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DEVELOPMENT OF MOTOR HULL INSURANCE IN SERBIA 2000–2020

REVIEW ARTICLE

Abstract

The beginning of the 21st century was marked as the era of automobiles. The slogan “An automobile is a luxury” has been replaced by a new one, “An automobile is not a luxury, but a necessary means of transport”. After 100 years, an automobile went from being a luxury item to an optimal means of transport. Today, it is hard to imagine life without automobiles. A motor vehicle enables easier and faster reaching any point in a city, a country, a continent and even another continent. Transport by an automobile, as one type of land transport, is the most widespread and takes a leading position in transport of passengers, goods and various types of cargo over different distances.

In addition to the convenience, an automobile is also a cause of various types of accidents. Due to its nature and method of use, it can cause damage both to itself and to another automobile, a driver, a passenger, a pedestrian, but also to a third person and/or his/her property. Due to such losses, it is convenient and important to offer several insurance lines, among which motor hull insurance is one of the most common insurance lines.

The aim of the paper is to show a long-term development of motor hull insurance and determine its place, role and significance in non-life insurance market in our country. The analysis includes the most important insurance categories, starting with market participants and insurance acquisition, through claims and technical reserves, to ratios. The focus is on a more detailed digital presentation of

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those insurance categories because numbers, in any case, reflect the issues that are the subject of this paper more precisely and more objectively than any text, with a greater possibility for a reader to make his/her own analyses and conclusions. In addition to motor hull insurance analysis, the average annual share of acquisition, claims and technical reserves of five largest non-life insurance lines will also be presented.

Key words: *motor vehicle, motor hull insurance, premium, claim, ratios*

I. Introduction

In the observed period, which included the first and the second decade of the 21st century, the Republic of Serbia was characterized by difficult and complex times, influenced by numerous external and internal factors. Among them, above all, the most important one was an extremely negative impact of the consequences caused by the events occurred in the last decade of the last century, the most significant of which are: strong penetration of globalization, a disintegration of Yugoslavia, which partly ended in war conflicts, the economic sanctions of the UN from 1992 to 1996,² the aggression of the NATO alliance in 1999, the violent secession of the Autonomous Province of Kosovo and Metohija in 1999, the unsuccessful and fundamentally wrong concept of transition that started after the social and economic and political changes from 5th October 2000, unresolved problems related to Kosovo and Metohija that are current today, unfavourable international relations in the world and complicated and complex safety situation in the world and the surroundings. The UN sanctions imposed due to the events in Bosnia and Herzegovina, then due to a military intervention in Kosovo and Metohija, and especially the bombing of FR Yugoslavia by 19 member countries of the NATO alliance, which destroyed or greatly damaged numerous infrastructural, industrial and civilian objects throughout the country, made it difficult and significantly slowed down the country's economic recovery.³ Regardless of the fact that they precede the period of observation that is

² Sanctions against the FR Yugoslavia were imposed by the UN Security Council Resolution 757 of May 30, 1992, expanded and tightened by the Resolution 787 of November 16, 1992 and 820 of April 17, 1993, and mitigated by the Resolution 943 of September 23, 1994, 970 of January 12, 1995 and 988 of April 21, 1995. In terms of comprehensiveness and severity, except for the military intervention, they were the most severe punitive measures ever taken by the UN against a country. Sanctions were suspended indefinitely by the Resolution 1022 of November 22, 1995, a day after the signing of the Dayton Agreement, and formally abolished by the Resolution 1074 of October 2, 1996. They were re-introduced in 1998 because of the Autonomous Province of Kosovo and Metohija, but despite the fact that the Military-Technical Agreement Kumanovo was concluded on June 9, 1999, and a day later the Resolution 1244 of the United Nations Security Council was adopted, they were abolished only in October 2000.

³ During the NATO alliance aggression, which lasted for 78 days, from March 24 to June 9, 1999, numerous infrastructural and economic objects and other property worth over 30 billion US dollars were destroyed or damaged, and according to some estimates the total material damage was about 100 billion dollars.

the subject of our analysis, those factors have left severe long-term consequences that still have a negative impact on the economic development of the country and the standard of living.

Complexity of the situation and new circumstances weakened the economy for a long time and reduced the possibility of achieving strategic goals of a sustainable long-term development of the country. Fiscal consolidation and economic reforms that began in 2012 led to a decrease in pensions and salaries of employees financed from the budget, which further weakened the purchasing power of citizens. Reforms initiated and largely implemented in the last 10 years gradually increased economic growth, employment and the standard of living. If we keep in mind connection between the economy and insurance, all those changes ultimately had a positive or negative effect on the development of the insurance sector as a whole, and therefore on the development of motor hull insurance.

Development of the Republic of Serbia in the observed period is characterized both by key changes in the structure of the economy and the social and economic structure of the population, and the historical transition from a socialist to a capitalist social and economic and political structure.

Development of an insurance sector of a country as a whole, by groups, subgroups and insurance lines is closely connected to the development of the economy and the trends of citizens' purchasing power. General material frameworks for development of the insurance sector resulted from the increase of social wealth, i.e. property, items and the standard of living, from the need for protection through insurance against risks jeopardizing people and property, and from organization and ability of insurance companies to meet those requirements. Insurance sector does not have specific goals, since these are goals of legal entities and citizens when they make decisions to fully protect their lives, their property and various other interests based on the principles of reciprocity and solidarity.

A motor vehicle (further in the paper: an automobile, a car, a vehicle or MV) is one of the more valuable means serving to satisfy a large number of different types of needs of individuals and legal entities. It is used for a long time, i.e. years. Keeping and using a motor vehicle make it exposed to numerous risks of total or partial damage, which can be a significant loss for its owner. In order to sustain certain types of these losses as easily as possible, a motor vehicle owner can transfer these risks to insurance.

According to the scope of activities of insurance companies (hereinafter: an insurance company or an insurer) in our country motor hull insurance (hereinafter: MHI) belongs to the largest type in the *subgroup of motor vehicle* in almost all important categories of insurance indicators, which in the further division belongs to the non-life insurance group (hereinafter: NL).⁴

⁴ Subgroup Motor Vehicle Insurance, Article 9, Item 1, Subitem 4, and Items 3, 7 and 10 (Law, 2014), includes the following lines, i.e. parts of certain insurance lines (tariff groups): personal insurance in

Considering the length of the observed period, the legal framework for performing insurance activities includes the Law on Property and Personal Insurance from 1996 (hereinafter: Law, 1996), the Insurance Law from 2004 (hereinafter: Law, 2004) and the Insurance Law from 2014 (hereinafter: Law, 2014), the differences of which are reflected in certain categories of data used in this paper. Data is categorised according to insurance lines that have been in use since 2004 and the regulations of the National Bank of Serbia (hereinafter: the NBS) adopted on the basis of the Law, 2004, which in terms of classification was also retained by the Law, 2014. The number in brackets after the name of the insurance line denotes the code of that insurance line, which is often used as an independent designation of the insurance line in tables and charts.

During implementation of the Law on Property and Personal Insurance, which was adopted in 1990 (hereinafter: Law, 1990), a special problem arose due to prescribing the initial security fund in Dinars, which in the Republic of Serbia was not timely adjusted to the growth of retail prices, and additionally it was also devalued by high inflation. A major problem during the implementation of the Law, 1996, was lack of legal frameworks that ensure a more consistent application of the actuarial profession and the insurance profession, as well as the fact that supervision and control of the insurance sector (hereinafter: supervision) was divided into two entities. In terms of legislative regulation, it was under the competence of the Federal Ministry of Finance (hereinafter: FMF),⁵ and in terms of indirect and direct control of the operations of insurance companies under the competence of the Accounting and Payment Bureau (hereinafter referred to as APB) as an organizational part of the NBS, which was not legally, organizationally and not staffed for a specific and comprehensive supervision over the insurance sector.⁶ A part of specific insurance activities is not

motor vehicles and when performing special activities, a part of accident (01.02), motor hull (03), cargo insurance (07), a part relating to road transport and motor vehicle liability insurance (10).

⁵ Supervision of an insurance company's operations determines whether the general acts, business policy and an insurance company's operations are in accordance with this law and the regulations adopted on its basis. The Federal Ministry of Finance had the right to inspect general acts, business policy and business books, and could request explanations and information it deemed necessary in order to determine whether an insurance company was complying with the law and the regulations adopted on its basis. There is no doubt that compared to the Law, 1990, the operation and control of insurance activities, including actuarial activities, was much better regulated, but in practice this idea was not implemented completely because neither organizational nor personnel options were provided compared to the number of insurance companies, 1996 (82), and not in 2004 (42). In 1996, two persons worked in the Insurance Department in the FMF, and in 2004, when supervision was transferred to the competence of the NBS, five persons.

⁶ In order to enable implementation of the Law, 1996, which introduced certain novelties with the aim of better regulation of the market, greater protection of insurance users and new supervision measures, the Federal Ministry of Finance adopted four bylaws, the Decision on the method of submitting statistical and other data for the purpose of performing actuarial activities and preparation of technical bases and insurance tariffs, as well as the Rulebook on the content of the certified actuary's opinion, which also

regulated more closely by the law and regulations of the FMF, nor by the regulations of the APB, such as closer criteria and method of calculating technical reserves, security reserves, solvency margins, method of using and disposing of insurance funds, actuarial operations and a significant part of other insurance supervision activities.⁷

Insurance Law of 2004 transferred insurance supervision, except for the Association that is supervised by the Ministry of Finance of the Republic of Serbia, to the competence of the National Bank of Serbia, which enabled a more consistent application of the actuarial profession principles and the insurance profession rules, a change in previous acquisition policy and operations of insurance companies.⁸

Independence and autonomy of the central bank, infrastructural, organizational and personnel capabilities for insurance supervision are the most important advantages of entrusting this competence to the National Bank of Serbia.

The Law, 2014, further improved the provisions on insurance supervision, which enabled an even better regulation of the insurance market.⁹ Having in mind the significance, scope and volume of new solutions, we will refer to the NBS regulations that have an impact on certain parts of this text.

In order to avoid repeating citations on data sources under each table and graph, it should be borne in mind that the data used in this paper was published in publications of the Association of Insurance Companies of Yugoslavia (hereinafter: AICY), which in 2004 changed the name into the Association of Insurance Companies of Serbia and Montenegro (hereinafter: AICSM), and after the separation of Montenegro in 2006 it changed name into the Association of Serbian Insurers (hereinafter: the Association or ASI).¹⁰ Data source for the period 1990–2003 is the Information

related to motor hull insurance. The regulation on premium rates in MTPL insurance and the Decision on Captive did not apply to motor hull insurance. In 2001, the FMF initiated the process of drafting a new insurance law. A commission composed of well-known university professors and experienced insurance personnel was formed, but the work was interrupted when supervision was transferred to the competence of the Ministry of Finance of Serbia, and then to the competence of the NBS.

⁷ In the middle of 2002, insurance supervision was transferred from the FMF to the Ministry of Finance of the Republic of Serbia, and with the abolition of APB, payment transactions were transferred to commercial banks from January 1, 2003.

