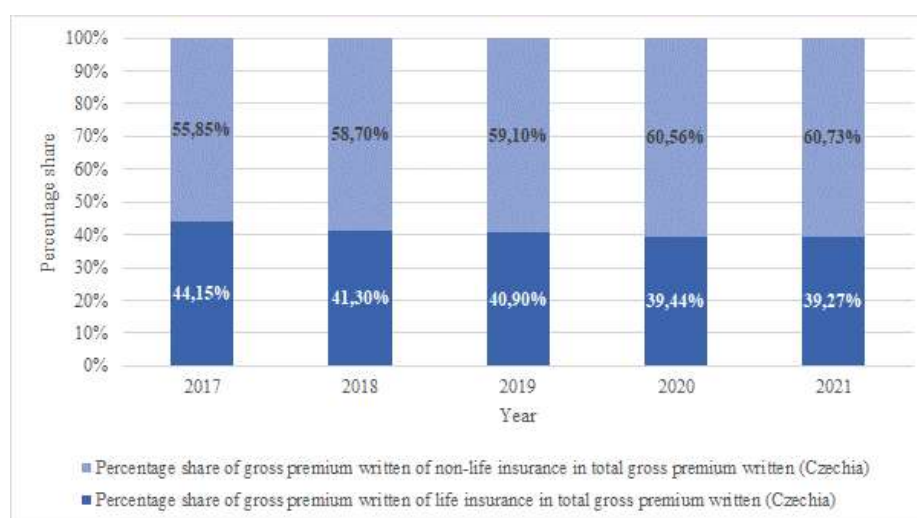
Source: self from CIA (2022)

It is clear from Figures 6 and 7 that the shares of the gross premiums written in life insurance in the total written premiums are decreasing in both observed countries. On the contrary, the trend is increasing in the gross written premiums of non-life insurance. From the comparison of the data, residents of Slovakia place more emphasis on life insurance than residents of the Czech Republic. We will then talk about the share of insurance premiums per capita. Another important indicator of the insurance market is the share of prescribed premiums in GDP. We will look at this indicator in the following subsection.

**Fig. 7: The percentage share of gross premium written of the life and non-life insurance in the Slovakia**
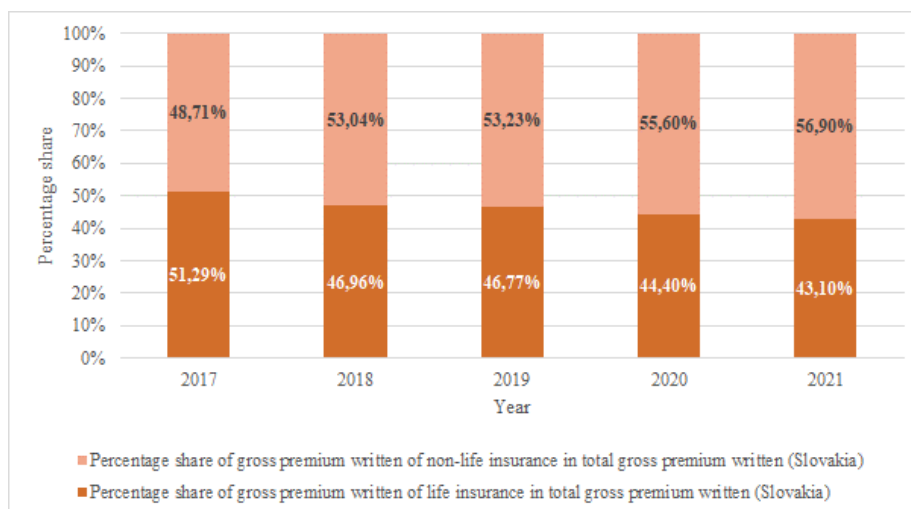
Source: self from SLASPO (2023)

1.3   The Insurance Penetration

Insurance penetration is the ratio of written premiums to GDP. In general, the higher the value of this indicator, the more developed the insurance market is. In a detailed and specific comparison, however, it is necessary to analyse the factors influencing insurance premiums and the GDP. Figure 8 shows only the fundamental development of this indicator for the total premium written. Concerning the development of this indicator, it can be stated that the insurance market in Slovakia is more developed. Although the value of this indicator decreases over the monitored period, but it reaches higher values than in the Czech Republic, where it shows fluctuating development.

