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OPERATIONS OF THE INSURANCE SECTOR IN THE REPUBLIC OF SERBIA IN THE CIRCUMSTANCES OF COVID-19 PANDEMIC

REVIEW ARTICLE

Abstract

Every economic or health crisis forces insurance companies to take into account the sensitivity of their portfolios and adjust their business, notably in terms of proper risk management. This paper examines the effects of the pandemic on the profits of insurance companies and insurance premiums, where the impact of changes in travel health insurance premiums on the realized profits of insurance companies is particularly analysed since the premiums of travel health insurance are most affected by the health crisis. The impact of the pandemic on the insurance sector was explored by a comparative analysis of insurance premiums and profit before and after the pandemic. The analysis of the impact variation of the travel health insurance premium on the realized profit of insurance companies was performed by applying a panel data regression analysis. The obtained results show that the pandemic has not significantly affected the insurance sector in the Republic of Serbia, whereas the impact of changes in travel health insurance premiums on the profit of insurance companies in the Republic of Serbia is also not significant.

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I. Introduction

Insurance companies have been under constant pressure from various crises for years, from economic, political, to the last health crisis in the form of the COVID-19 pandemic. The insurance sector, with its sensitivity in risk management and risk-bearing on behalf of third parties is additionally pressured from regulatory authorities to carefully manage portfolios and investments, as well as the funds collected from policyholders. Given the continued growth of the insurance sector of the Republic of Serbia, it is of great importance to monitor the impact of the health crisis on this continuity, potential changes, and the results of the insurance sector.

Research into the impact of the crisis on the insurance sector, whether economic, health or otherwise, has gained in importance in the last decade.⁴ The increased risk of investments or recessions as a result of economic or health and political crisis is the subject of many researches, aimed at testing the insurance sector and its ability to adapt to the world's previously known crises. Numerous authors have addressed the very fact that insurance companies manage to resist crises and contain the consequences of recession at the time of the Great Recession.⁵ However, as opposed to banking sector, insurance sector has seen less consequences.

The impact of these crises on the insurance sector is multidimensional. It may prove negative for individual companies, but not for all. This impact depends to a large extent on the structure of the insurance company's portfolio, the size of the market, the competition, the starting base, and the level of liberalisation. In addition, the data suggest that the financial crisis had the strongest negative impact to those companies that specialize in a particular service or have extremely low diversification of insurance services.⁶

Experience has shown that the financial crisis has a strong impact on the banking sector, creating the illusion that the solvency of insurance companies during the crisis is sustainable. However, each crisis, even the financial one, has its own short-term and long-term consequences for the insurance sector.⁷ Insurance companies

⁴ Baluch, F., Mutenga, S., Parsons, C. "Insurance, Systemic Risk and Financial Crisis", *The Geneva Papers on Risk and Insurance - Issues and Practice*, 2011, 126-163

⁵ Haegali, J.J. „How insurance markets are bucking the global recession trend“, Swiss Re Institute, 2020

⁶ Vladimir Njegomir, Boris Marović, Rado Maksimović. „The Economic Crisis And The Insurance Industry: The Evidence From The Ex-Yugoslavia Region“, *Economic Annals*, Faculty of Economics, University of Belgrade, 2010. vol. 55(185), pages 129–162.

⁷ Sebastian Schich. „Insurance companies and the financial crisis“, *OECD Journal: Financial Market Trends*, OECD Publishing, vol. 2009(2), pages 123–151.

face a number of challenges after these crises, adapting to newly imposed market demands in the form of new service packages, and the need to change investment policies. The value and structure of the corporate assets have already suffered particular damage following the last major financial crisis. The major challenges that insurance companies face today concern investments, restructuring, and redefining current policies and strategies for further growth and development.⁸

The impact of the pandemic on insurance activities involves complex examination of several different aspects. These are many endogenous and exogenous factors such as consumer behaviour, their decisions, decisions by state regulatory institutions, etc. Adverse effects can be reflected in the decline in insurance premiums and profits, higher underwriting costs or payment of claims in certain types of insurance. The positive effects, on the other hand, in the long term, are increasing the people's awareness of the need for insurance.⁹

The subject of this paper will be the impact of the COVID-19 pandemic on the insurance sector of the Republic of Serbia. The results of examining such impact affect decisions and preparation for potential new crises, with the aim of amortizing their impact on business results (profit, insurance premium, key profitability and liquidity ratios, etc.). The aim of this research is to examine the extent to which the pandemic has affected the business results of insurance companies in the Republic of Serbia. The comparative analysis of insurance premiums, by years and types of insurance, examined the impact of the pandemic on the insurance sector, distribution of insurance premiums and profits, and also the impact of variations in travel health insurance premiums (as the most sensitive type of insurance) on the net income of insurance companies.

