



IMPACT OF THE COVID-19 PANDEMIC ON SELECTED INDICATORS IN THE SLOVAK AND CZECH INSURANCE MARKET

DOPAD PANDÉMIE COVID-19 NA VYBRANÉ UKAZOVATELE NA SLOVENSKOM A ČESKOM POISTNOM TRHU

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Abstrakt

Vzájomnému porovnávaniu vývoja poistných trhov sa nevenuje dostatočná pozornosť a autori sa väčšinou zameriavajú na jednu sledovanú krajinu. Cieľom príspevku je zhodnotiť výsledky komparatívnej analýzy vývoja slovenského a českého poistného trhu za posledných päť rokov, v ktorých sledujeme aj dopady pandémie COVID-19. Daný cieľ práce bude naplnený pomocou vedeckých metód: výpočet a následné porovnanie fundamentálnych ukazovateľov poistných trhov vrátane trhovej koncentrácie, porovnanie trhového podielu a ROA, vývoj hrubého poistného v životnom a neživotnom poistení, penetrácia poistenia a poistná hustota. Pri analýze sa vychádza z údajov Slovenskej a Českej asociácie poisťovní, Slovenského a Českého štatistického úradu, národných bánk sledovaných krajín a ministerstiev financií. Na spracovanie dát bude použitý aj štatistický softvér Statgraphics Centurion XVIII.

Kľúčové slová: hrubé predpísané poistné, analýza trhu, trhová koncentrácia, český a slovenský poistný trh

JEL Classification: A 12, B 41, G22

INTRODUCTION

The new coronavirus pandemic in 2020, in addition to the health consequences for the population, also significantly impacted the economy of the most developed countries in the world. It caused changes in all areas of life, including the insurance sector. In the context of the relationship between the insurance industry and COVID-19, we note, for example, the study by Feng et al. (2023). Their evidence contributes to the debate about how communication about the risk of COVID-19 affects individuals' risk-related behaviour. Nebolasina study (2021)

examines COVID-19-related changes in demand for insurance services in the United States due to business interruption. The study by the authors Pauch, D. & Bera, A. (2022), presented the digitisation processes in the insurance industry during the crisis caused by the Covid-19 pandemic.

Only a few authors deal with the comparison of the development of insurance markets currently. 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). No prominent authors have yet to deal with research comparing the Czech and Slovak insurance markets in recent years.

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. SELECTED 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.

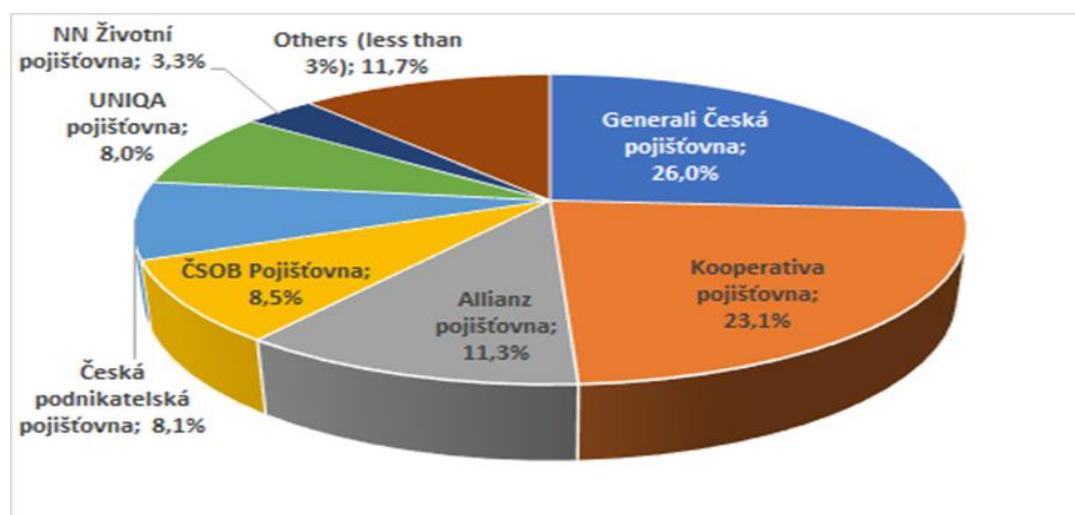
Given that the size of the country also influences the gross premium written, it can be used as other indicators in comparing insurance markets with other countries. Firstly, we can mention insurance penetration, which expresses insurance premiums in % of GDP, and secondary, insurance density, which 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 podnikatelská pojišťovna (8.1%). Then UNIQA 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, Fig. 1 shows the analysis results of the market share of the Top 1 to Top 5 insurance companies in Czechia and Fig. 2 for Slovakia.

