

THE MARKET CONCENTRATION AND COMPETITIVE ENVIRONMENT OF CASCO AND MOTOR THIRD PARTY LIABILITY INSURANCE IN BULGARIA¹

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PART I. INTRODUCTION

The purpose of the paper is to outline the state of market concentration of the two most widespread insurance policies in Bulgaria - Casco Insurance and Motor Third Party Liability Insurance for the period 2012-2021. **The expected results** in the study are related to determining the form and strength of competition in both types of insurance and for the non-life insurance market as a whole. **The importance of the research** is related to the fact that these two insurance policies are extremely important for the development of the Non-Life Insurance Market in Bulgaria, as they cover 70% of it. The calculations are based on the official statistical information on the Bulgarian insurance market for the period 2012-2021, published on the official website of the Financial Supervision Commission in Bulgaria.

PART II. LITERATURE REVIEW

There are some numerous studies related to the legislative framework, the organization of insurance activities, participants and products in the Bulgarian insurance market. The book of Iliev, B. and Misheva I. “Insurance market” (Илиев & Мишева, 2005) is dedicated to the general model of the insurance market, the role of the state in the field of insurance and the forms of competition on the insurance market.

The book of Paneva, A. “Insurance market” (Панева, Застрахователен

¹ original research paper

пазар, 2017) considers three main groups of indicators that allow for analysis of the state of the insurance market and the competitive environment: indicators of state of insurance and its place in the national economy; indicators for market structures; indicators for assessing the competitive environment. In the research of Paneva, A. (Панева, Структурни изменения ..., 2018), the dynamics in the distribution of gross premium income by sections and classes of insurance is monitored. Through calculating integral coefficients of structural changes, the author assesses the strength of structural changes in the product portfolio of Bulgarian insurance companies in the period 2012 – 2017. The form and strength of competition on the non-life insurance market in Bulgaria are in the focus of Paneva's, A. article (Paneva, 2014, pp. 78-90). In the paper of Erusalimov, R. (Ерусалимов, Застрахователният пазар в България - проблеми и перспективи, 2016), the processes are traced and the problems of the insurance market are analyzed.

The problems of the insurance market concentration in Eastern Europe are also addressed in some publications of authors from different countries (Tipurić, Pejić Bach, & Pavić, 2008, pp. 97-118) (Njegomir & Stojić, 2011) (Sharku & Shehu, 2016) (Poposki, Kjosovski, & Stojanovski, 2015, pp. 20-37).

PART III. DATA AND METHODOLOGY

The data on the premium income from Casco insurance of motor vehicles and Motor Third Party Liability cover the period 2012 - 2021 and are based on the official statistics on the annual gross premium income, published on the website of the Financial Supervision Commission. (КФН, 2022 г.)². The data are shown in the official currency of Bulgaria, the Bulgarian lev (BGN)³.

The state of the competitive environment on the Bulgarian insurance market is characterized on the basis of two widespread indicators for assessing market concentration: **Concentration Ratio** and **Herfindahl-Hirschman Index (HHI)**. In the study, together with the previous mentioned indicators,

²www.fsc.bg

³Bulgaria has been on the currency board since 1997, and the exchange rate of the Bulgarian Lev (BGN) is fixed against the exchange rate of Euro. 1 BGN is exchanged for 0.511292€.

as a possible alternative of measuring the market concentration the **Rosenbluth Index** is used.

The market share of insurance companies, calculated on the basis of their gross written premiums, is used to calculate *the Concentration Ratio (CR)* (Methodology on Investigation and Definition of the Market Position of Undertakings in the Relevant Market, 2009). For the insurance sector, the concentration ratio is determined on the basis of the market shares of the first four insurance companies by gross written premiums in the separate insurance sections. Calculated in this way, the concentration ratio shows the total market share of the leading insurance companies. It is determined by the formula:

$$CR_4 = \sum_{i=1}^k MS_i, \quad (1)$$

where MS_i is the market share (in %) of i -insurer, and k – the number of insurers with the largest market share ($k = 4$).

In accordance with the obtained value for the concentration coefficient, the state of the competitive environment on the insurance market is determined (Methodology on Investigation and Definition of the Market Position of Undertakings in the Relevant Market, 2009):

- normal competitive market with a low level of market concentration – at CR_4 less than 50%;
- relatively competitive market with an average level of market concentration – at values of CR_4 from 50% to 85%;
- low competitive market with a high level of concentration – at values of CR_4 over 85%.