The analysis of the impact of the COVID-19 pandemic on the insurance sector of the Republic of Serbia (RS) used the reports of the National Bank of Serbia regarding the premium earned in the ten-year period, in total and by types of insurance.

The comparison of total results includes all insurance companies operating on the RS market, while the impact of changes in travel health insurance premiums will be observed in five insurance companies, according to the criterion of the highest contracted premium (by market share). The observation period is 2011–2020, with an emphasis on business results in the last observed year.

The underlying hypotheses that constitute the basis of this research are:

1. HYPOTHESIS 1: The COVID-19 pandemic has led to a decline in the total earned insurance premium of RS insurance companies;

⁸ Kočović, J., Antić, T., Jovović M., "The Impact of the Global Financial Crisis on the Structure of Investment Portfolios of Insurance Companies", *Ekonomski anali*, Ekonomski fakultet Beograd, 2011, pp 143-161.

⁹ Strupczewski, G., Klonowska, A., "Impact of the COVID -19 pandemic on the global insurance market". In book: *Strategies, models and technologies of economic systems management in the context of international economic integration*, 2020, pp. 230–238, Publisher: Institute of Economics of the Latvian Academy of Science

2. HYPOTHESIS 2: The current health crisis has led to a negative operating result of the RS insurance sector;
3. HYPOTHESIS 3: Travel health insurance premium has no statistically significant impact on the realized profit of RS insurance companies.

The paper consists of three complete segments: the first part of the paper, following the abstract and introduction, is focused on literature review and earlier theoretical and empirical research; the second part of the paper refers to the confirmation of hypotheses 1 and 2, in terms of examining the impact of the pandemic on the operating results of insurance companies in the RS; the third part of the paper contains evidence of the variation impact of the travel health insurance premium on the net result of insurance companies in RS to confirm hypothesis 3.

Literature Overview

Numerous theoreticians have analysed the impact of the current health crisis on both the overall economy and the insurance sector. The results of their studies are systematized according to the nature of the effects of the crisis on insurance premiums, liquidity and profitability of companies, work organization, and numerous other aspects.

Impact on health and life insurance

The impact of the COVID-19 pandemic on the insurance sector, among other things, has been observed in the form of significant changes in health insurance regulations, both private and state compulsory insurance. The long-term nature of these changes, which was omitted in the American regulations, is especially emphasized.¹⁰ The COVID-19 pandemic also pushed insurance companies toward innovating existing and designing new insurance services. These are most often short-term health insurance services with fixed amounts of insurance benefits.¹¹ A survey of a sample of 100 U.S. life insurance companies and over 800,000 insurance policies found that insurance companies made minimal adjustments in response to increased mortality risk, in terms of a slight increase in insurance premiums, especially for smokers older over 75.¹²

Insurance companies in the Republic of Serbia quickly responded and adjusted their insurance terms and conditions to the new pandemic-related risks.

¹⁰ Joshua D. F., Bradley, K., „The COVID-19 Pandemic and Health Insurance Regulation“, *Journal of Insurance Regulation*, 2020, National Association of Insurance Commissioner

¹¹ Pranali, N., Vinita, A.K., „Impact of COVID-19 on Health Insurance Sector“. *International Journal of Scientific Research in Engineering and Management (IJSREM)*, 2020, 2582-393.

¹² Harris, Timothy F., Yelowitz, Aaron, Courtemanche, Charles, 2020. „Did COVID-19 Change Life Insurance Offerings?“, IZA Discussion Papers 13912, Institute of Labor Economics (IZA).

Changes have been made regarding the exclusion from insurance of all those obligations that may be a consequence of epidemic and pandemic risks. It seems that companies in the Republic of Serbia have focused more on excluding and reducing potential future damages than on innovations in terms of including new risks in health and life insurance, business interruption due to a pandemic, and the like.¹³ It could be noticed that new services were missing, except for the coverage of travel health and life insurance. There was also no coverage of business interruption due to the pandemic, insurance of receivables, sick leave of employees, etc. An example of insufficient adjustment of insurance companies can be found in the SARS epidemic, after which most insurance companies excluded epidemics and pandemics from all of their insurance terms and conditions.

Insurance companies in the times of the pandemic place a stronger emphasis on underwriting risks of international travels, especially in countries with a large number of newly infected residents. It is expected that certain grace periods will be applied when concluding insurance contracts. It can also be expected that this pandemic will continue to significantly increase the sales of health insurance policies (including hospitalization coverage, hospital day benefits, and medical aid). In China, sales of these policies doubled during the SARS epidemic.¹⁴

Insurance companies mainly or exclusively focused on life insurance are given another task - to carefully invest the funds collected from life insurance premiums. If the pandemic proves difficult to control, it is these insurers, which are more exposed to mortality that can have significantly higher capital gains.¹⁵ Additional attention must be paid to risk management and diversification of insurance companies' portfolios. Risk diversification would imply a wider range of services, which would mitigate the potential losses of one type of insurance affected, in this case, by the pandemic.