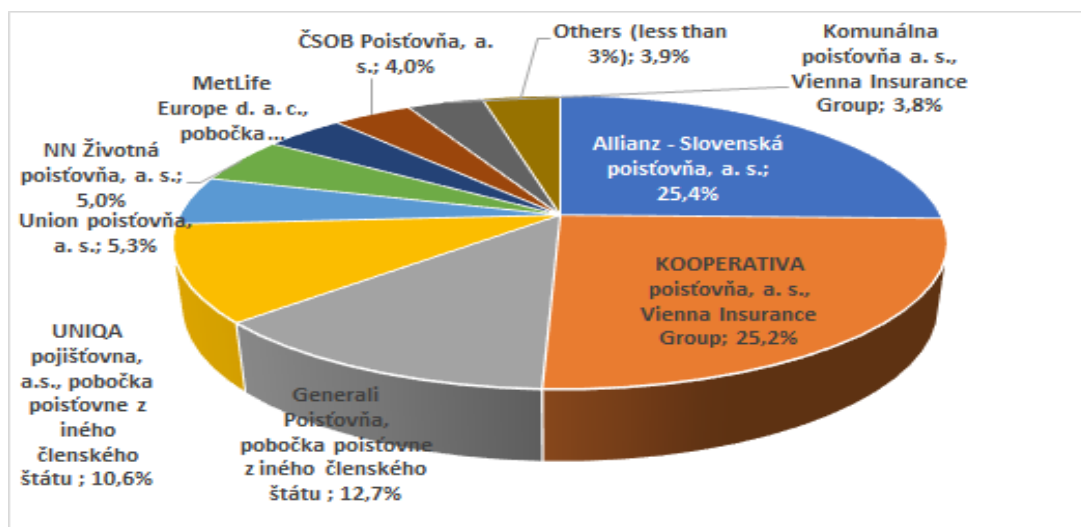
Fig. 1: Market shares based on written premiums in 2021, Czechia



Source: Own processing on the basis CIA (2022)

Among the largest insurance companies in the Slovak insurance market, as shown in Fig. 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 poisťovňa, 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 poisťovňa, a. s. (5.3%), NN Životná poisťovňa, a. s. (5.0%), MetLife Europe d. a. c., a branch of an insurance company from another member state (4.0%), ČSOB Poisťovňa, a. s. (4.0%), Komunálna poisťovňa a. s., Vienna Insurance Group (3.8%) and others with smaller market shares than 3%, account for 3.9% of the market share.

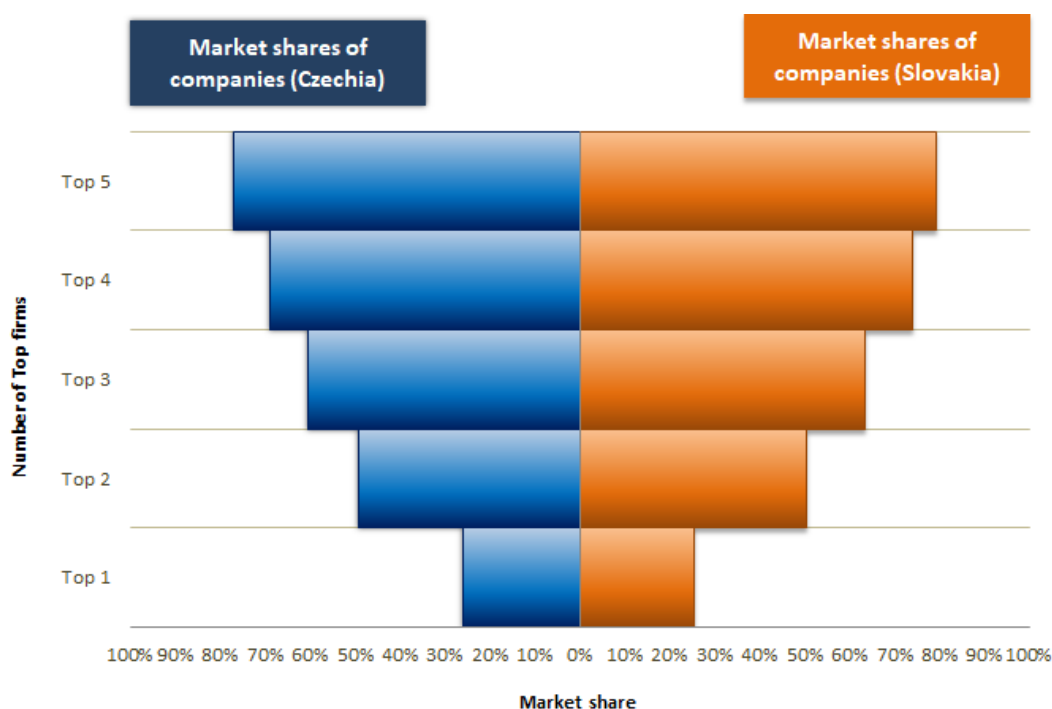
Fig. 2: Market shares based on written premiums in 2021, Slovakia