Herfindahl-Hirschman Index (HHI) is calculated by squaring the market share of each insurer working in a given insurance section and summing the values obtained. It is determined by the formula:

$$HHI = \sum_{i=1}^n MS_i^2, \quad (2)$$

where MS_i is the market share of i -insurer (in %), and n – number of insurers in the relevant insurance section.

This indicator can reach a value of up to 10,000. At a value close to 10,000, the market is characterized by monopoly features, low competition and a large market share of a small number of insurers. When the index is close to

zero, the analysed market shows low concentration and strong competitive environment.

To characterize the strength of competition, there are three intervals for the value of the Herfindahl-Hirschman index (Methodology on Investigation and Definition of the Market Position of Undertakings in the Relevant Market, 2009):

- less than 1000 units – highly competitive market with low level of market concentration;
- between 1000 and 2000 units – relatively competitive market with a moderate level of market concentration;
- over 2000 units – a low competitive market with a strong market concentration.

One of the possible alternatives of measuring the market concentration is **Rosenbluth Index** (1955). The index measures the concentration, ie the uneven distribution of market participants, introduced by market share and rank in the ranking by size of participants. The Rosenbluth index is an index of absolute concentration in markets.

$$R = \frac{1}{2 \sum i c_i - 1} \quad (3)$$

The symbol $i = 1, 2, 3, \dots, n$ indicates the insurance company's rank position, in descending order of size. Thus, the smaller the insurance company, the larger its ranking which increases its contribution to the index. The Rosenbluth Index attaches more significance to small insurance companies than the HHI.

PART IV. ANALYZES AND RESULTS

According to the Insurance Code and the provisions of the Financial Supervision Commission during the period (20010 – 2020), the insurance companies operating in non-life insurance in Bulgaria report premium income for seventeen classes (types) of insurance. A significant part of them is the mandatory Motor Third Party Liability Insurance and Casco insurance.

Table 2. Premium income under Casco insurance Premium income under Motor Third Party Liability and Premium income for the whole Non-Life insurance market for the period 2012-2021

Year	Premium income "Casco"	Premium income "Motor Third Party Liability Insurance"	Premium income for the whole market	Premium income "Casco" absolute increase on fixed base	Premium income "Casco" absolute increase on chain variants	Premium income "Motor Third Party Liability Insurance" absolute increase on fixed base	Premium income "Motor Third Party Liability Insurance" absolute increase on chain variants	Premium income for the whole market absolute increase on fixed base	Premium income for the whole market absolute increase on chain variants
2012	416 558 914	508 699 005	1 315 621 370						
2013	410 560 671	532 128 068	1 358 251 186	0,986	0,986	1,046	1,046	1,032	1,032
2014	430 061 648	539 477 938	1 397 650 371	1,032	1,047	1,061	1,014	1,062	1,029
2015	477 264 239	562 636 575	1 512 590 220	1,146	1,110	1,106	1,043	1,150	1,082
2016	511 676 946	609 317 415	1 595 477 735	1,228	1,072	1,198	1,083	1,213	1,055
2017	565 998 913	637 822 653	1 706 386 566	1,359	1,106	1,254	1,047	1,297	1,070
2018	617 488 269	908 531 993	2 047 073 940	1,482	1,091	1,786	1,424	1,556	1,200
2019	652 147 177	1 068 432 411	2 388 558 070	1,566	1,056	2,100	1,176	1,816	1,167
2020	652 874 623	1 061 778 856	2 415 238 553	1,567	1,001	2,087	0,994	1,836	1,011
2021	709 013 802	1 144 711 215	2 639 466 875	1,702	1,086	2,250	1,078	2,006	1,093

Source: Authors' calculations based on the Financial Supervision Commission data

During the observed ten-year period, there was an increase in premium income both in Casco Insurance and Motor Third Party Liability Insurance, as well as in the Non-Life insurance market as a whole. The premium income from Casco insurance for the period 2012-21 has been increased 1,702 times. The reasons for this increase are: the increased number of imported cars in the country; the increased number of new cars purchased; the requirements of the lessors for compulsorily concluded Casco insurance with a sum insured corresponding to the actual value of the car, etc.

In absolute values, the premium income under Motor Third Party Liability Insurance has increased 2,250 times. The reasons for this increase are: the increased number of cars in the country; the constantly increasing time limits of liability under the compulsory Motor Third Party Liability Insurance, which leads to an increase in the amount of insurance premiums (see Table 1.).

For a number of reasons such as: expanding the product portfolio of insurance companies; the increasing economic development of the country; increasing the standard of living of the population; inflation processes, etc., the premium income for the whole non-life insurance market increased 2,006 times (for the period 2012-21).