Positive influence of health crisis

Insurance companies in North Macedonia have shown resilience and positive business results despite a strong health crisis that has hit the world.¹⁶ The example of the insurance market in North Macedonia shows that insurance markets around the world did not withstand the pressure of the pandemic, which depended on the structure of the market itself, although underdeveloped. The impact of the COVID-19

¹³ Jovanović, S. O., „Impact of COVID- 19 pandemic on the Insurance Industry“. *Insurance Trends*, 2021, 37(1), 41–69.

¹⁴ Strupczewski, G., Klonowska, A. 2020, pp. 230-238.

¹⁵ Kirti, D., Shin, M. Y., „Impact of COVID-19 on Insurers“. *International Monetary Fund Research*. 2020, pp. 1–11.

¹⁶ Stojkoski, V., Jolajoski, P., Ivanovski, I., „The short-run impact of COVID-19 on the activity in the insurance industry in the Republic of North Macedonia“, 2020, ArXiv.

pandemic on the insurance market of North Macedonia shows 11.69% decrease in the number and amount of reported claims in the first two quarters of 2020, while insurance premiums fell by 11.32% in the same period.

Nigeria's insurance market has also felt the impact of the pandemic, especially in productivity. However, insurance companies in this country saw an increase in the number of clients and insurance premiums during the pandemic, especially in the so-called personal insurance lines i.e. voluntary health insurance and life insurance with additional risks included in COVID coverage.¹⁷ The impact of the pandemic on insurance markets is diverse and depends on the level of development, but also on the portfolio structure of the largest insurance companies. Thus, the markets in the former Yugoslavia still have a dominant share of the compulsory motor insurance premium i.e. MTPL. Therefore, they cannot have the same sensitivity to a pandemic as in some other countries, where other types of insurance dominate the portfolio.

Negative impact of health crisis

Certain emerging markets have shown greater sensitivity of the insurance sector to the pandemic. Thus, the insurance market in Bangladesh raises the issue of liquidity, as one of the most important indicators of the business of insurance companies, which ensures the payment of damages to policyholders. The number of cars sold in 2020, the number of dissolved companies, travels reduced to a minimum, remoteness, and lack of adequate communication in the sales process shrank the activities of insurance companies in Bangladesh and led to a decline in premiums and changes in portfolio and profit structure.¹⁸

However, the pandemic had a significant short-term negative impact on the Chinese insurance market, due to limited marketing, sales channels and reduced demand for homeowners insurance. However, although such an impact is clearly negative, it is significantly higher in property insurance lines than in life and health insurance.¹⁹

The European insurance sector has also felt the effects of the pandemic, as evidenced by the decline in average ROA (return on assets). There has been a significant reduction in ROA in German and Italian insurance companies, as well as a reduction in solvency in the Belgian, French and Italian insurance sectors, while the Polish market has not felt the negative effects of this health crisis. Looking at the

¹⁷ Festus, T., Solanke, F., Olugbamiye, O., Olaleye, B., Ekundayo, O.F., „Effects of COVID-19 pandemic on insurance companies' productivity in Nigeria“. *International Journal of Intellectual Discourse (IJID)*, 2020, pp. 180-189.

¹⁸ Haque, A., Mohona, N. T., Sultana, S., Kulsum, U., „The impact of covid-19 on insurance industry of Bangladesh“. *Indian Journal of Finance and Banking*, 6(1), 2021, 73–85.

¹⁹ Wang, Y., Zhang, D., Xiaoquan, W., Fu, Q., „How does COVID-19 affect China's insurance market?“, *Emerging Markets Finance and Trade*. 2020, 56(10), pp. 2350–2362.

entire insurance market in Europe, it can be concluded that insurance companies have remained solvent and liquid despite the pandemic.²⁰ Insurance companies in these markets must lead to an increase in ROA through significant growth in premiums (both through new services and through the growth of premiums by policy), with the aim of reducing losses.