Source: own processing on the basis SLASPO (2023)

Another interesting comparison is to compare the Top 1 to the Top 5 insurers according to market share in Czechia and Slovakia. From this comparison, we can infer the concentration of Top 1 to Top 5 insurers in the given markets.

Fig. 3: Top 1 to Top 5 insurance companies in 2021, Czechia and Slovakia



Source: Own processing from Fig. 1 and 2

As Fig. 3 illustrates, the comparison of the concentration of insurance companies in the insurance market in Czechia and Slovakia, the concentration from Top 1 to Top 5 is very similar.

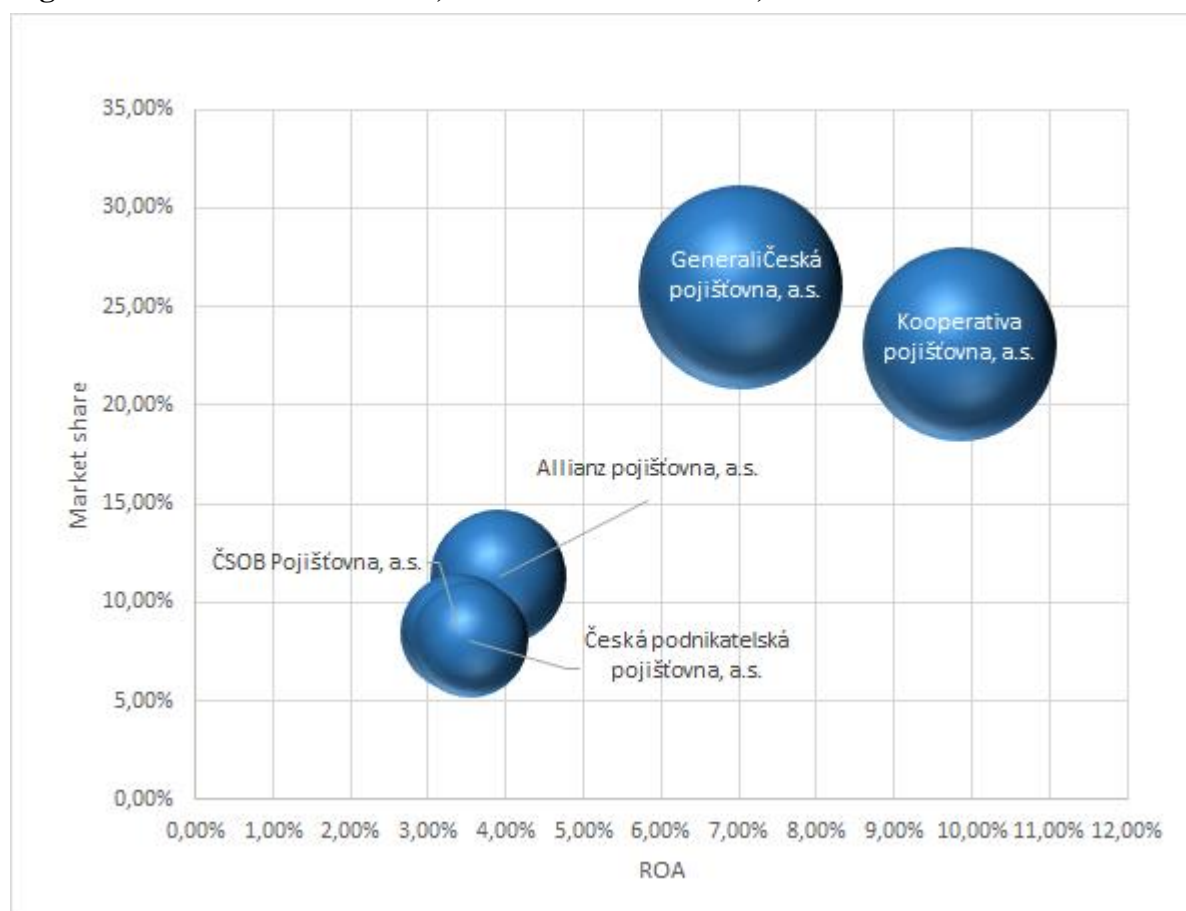
1.2 The Comparison of Market Share and ROA