⁸ The National Bank of Serbia took over the supervision of insurance companies, issued licenses for performance of insurance activities, provided consent to acts and activities prescribed by law to the appointment of actuaries, auditors, directors, supervisory board members, adopted acts prescribed by law, processed statistical and other data and considered complaints from insured persons and other insurance users from June 15, 2004. Supervision is performed by a special sector in the NBS, within which five departments were formed (indirect supervision, direct supervision, actuarial department, consumer protection department and legal affairs department).

⁹ The Law, 2014, entered into force on June 26, 2015. In order to enable full implementation of that law, which introduced certain novelties with the aim of better regulation of the market, greater protection of insurance users and new supervision measures, the National Bank of Serbia adopted 14 bylaws by June 2015.

¹⁰ The Association of Insurance Companies of Yugoslavia was founded on January 19, 1968 by the Decision of the District Commercial Court in Belgrade Fi 142/68, the Decision No. V-Fi-7701/04 of September 30, 2004

on business results of insurance and reinsurance companies made annually by the AICY; for 2004 the annual publication Results of business operations of insurance and reinsurance companies issued by the AICSM, and for the period from 2005 to 2020 data from the website of the National Bank of Serbia, which published only data on companies operating throughout the year, without data of companies that stopped working during the year. The sources do not include data on certain companies because they were not submitted to the Association or the National Bank of Serbia:

1. 2000 no data for companies "BK fond", "Delta", "Evropa Internacional", "Internacional", "Jahorina", "Plava tačka", "Romanija" and "Sombor";
2. 2001 – no data for companies "Energoprojekt garant", "Romanija" and MG;
3. 2004 – NBS data corrected for 14 companies due to cessation of operations during the year according to data submitted to AICSM;
4. 2014 – the NBS data corrected for the first half of the year of "Takovo osiguranje" according to the data received from the Deposit Insurance Agency.

All graphs showing the share of five largest insurance lines in non-life insurance, due to continuity, show personal insurance (hereinafter: accident insurance), regardless of the fact that in 2020 technical reserves, in the last three years in terms of gross premium, settled claims and unearned premium reserves, and in the last four years of the observed period in terms of settled claims, it was behind voluntary health insurance.

All categories of indicators in this paper refer to the annual accounting period.

Amounts in Dinars were converted into Euros at the official middle exchange rate of the NBS on December 31 of each year to which the data refer.

In order to analyse the development of motor hull insurance in the Republic of Serbia in more detail we will limit ourselves to insurance market participants, insurance acquisition, claims, technical reserves and ratios.

II. Insurance Market Participants

For a more complete overview of the development of motor hull insurance in the observed period, it is necessary to point out the circumstances that preceded and adequately influenced the number of insurance market participants. Number of insurance market participants largely depends on the amount of money of the initial security fund at the time of establishment of an insurance company according to the type of business activity of a company. Until the Law, 1996 entered into force, the initial security fund for other insurance lines was 50 billion Dinars. The federal government adjusted that amount at least once every three months according to the retail prices growth.¹¹

of the Commercial Court in Belgrade, and was renamed the Association of Insurance Companies of Serbia and Montenegro, and by the Decision BD. 12806 of the Serbian Business Registers Agency in Belgrade on July 7, 2006, it was named the Association of Serbian Insurers.

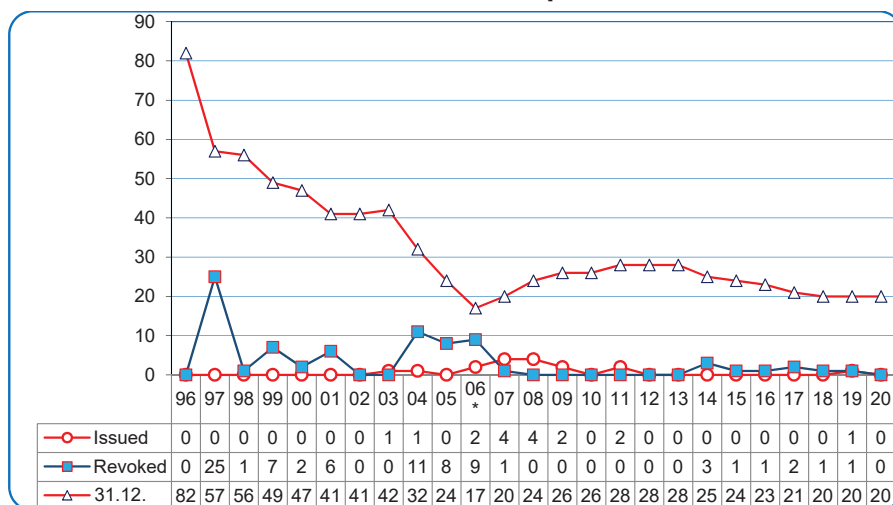
¹¹ Law, 1990, Article 12.

Before the implementation of the Law, 1990, there were five insurance companies, one reinsurance company and three branches of companies from other republics operating on the territory of the Republic of Serbia.¹² Unlike other republics, new situation related to the disintegration of the SFRY, growing inflation and failure to adjust the amount of the initial security fund to the retail prices growth enabled establishment of an insurance company with the involvement of a decreasing amount of funds. In 1992, 23 insurance companies and two reinsurance companies were operating in Serbia, in 1994, 31 insurance companies and three reinsurance companies were licensed to operate, and in 1996, 82 companies were operating.

When the Law, 1996 entered into force, the initial security fund was determined in Dinar countervalue of the USD calculated at the official middle exchange rate of the National Bank of Yugoslavia on the day of submitting the application for the issuance of a work licence. The initial security fund in Dinar countervalue had to always be at the amount that was not less than the prescribed amount in US dollars converted into Dinars.

Graph 1 shows the number of issued and revoked work licences and the number of insurance and reinsurance companies at the end of the year. In the period from 1996 to 2005, companies that worked in the Republic of Montenegro were included.

Graph 1 Overview of the number of issued and revoked work licences to insurance and reinsurance companies 1996–2020



Source: FMF and NBS

¹² Insurance companies operating in the Republic of Serbia were "Dunav", DDOR "Novi Sad", "Kopaonik", "Kosovo", "Šumadija", "Dunav reosiguranje" and one branch of "Sarajevo osiguranja", "Kroacija osiguranja" and "Makedonija osiguranja".

At the end of 1996, there were 82 companies operating in the insurance market of the Federal Republic of Yugoslavia, which consisted of Serbia and Montenegro, and 77 insurance companies and three reinsurance companies were operating on the territory of the Republic of Serbia. Due to the impossibility of fulfilling prescribed conditions for the initial security fund and eliminating other business mistakes, more and more insurance companies lost their license to operate. There were 82 companies in 1996 (81 in Serbia and one in Montenegro), over 45 in Serbia and two companies in Montenegro in 2000, the number of companies decreased to 42 at the end of 2003, of which 40 operated in Serbia, and two companies in Montenegro.

By changing the regulations, the Law, 2004, and by raising the level of insurance supervision, which was further improved by the Law, 2014, the number of companies operating continued to decrease to 17 in 2006. By 2013 their number slightly increased to 28 companies, only to be followed by a gradual decline until 2020, when 20 companies – 16 insurance companies and four reinsurance companies, operated on Serbian insurance market.

In the period shown on this graph, a maximum of 25 companies lost their licence in 1997, then 11 in 2004, and among nine companies in 2006 there were four companies removed from the records due to the separation of the Republic of Montenegro. Among the companies that ceased business operations, there were also cases of mergers with other insurance companies. These were companies with foreign ownership that were sold to another company with the consent of the National Bank of Serbia, with the exception of one domestically owned company that was sold to a majority foreign-owned company in 2019.¹³

Compared to 79 companies that lost their licence, 17 companies obtained a licence to perform insurance activities, a maximum of 4 companies each in 2007 and 2008.

It should be noted that in European countries there has not been a similar case of such a large number of insurance companies obtaining a licence to operate, and then rather quickly ceasing to operate due to a series of mistakes and deficiencies in their operations. Why did this happen in our country? There are two clear reasons. The first is the unprecedentedly high inflation that devalued the amount of the initial security fund to the extent that an insurance company could be established with only a few thousand US dollars.¹⁴ The second reason is personnel. Newly established companies did not have a sufficient number of educated professionals with the necessary experience in managing an insurance company and experience in performing certain specific jobs that are characteristic for the insurance sector. Personnel were hired from a small number of existing companies, mostly from "Dunav osiguranje",

¹³ Non-life insurance company "Energoprojekt garant" was sold to the company "Sava neživotno osiguranje".

¹⁴ At that time, the largest printed banknote in our country was 500 billion Dinars.

slightly less from DDOR "Novi Sad" and some from "Kopaonik" and "Kosovo osiguranje". In addition, managing of an insurance company in the majority of cases was retained by the founders of a company, usually with lower levels of education and no experience in performing insurance activities. Insufficient knowledge of the insurance specifics was primarily reflected in the disposal and use of insurance funds. Premium collection in advance, at the beginning of the conclusion of an insurance contract or in installments, but no later than the expiry of the contract, enabled an insurance company to form a large amount of insurance premium. Disposal and use of these funds required their separation according to the maturity of liabilities arising during an insurance contract, but largely these liabilities were due for payment much later, from several or even more than 10 years. Therefore, in insurance activities, a special place, a role and significance is given to the method of formation, disposal and use of technical reserves and other types of reserves which must at all times be sufficient to cover all future liabilities. Those two reasons were the main cause of the establishment, and soon after, the cessation of operation of a large number of insurance companies in majority domestic ownership, which will be seen more clearly in the following parts of this paper.

Insurance companies with majority foreign ownership had the same problems, but they were in a more favourable position because they received all the necessary professional support from their foreign headquarters in every aspect of their operations.

III. Insurance Acquisition

The origin and development of motor hull insurance is connected with the origin and importance of automobiles, the development of the automotive industry, continuous increase in the number of motor vehicles and the growth of the citizens' purchasing power, which is a general feature in almost all countries in the world.

Motor hull insurance includes all types of land motor vehicles of standard construction, trailers, special vehicles, work vehicles, motorcycles, operating machines and their components. It can be contracted as full, partial or supplementary motor hull insurance with or without a share in damage, in accordance with the insurance terms and conditions and premium tariff for motor hull insurance.¹⁵

A more complete overview of insurance acquisition is measured by the number of motor vehicles that can be the subject matter of insurance (hereinafter: insurance), the number of concluded insurances, the degree of protection and the price of the insured risk expressed in the amount of the required gross insurance premium (hereinafter: GP) determined by a premium tariff in accordance with the

¹⁵ For more detail see M. Cerović, 2012, pages 91–96.