**Fig. 8: Insurance Penetration in the Czech and Slovak Market**
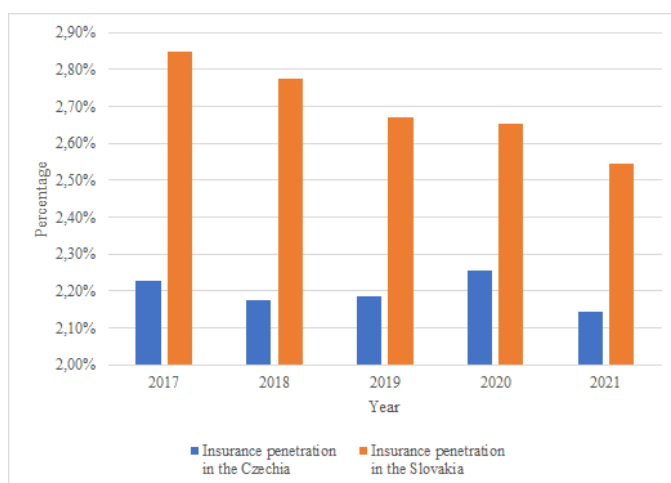
Source: self from CIA (2022), CSOa) (2023), SLASPO (2023), SOORa) (2023)

1.4   The Insurance Density

Insurance density is the ratio of gross premiums written to the country's population. It can be seen from the results shown in the figure below that the year 2020 meant a decrease in both monitored countries to almost the same value due to the impact of the COVID-19 pandemic. The development of this indicator was otherwise similar in the observed countries. Regarding the development of the insurance penetration indicator (see above), when it was clear that the insurance market in Slovakia is more developed than in the Czech Republic, the development of insurance density confirmed this only in 2017 and 2018. The value of the indicator is similar in the years 2019 and 2020. Still, in 2021 there was an increase in the Czech Republic, and the value of the indicator for the Czech Republic exceeded the value for the Slovak Republic. It will be interesting to follow the development of this indicator in the coming years.

Fig. 9: Insurance Density in the Czech and Slovak Market
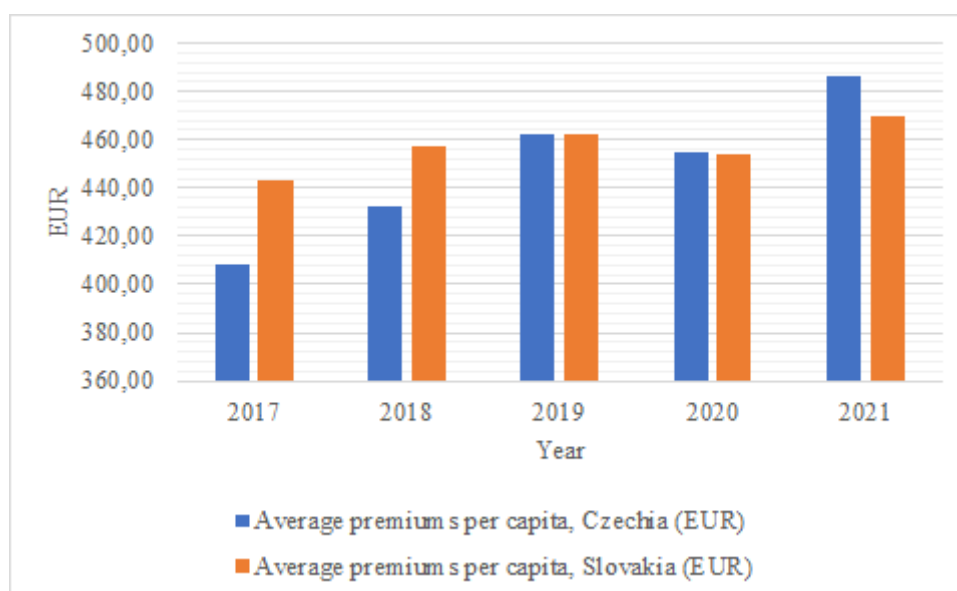
Source: self from CIA (2022), CSOb) (2023), SLASPO (2023), SOORb) (2023)

Conclusion

The article's main goal was to compare the development of the insurance market in the Czech Republic and Slovakia using selected insurance indicators over five years. Concerning the availability of data, half of the decade was chosen, between 2017 and 2021. Although the Slovak Association of Insurance Companies has data available since 2016, the analysis only included data from the last five years, not six, for the sake of PR research. More advanced time series analysis methods were also used in the analysis. It is clear from the results that the insurance markets of the Czech Republic and Slovakia have undergone similar developments, especially the decline in total gross premiums written in 2020 as a result of the COVID-19

pandemic. It should be noted that from the market penetration results it is evident that the insurance market in Slovakia is more mature compared to the Czech insurance market, from the analysis of gross premium written it came out that the inhabitants of Slovakia use life insurance products more - here it would be interesting for further research to look at what products focus the most. Conversely, residents of the Czech Republic prefer non-life insurance products. In terms of insurance density, the Slovak Republic leads here again, with its residents spending more money on insurance protection than residents of the Czech Republic. Further research could focus more on insurance density in life and non-life insurance separately. For a more detailed analysis of time series – regression or correlation, it would be advisable to have more data than just the last five years. For a more detailed analysis, it will therefore be necessary to wait at least four years before it can be carried out.

Acknowledgement

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