Another interesting indicator for comparison is the comparison of market share and ROA. The following relationship (1) was used to calculate ROA.

$$ROA = \frac{EAT}{assets} \quad (1)$$

Whether there is an influence of the level of profitability and the degree of concentration on the insurance market of Czechia and Slovakia in the year 2021 is shown in Fig. 4 and 5.

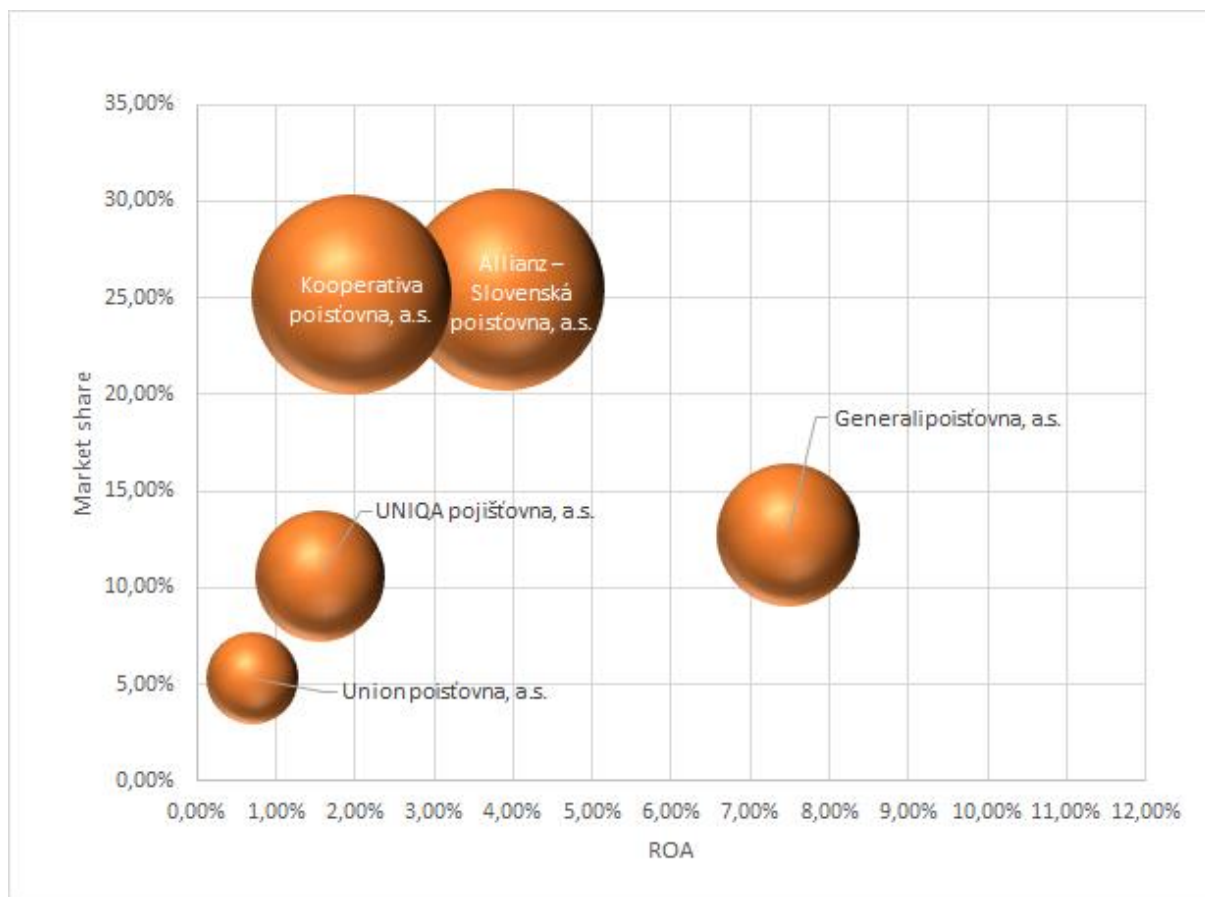
Fig. 4: Market Share and ROA, TOP 5 Czech Insurers, 2021