M. Cerović: Development of Motor Hull Insurance in Serbia 2000–2020

insurance terms and conditions, depending on the type of insurance, scope of coverage, value and years of use of a motor vehicle.¹⁶

Table 1 Number of registered motor vehicles, number of motor hull insurances and the amount of gross premium for motor hull insurance 2000–2020 in 000 Dinars

Year	Number of registered vehicles and number of motor hull insurances					Gross premium of motor hull insurance in 000 Dinars		
	Number of motor vehicles	% of growth	Number of motor hull insurance	% of growth	Pro-tection degree	GP	% of growth	% NL
00	1,507,226	...	85,780	...	5.7	749,361	...	9.0
01	1,527,410	1.3	73,768	-14.0	4.8	1,239,718	65.4	7.2
02	1,670,577	9.4	75,299	2.1	4.5	1,448,339	16.8	6.8
03	1,678,070	0.4	91,567	21.6	5.5	1,683,570	16.2	7.5
04	1,686,516	0.5	117,111	27.9	6.9	2,545,786	51.2	10.3
05	1,694,961	0.5	135,442	15.7	8.0	4,322,265	69.8	13.8
06	1,755,873	3.6	159,304	17.6	9.1	4,918,043	13.8	14.3
07	1,822,997	3.8	208,543	30.9	11.4	6,589,323	34.0	16.5
08	1,919,158	5.3	248,435	19.1	12.9	8,429,952	27.9	18.4
09	1,996,764	4.0	259,395	4.4	13.0	7,587,380	-10.0	16.6
10	2,064,329	3.4	326,793	26.0	15.8	7,613,308	0.3	16.1
11	2,025,388	-1.9	214,772	-34.3	10.6	7,177,354	-5.7	15.2
12	2,140,809	5.7	219,357	2.1	10.2	6,927,923	-3.5	14.0
13	2,210,732	3.3	219,468	0.1	9.9	6,429,887	-7.2	12.9
14	2,246,282	1.6	204,660	-6.7	9.1	6,077,299	-5.5	11.1
15	2,415,275	7.5	214,153	4.6	8.9	6,229,061	2.5	10.1
16	2,344,020	-3.0	229,046	7.0	9.8	6,916,653	11.0	10.5
17	2,432,239	3.8	231,345	1.0	9.5	7,791,685	12.7	11.1
18	2,466,689	1.4	247,423	6.9	10.0	8,982,426	15.3	11.8
19	2,557,210	3.7	256,563	3.7	10.0	10,335,755	15.1	12.5
20	2,635,374	3.1	260,047	1.4	9.9	10,961,273	6.1	13.1

Source: AICY, AICSM and NBS

Insurance ranged between 1,507,226 in 2000 and 2,635,374 registered motor vehicles in 2020. It increased by 1.7 times or 2.8% on average annually, as a result of a decrease of 1.9% in 2011 and 3.0% in 2016, as well as growth during all other years of the observed period, which ranged between 0.4% in 2003 and 9.4%, in 2002.

¹⁶ N. Žarković, Pojmovnik osiguranja, 2013, p. 541 and 583.

Number of concluded insurance policies increased from 85,780 in 2000 to 260,047 in 2020, i.e. by three times. Average annual growth in the number of concluded insurance contracts of 5.7% was the result of a decrease by 6.7% (2014), 14% (2001) and 34.3% (2011) and growth in other years of the observed period, which ranged from 0.1% (2013) up to 30.9% (2007).

The protection degree (insurance acquisition) ranged between the lowest 4.5% (2002) and the highest 15.8% (2010) or 9.5% on average per year, which was in any case favourable.

The amount of the required premium is determined on the basis of actuarial rules and the rules of the insurance profession by applying the law of large numbers and probability calculations. Gross premium is used to cover claims, other liabilities in accordance with concluded insurance contracts, underwriting costs (hereinafter: UC), other liabilities related to an insurance company's operations and calculated profits. The amounts presented refer to the gross premium for concluded insurance contracts during a specified year, regardless of the separation that will be discussed in the next parts of this paper.

The amount of gross insurance premium of 749,361 thousand Dinars (12,771,407 Euros) in 2000 increased to 10,961,273 thousand Dinars (93,223,800 Euros) in 2020 or by 14.6 times (by 7.3 times in Euros). Average annual growth of 14.4% (10.4% in Euros) was the result of growth over 15 years from 0.3% (2010) to 69.8% (2005) and a decline recorded over five years that ranged between 3.5% (2012) and 10% (2009).

Period from 2001 to 2008 was characterized by unusually high growth in insurance premium. It ranged from 13.8% (2006) to 69.8% (2005). It occurred mainly due to the change in previous policy of insurance acquisition imposed by newly established foreign-owned insurance companies. The conclusion of long-term insurance policies through leasing companies was introduced with the payment of a premium in advance in a much smaller amount than that determined by a premium tariff. By operating in such manner, companies expanded their acquisition more quickly, which caused fierce unfair competition. There were cases where the risk was covered with a premium lower and over 50% of the required annual premium determined by a premium tariff. In addition, unfair competition was conducted in terms of the amount of insurance commission for acquisition that companies paid to leasing companies. Such acquisition policy at the beginning enabled increase in the number of insured persons, and thus the insurance premium, which inevitably led to negative results. This is clearly shown by the data that will be discussed in the continuation of this paper. In search of a way out of such unfavourable situation, insurers tried to return to the conclusion of insurance by consistently applying their premium tariffs, which expertly and actuarially determined the amount of the required annual premium without giving additional discounts for long-term insurance that were imposed by

the management of certain insurance companies in this period. An attempt to reach an agreement through the Association of Serbian Insurers led to the intervention of the Commission for Protection of Competition, which after several years ended with a gradual decrease of unfair competition and the insurer's abandonment of the previous method of acquisition.¹⁷ The problem arose because the Commission for Protection of Competition considered the Association's recommendation to companies to return to the consistent application of their own premium tariffs as a prohibited agreement that prevents competition, and failed to understand that it was intended for insurers to consistently adhere to different premium tariffs. The aim of the recommendation was to stop granting special discounts for long-term insurance by collecting the premium in advance, which were not even stipulated in insurer's premium tariffs and which were applied in different ways by insurers. It was not about an agreement to equalize the insurance price or any other conditions for insurance acquisition, but about returning to the way of working regulated by the business policy of each insurance company, to which the consent of the National Bank of Serbia was obtained. Business policy regarding motor hull insurance were not common to all companies. They differed both in the amount of the insurance premium and in other terms and conditions related to the conclusion of an insurance contract, the scope of cover and the method of compensation.

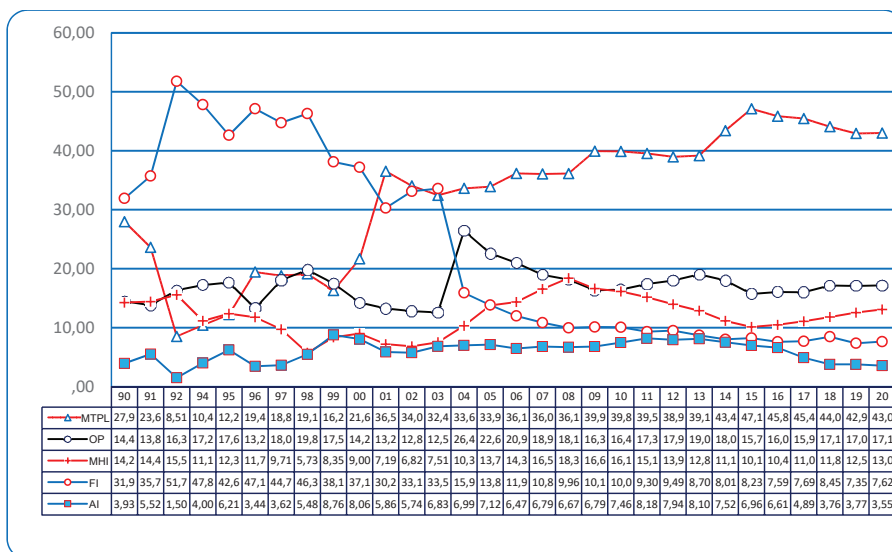
Significance of the development of motor hull insurance acquisition is measured by the analysis of various insurance categories shown above, but the most important is the motor hull premium share in the total premium of all non-life insurance lines. The following graph shows that share including a ten-year period that preceded the period for which all other insurance categories are shown in this paper.

During the entire observed period, motor hull premium share in non-life insurance premium took a significant position. It varied between 5.7% (1998) and 18.4% (2008). At the beginning of the period, with a 14.2% share (1990), it was in the fourth place, behind fire and allied perils insurance (hereinafter: FI) with 31.9%, motor third-party liability insurance (hereinafter: MTPL) with 28.0% and other property insurance (hereinafter: OP) with 14.5% share. In the period from 1991 to 1995, except for 1993 which was not shown due to enormously high inflation, motor hull

¹⁷ The Board of Directors of the Association, upon proposal of the Commission for Motor Vehicles, adopted a Recommendation recommending that insurance companies abandon the calculation and collection of motor hull insurance premium at once and in advance for the entire long-term period and return to the annual calculation and collection of premium as determined by premium tariffs in order to improve results and solvency of insurance companies. The agreement was not accepted by "Uniqa" non-life insurance. Therefore, other companies proposed that "Uniqa" be excluded from the Association, which led to "Uniqa's" request for an intervention of the Commission for Protection of Competition, which, by the Decision No. 4/0-01-60-09-28 of June 19, 2009, initiated a proceedings against all insurance companies that dealt with motor hull insurance, their general directors, except for "Uniqa", and the general secretary of the Association.

was third with a share 14.4%, 15.5%, 11.1% and 12.3%, respectively. Then from 1996 (11.7%) to 1998 (5.7%) it fell to the fourth place and in 1999 (8.4%) to the last, fifth place, behind accident insurance (8.8%). From 2000 (9.0%) to 2004 (10.3%) it returned to the fourth place, in 2005 shared the third and the fourth place with fire insurance and a 13.7% share. In 2006 (14.3%) and 2007 (16.5%) it took the third place, in 2008 (18.3%) and 2009 (16.6%) it took over the second place, and from 2010 (16.1%) until 2020 (13.0%) fell to the third place again.

Graph 2 Share of five largest insurance lines in non-life insurance premium 1990–2020 in percentage



Source: AICY, AICSM and NBS

The presented period is characterized by a high share of five largest non-life insurance lines in gross premium. It ranged from 83.7% in 2019 to 96.4% in 1998, or 87.8% on average annually. Observed by lines, the largest share of 40.8% belonged to MTPL, 17.4% to other property insurance, 12.8% to motor hull insurance, 10.8% to fire insurance and 6.1% to personal insurance.

Voluntary health insurance was in the fifth place, in the period from 2018 to 2020, instead of the accident insurance, with a share of 4.6%, 5.6% and 6.5%, respectively.

The analysis indicates the importance of motor hull insurance in non-life insurance market and its tendency for further development. Insurance premium

M. Cerović: Development of Motor Hull Insurance in Serbia 2000–2020

in 2020 compared to 2000 increased by 14.6 times (by 7.3 times in Euros) or 14.4% in Dinars (10.4% in Euros) on average annually. In the same period, the number of concluded insurances increased three times with an average annual growth of 5.7%, and the number of registered vehicles by 1.7 times with an average annual growth of 2.8%. Considering other factors affecting the increase in the degree of motor vehicles protection, the tendency of further development is realistic in future. It will greatly be influenced by the increase in the level of motorization, purchase of new, better quality vehicles and more expensive vehicles, especially vehicles driven by electricity, as well as improvement of the age structure of motor vehicles. Economic growth, budget stability and increase in salaries, pensions and other income of citizens is a good basis for further growth and development of motor hull insurance.