Table 3. Ratio: Premium Income Casco Insurance + Premium Income Motor Third Party Liability Insurance / Premium Income - Non-Life Insurance Market for the period 2012-2021

Year	Premium Income Casco Insurance + Premium Income Motor Third Party Liability Insurance	Premium Income - Non-Life Insurance Market	Ratio: Premium Income Casco Insurance + Premium Income Motor Third Party Liability Insurance / Premium Income - Non-Life Insurance Market
2012	925 257 919	1 315 621 370	70,33%
2013	942 688 740	1 358 251 186	69,40%
2014	969 539 586	1 397 650 371	69,37%
2015	1 039 900 814	1 512 590 220	68,75%
2016	1 120 994 361	1 595 477 735	70,26%
2017	1 203 821 566	1 706 386 566	70,55%
2018	1 526 020 262	2 047 073 940	74,55%
2019	1 720 579 588	2 388 558 070	72,03%
2020	1 714 653 479	2 415 238 553	70,99%
2021	1 853 725 017	2 639 466 875	70,23%

The data in column 4 of Table 3 are indicative of the dominant share of the two best-selling insurances in Bulgaria compared to all other insurances on the non-life insurance market.

During the ten-year period under review the ratio: Premium Income Casco Insurance + Premium Income Motor Third Party Liability Insurance / Premium Income - Non-Life Insurance Market varies within narrow limits. (from 68.75% to of 74.55%).

Table 4. Indicators for measuring the market concentration Casco Insurance and Motor Third Party Liability Insurance and the whole market (2012-2021)

Casco Insurance										
Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Number of insurance companies	15	14	17	17	16	14	15	15	15	16
CR ₄	59,87%	62,61%	65,80%	67,40%	67,63%	67,53%	67,89%	68,26%	67,98%	68,84%
Herfindal-Hirschman Index	1199,73	1255,42	1343,21	1330,31	1356,00	1336,05	1350,75	1362,16	1363,02	1334,73
Rosenbluth Index	0,1290	0,1338	0,1388	0,1399	0,1426	0,1594	0,1644	0,1529	0,1477	0,1458
Motor Third Party Liability Insurance										
Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Number of insurance companies	15	15	17	17	16	16	15	14	15	15
CR ₄	56,48%	65,50%	60,94%	56,43%	58,18%	57,47%	61,03%	60,76%	64,28%	64,26%
Herfindal-Hirschman Index	241,58	550,76	320,41	190,59	505,86	229,03	315,80	275,34	363,02	316,73
Rosenbluth Index	0,1222	0,1338	0,1367	0,1206	0,1361	0,1297	0,1380	0,1375	0,1450	0,1446
Whole Non-Life Insurance Market										
Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Number of insurance companies	18	29	30	30	29	26	24	24	24	23
CR ₄	48,79%	49,60%	48,73%	47,67%	46,25%	45,93%	46,36%	45,73%	43,45%	42,43%
Herfindal-Hirschman Index	896,94	883,00	879,00	851,82	876,55	874,31	891,10	890,27	896,29	884,35
Rosenbluth Index	0,0991	0,0956	0,0953	0,0922	0,1064	0,1032	0,0972	0,0983	0,0999	0,0884

During the period of the non-life insurance market there are no companies with a dominant role and there are good conditions for competition. These conclusions are also confirmed when the competitive environment is analyzed by the concentration factor. Its values for the non-life insurance

market in the period 2012-2021 outline a trend of deconcentration. In 2012 the ratio: market share of the first four insurers / market share of the other insurers was 48.79% / 51.21%, and in 2021 it was: 42.43% / 57.57% (see Figure 3.). The non-life insurance market can be considered as a normal competitive market with a low level of concentration and a highly competitive environment. However, the results of the two insurances with the highest premium income are different. With Casco insurance, offered in different years by 14 to 17 insurance companies, there is an increase in market concentration and a reduction in the competitive environment. The results in Table 4 show a tendency to increase the market share of the first four, compared to other insurers. For example, the concentration rate in 2012 was 59.87%, and in 2021, it is already 68.84%. The results are similar in the market concentration of Motor Third Party Liability Insurance. The market share of the first four insurers compared to other market participants was 56.48% in 2012, and at the end of the period it reached 64.26%. Throughout the observed ten-year period, the HHI index for the non-life insurance market of non-life insurance has values below 1000 units. This is an indication of a highly competitive environment in which non-life insurance companies operate in Bulgaria. The results in terms of HHI calculations for both types of insurance during the ten-year period fall between 1000 and 1800 units, i.e. market with moderate competitive environment and concentration. For Casco insurance the results vary from 1199.73 to 1334.73, and for Motor Third Party Liability Insurance the values are from 1241.58 in the first year and reach 1,316.73 in the last year of the observed ten-year period. The numbers of both types of insurance show that they have lower competitiveness and concentration compared to the whole non-life insurance market.