The Ghanaian insurance industry felt a sudden and unexpected shock due to the obvious lack of preparedness for this type of crisis by the companies operating in this market. There was a decline in profits by 16.6% for the period March-June 2020, as well as an increase in receivables by 38.4% in the same period. Total premiums fell by 17.01%, with only a small number of companies retaining their market share.²¹

However, insurance companies with a health insurance portfolio have suffered a significant blow regarding the payment of claims to hospitals and clinics in the United States. The health care management index fell to 7%, indicating that investors predicted a future significant impact on the health sector. The negative economic outlook for the health sector has led to the inclusion of insurance companies in the federal stimulus package of the United States.²²

The decline in the number of travels also has a significant impact on the companies focused on travel health insurance. This decline, which brings losses (over \$ 1 trillion and over a billion international arrivals less), unequivocally affects the global decline in travel health insurance premiums.²³

The global health crisis is a shock to the Indian insurance sector, which has significantly contributed to the growth and development of this country's economy (7% share in gross domestic product). What is now required of the state regulator is to help the sector return to its original state before the pandemic.²⁴

Impact of health crisis on work organisation of insurance companies

Despite the large number of countries where the health crisis in 2020 did not have significant negative effects on business, better communication between the insurance company and the state (regulator) is necessary. Owing to their risk

²⁰ Puławska, K., „Financial Stability of European Insurance Companies during the COVID-19 Pandemic”. *Journal of Risk and Financial Management*. 2021, 14(6), pp. 1-18.

²¹ Babuna P., Xiaohua Y., Gyllbag A., Awudi A.D., Ngmenbelle D., Dehui B., „Impact of COVID-19 on the insurance industry”. *International Journal of Environmental Research and Public Health*. 2020, 17:5766.

²² Ozili, Peterson & Arun, Thankom., „Spillover of COVID-19: Impact on the Global Economy”. *MPRA Paper* 99317. 2020. University Library of Munich, Germany.

²³ Salehnia, N.Zabihi, S., Mohammad, G.; Safarzaei, K., „The impact of COVID-19 Pandemic on Tourism Industry”: *A Statistical Review in European Countries*. 2021. Conference contribution.

²⁴ Parvathi, V., Lalitha, C., „Impact of Covid/19 on the Indian insurance sector”. *Perspectives on Business Management & Economics*. 2021, 60-65.

transfers and investment activities, insurance companies can make a significant contribution to economic growth, and therefore transparent risk assumptions and controls are needed to ensure solvency and business sustainability.²⁵

Key trends in the growth of online insurance sales (30-40%) were identified, as well as the increase in demand for life and health insurance. The awareness of the importance of life insurance was also raised, and various innovative solutions and additional insurance covers were introduced. The negative effects are reflected in the delayed payments of insurance premiums, namely, the growth of receivables (which influence the reduction in corporate profit through accruals), as well as a lower percentage of policy renewals, and reduced number of new property insurance policies. Also, one of the negative effects of this crisis is the reduction of investments due to financial uncertainty.²⁶

The lockdown oriented insurance companies toward making more use of the automatic insurance contracting, without the personal presence of the seller. Over 26% of them expanded this type of insurance sales. On the other hand, some state regulators asked insurance companies to extend the grace period for insurance premium payments, which was accepted by over 77% of the companies.²⁷

Adapting to new modern IT solutions and platforms has proven to be another challenge. Remoteness, inability to communicate offline, work from home, and lockdowns have forced insurance companies to make a more significant commitment to communicating with customers in a slightly different way from the traditional sales process.²⁸

Deloitte outlines four key impacts of pandemic on the operations of insurance companies: 1) business, financial and customer risk, 2) perception, brand and strategy 3) operational resilience, service delivery and workforce, 4) governance, risk and controls.²⁹

The crisis has led to the relocation of work processes to work from home, but also to online claims reporting, insurance contracting, and overall communication through modern platforms. In the coming period, Human Resource Services will have a special task to measure the efficiency of employees working from home. Insurance companies are additionally adapting their marketing and after-sales process to the new business conditions.

²⁵ Levantesi, S., Piscopo, G., „Insurance Role for Handling the COVID-19 impact on Business and Society“. *Journal of Applied Management and Investments*. 2021, 9(4), 183–191.

²⁶ Babita, Y., Pushpa, S., „Study on the After Effect of Covid-19 Pandemic in Life Insurance Sector in India“. *Journal of Interdisciplinary Cycle Research*. XIII. 2021, 504-510.

²⁷ Society of Actuaries (SOA), „Impact of COVID-19“, *Society of Actuaries Research*. 2020

²⁸ Xia, Y., Li, S., Meng, K., „The Impact of the COVID-19 on the Insurance Industry in China“. *Frontiers in Economics and Management*. 2020, 1(12), 28.

²⁹ Deloitte., „Impact of COVID-19 on the Insurance Sector“, 2020

II. Impact of COVID- 19 Pandemic on the Results of Insurance Sector in the Republic of Serbia

The intensity of the impact of the current pandemic on the RS insurance sector was measured by comparing the key business indicators through the earned insurance premium and the net result.

Looking at the total contracted insurance premium on the RS market (Table 1), we see a decrease in growth, but the market still recorded a growth of 2.3% in 2020 compared to 2019.