Motor hull insurance market in the observed period is marked by a high concentration per gross premium level. Regardless of the tendency to gradually fall, a high share is still retained by the two first and five largest insurance companies.

Table 2 List of five largest companies according to motor hull insurance premium in percentage

No.	Company	Year					Rank				
		2000	2005	2010	2015	2020	00	05	10	15	20
1	Dunav	30.5	40.6	28.3	23.2	25.5	2	1	1	1	1
2	DDOR	59.9	32.2	23.2	20.1	19.7	1	2	2	2	2
3	Wiener Staditsche	0.0	15.7	13.4	15.5	13.5		3	3	4	4
4	Delta*	0.0	6.6	13.4	16.3	13.6		4	4	3	3
5	AMS	0.0	1.2	5.2	0.0	0.0		5	5		
6	Uniqa neživot	0.0	0.0	0.0	8.1	0.0				5	
7	Triglav	0.0	0.0	0.0	0.0	7.5					5
8	Kopaonik	1.9	0.0	0.0	0.0	0.0	3				
9	Autonena	1.1	0.0	0.0	0.0	0.0	4				
10	Jugins	0.9	0.0	0.0	0.0	0.0	5				
11	First 5	94.3	96.3	83.5	83.2	79.8					
12	Other	5.7	3.7	16.5	16.8	20.2					

Source: AICSM (2000) and NBS (2005, 2010, 2015 and 2020)

*After the change of name, "Delta Generali", then "Generali"

In all years of the observed period, a high share of the first and the second company in the total gross premium of motor hull was recorded. Share of the first company ranged between 23.2% (2015) and 40.6% (2005), and the second company from 19.7% (2020) to 59.9% (2000). Premium of the first two companies together ranged from 43.3% (2015) to 90.4% (2000), and all five companies together between

79.8% (2020) and 94.3% (2000). A part of the premium of other companies recorded a noticeable tendency to grow from 3.7% (2005) to 20.0% (2020).

By concluding an insurance contract, an insured paid an annual insurance premium in advance or in installments, but in any case before the expiry of an insurance contract. Having in mind that the contract is concluded in the current year and that it will expire in the next year, it is necessary that the contracted premium in the current year is divided into the part of premium to cover claims and other liabilities arising in the current accounting period, and into the part of premium being transferred to cover claims and other liabilities that will be due for payment in the following accounting periods. A part of the premium transferred from the current accounting period in the next accounting period as unearned premium technical reserves will be discussed in the Chapter V - Technical Reserves.

IV. Claims

Claims are classified in several categories expressed in physical and monetary indicators. They include the number and amount of reserved reported claims (RRC_0) and the amount of reserved unreported claims (RUC_0) at the end of the previous year, which are transferred for settlement, i.e. liquidation and payment in the current year, the number of submitted claims during the year (SC), the number of cancelled and rejected claims (CR) and the number and amount of settled claims (SC)¹⁸ in a year. At the end of the current year, i.e. every accounting period in a year, the number and amount of reserved reported claims (RRC_1) and the amount of reserved unreported claims (RUC_1) are determined, which as outstanding claims, i.e. future liabilities, are transferred to the next year, i.e. in the next accounting period. In this paper, the number of settled claims includes the number of rejected and cancelled claims, since they are settled claims. The abbreviation SC is used due to the need to highlight the difference in relation to the abbreviation used for reserved claims (RC).

Claims and all types of technical reserves, which will be discussed in this paper, are recorded in corresponding business books and calculated cautiously, reliably and objectively by using the actuarial profession principles and the insurance profession rules, and by implementation of actuarial and statistical methods in accordance with the regulations and business policy of an insurance company. The method of recording claims was not closely regulated, nor closer criteria and the manner of calculating technical reserves, nor giving opinions of a certified actuary when the Law 1996 was in force. Thus, an insurance company and its certified actuary were allowed to decide independently and use various ways and methods in recording submitted claims and calculation of technical reserves. Almost as a rule, primarily under the pressure of

¹⁸ Settled claims include settled, rejected and cancelled claims, and according to the amount of paid claims in the accounting period and an obligation for unpaid claims at the last day of the accounting period.

a company's management, and in order to present better results, an inaccurate number of submitted claims and calculation of technical reserves were presented, which were determined in underestimated amounts. This is clearly shown by data in all tables and graphs regarding the number of claims and the amounts of technical reserves in periods before and after coming into force of the Law 2004, the regulations of the National Bank of Serbia and an insurance company's business policy acts adopted in compliance with this law. Since 2004, in addition to more detailed criteria, calculation methods, use of insurance funds, all acts, documents, information, methods, data, procedures and other acts used for these needs are submitted upon request to the National Bank of Serbia. This ensured that insurance activities were performed in a better and a more responsible manner. In order to avoid repeating these notes, one should bear in mind that they relate to all parts of paper regarding claims and technical reserves for unearned insurance premium.

In Table 3, the column Number of SC shows the number of settled claims, and the column Total Number of Claims shows the number of claims in the settlement procedure in a year ($SC + RRC_1 - RRC_0$), but without the number of reserved unreported claims because this data is not mandatory for determination and submission to the NBS, and therefore is not available (hereinafter: N/A). In order to understand the data in the column Total Number of Claims for 2000, one should bear in mind that the number of RRC_0 at the end of 1999 was 2,005 claims. Loss frequency means the percentage ratio of the claims' number compared to the number of concluded insurances. In Table 3, it was calculated based on the total number of losses shown and the number of concluded motor hull insurances shown in Table 1 (Total Number of Losses/Number of motor hull).

Table 3 Number of claims 2000–2020

Year	Number of SC	% growth	Number of RRC	% growth	Total number of claims	% growth	Loss frequency in %
00	17,717	...	2,380	...	18,092	...	21.1
01	18,485	4.3	2,109	-11.4	18,214	0.7	24.7
02	19,131	3.5	2,276	7.9	19,298	6.0	25.6
03	23,682	23.8	2,489	9.4	23,895	23.8	26.1
04	29,946	26.5	4,514	81.4	31,971	33.8	27.3
05	40,563	35.5	5,635	24.8	41,684	30.4	30.8
06	53,323	31.5	7,315	29.8	55,003	32.0	34.5
07	67,088	25.8	7,352	0.5	67,125	22.0	32.2
08	85,863	28.0	9,074	23.4	87,585	30.5	35.3
09	88,839	3.5	11,445	26.1	91,210	4.1	35.2

M. Cerović: Development of Motor Hull Insurance in Serbia 2000–2020

Year	Number of SC	% growth	Number of RRC	% growth	Total number of claims	% growth	Loss frequency in %
10	88,267	-0.6	10,196	-10.9	87,018	-4.6	26.6
11	84,439	-4.3	9,703	-4.8	83,946	-3.5	39.1
12	73,188	-13.3	8,330	-14.2	71,815	-14.5	32.7
13	70,976	-3.0	7,721	-7.3	70,367	-2.0	32.1
14	66,146	-6.8	7,699	-0.3	66,124	-6.0	32.3
15	65,766	-0.6	8,583	11.5	66,650	0.8	31.1
16	70,846	7.7	10,032	16.9	72,295	8.5	31.6
17	74,097	4.6	11,522	14.9	75,587	4.6	32.7
18	80,981	9.3	12,254	6.4	81,713	8.1	33.0
19	84,352	4.2	10,328	-15.7	82,426	0.9	32.1
20	78,706	-6.7	10,813	4.7	79,191	-3.9	30.5

Source: AICY, AICSM and NBS

Number of settled claims ranged from 17,717 (2000), 88,839 (2009) to 78,706 in 2020. In the end, compared to the beginning of the observed period, it increased by 4.4 times. Average annual growth of 7.7% is the result of an increase over 13 years, which ranged from 3.5% (2002 and 2009) to 35.5% (2005) and a decline recorded over seven years, between 0.6% (2015) and 13.3% (2012).

Number of reserved reported claims from 2,380 at the beginning of the observed period, to 11,445 in 2009 and then fell to 10,813 in 2020. Increase by 4.5 times or 7.9% on average annually is the result of growth in 12 annual periods, which ranged between 0.5% (2007) and 81.4% (2004) and decline recorded over eight years from 0.3% (2014) to 15.7% (2019).

Total number of losses ranged between 18,092 (2000) and 91,210 (2009), and fell to 79,191 in 2020, and increased by 4.4 times. Average annual growth of the total number of claims of 77% is the result of an increase recorded over 14 years, which ranged between 0.7% (2001) and 33.8% (2004), following a six-year decrease of 2.0% (2013) to 14.5% in 2012.

Loss frequency ranged from 21.1% (2000), 39.1% (2011), and to 30.5%, in 2020, i.e. 31.7% on average annually.

New measures of insurance supervision introduced in 2004 had a significant impact on insurance companies' operations and on the number of claims. Regulations closely regulating insurance companies' operations, stipulated by the National Bank of Serbia, also affected the claims handling.¹⁹ A public discussion about the new law,

¹⁹ Decision on the Contents of the Opinion of a Certified, *Official Gazette of the RS* no. 19/2005, Decision on Detailed Criteria and Manner of Calculating Reserved Claims, *Official Gazette of the RS* no. 19/2005,

M. Cerović: Development of Motor Hull Insurance in Serbia 2000–2020

adoption of the law and the first regulations of the NBS changed previous practice regarding the reception, recording and handling of claims. In 2004, the number of settled claims increased by 26.5%, and the number of reserved claims by 81.4%.

**Table 4 Amount of settled claims and collected recourse
2000–2020 in 000 Dinars**

Year	SC	% growth	% NL	Recourse	% growth	% NL
00	422,139	...	10.9	N/A	...	N/A
01	666,374	57.9	9.5	N/A	N/A	N/A
02	681,856	2.3	8.8	N/A	N/A	N/A
03	688,428	1.0	8.2	160,452	0.0	56.4
04	1,208,833	75.6	14.1	150,588	-6.1	55.8
05	1,866,698	54.4	16.5	205,166	36.2	55.1
06	2,878,731	54.2	19.7	270,105	31.7	57.2
07	3,758,241	30.6	22.5	304,349	12.7	55.6
08	5,005,269	33.2	25.5	357,065	17.3	57.9
09	5,709,989	14.1	25.5	498,376	39.6	61.6
10	5,473,484	-4.1	23.5	373,548	-25.0	55.8
11	5,124,960	-6.4	21.7	423,314	13.3	55.3
12	4,881,437	-4.8	20.5	375,181	-11.4	46.5
13	4,826,809	-1.1	19.4	345,761	-7.8	45.3
14	5,031,210	4.2	19.5	339,415	-1.8	42.8
15	4,750,072	-5.6	17.1	435,800	28.4	33.9
16	5,391,255	13.5	18.5	482,685	10.8	32.7
17	5,936,008	10.1	19.7	527,627	9.3	36.7
18	6,327,217	6.6	19.6	539,860	2.3	35.4
19	7,036,708	11.2	16.6	593,287	9.9	38.0
20	7,283,942	3.5	18.9	563,381	-5.0	36.9