Source: own processing on the basis CIA (2022) and annual reports of analysed insurers

It is clear from the results of this analysis (see Figs. 4 and 5) that it is not always true that there is an influence of market share and the size of ROA. Generali Česká pojišťovna, a.s. has the highest market share in the Czech insurance market (26%) with an ROA amount of 7.03%. While the second highest market share is held by Kooperativa pojišťovna, a.s. (23.1%) with an ROA of 9.85%. In third place is Allianz pojišťovna, a.s. with a market share of 11.3% and an ROA of 3.91%. If we compare Slovakia's three largest insurers, their market share and ROA size, Allianz - Slovenská poisťovňa, a.s. has the largest market share. with a value of 25.4% and ROA of 3.89%, Kooperativa poisťovňa, a.s. was in second place, with a market share of 25.2% and an ROA of 1.97%. The third place, in terms of market share, was occupied by Generali poisťovňa, a.s. with a market share of 12.7% and an ROA size of 7.48%.

Fig. 5: Market Share and ROA, TOP 5 Slovak Insurers, 2021



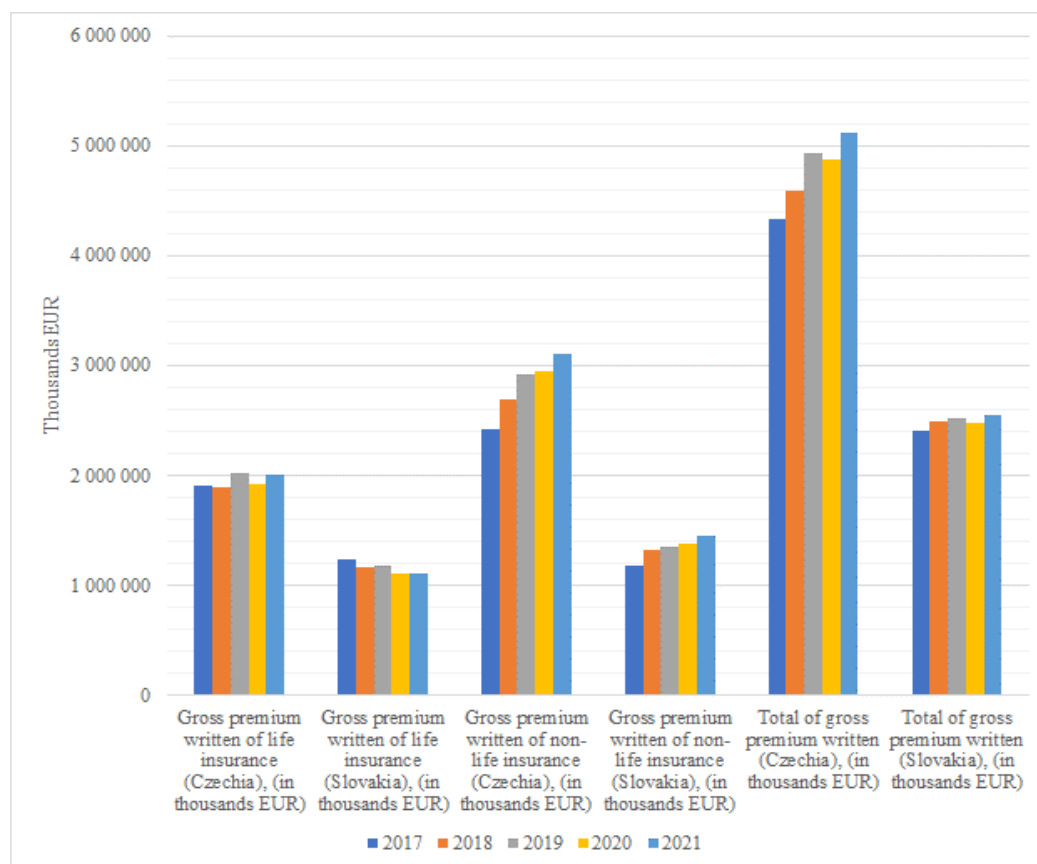
Source: Own processing on the basis SLASPO (2023) and annual reports of analysed insurers