Table 1 Insurance premium in RS by years (000 RSD)

| Year | Non-life premium | % changes | Life premium | % changes | Total | % changes |
|-----------------|-------------------------|------------------|---------------------|------------------|----------------|------------------|
| 2011 | 47,321,292.00 | 0.32 | 9,992,706.00 | 6.84 | 57,313,998.00 | 1.40 |
| 2012 | 49,608,308.00 | 4.83 | 11,855,400.00 | 18.64 | 61,463,708.00 | 7.24 |
| 2013 | 46,976,051.00 | -5.31 | 14,065,458.00 | 18.64 | 61,041,509.00 | -0.69 |
| 2014 | 53,399,931.00 | 13.67 | 16,005,074.00 | 13.79 | 69,405,005.00 | 13.70 |
| 2015 | 61,561,694.00 | 15.28 | 19,364,294.00 | 20.99 | 80,925,988.00 | 16.60 |
| 2016 | 66,010,278.00 | 7.23 | 23,127,708.00 | 19.43 | 89,137,986.00 | 10.15 |
| 2017 | 70,336,633.00 | 6.55 | 22,757,361.00 | -1.60 | 93,093,994.00 | 4.44 |
| 2018 | 76,121,610.00 | 8.22 | 23,788,981.00 | 4.53 | 99,910,591.00 | 7.32 |
| 2019 | 82,385,409.00 | 8.23 | 25,064,463.00 | 5.36 | 107,449,872.00 | 7.55 |
| 2020 | 83,753,833.00 | 1.66 | 26,162,910.00 | 4.38 | 109,916,743.00 | 2.30 |
| Changes average | | 6.07 | | 11.10 | | 7.00 |

Source: adapted by the author from www.nbs.rs

Given a huge decline in the number of travels in 2020, a decline in travel health insurance premiums is also expected. Premiums of this type of insurance recorded a decline of over 1.5 billion dinars in 2020, or a decline of almost 61% (Table 2). Such a decline would mean a decline in total insurance premiums, but this was not the case.

Table 2 Premium of travel health insurance by years in 000 RSD

| Year | Premium | % changes |
|-------------|----------------|------------------|
| 2011 | 733,258.00 | -16.29 |
| 2012 | 1,197,433.00 | 63.30 |
| 2013 | 1,350,068.00 | 12.75 |
| 2014 | 1,506,657.00 | 11.60 |

| Year | Premium | % changes |
|------|--------------|-----------|
| 2015 | 1,712,817.00 | 13.68 |
| 2016 | 1,848,432.00 | 7.92 |
| 2017 | 2,080,616.00 | 12.56 |
| 2018 | 2,287,494.00 | 9.94 |
| 2019 | 2,478,353.00 | 8.34 |
| 2020 | 971,141.00 | -60.82 |

Source: adapted by the author from www.nbs.rs

The compulsory motor third party liability insurance premium traditionally accounts for the largest share of the total RS market. This premium did not show a decrease, but still recorded a significantly lower growth of 1.82% in 2020 compared to previous years of observation (Table 3).

Table 3 Compulsory motor third party liability insurance premium in 000 RSD

| Year | Premium | % changes |
|------|---------------|-----------|
| 2011 | 18,709,971.00 | -0.55 |
| 2012 | 19,332,284.00 | 3.33 |
| 2013 | 19,573,648.00 | 1.25 |
| 2014 | 22,706,165.00 | 16.00 |
| 2015 | 29,007,378.00 | 27.75 |
| 2016 | 30,208,399.00 | 4.14 |
| 2017 | 31,980,243.00 | 5.87 |
| 2018 | 33,558,552.00 | 4.94 |
| 2019 | 35,373,139.00 | 5.41 |
| 2020 | 36,018,025.00 | 1.82 |

Source: adapted by the author from www.nbs.rs

Given the decline in economic activity (Serbian Chamber of Commerce, 2021), as well as the state of emergency, automobile Casco insurance premiums were expected to fall significantly in 2020. Although there was a premium growth of over 600 million dinars (Table 4), it is still lower than the growth in previous years. The traditionally negative ratio of premiums and paid damages led to a change in the pricing policy that ensured the above growth, although there was no increase in the number of policies sold.