Source: AICY, AICSM and NBS

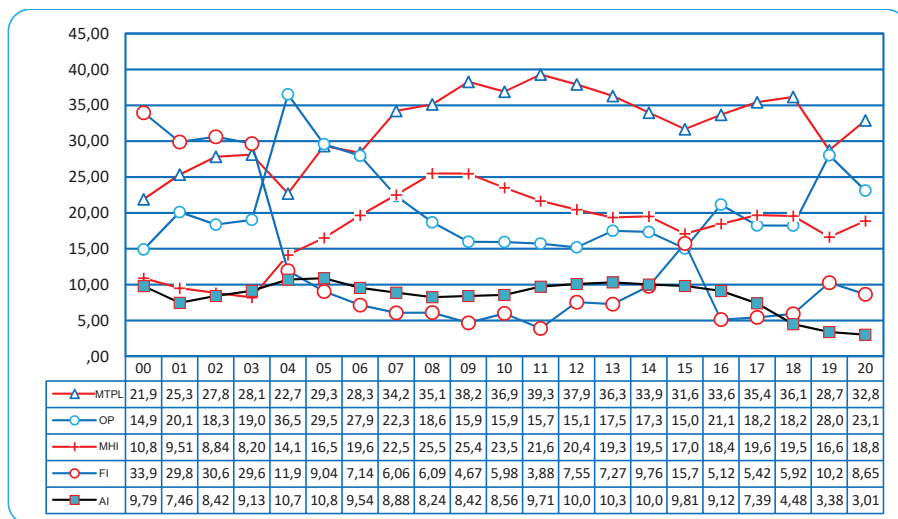
Settled claims from 422,139 thousand Dinars (7,194,541 Euros) in 2000 increased to 7,283,942 thousand Dinars (61,948,712 Euros) in 2020, or by 17.3 times (by 8.6 times in Euros). Average annual growth of 15.3% in Dinars (11.4% in Euros) is the result of growth over 15 years, which ranged between 1.0% (2003) and 75.6% (2004) and a decline over five years from 1.1% (2013) to 6.4% (2011).

Decision on Submission of Statistical and Other Data from Insurance Companies to the National Bank of Serbia, *Official Gazette of the RS* no. 27/2005 and 21/2010, and Decision on Technical Reserves, *Official Gazette of the RS* no. 47/2015.

Revenues from recourse and sale of insured items (hereinafter: recourse) are closely related and arise from claims handling. Motor hull insurance belongs to insurance lines involving extensive and complex work in connection with recourse, which is one of the income items of insurance companies. Realised annual revenues ranged between 150,588 thousand Dinars (1,908,956 Euros) in 2004 and 593,381 thousand Dinars (5,045,266 Euros) in 2019. At the end of the observed period, compared to 2003, revenues from recourse increased by 3.5 times (by two times in Euros). An average annual growth of 7.7% (4.3% in Euros) was recorded as a result of the achieved growth over 15 years, which ranged between 2.3% (2018) and 39.6% (2009), according to the decline in six years from 1.8 (2014) to 25.0% in 2010.

Realised revenues from motor hull recourse in this type of non-life insurance income ranged between 32.7% (2016) and 61.6% (2009) or 43.4% on average annually. Motor hull insurance and MTPL took turns in the first or the second place.

Graph 3 Share of five largest insurance lines in non-life settled claims 2000–2020 in percentage



Source: AICY, AICSM and NBS

At the beginning of the observed period from 2000 (10.8%) to 2002 (8.8%), motor hull insurance was in the fourth place, in 2003 (8.2%) it fell to the fifth place, and from 2004 (14.1%) to 2006 (19.6%) it was in the third place. From 2007 (22.5%) to 2015 (17.0%) it was in the second place, in 2016 (18.4%) it fell to the third place, in 2017 (19.6%) and 2018 (19.5%) it was back in the second place again, only to fall

back in the third place in 2019 (16.6%) and in 2020 (18.8%), but was well ahead of fire insurance in the fourth place (8.7%) and accident insurance (3.0%), which during the observed period was in the fifth place, except in 2003 (9.1%) when it was in the fourth place.

Share of five leading insurance lines in settled non-life insurance claims ranged between 84.4% (2018) and 96.0% (2004) or 89.8% on average annually. The largest share of 33.6% of the average annual share of five largest lines was MTPL insurance, followed by other property insurance with 20.1%, motor hull insurance with 19.2%, fire insurance with 9.1% and accident insurance with 7.8 %.

From 2018 to 2020, the fifth place, instead of accident insurance, belonged to voluntary health insurance with a share of 7.3%, 6.5% and 7.2% respectively.

Reserved claims include two types – reported but not settled claims up to the end of the accounting period (RBNS) and incurred but not reported claims up to the end of the accounting period (IBNR). Reserved claims are calculated as the estimated amount of an insurance company's liability on the last day of the accounting period. Calculation is made on the basis of liabilities from an insurance contract, regulations for provision of services in the process of loss determination, the value of materials and services, the findings and opinions of experts, appraisers and other professionals, as well as on the basis of data on costs related to the settlement and payment of claims. Costs of settlement and payment of claims include the costs of surveying, assessment and payment of claims, costs of realization of recourse claims and sale of insured items, court costs and fees in disputes, costs of expertise and other costs. When determining the amount of loss, the company's liabilities established by law and case law are taken into account.

Depending on the method of calculation of reserved claims, settled claims used in that calculation may be reduced by the amount of collected income from recourse and sale of insured items, based on the opinion of a certified actuary.

Reserves for reported claims are calculated on the basis of an individual assessment of each loss, taking into account a submitted claim and attached documentation. Claims in the regular procedure (which are not in dispute) for which a legal basis has been established, but the necessary documents have not been obtained on the basis of which the reserved amounts could be calculated with greater precision, at least an amount equal to the average settled claim in the current accounting period in a homogeneous group and insurance line to which the loss belongs is reserved for each loss.

Table 5 Amount of reserved claims 2000–2020 in 000 Dinars

Year	RRC	% growth	RUC	% growth	SC	% growth	ML	% growth
00	75,836	...	3,033	...	78,869	...	461,192	...
01	98,704	30.2	3,948	30.2	102,652	30.2	690,157	49.6

M. Cerović: Development of Motor Hull Insurance in Serbia 2000–2020

Year	RRC	% growth	RUC	% growth	SC	% growth	ML	% growth
02	115,901	17.4	4,636	17.4	120,537	17.4	699,741	1.4
03	152,197	31.3	6,088	31.3	158,285	31.3	565,724	-19.2
04	312,928	105.6	12,517	105.6	325,445	105.6	1,225,405	116.6
05	307,827	-1.6	218,191	1643.1	526,018	61.6	1,862,105	52.0
06	561,042	82.3	319,900	46.6	880,942	67.5	2,963,550	59.2
07	723,391	28.9	563,067	76.0	1,286,458	46.0	3,859,408	30.2
08	781,444	8.0	718,201	27.6	1,499,645	16.6	4,861,391	26.0
09	978,300	25.2	795,546	10.8	1,773,846	18.3	5,485,814	12.8
10	1,004,044	2.6	654,934	-17.7	1,658,978	-6.5	4,985,068	-9.1
11	862,304	-14.1	621,321	-5.1	1,483,625	-10.6	4,526,293	-9.2
12	712,682	-17.4	707,635	13.9	1,420,317	-4.3	4,442,948	-1.8
13	640,377	-10.1	720,809	1.9	1,361,186	-4.2	4,421,917	-0.5
14	707,390	10.5	718,380	-0.3	1,425,770	4.7	4,756,379	7.6
15	874,640	23.6	695,038	-3.2	1,569,678	10.1	4,458,180	-6.3
16	948,728	8.5	737,432	6.1	1,686,160	7.4	5,025,052	12.7
17	1,110,988	17.1	793,250	7.6	1,904,238	12.9	5,626,459	12.0
18	1,141,050	2.7	817,939	3.1	1,958,989	2.9	5,842,108	3.8
19	1,208,034	5.9	991,475	21.2	2,199,509	12.3	6,683,941	14.4
20	1,210,032	0.2	1,411,256	42.3	2,621,288	19.2	7,142,340	6.9

Source: AICY, AICSM and NBS

Reserved reported claims of 75,836 thousand Dinars (1,292,470 Euros) in 2000 increased to 1,210,032 thousand Dinars (10,291,120 Euros) in 2020, or by 16 times (by eight times in Euros). Average annual growth of 14.9% in Dinars (10.9% in Euros) is the result of an increase over 16 annual periods that ranged between 0.2% (2020) and 105.6% (2004), according to the decline recorded over four years, from 1.6% in 2005 to 17.4% in 2012.

Reserved unreported claims, depending on insurance line, insurance company's portfolio and available data, are calculated by taking into account previous experience in relation to the number of claims, the amount of claims and the period required for reporting, assessment, settlement and payment of claims depending on the characteristics of the homogeneous group of risks and available data. Reserves are determined based on data on settled and reserved reported claims, without annuity claims, and by applying actuarial methods, such as lump sum (statistical) method, chain ladder method, method of expected quota of claims, Bornhuetter-Ferguson method and other.

An insurance company is obliged to provide a sufficient amount of funds (technical reserves) in order to cover liabilities for incurred outstanding claims at the

end of the accounting period by responsible, organized and consistent application of the rules of the actuarial profession and the insurance profession in accordance with the law, the NBS regulations and business policy of an insurance company.

In the observed period, reserves for unreported claims were determined in different manners. Until 2004, at the amount of 4% of the amount of reported claims. Regardless of the fact that the value of those reserves was significantly underestimated, this method was in practice used by all insurance companies. From 2005 until the end of the observed period, the calculation was carried out by using criteria and methods of calculating reserved claims and actuarial models established by the regulations of the National Bank of Serbia.²⁰ Precisely because of the differences in the calculation method, a large increase appeared from 3,033 thousand Dinars (51,699 Euros) in 2000 to 1,411,256 thousand Dinars (12,002,497 Euros) in 2020, i.e. by 465.3 times (by 232.2 times in Euros). Average annual growth of 36.0% in Dinars (31.3% in Euros) is the result of an increase over 16 annual periods that ranged from 1.9% (2013) to 1643.1% in 2005, according to a decline recorded over four years - between 0.3% in 2014 and 17.7% in 2010.

Increase in reserves for unreported claims in 2020 compared to 2005 was by 6.5 times (by 4.7 times in Euros) with an average annual growth of 13.3% in Dinars (10.9% in Euros).