1.3 The Development of Gross Premium Written

The following Fig. 6 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. 7 changing life and non-life insurance proportions for the Czech insurance market and Fig. 8 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 Fig. 5 that the total premiums written in the Slovak insurance market grew slower in other years than in the Czech Republic.

Fig. 6: The Development of the Insurance Market in Comparison to the Czech and Slovak Republic in the years 2017–2021



Source: Own processing on the basis 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 average absolute gain, the second difference, the growth rate, the average growth coefficient, and the increase rate. Considering the short time series, which contains five years, it was not possible to use more advanced statistical methods of data analysis.

Absolute gain (the first difference) (2) expresses the change indicator's value of the indicator at time t to time $t - 1$.

$$\Delta_t^{(1)} = y_t - y_{t-1} \quad (2)$$

The average absolute gain (3) represents the average annual change in the indicator's value for the period studied.

$$\bar{\Delta} = \frac{y_T - y_1}{T - 1} \quad (3)$$

The second difference (4) reflects increases or decreases in the value of the first difference.

$$\Delta_t^{(2)} = \Delta_t^{(1)} - \Delta_{t-1}^{(1)} \quad (4)$$

The growth rate (5) expresses how often the indicator's value changes.

$$k_t = \frac{y_t}{y_{t-1}} \quad (5)$$

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

The average growth coefficient (6) is calculated as the geometric mean of individual coefficients of growth. Growth rates are also used as the criterion to find an appropriate trend function.

$$\bar{k} = \sqrt[t-1]{\frac{y_T}{y_1}} \quad (6)$$

The increase rate (7) expresses the percentage change in the indicator's value.

$$\delta_{y_t} = T_{y_t} - 100 \quad (7)$$

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.

The analysis results below (see Tab. 1 and Tab. 2) show that the total gross premium written decreased in the Czech Republic and Slovakia in 2020. However, the decrease in volume was greater in the Czech Republic, but in proportion to the previous year's values, the decline was more noticeable in Slovakia.

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

Years (<i>t</i>)	Total of gross premium written, Czechia (in thousands EUR (<i>y_t</i>))	$\Delta_t^{(1)}$	$\Delta_t^{(2)}$	k_t	T_{y_t}	δ_{y_t}
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: Own calculations based on CIA (2022)¹

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

Years (<i>t</i>)	Total of gross premium written, Slovakia (in thousands EUR (<i>y_t</i>))	$\Delta_t^{(1)}$	$\Delta_t^{(2)}$	k_t	T_{y_t}	δ_{y_t}
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

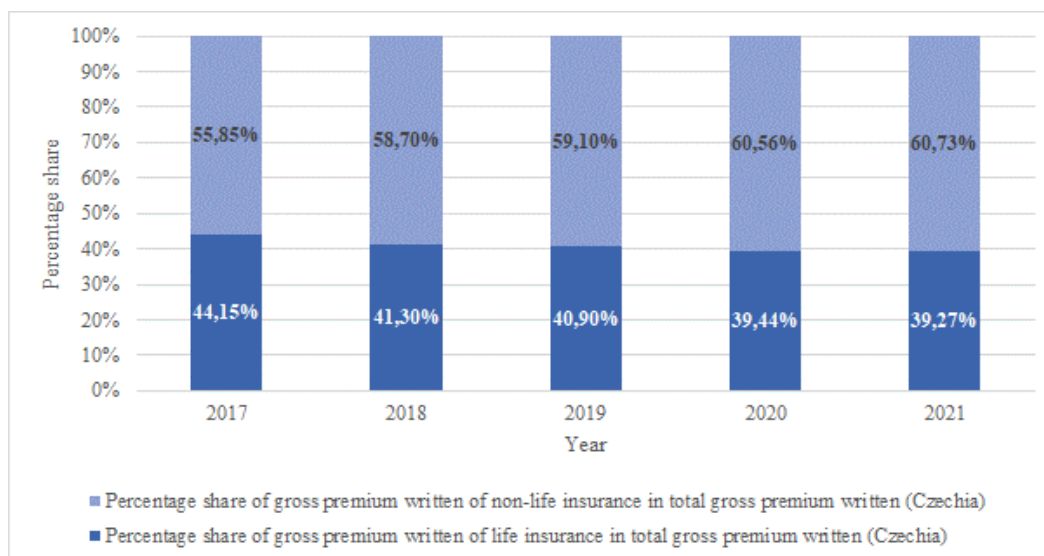
Source: Own calculations based on SLASPO (2023)