Table 4 Premium of automobile Casco insurance in 000 RSD

| Year | Premium | % changes |
|-------------|----------------|------------------|
| 2011 | 7,177,352.00 | -5.73 |
| 2012 | 6,927,923.00 | -3.48 |
| 2013 | 6,429,888.00 | -7.19 |
| 2014 | 6,049,950.00 | -5.91 |
| 2015 | 6,229,062.00 | 2.96 |
| 2016 | 6,916,653.00 | 11.04 |
| 2017 | 7,791,685.00 | 12.65 |
| 2018 | 8,982,425.00 | 15.28 |
| 2019 | 10,335,755.00 | 15.07 |
| 2020 | 10,961,273.00 | 6.05 |

Source: adapted by the author from www.nbs.rs

Voluntary health insurance is the type of insurance with the highest growth in the last 10 years. Modern, especially foreign companies, include in their employment contracts paid private health insurance for their employees as an additional benefit. This type of insurance records a growth of over 18% in 2020, which is in line with global trends of people taking out this type of insurance during the health crisis (Table 5). The premiums have increased to more than 500 million dinars, which together with Casco and life insurance, as well as some other types of property insurance, not only compensated for the huge decline in travel health insurance premium but also provided a growth in total premiums in the RS insurance market in the circumstances of the pandemic.

Table 5 Premium of voluntary health insurance in 000 RSD

| Year | Premium | % changes |
|-------------|----------------|------------------|
| 2011 | 971,764.00 | -5.08 |
| 2012 | 1,083,190.00 | 11.47 |
| 2013 | 1,158,120.00 | 6.92 |
| 2014 | 1,324,894.00 | 14.40 |
| 2015 | 1,585,351.00 | 19.66 |
| 2016 | 2,229,411.00 | 40.63 |
| 2017 | 2,859,554.00 | 28.26 |
| 2018 | 3,465,351.00 | 21.19 |
| 2019 | 4,581,469.00 | 32.21 |
| 2020 | 5,416,185.00 | 18.22 |

Source: adapted by the author from www.nbs.rs

In line with global trends, the life insurance market is showing similar resilience. Although in 2020 a slightly lower growth was recorded than in 2019 (Table 6), the insurance premium increased by over one billion dinars. Thus, the decline in travel health insurance premiums was completely neutralized, and health insurance again showed positive tendencies and serious and safe business. During the health crisis, there was a significantly higher number of life policies taken out by the population. These policies were innovated by additional coverage in terms of COVID risk, and contributed to the overall growth of premiums and positive business indicators.

Table 6 Premium of life insurance in 000 RSD

| Year | Premium | % changes |
|------|---------------|-----------|
| 2011 | 9,992,709.00 | 6.84 |
| 2012 | 11,855,400.00 | 18.64 |
| 2013 | 14,065,460.00 | 18.64 |
| 2014 | 16,005,073.00 | 13.79 |
| 2015 | 19,364,294.00 | 20.99 |
| 2016 | 23,127,709.00 | 19.43 |
| 2017 | 22,757,361.00 | -1.60 |
| 2018 | 23,788,981.00 | 4.53 |
| 2019 | 25,064,463.00 | 5.36 |
| 2020 | 26,162,910.00 | 4.38 |

Source: adapted by the author from www.nbs.rs

The net result of the RS insurance market in the year of the pandemic shows the stability of the sector and therefore, although lower growth was recorded compared to previous years, the RS insurance companies performed positively (Table 7). The growth in this indicator is 10.85% compared to 2019.

Table 7 Net result of the RS insurance market in 000 RSD

| Year | Net profit | Net loss | Net result |
|------|--------------|--------------|--------------|
| 2011 | 1,941,055.00 | 1,383,224.00 | 557,831.00 |
| 2012 | 2,371,872.00 | 1,166,591.00 | 1,205,281.00 |
| 2013 | 2,229,168.00 | 2,272,416.00 | -43,248.00 |
| 2014 | 2,900,478.00 | 2,473,165.00 | 427,313.00 |
| 2015 | 4,625,617.00 | 1,721,355.00 | 2,904,262.00 |
| 2016 | 6,009,647.00 | 286,508.00 | 5,723,139.00 |
| 2017 | 6,634,512.00 | 202,007.00 | 6,432,505.00 |

| Year | Net profit | Net loss | Net result |
|------|---------------|-----------|---------------|
| 2018 | 8,877,837.00 | 19,941.00 | 8,857,896.00 |
| 2019 | 11,680,788.00 | 38,067.00 | 11,642,721.00 |
| 2020 | 12,986,202.00 | 79,211.00 | 12,906,991.00 |

Source: adapted by the author from www.nbs.rs

In view of the above, it can be concluded that the hypotheses 1) and 2) originally set in this paper must be rejected. The data from the above tables show that the COVID-19 pandemic has an impact on the earned insurance premium and net result of the RS insurance market, in terms of lower growth, but this impact did not lead to a decrease in premiums compared to previous years, nor to the loss and negative RS market results. Despite the drop in travel health insurance premiums, insurance companies managed to achieve an increase in total premiums, as well as a positive result and an increase in net results compared to 2019. These results are indicators of controlled operations and strict reinsurance, risk management and investment policies.