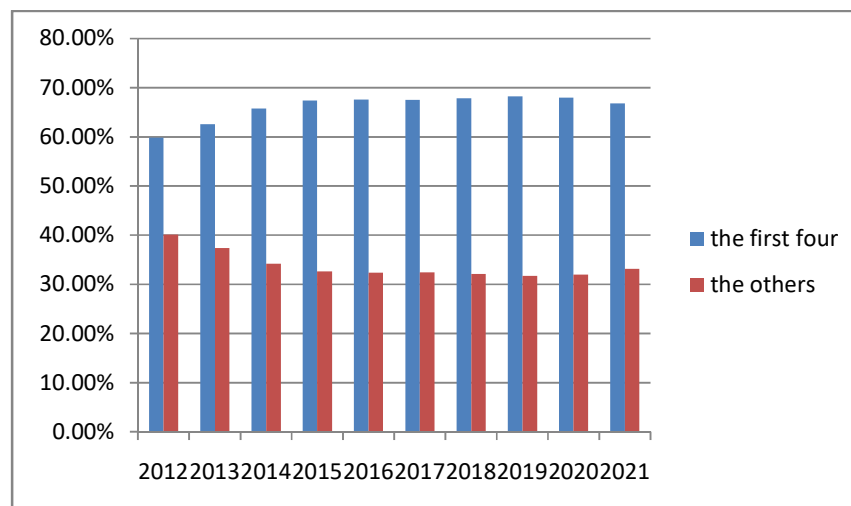


Figure 1. Casco Insurance concentration ratio (2012-21)

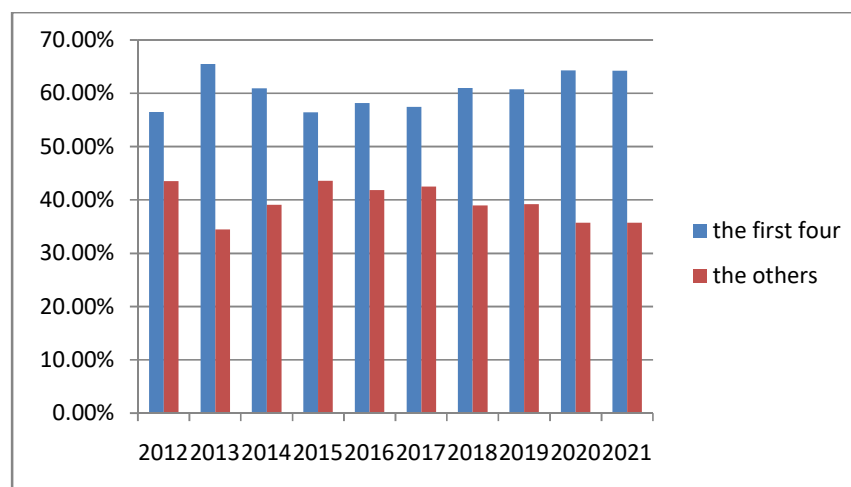


Figure 2. Motor Third Party Liability Insurance concentration ratio (2012-2021)

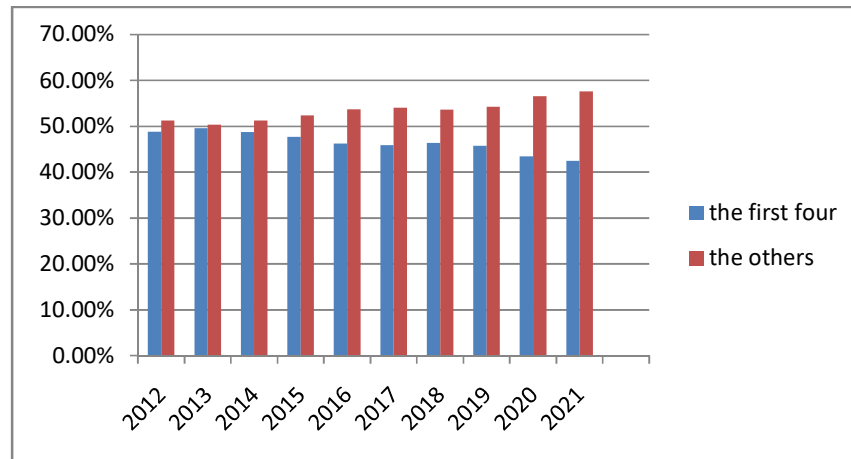


Figure 3. The whole market concentration ratio (2012-21)