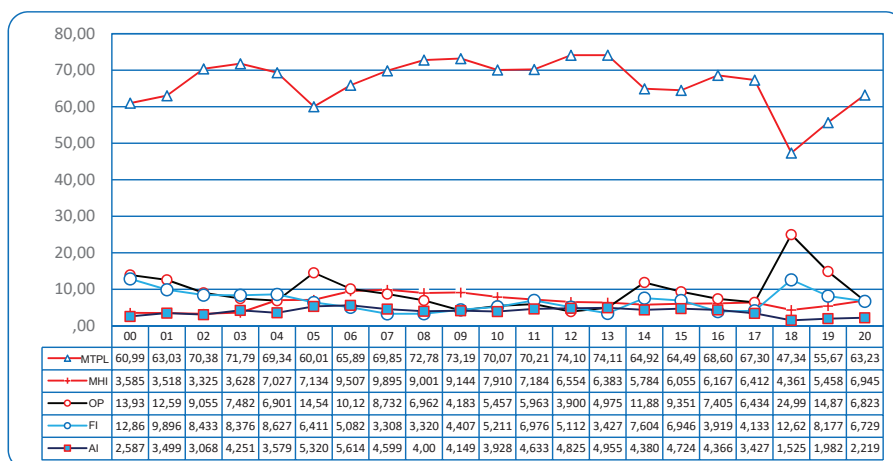
Total reserved claims (RC) present the sum of reserves for incurred reported claims and reserves for incurred but not reported claims. Their movement in the observed period was similar to the movement of individual parts of those reserves and the differences in periods before and after the transfer of insurance supervision to the competence of the NBS. From 78,869 thousand Dinars (1,344,169 Euros) in 2000, they increased to 2,621,288 thousand Dinars (22,293,617 Euros) in 2020, i.e. by 33.2 times (by 16.6 times in Euros) or an average annually by 19.1% in Dinars (by 15.1% in Euros). Growth of reserves was recorded over 16 annual periods, ranging between 2.9% (2018) and even 105.6% (2004), and a decline in four annual periods from 4.2% (2013) to 10.6% in 2011. As with other categories of claims, the movement of the total amount of reserved claims before and after the transfer of insurance supervision to the competence of the NBS was similar. At the end of the observed period in 2020, compared to 2004, an increase by 8.1 times (by 5.4 times in Euros) or 13.9% in Dinars (11.1% in Euros) was recorded on average annually.

At the beginning of the observed period in 2000 (3.6%), motor hull insurance was in the fourth place, in 2001 (3.5%) it shared the fourth and the fifth place with accident insurance, in 2002 (3.3%) it was in the fourth place, and in 2003 (3.6%) it fell to the fifth place. From 2004 (7.0%) to 2006 (9.5%), it was in the third place, then from 2007 (9.9%) to 2013 (6.4%) it was in the second place. In 2014 (5.8%) and 2015

²⁰ Decision 2005, Decision 2007 and Decision 2015.

(6.0%), it fell to the fourth place, and in 2016 (6.2%) it returned to the third place. It shared the second and the third place with other property insurance in 2017 (6.4%), in 2018 (4.4%) and 2019 (5.5%) it fell to the fourth place again, and in 2020 (6.9%) again took the second place, behind MTPL (63.2%), and ahead of other property insurance (6.8%), fire insurance (6.7%) and personal accident insurance (2.2 %).

Graph 4 Share of five largest insurance lines in reserved non-life insurance claims 2000–2020 in percentage



Source: AICY, AICSM and NBS

Five largest insurance lines recorded a high share of reserved claims in non-life insurance, ranging from 85.9% (2020) to 96.4% (2007) or 91.5% on average annually. Observed by insurance lines, the largest part of share – 64.7% belonged to MTPL, 10.1% to other property insurances, 6.6% to fire insurance, 6.5% to motor hull and 3.6% to accident insurance.

In the last two years of the observed period, the share of accident insurance and voluntary health insurance was the same – 2019 (2.0%) and 2020 (2.2%).

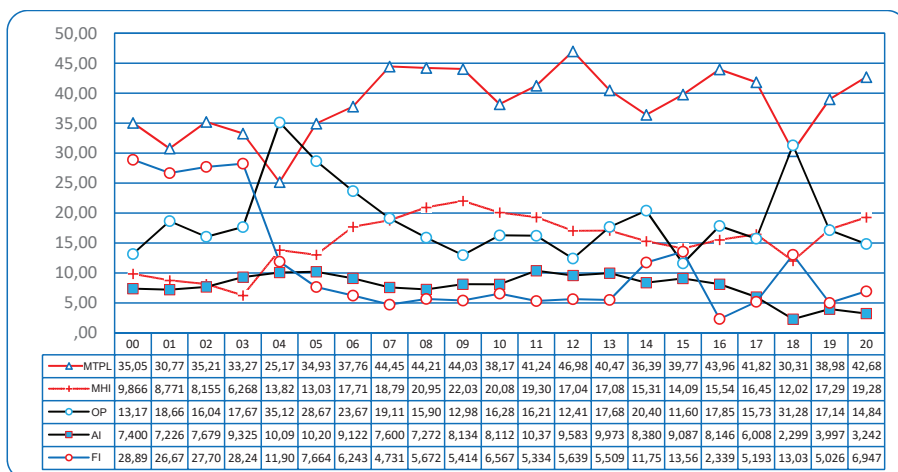
Actual claims - the amount of settled claims in the current accounting period less the income from recourse and the sale of insured items, and then increased or decreased by the difference between the amount of reserved claims at the end of the accounting period and reserved claims at the end of the previous accounting period $(SC_{-recourse}) + (RC_1 - RC_0)$.

Actual claims in 2000 were 461,192 thousand Dinars (7,860,124 Euros), and in 2020 they were 7,142,340 thousand Dinars (60,744,411 Euros). They increased by 15.5 times (by 7.7 times in Euros). Average annual growth of 14.7% in Dinars (10.8%

M. Cerović: Development of Motor Hull Insurance in Serbia 2000–2020

in Euros) was the result of growth over 14 years, which ranged from 1.4% (2002) to 116.6% (2004), according to the decline recorded during six years – between 0.5% (2013) and 19.2% (2003). Increase in 2020 compared to 2004 was by 5.8 times (by 3.9 times in Euros) or 11.6% in Dinars (8.9% in Euros) on average annually.

Graph 5 Share of five largest insurance lines in actual claims in non-life insurance 2000–2020 in percentage



Source: AICY, AICSM and NBS

In the period from 2000 to 2002 (9.9%, 8.8% and 8.2%, respectively) motor hull insurance was fourth, behind MTPL insurance (35.0%, 30.8% and 35.2%, respectively) in the first place, fire insurance (28.9%, 26.7% and 27.7%, respectively) in the second and other property insurances (13.2%, 18.7% and 16.0%, respectively) in the third place, and ahead of accident insurance, whose share was (7.4%, 7.2% and 7.7%, respectively), and in 2003 (6.3%) it fell to the fifth place. From 2004 (13.8%) to 2007 (18.8%), it was in the third place, from 2008 (21.0%) to 2012 (17.0%) it was in the second place, in 2013 (17.1%) and in 2014 (15.3%) it fell to the third place, in 2015 (14.1%) returned to the second place, in 2016 (15.5%) it fell again to the third place, and in 2017 (16.5%) it returned to the second place again. In 2018 (12.0%), it fell to the fourth place, and in 2019 (17.3%) and 2020 (19.3%) it returned to the second place for the third time.

Share of five largest insurance lines in actual non-life insurance claims ranged between 82.9% (2010) and 91.7% (2018), i.e. 90.0% on average annually. By insurance lines, 39.4% of average share referred to MTPL, 18.5% to other property insurances, 16.4% to motor hull, 8.6% to fire insurance and 7.1% to accident insurance.

In the last four years of the observed period, instead of accident insurance, the fifth place belonged to voluntary health insurance, whose average annual share was 6.3%, 5.0%, 7.7% and 7.6%, respectively.

Based on presented data and despite the fluctuations in certain years of the observed period, it can be concluded that motor hull insurance ranked high in comparison to other non-life insurance lines in terms of the amount of actual claims.

V. Technical Reserves

Technical reserves are funds formed to cover future liabilities and possible losses due to risks arising from an insurance company's business operations. They are calculated according to related risks within a homogeneous group of risks, that is, according to one insurance line, separately for life and non-life insurance.

In non-life insurance, depending on insurance lines, i.e. risks and legal frameworks that were applied in certain periods of the observed period, an insurance company formed the following technical reserves and other types of insurance reserves:

1. When the Law on Property and Personal Insurance from 1996 was in force:
 - 1.1. Technical reserves for unearned premium (UP),
 - 1.2. Technical reserves for reserved claims (RC),
 - 1.3. Reserves for mass and catastrophic losses (RMCC),
 - 1.4. Revenue reserves (RR),
 - 1.5. Security reserves debited to expenses (SRDE),
 - 1.6. Other technical reserves (OTR).
2. When the Insurance Law from 2004 and the Law from 2014 were in force:
 - 2.1. Technical reserves for unearned premium (UP),
 - 2.2. Technical reserves for reserved claims (RC),
 - 2.3. Risk balancing reserves (RBR),
 - 2.4. Reserves for bonuses and discounts (RBP),
 - 2.5. Unexpired risk reserves (URR),
 - 2.6. Investment risk reserves (IRR),
 - 2.7. Other technical reserves (OTR).

When the Law was in force in 1996, no closer criteria and calculation method of technical reserves were prescribed. Calculation was carried out by an insurance company's expert departments, often under pressure from a company's management. A company's certified actuary provided an opinion to the annual report on business operations, amendments and supplements to the business policy deeds and to the report on implementation of the coinsurance and reinsurance policy in accordance with the Rulebook on the Contents of the Opinion of a Certified Actuary, which was adopted for the first time in our country in 1999. The amount of technical reserves

for unearned premium and reserved claims in this part of the observed period was characterized by determination of an underestimated values, which in most cases were not sufficient to cover future liabilities in accordance with concluded insurance contracts and other liabilities from an insurance company's business operations, which was clearly shown by a comparative analysis of data in tables and graphs on these types of technical reserves.²¹

The situation is completely different in case of security reserves since their calculation is defined by the law. Security reserve funds were determined at the level of at least 50% of a realised average gross insurance premium in the last two years, including the year for which the realised profit is allocated, one part debited to expenses, and the other part from a realised profit, so that there was a possibility of a higher allocation than the prescribed minimum.²² Other insurance reserves were formed in the manner determined by business policy deeds of each insurance company as optional.

Security reserves and reserves for mass and catastrophic losses were not calculated in this period nor were they shown in the reports on an insurance company's business operations by insurance lines. Therefore, the Table 6 showed data by type of technical reserves for all life and non-life insurance lines, without mathematical reserves in life insurance.

Table 6 Technical reserves without a mathematical reserve of life insurance 2000–2004 in 000 Dinars

Year	RR	SRDE	DRS	RMCC	All without UP and RC	Total with UP and RC
00	388,420	565,229	0	203,519	1,157,168	4,239,068
01	481,027	963,523	177,106	296,367	1,918,023	7,388,251
02	616,042	1,075,826	267,072	433,268	2,392,208	10,742,136
03	656,292	1,105,811	0	411,563	2,173,666	12,334,859
	OTR	RER	RBD	IRR	All reserves without UP and RC	Total with UP and RC
04	940,089	469,647	12,536	13,186	1,435,458	11,994,122

Source: AICY and AICSM.

Having in mind that no data is available on the amount of security reserves and reserves for mass and catastrophic losses that belong to motor hull insurance, as well as due to the nature of this paper, we will not go into their detailed analysis.

²¹ Insurance company dealing with non-life insurance activities was not obliged to employ a certified actuary. Actuarial activities were performed mainly by hiring a certified actuary as an external associate, the Law, 1996, Article 114 and 122.

²² Law, 1996, Article 49.