III. Research Methodology

The reports from the NBS website provided the necessary information for the analysis of the impact of travel health insurance premium trends on the net result of insurance companies on the RS market. In accordance with the type of the available data and the sensitivity of the issue, the research was conducted by combining qualitative and quantitative methodology. The research results are presented using correlation analysis and panel data regression.

To detect the impact of the decline in travel health insurance premiums on total realized profit, a model was developed in which there are four variables, three of which are independent and one dependent.

The independent variables are:

1. Premium of compulsory motor vehicle insurance (liability) – MVL
2. Premium of automobile Casco insurance – AC
3. Premium of travel health insurance – THI.

The dependent variable is:

1. Net result of insurance market– NR.

When developing the model, the identification of variables was performed first. Based on economic logic, NR (Y) was chosen as the dependent variable, and MVL, AC, THI i.e. ,, were chosen respectively as explanatory variables. The possibility of an error in predicting Y in the model was marked by e. Slope coefficients are β_1 , β_2 , β_3 , while the constant is marked as β_0 . Therefore, the model can be presented as follows:

$$Y(NR) = \beta_0 + \beta_1^* + \beta_2^* + \beta_3 + e,$$

namely $NR = \beta_0 + \beta_1^* + \beta_2^* + \beta_3 + e$

Empirical research was conducted on a sample of five insurance companies that account for 78% of the total RS insurance market, for a period of 10 years. Table 8 shows descriptive statistics for all 50 observations, i.e. minimum and maximum values of the observed variables, their arithmetic mean and standard deviation. Due to the nature of the crisis, the aim is to examine the impact of sensitive types of insurance (travel health insurance) on the overall market result in terms of net profit.

Table 8 Descriptive statistics (in 000 RSD)

| | Number of observations | Minimum values | Maximum values | Arithmetic mean | Standard deviation |
|--------------------|-------------------------------|-----------------------|-----------------------|------------------------|---------------------------|
| MVL | 50 | 290188.00 | 12455539.00 | 4152505.0000 | 3390395.06101 |
| AC | 50 | 199581.00 | 2796087.00 | 1236409.2400 | 611497.69719 |
| THI | 50 | 18761.00 | 567283.00 | 227221.9200 | 136097.19139 |
| NR | 50 | -1373943.00 | 8977666.00 | 998116.6800 | 1659689.59272 |
| Valid N (listwise) | 50 | | | | |

Source: Author's calculation

IV. Impact of the Change in the Travel Health Insurance Premium on the Net Result of the Insurance Market of the Republic of Serbia

This impact will be explored through panel data regression analysis, using the software package SPSS. This type of regression analysis has numerous advantages over traditional regression models and time series analyses, with a greater degree of freedom and reduced collinearity between the observed variables, thus improving the efficiency of econometric estimations.³⁰

The advantages of panel data analysis lie in uncovering dynamic relationships, controlling the impact of omitted variables, generating more accurate predictions for individual outcomes by pooling the data, providing micro foundations for aggregate data analysis, simplifying statistical inference, analysing nonstationary time series, measurement errors, etc.³¹

Bearing in mind that there is an identical number of data for the observation unit in each year of observation, balanced panel data were used. Due to the lack of consistency of the independent variables used over time, a fixed effects model will be used to assess the impact of the independent variables on the observed dependent variables.³²

³⁰ Hsiao, C. *Analysis of Panel Data* (Econometric Society Monographs), Cambridge, 2014

³¹ Hsiao, C., "Panel data analysis—advantages and challenges". *TEST* 16, 2007, 1–22.

³² Knežević, A. *Implementation of panel models in identifying factors of business success in manufacturing companies* (Doctoral Dissertation). Novi Sad: Novi Sad University – Faculty of Technical Science, 2015, pp. 20.

1.1. Impact of Variation of Travel Health Insurance Premium on the Realized Profit of Insurance Companies

The justification for examining this impact is reflected in the fact that this type of insurance recorded a huge decline in insurance premiums in 2020 due to the travel ban.

By testing the normality of the data distribution (Shapiro-Wilk and Kolmogorov-Smirnov tests), it was determined that the observed data have a normal distribution. Based on Table 9 and the Spearman correlation test, it can be concluded that there is a high correlation with adequate statistical significance between the motor liability premium and the net result of the insurance market (.903, with maximum statistical significance). There is a slightly smaller but also high correlation between the total Casco insurance premium and the net result (0.830), with adequate statistical significance (0.003). On the other hand, it can be concluded that there is a statistically most significant correlation between the net result of the RS insurance market and travel health insurance premiums with a correlation coefficient of 0.442, however, statistically insignificant.

