

Insurance industry in Macedonia: A general overview

M. Pervan, M. Ćurak, and K. Poposki

Abstract— The development of insurance industry in Macedonia has undergone through the similar process to those of economies in region. However, although a vast literature exploring insurance industry from different aspect can be found for the regional countries, a scant number of articles are devoted to the Macedonian financial system as whole and insurance industry in particular. Therefore the aim of this article is to give insights into the main characteristics of the Macedonian nonlife insurance industry. In order to accomplish this goal, we explore several different segments of the insurance industry. First, key development indicators of insurance industry are compared to those of countries in region. Second, we investigate the changes in the structure of this industry. Furthermore, in order to assess strength and weaknesses of this sector, a SWOT analysis is performed. Finally, we evaluate the influence of the financial crises on the insurers' performance, by confronting insurers' profitability before and during the crises period.

Keywords—insurance industry, Macedonia, performance, market structure, SWOT analysis.

I. INTRODUCTION

INSURANCE industry has significant influence on the development of each economy and as such it is in the focus of numerous researches whose investigated it from various aspects. While some studies tried to assess the relationship between the level of the development of the insurance industry and economic growth [1]-[7], some other studies aimed to determine the factors that influence insurers' profitability [8]-[18]. Apart from these two most common research areas, different aspects, such as insurers' efficiency; determinants of life and non-life insurance demand; legislative changes and impact on new solvency regulation, etc, are also well documented. However, despite the great attention directed to the insurance sector, most of the research we realized in developed countries. In order to contribute in filling this gap, this paper is focused on the emerging market of the Republic of Macedonia.

As insurance sector in other countries in the Balkan region, Macedonian insurance industry has undergone through significant transformation in terms of liberalization, ownership, market structure, product development, regulation

and supervision. These developments raise questions on the achievements of these processes, which motivated this empirical research. Consequently, we are focused on investigating the level of development of Macedonian insurance industry both, in the context of the whole Macedonian financial system as well as in comparison with insurance sectors in the region. Additionally, we analyze performances of the industry, its market structure and strategic position, as well as the impact of the crisis on the performances of the insurance companies.

The rest of the paper is structured as follows. Section 2 analyzes and presents main characteristics of the Macedonian insurance market. Section 3 provides an overview of different measures of industrial concentration that were applied in order to capture structural features of the industry and to evaluate the extent in which the transformation of the Macedonian insurance sector occurred. Section 4 presents the SWOT analysis of the insurance industry in Macedonia, while section 5 compares profitability of the Macedonian insurance companies' before and during the crisis. Section 6 concludes.

II. MAIN CHARACTERISTIC OF THE MACEDONIAN INSURANCE INDUSTRY

Macedonian insurance industry can be described as small and underdeveloped, but with a high potential for further growth and development. Main characteristics of the latest development trends in this industry can be summarize in following: the high level of harmonization of the national insurance regulation with the EU insurance directives and the international insurance core principles and standards, dominantly foreign ownership and control over the domestic insurance undertakings, favourable market concentration, growing competition, accelerated growth rate of life insurance, innovation and design of new products.

The importance of insurance companies in financial system of Macedonia is shown on Fig. 1. The share of insurance companies in total assets of financial institutions decreased from 8.72% in 2003 to 3.30 in 2012. While the participation of banks of 90% remained unchanged over the period, private pension funds, due to the radical pension reforms, leasing companies and investment funds increased their share in total assets of financial intermediaries.

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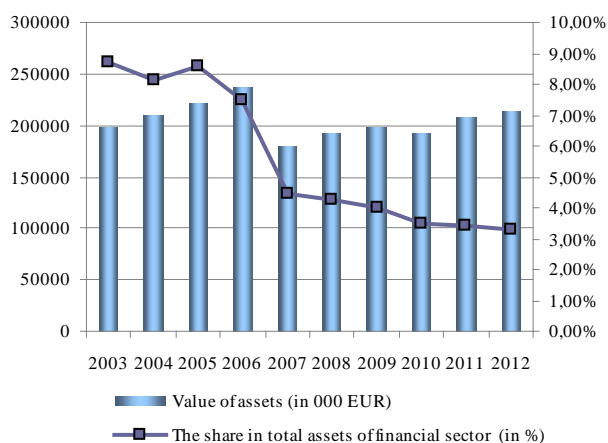


Fig. 1 Value of insurance companies' assets and its share in total assets of financial institutions in Macedonia

Source: Insurance Supervisory Agency of Republic of Macedonia
 * Data for 2002 were not available.

There were 15 insurance companies operated in the Macedonian insurance market in 2012. Only 4 companies provided life insurance while 11 insurance institutions engaged in non-life business. This industry is dominated by foreign owners who participated in 14 out of 15 insurance companies in 2012. Their share accounted 87.6% of total capital of insurance companies. Most of the foreign owners are insurance groups from EU. Foreign insurance penetration increases competition and enhances all aspects of insurance companies' business as well as product development [8].