M. Cerović: Development of Motor Hull Insurance in Serbia 2000–2020

Since 2004, technical reserves were formed at the amount that ensured the coverage of all liabilities from concluded insurance contracts by applying procedures that enabled verification of their adequacy, as well as a company's actions in the event that the technical reserves inadequacy is determined. An insurance company is obliged to systematically apply established criteria and method of calculating technical reserves, whereby that calculation method cannot be changed arbitrarily. An insurance company adopted rulebooks regulating the criteria, the method and deadlines for calculating and forming technical reserves to be submitted to the National Bank of Serbia.

Table 7 Technical reserves for motor hull insurance 2000–2020 in Dinars

Year	UP	% growth	RC	RER	RBD	URR	Total*	% growth
00	46,171	...	78,869	N/A			125,040	...
01	92,381	100.1	102,652	N/A			195,033	56.0
02	107,948	16.9	120,537	N/A			228,485	17.2
03	213,854	98.1	158,285	N/A			372,139	62.9
04	1,022,685	378.2	325,445	N/A			1,348,130	262.3
05	2,210,831	116.2	526,018	9,424			2,746,273	103.7
06	2,878,320	30.2	880,942	1,343			3,760,605	36.9
07	3,958,696	37.5	1,286,458	22,563			5,267,717	40.1
08	5,145,734	30.0	1,499,645	72,214			6,717,593	27.5
09	4,678,945	-9.1	1,773,846	100,690			6,553,481	-2.4
10	4,321,304	-7.6	1,658,978	322,924			6,303,206	-3.8
11	3,756,798	-13.1	1,483,625	537,860			5,778,283	-8.3
12	3,462,097	-7.8	1,420,317	640,482			5,522,896	-4.4
13	3,185,861	-8.0	1,361,186	561,130			5,108,177	-7.5
14	3,037,526	-4.7	1,425,770	354,001			4,817,297	-5.7
15	3,119,386	2.7	1,569,678	1,998	6,434	508,966	5,206,462	8.1
16	3,450,010	10.6	1,686,160	2,449	7,631	580,058	5,726,308	10.0
17	3,901,407	13.1	1,904,238	2,026	6,646	684,795	6,499,112	13.5
18	4,505,402	15.5	1,958,989	0	16,260	566,378	7,047,029	8.4
19	5,271,631	17.0	2,199,509	0	17,570	573,714	8,062,424	14.4
20	5,689,461	7.9	2,621,288	0	17,853	548,042	8,876,644	10.1

Source: AICY, AICSM and NBS

*2000–2004 includes only UP and RC

Unearned premium reserves are a part of the gross premium under concluded insurance contracts in the current accounting period that are transferred to the next accounting period and serve to cover liabilities that will be due for payment in the

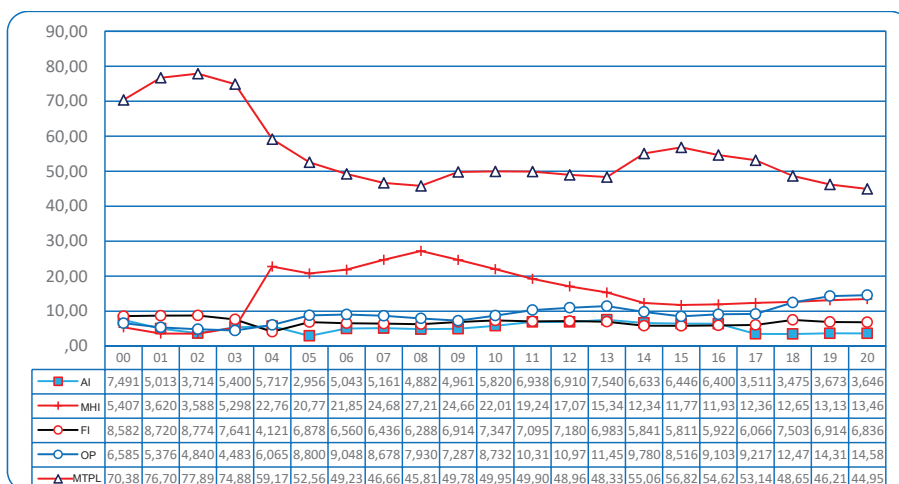
M. Cerović: Development of Motor Hull Insurance in Serbia 2000–2020

next accounting period. In case of insurance contracts where the risk distribution is even in time, as with motor hull, technical reserves are calculated according to the method of individual calculation for each contract with exact time separation (*pro rata temporis*). From 2000 to 2003, that calculation method was not used and the technical premium was used instead of the gross premium, which additionally enabled unearned premium reserves to be formed in underestimated amounts. This is indicated by the difference between the amounts shown in Table 7 before and after 2004.

The amount of unearned premium of 5,689,461 thousand Dinars (48,387,917 Euros) in 2020 compared to 46,171 thousand Dinars (786,895 Euros) in 2000 is by 123.2 times higher (by 61.5 times in Euros) or by 27.2% in Dinars (by 22.9% in Euros) on average annually. Increase in unearned premium technical reserves during 14 annual periods ranged between 2.7% in 2015 and even 378.2% in 2004, while it should be borne in mind that such a large increase was mainly due to the change of criteria and method of calculating technical reserves, which compared to the previous period, was regulated in more detail by the laws of 2004 and 2014 and the regulations of the National Bank of Serbia. Decline was recorded in six annual periods, 4.7% in 2014 to 13.1% in 2011.

As in other insurance categories presented so far, the amount of unearned premium in 2020 compared to 1,022,685 thousand Dinars (12,964,252 Euros) in 2004 showed a significantly smaller increase, which was by 5.6 times (by 3.7 times in Euros) or 11.3% in Dinars (8.6% in Euros) on average annually.

Graph 6 Share of five largest insurance lines in non-life insurance unearned premium 2000–2020 in percentage



Source: AICY, AICSM and NBS

Share of motor hull in unearned premium reserves of non-life insurance ranged from 3.6% in 2001 and 2002 to 27.2% in 2008. In the period from 2000 to 2002 (5.4%, 3.6% and 3.6% respectively) it was in the fifth place, and in 2003 (5.3%) it was in the fourth place. From 2004 (22.8%) to 2018 (12.7%), it was in the second place, and in 2019 (13.1%) and 2020 (13.5%) it fell to the third place, behind MTPL (46.2% and 45.0% respectively) in the first place, and other property insurance (14.3% and 14.6% respectively) which was in the second place, ahead of fire insurance (6.9% and 6.8% respectively) in the fourth place, and accident insurance (3.7% and 3.6% respectively) in the fifth place. Average annual share of motor hull in unearned premium of non-life insurance was 15.9%.

Share of five largest insurance lines in non-life unearned premium reserves ranged between 99.4% in 2001 and 83.5% in 2020, or 88.8% on average annually. By insurance lines, 50.6% of the average annual share belonged to MTPL insurance, 15.9% to motor hull, 10.5% to other property insurances, 6.7% to fire insurance and 5.1% to accident insurance.

Similar to other categories of presented data, voluntary health insurance was, in the last three years in the fifth place, instead of accident insurance, with a share of 3.6%, 4.3% and 4.9% respectively.

Reserved claims are discussed in more detail in Chapter IV of this paper. Table 7 shows the same amounts as Table 5, and only for the purpose of a complete overview of the structure and total amount of technical reserves of motor hull insurance.

Risk balancing reserves are used for temporal balancing of the flow of claims by non-life insurance lines. In the observed period, they were formed in two different manners.

From 2005 to 2014, the calculation was made according to the standard deviation of the annual technical results from the average technical result over a period of ten or more years for each non-life insurance line. The allocation was made if a standard deviation was at least 0.05, or the annual technical result in that period for an insurance line was greater than 1 at least once. If none of these conditions were met, risk balancing reserves were reduced by one-fifth at the end of each year for the next five years, including the year when none of these conditions are found to have been met.²³

Starting from 2015, risk balancing reserves are formed on the basis of realised annual net result in each non-life insurance line. Formation of reserves is mandatory only for credit insurance, and for all other insurance lines it is voluntary. The amount of reserves is increased according to the annual calculation if a positive net result was achieved in an insurance line by 75% of the positive net result, and at most by 12% of the self retained premium until they reach 150% of the annual premium in

²³ Decision on Detailed Criteria and Manner of Calculating the Risk Balancing Reserves, 2005.

self-retention in an insurance line in the last five years, including the year for which the calculation is made. Risk balancing reserves are reduced by the total amount of the negative net annual calculation, but maximum up to the amount of these reserves allocated for an insurance line according to the calculation for the previous year.²⁴

Taking into account different methods of determination (increase or decrease), mandatory and optional formation for certain insurance lines, risk balancing reserves in 2005 were 9,424 thousand Dinars (110,222 Euros), and in 2012 they increased to 640,482 thousand Dinars (5,632 181 Euros), and then in 2017 they fell to 2,026 thousand Dinars (17,101 Euros).

Reserves for bonuses and discounts have been allocated since 2015 for profit sharing, for future partial premium reductions and premium return to be paid to insureds and other insurance users in the next accounting period. It also includes a part of premium return based on early termination of an insurance contract. Amount of those reserves ranged between 6,434 thousand Dinars (52,900 Euros) in 2015 and 17,853 thousand Dinars (151,837 Euros) in 2020. In the end, compared to the beginning of the presented six-year period, they increased by 2.8 times (by 2.9 times in Euros).

Unexpired risk reserves are allocated from 2015 if it is determined that the expected amount of losses and costs in the next period under contracts from the current accounting period is greater than the amount of unearned premium reserves and any claims for premium under contracts from the current period. In the observed six-year period, the amount of unexpired risk reserves ranged from 508,966 thousand Dinars (4,184,677 Euros) in 2015 and 684,795 thousand Dinars (5,780,192 Euros) at the end of 2017. At the end of the observed period in 2020, compared to 2015 as the first year of allocation, they increased in Dinars and Euros by 1.1 times.

Other technical reserves are formed by an insurance company on a voluntary basis for expected future liabilities and risks for which none of the prescribed technical reserves are formed. An insurance company regulates formation of other technical reserves, as well as the criteria, method and terms of calculation by its business policy deeds.

In the period from 2000 to 2004, technical reserves included security reserves debited to expenses, security reserves from profits, reserves for mass and catastrophic losses and other reserves. With the exception of unearned premiums and reserved claims, no data is available by insurance lines. In available reports, all those types of technical reserves, except for the mathematical reserve of life insurance, were shown collectively for life and non-life insurance. Due to the incomparability of data in this period, the development of total technical reserves of motor hull insurance in relation to the total amount of technical reserves of all non-life insurance lines was not shown. After that period, the amount of technical reserves of motor hull

²⁴ Decision on Technical Reserves, 2015.

insurance varied between 2,746,273 thousand Dinars (32,120,152 Euros) in 2005 and 8,876,644 thousand Dinars (75,494,377 Euros) in 2020. Annual growth was recorded over nine years, ranging between 8.1% (2015) and 40.1% (2007), and annual decline over six years of 2.4% (2009) and 8.3% (2011). Taking into account that the technical reserves of motor hull insurance in the period 2000–2004 do not contain all types of technical reserves, the amount of motor hull insurance reserves in 2020 compared to 2005 increased by 3.2 times (by 2.4 times in Euros) or 8.1% in Dinars (5.9% in Euros) on average annually.

Graph 7 shows the share of five largest insurance lines in technical reserves of non-life insurance, without the period from 2000 to 2004 due to the aforementioned reasons related to the incomparability of the data.