Table 9 Correlation analysis results (Spearman Coefficient)

| | | MVL | AC | THI | NR |
|-----|-------------------------|--------|--------|-------|--------|
| MVL | Correlation coefficient | 1 | .661* | 0.564 | .903** |
| | Sig | . | 0.038 | 0.090 | 0.000 |
| AC | Correlation coefficient | .661* | 1 | 0.164 | .830** |
| | Sig | 0.038 | . | 0.651 | 0.003 |
| THI | Correlation coefficient | 0.564 | 0.164 | 1 | 0.442 |
| | Sig | 0.090 | 0.651 | . | 0.200 |
| NR | Correlation coefficient | .903** | .830** | 0.442 | 1 |
| | Sig | 0.000 | 0.003 | 0.200 | . |

*correlation significant with sig less than 0.05

** correlation significant with sig less than 0.01

Source: Author's calculation

Upon applying Breusch-Pagan and Koenker test³³ the absence of heteroscedasticity was determined (Table 10), having in mind Sig values specified in the Table that must be greater than .05.

Table 10 BP and Koenker heteroscedasticity test

| Test | LM | Sig |
|---------|-------|-------|
| BP | 6.103 | 0.347 |
| Koenker | 3.775 | 0.229 |

Source: Author's calculation

³³ Hsiao C. pp. 148.

Table 11 shows the results of the panel data analysis, i.e. the results of the examination of the impact of premium variations of different types of insurance on the net result of the RS market.

Table 11 Regression model – NR independent variable

| Variable | NR - net result | | |
|-------------------------|-----------------|-------|-------|
| | Beta | Sig. | VIF |
| MVL | 0.547 | 0 | 4.445 |
| AC | 0.521 | 0 | 2.885 |
| THI | -0.006 | 0.905 | 2.050 |
| R ² | 0.992 | | |
| Adjusted R ² | 0.989 | | |
| Sig. | 0 | | |

Source: Author's calculation

Based on the results of the panel regression analysis, it can be concluded that the R square coefficient of 0.992 indicates that this model, i.e. the impact, can be 99% attributed to MVL, AC and THI premium, with a maximum statistical significance of .000 (Table 11).

The multicollinearity test (VIF values, Table 11) showed that there is no high interdependence between the observed independent variables.

The impact of the change in the compulsory motor vehicle insurance premium (MVI) on the net result of insurance companies shown in Table 11 is .547, so any increase in this premium by one dinar leads to an increase in the net result by .547 dinars, with a maximum statistical significance of .000. On the other hand, there is a significant impact of Casco insurance premium movements (0.521). Although Table 11 shows a negative impact of the variation in travel health insurance premium on the net result, the effect is statistically insignificant, which is adequate to the last year's results of the insurance market in RS, where the premium of this type of insurance did not lead to a decrease in net results.

These tests confirmed Hypothesis 3 on the absence of a statistically significant impact of the movement of travel health insurance premiums on the net result. Insurance companies on the RS market achieved a profit growth of about 10% compared to 2019, despite the pandemic and the drop in travel health insurance premiums of about 1.5 billion dinars.

Conclusion

The COVID- 19 pandemic affected the daily life of an individual, economic activities, the global economy, and the health care system. The insurance sector, as

an activity with a significant share in the gross domestic product of countries, also felt the consequences of this health crisis. The negative impact was reflected, among other things, in the decline in activity, solvency, liquidity, productivity, number of employees, insurance premiums by certain types of insurance, profit, etc. However, the insurance market of the Republic of Serbia also felt the consequences of the pandemic, but in most companies, those consequences did not lead to a decline in the total contracted insurance premiums and losses. The expected decline in travel health insurance premiums was recorded, which, although high, was not sufficient to produce an overall decline in the premium of the entire market. The market continued to grow, as in the years before the pandemic, with slightly lower percentages. Insurance companies operated with positive results even in 2020, managing to alleviate negative effects of the health crisis that hit the whole world. Premiums of the most affected type of insurance (travel health insurance) do not have a significant impact on profits, i.e. the net result of the market, which in combination with distinct growth of Casco, life and voluntary health insurance premiums led to positive trends in the year of the pandemic, when many other economic activities recorded losses.

Insurance companies in the Republic of Serbia were relatively prepared when the pandemic broke out, and with the help of other types of insurance, they managed to amortize the losses caused by a large drop in travel health insurance premiums. The panel data regression analysis confirmed the lack of impact of this insurance premium on the profits of insurance companies. In the coming period, insurers can focus their marketing campaigns on other insurance service packages. The recommendation for further work and commercialization is that insurance companies focus on services such as life and health insurance, including epidemic risks, as well as automobile Casco insurance, as these types of insurance have offset the decline in travel health insurance premiums and ensured for insurance companies the growth of insurance premiums.

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