In the analysed period, insurance density (the ratio of gross written premiums to total population) was growing, but declined in 2009. The 2009 decline is due to the enforcement of the Government's decision to decrease the motor third party liability insurance (TPL) insurance premium for 30%. Namely, motor TPL insurance premium is regulated by the Government in Macedonia. Taking into consideration the share of the motor TPL insurance premium that accounted 50% in total market, the Government's decision has a direct impact on general market developments and trends.

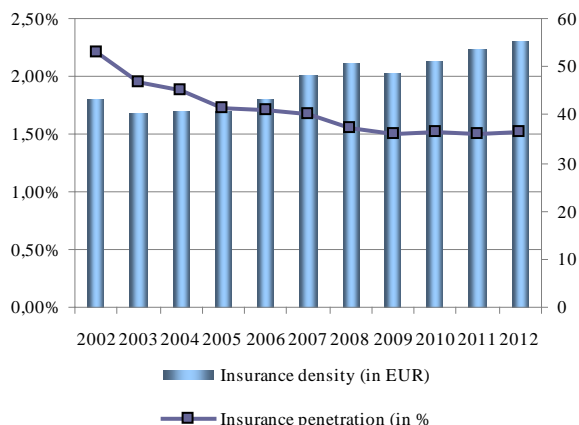


Fig. 2 Insurance density and penetration in Macedonia
 Source: Insurance Supervisory Agency of Republic of Macedonia

A positive trend of insurance density afterwards continues, and the values in Fig. 2 indicate that Macedonian citizens spent, on average, 55.31 EUR for insurance in 2012. Insurance penetration (the ratio of gross written premiums to GDP) was mainly decreasing (from 2.21 in 2002 to 1.52% in 2012). These main indicators of insurance industry development indicate a low level of its development.

Figures 3 and 4 compare Macedonian insurance sector development to those of countries in the region and EU according to insurance density and penetration indicators. Only one country (Albania) has lower penetration rate, while other countries in the region have higher rates. With regard to insurance density, only Albania has lower amount of premium per capita. One of the reasons that can explain these values is devastating number of life insurers that were operating during the analysed period. Precisely, only one insurance company operated on the market in the 2002-2004 period and later exited the market in 2004. From 2005 to 2010, there were only two insurance companies offered the life service, with subsequent establishment of two new life insurance companies in 2011 (in total 4 insurance undertakers). Furthermore, the low level of insurance culture, the modest offer of property and casualty, as well as liability insurance products, the absence of private health insurance, the low living standard and the poor corporate risk management practices, all together are considered as serious limiting factors for Macedonian insurance market development.

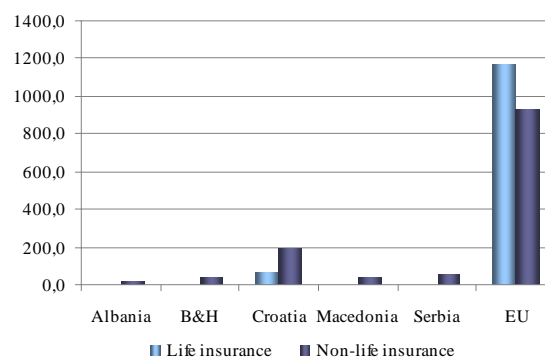


Fig. 3 Life and non-life insurance density in 2012 (in EUR)
 Source: National insurance supervisory agencies and Swiss Re

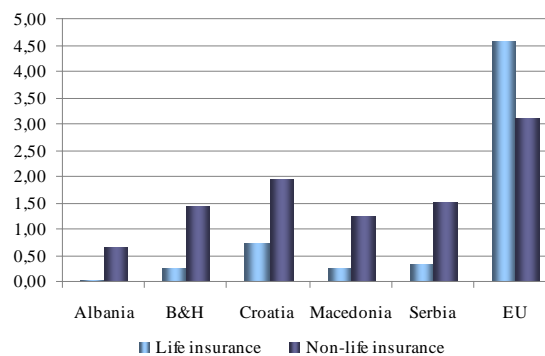


Fig. 4 Life and non-life insurance penetration (in % of GDP) in 2012
 Source: National insurance supervisory agencies, Financial structure database of World Bank and Swiss Re

Underdevelopment of insurance sector in the Republic of Macedonia is additionally confirmed by the ratio of non-life and life insurance business. The share of non-life in total premiums accounted 94.47% meaning that life insurance participated with share of only 8.53% in 2012.

Considering the premium structure, compulsory motor TPL insurance dominated with share of almost half of total insurance premiums. It is followed by voluntary vehicle insurance (10.86%), other property insurance (11.14%), and accident insurance (7.41%).