Furthermore, the average growth coefficient was calculated, which came out to be 1.0425 for Czechia and 1.0145 for Slovakia, i.e. the average growth rate for the period 2017-2021 for the total of gross premium written in Czechia is 4.25% and for Slovakia 1.45%.

¹ Data from the CIA was in CZK - therefore for each year the value was recalculated using the central exchange rate to EUR.

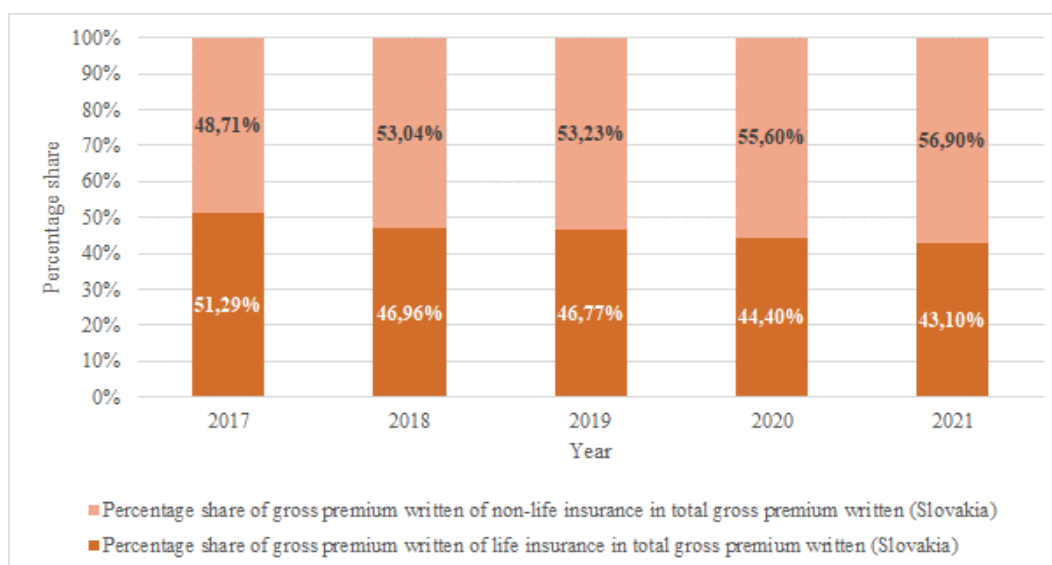
It is clear from Fig. 7 and 8 that the shares of the gross premiums written in life insurance in the total written premiums are decreasing in both observed countries. On the contrary, the trend is increasing in the gross written premiums of non-life insurance. From the comparison of the data, residents 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 Czechia



Source: Own processing on the basis CIA (2022)

Fig. 8: The percentage share of gross premium written of the life and non-life insurance in the Slovakia