Graph 7 Share of five largest non-life insurance lines in technical reserves 2005–2020 in percentage



Source: NBS

According to the level of technical reserves in the observed period, motor hull insurance for 11 years, from 2005 (14.8%) to 2013 (11.2%), 2016 (9.7%), 2017 (10.0%), was in the second place, four years - 2014 (9.0%), 2015 (9.5%), 2019 (9.7%) and 2020 (10.8%) in the third place, and in 2018 alone (8.5%) it was in the fourth place among five largest non-life insurance lines.

Share of the first five non-life insurance lines in technical reserves ranged between 59.5% (2002) and 94.2% (2011) or 88.2% on average annually. As with all other observed insurance lines, the highest average annual share of 55.4% was recorded by MTPL insurance, followed by 11.3% motor hull insurance, 10.4% other property insurance, 6.5% fire insurance and 4.6% accident insurance.

In addition to the obligation to calculate technical reserves conscientiously, professionally and responsibly, it is necessary to invest these funds in order to preserve their real value and achieve profit on the capital market. Investments are made in accordance with the law and regulations of the National Bank of Serbia that define limits for certain investment forms for the purpose of acquiring property that can be acquired with technical reserves and other insurance funds. Funds are invested as to ensure compliance with the type of insurance activities, and maturity compliance of invested funds and liabilities for which technical reserves are formed, which requires the diversity of depositing and investing in different forms of funds and their dispersion in the same forms of funds with different entities.

Coverage of calculated technical reserves must be secured by real sources of funds, which is monitored adequately, among other things, by giving the opinion of a company's independent certified actuary on the reports for each accounting period.

Data on a large difference in the movement of the number and amount of settled claims, the number and amount of reserved claims and the amount of unearned premium reserves before and after the entry into force of the Insurance Law in 2004 is interesting. Changes occurred as a result of amendments to the law, the regulations which the National Bank of Serbia adopted on the basis of the law and the business policy deeds of insurance companies regarding claims from the receipt and registering of the claim, through assessment, settlement and payment, to the criteria and method of calculating technical reserves, which is mainly the result of indirect and direct supervision and control continuously conducted by the National Bank of Serbia. It should be borne in mind that omissions related to the claim, in the broadest sense of the word, and in the manner of calculating the unearned insurance premium, were the main and the most common reason why several insurance companies lost their license to operate in this period.²⁵

One of the indicators of insurance business success is measured by the ratio of technical reserves to calculated insurance premium. In the presented period, there was an increase in technical reserves in relation to the calculated insurance premium from 77.6% (2004) to 84.2% (2020), which indicated that the level of financial stability and security in operations of insurance companies has been raised in terms of covering future liabilities for losses in accordance with concluded insurance contracts and other expenses related to assumed risks.

²⁵ With the adoption of the Insurance Law in 2004, 11 insurance companies lost their licence to operate in that year, followed by eight companies in 2005, five companies in 2006 and one company in 2007. Much later, in 2014, one licence was revoked, and in 2016, one insurance company initiated voluntary liquidation proceedings.

VI. Ratios

Financial statements, notes to those statements, other business data and additional indicators characteristic for the insurance sector are used to review and analyse achieved results of an insurance company.²⁶ Due to the specificity of insurance, the ratios are significant for determining and analysing achieved results, but also for evaluating the creditworthiness of an insurer, the success of the current policy and for creating a business policy of an insurance company in future, including the drafting, amendments and supplements to general acts and other business policy deeds, among which the insurance terms and conditions and premium tariffs are of particular importance.

In order to fully understand the importance of ratios, it is necessary to take into account the structure of insurance premium and types of functional and other expenses that it covers. Determining the insurance premium is done by using the actuarial profession principles and the insurance profession rules, by applying actuarial and statistical methods based on the law of large numbers and probability calculations. The required premium obtained in this manner covers functional expenses and is therefore called the functional premium. Having in mind the precise purpose, the functional premium is further divided into the technical premium, which covers the expected amount of losses and other liabilities in accordance with concluded insurance contracts, and the preventive, which is used to finance preventive and repressive measures in order to eliminate and/or reduce the effects of causes that may cause damage to insured items in a certain homogeneous group of risks. Together, these expenses make the functional expenses of an insurance company.

In addition to functional expenses, an insurance company has its own underwriting costs.²⁷ When forming premium tariffs, actuarial amount of underwriting costs is added to the functional premium and is therefore called the expense loading (hereinafter: EL). By adding the functional premium and the expense loading, the gross premium is obtained, which is paid by the insured or the policyholder. It is used to cover functional expenses and underwriting costs of an insurance company. Relevant underwriting costs are the sum of insurance acquisition costs, management costs and other underwriting costs related to the current accounting period and to a specific homogeneous group of risks, i.e. insurance line.

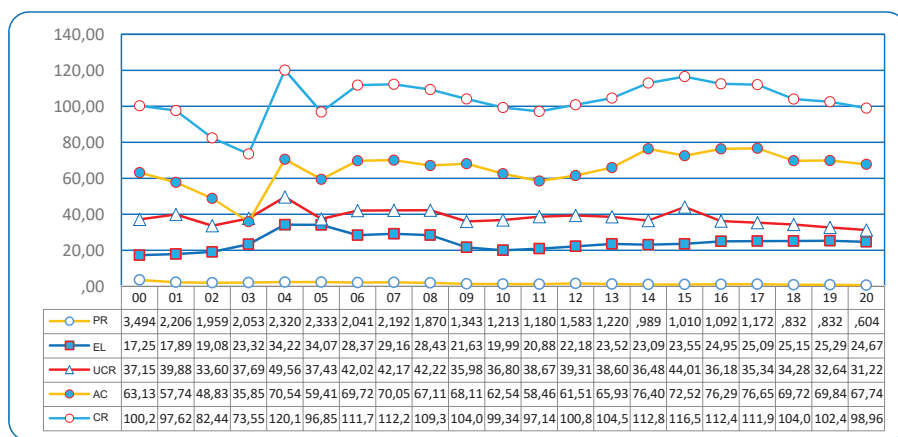
Contracted gross insurance premium, in proportion to the duration of an insurance, is divided into a part to cover losses and underwriting costs during the accounting period, and a part to cover liabilities that are due for payment in the next accounting period. Ratios show the percentage relation between certain insurance

²⁶ Financial statements are submitted to the Serbian Business Registers Agency, in accordance with the law governing accounting, and to the National Bank of Serbia, in accordance with the law governing insurance.

²⁷ N. Žarković (2013), p. 555.

lines to the gross premium of the accounting period, which is obtained when the sum of the gross premium of the current accounting period and unearned premium reserves of the previous accounting period is reduced by the amount of unearned premium reserves of the current accounting period ($GP+UP_0-UP_1$).

Graph 8 Ratios of motor hull insurance 2000–2020 in percentage



Source: AICY, AICSM and NBS

Preventive ratio is characterized by an almost continuous decline from 3.5% (2000) to 0.6% in 2020, which is the result of insurers' decreasing interest to allocate a part of the functional premium for financing preventive activities. Having in mind the significance of investments in prevention, we believe that this approach must be changed to a greater extent.

Expense loading ratio as an addition to the functional premium ranged between 17.3% in 2000 and 34.2% in 2004, or 24.4% on average annually. In the last years of the observed period, it stabilized at approximately annual average.

Underwriting cost ratio of 38.2% on average per year is the result of a movement from a relatively moderate 31.2% in 2020 to a very high 49.6% in 2004. In all years of the observed period, it was higher than the expense loading ratio, which as a calculative element of the premium tariff is included in the required premium and is intended to cover underwriting costs. It was over 40% for five years, and over 35% for twelve years. It can be deemed that it was at a high level for a rather long period, as well as that it was partly related to the unfair competition created by the conclusion of long-term insurances, but also to various other occasional forms of unfair competition, which was discussed in the previous part of the paper.

Underwriting cost ratio in all years of the observed period was higher than the expense loading ratio as a calculative element of premium tariffs. Therefore, a more detailed analysis should be carried out in order to correct premium tariffs so that the expense loading is increased, because there is a realistic basis for this. In science and in insurance practice, there are no more precise determinations regarding the amount of underwriting cost ratio in certain homogeneous groups, that is, insurance lines. Based on experience and a comparative analysis of current trends, it could be expected that the underwriting cost ratio ranges between 25% and 30%, but in any case it should not be higher than 1/3 of the gross premium of the accounting period, which is achieved in the last two years of the observed period.

Actual claims ratio ranged from 63.1% in 2000, 76.7% in 2017, to 67.7% in 2020. Achieved annual average of 65.2% can be deemed quite satisfactory and likely realistically sustainable in future since there is no doubt that motor hull insurance has an increasingly favourable perspective for further development.

Combined ratio is one of the most important indicators in insurance activities as a whole, by homogeneous risk groups and by insurance lines. Value of the ratio up to 100 indicates that the premium tariff system is sufficient, and a value above 100 that the premium tariff system is not sufficient to cover losses, other liabilities in accordance with concluded insurance contracts and underwriting costs. A positive combined ratio was recorded over seven years. It fluctuated between 73.6% in 2004 and 99.3% in 2010. In a significantly longer period of 14 years, it was negative, from 100.2% in 2000 to 120.1% in 2004. It can be deemed favourable that from the negative 116.5% in 2015 a gradual decline was recorded until 2020 when it changed to a positive 99.0%. Regardless of the average annual value of 103.3% and the fact that it has been unfavourable for a longer period, there is reason to expect the stabilization of the motor hull insurance market, a gradual improvement of the combined ratio and other business indicators in future.

VII. Conclusion

Positive changes in the country's economic development and the gradual increase in the standard of living in the observed period enabled an increase in the number of motor vehicles, which was reflected in the increase of concluded insurance policies and the amount of insurance premium.

Improvement of the legal framework and raising of the level of supervision and control over the insurance sector significantly contributed to a more favourable direction of development, and above all the stabilization of the insurance market as a whole. Clearer criteria were established for application of the actuarial profession principles and the insurance profession rules, from the conclusion of insurance contracts, through the receipt and claims handling, the calculation of technical

reserves, the use and disposal of insurance funds, to the reporting and standards of presenting an insurance company's business results. This improved business operations and increased the safety and financial stability of insurance companies, which contributed to faster growth and development of motor hull insurance.

Satisfactory results were achieved in increasing the insurance acquisition, raising the quality of providing services to insurance users from the reception, assessment, handling and payment of claims, to the manner of calculating, using and disposal of technical reserves and other means of insurance, which significantly improved the reputation and confidence in provision of services by insurance companies.

According to all insurance lines shown, motor hull insurance in our country occupies a high position on the non-life insurance market.

Increase in the number of motor vehicles and the gradual growth of the purchasing power of citizens are a realistic assumption for any further expansion of insurance, the increase in the number of concluded insurances and the retention of a significant place in the market structure of non-life insurance lines.

Having in mind various unfavourable circumstances in the observed period, achieved positive changes and plans for further economic development of the country, it is reasonable to expect a more favourable trend in motor hull insurance development in future and a position among five largest non-life insurance lines.

Translated by: Jelena Rajković

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