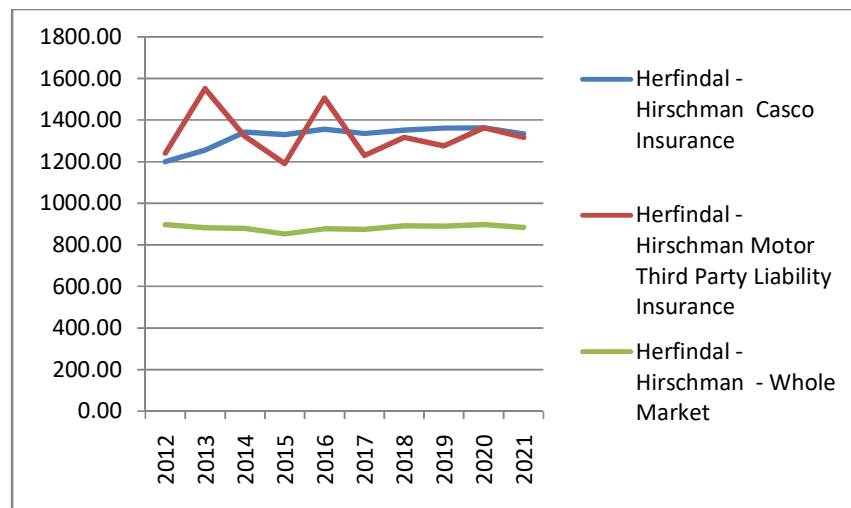


Figure 4. Herfindahl-Hirschman index of Casco Insurance, Motor Third Party Liability Insurance and the whole market (2012-2021)

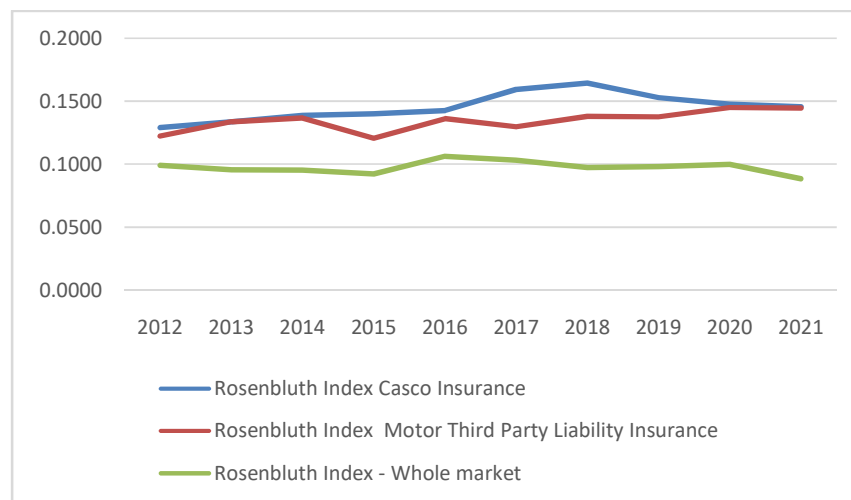


Figure 5. Rosenbluth Index of Casco Insurance, Motor Third Party Liability Insurance and the whole market (2012-2021)

Figure 5 provides information on the Rosenbluth Index for Casco Insurance, Motor Third Party Liability Insurance and the entire non-life insurance market for the period 2012-2021. This index could be considered as an alternative structural measure of market concentration. In all three observed parameters the values are well below the unit, which is a criterion for the presence of a monopoly. moreover, the results obtained vary between 0.008 and 0.16 - values showing perfect competition.

PART V. CONCLUSION

The available statistical data for the period 2012-2021 and the calculated indicators of market concentration and strength of competition reveal that non-life insurance in Bulgaria is a normal competitive market with a low level of concentration. There is a highly competitive environment in which insurance companies operate. There is a tendency towards market deconcentration, i.e. reducing the difference in market shares between the first four and the other insurance companies.

At the same time, the outlined trend for the entire non-life insurance market is different from the established trends in the first two insurances with the largest share of premium income - Casco Insurance and Motor Third Party

Liability Insurance. Despite the proven market deconcentration of the non-life insurance market, in these two types of insurance, forming 70% of the total premium income, there is an increase in market concentration and market positions of leading insurance companies.

This is one of the reasons the local insurance supervision authorities to pay more attention to the companies offering these two types of insurance.

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