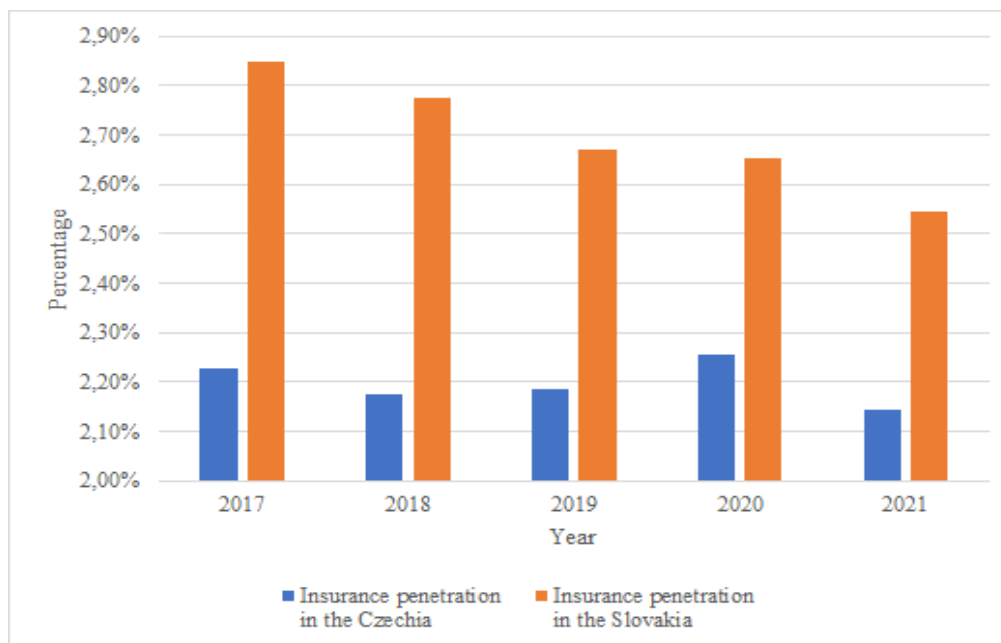


Source: Own processing on the basis SLASPO (2023)

1.4 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. Fig. 9 shows only the fundamental development of this indicator for the total premium written.

Fig. 9: Insurance Penetration in the Czech and Slovak Market



Source: Own processing on the basis CIA (2022), CSOa) (2023), SLASPO (2023), SOORa) (2023)

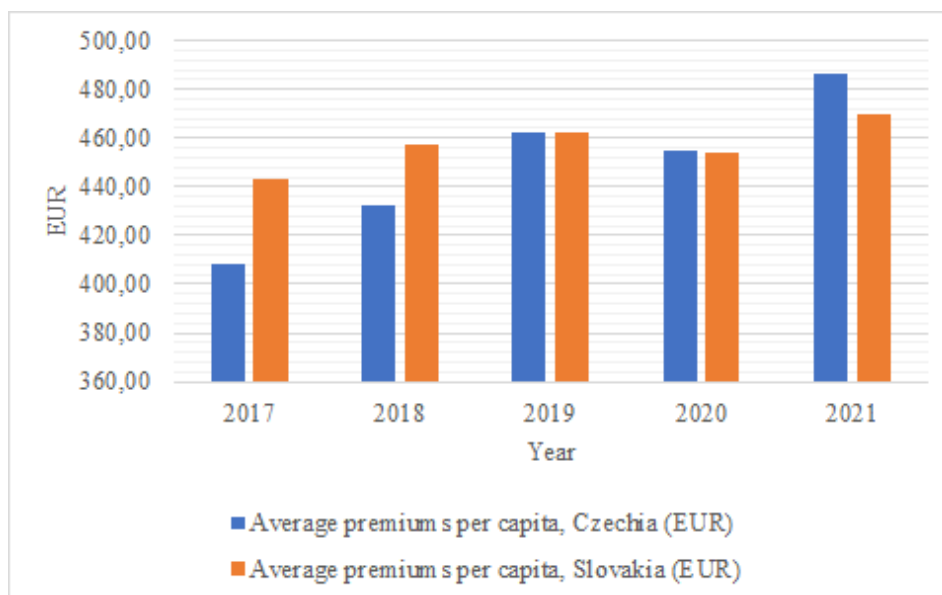
Concerning the development of insurance penetration, it can be stated that the insurance market in Slovakia is more developed. Although the value of this indicator decreases over the monitored period, but it reaches higher values than in the Czech Republic, where it shows fluctuating development.

1.5 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 (fig. 10), 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. 10: Insurance Density in the Czech and Slovak Market



Source: Own processing on the basis CIA (2022), CSOb (2023), SLASPO (2023), SOORb (2023)

CONCLUSION

The article's aim was to evaluate the results of a comparative analysis of the development of the Slovak and Czech insurance markets over the past five years, where the impact of the COVID-19 pandemic can be noted. The results show that the insurance markets of the Czech Republic and Slovakia have undergone similar developments, especially the decline in total gross premiums written in 2020 because of the COVID-19 pandemic. It should be noted that from the market penetration results, Slovakia's insurance market is more mature than the Czech insurance market. From the analysis of gross premiums 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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