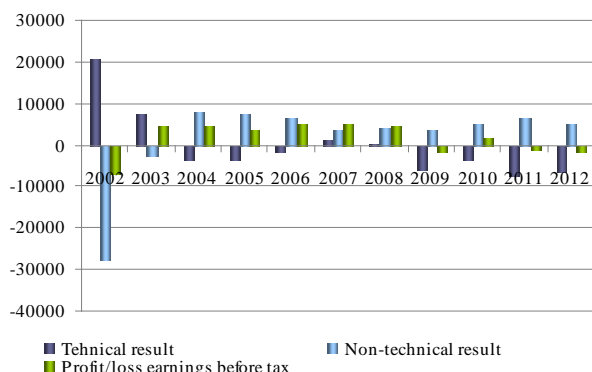


Fig. 5 Financial result of insurance companies in Macedonia (in 000 EUR)

Source: Insurance Supervisory Agency of Republic of Macedonia

Considering financial result of insurance companies at aggregate level (Fig. 5), there were fluctuating over the 2002-2012 period. Some of the main reasons for the financial losses, in particular the negative technical account results, were: 1) the absence of efficient supervision (Insurance Supervision Authority became operational in 2009); 2) strong, and unfair competition in the non-life sector; 3) weak corporate governance and poor underwriting policies; 4) inadequate investment policies and underestimation of technical provisions; 5) large market portfolio of motor TPL line of business (46.72% in total insurance premiums in 2012), with state regulated tariffs which has direct negative effect of the profitability; 6) last but not least, the financial crises also left its mark on the performance of insurance companies in Macedonia. Insurance companies were required to write-off large amounts of financial investments, receivables (non-paid premiums) from policyholders, to increase the technical provisions, and to improve their reinsurance programs, all together resulting in unfavourable claims ratio. On the other hand, the increased market competition had continuous pressure on operating expenses, including administration expenses, marketing, and acquisition costs.

III. TRANSFORMATION OF INDUSTRIAL STRUCTURE

Insurance market developments in the period 1991 – 2002 were closely related to the political and legal environment in the country. In early 1990's the process of capital transformation from public owned into private shareholding took the place. The only insurance company operating on the

market, *Zoil Makedonija*, was one successful example of transformation from an enterprise that was owned and controlled by the Communistic Government until 1991 to a joint stock company, where employees became shareholders. Three additional insurance companies were established after enactment of the Insurance Law in 1993.

The insurance law from 1993 enabled foreign entities to set up an insurance company in the domestic market, but only as a mutual company. It was not allowed for foreign entities to set up an insurance joint stock company, neither to own shares in domestic companies. These barriers on the free movement of capital were removed in 1997, when a new Insurance Law was enacted. This period is characterized by the *monopoly position* of one insurance company, *Ador Makedonija* Skopje, which held more than 90% of the market. In 2000, Australian insurance company QBE bought the majority of the shares of *Ador Makedonija* Skopje and rebranded the company. Monopoly in the insurance sector was gradually converted into oligopoly, with four firms operating on the market. During this period the insurance supervisory capacities were very weak, and there was practically no anti-monopoly institution that should control and prevent creation of monopolies.

In 2002, a new Insurance Supervision Law was adopted, after thorough consultations with domestic experts and respective insurance supervisory authorities from member states. This law established new rules for setting up and operating an insurance business in the country, and liberalized the conditions for free movement of capital. These were the preconditions for foreign insurance companies to invest in the domestic insurance market, and to increase the market competition. All these elements have influenced the transformation of the *structure* of the Macedonian insurance industry.

Industrial structure is usually captured by different measures of *industrial concentration*. An industry is thought to be concentrated when a small number of companies control a high percentage of sales of specific industrial product, which means that the relative size of the company can be measured by its share in respective industry.

Market shares (MS) are essential for determining concentration measures. If, for example, n companies operate in some industry whose total production is Q , with q_i denoting a production of i^{th} company, then the share of production of a given company can be expressed in the following way:

$$MS_i = \frac{q_i}{Q} \quad (1)$$

In calculating market shares and concentration indicators, gross written premium has been used as the most direct and relevant indicator of the level of activity of the insurance industry.

Although concentration ratios (CR) and Herfindahl-Hirschman index (HHI) are the most commonly used (the latter is even a statutory measure used to estimate the influence which a proposed M&A activity in the US insurance industry

may have on the relevant market), some other measure (like Hall-Tideman index - HTI, Rosenbluth index - RI, Comprehensive Concentration index - CCI, Hannah-Kay index - HKI, Entropy index – EI and Gini coefficient - G) are also in use. Brief description of these measures is presented in subsequent paragraphs.

Concentration ratios (CR) indicate the size of market share of the largest n companies in the industry. The value of this indicator range form 0 (in case of perfectly competitive market) to 100 (in case of monopoly). The simplicity and small data requirements make this indicator one of the most frequently used concentration measure. It can be calculated according to the following formula:

$$CR_n = MS_1 + MS_2 + \dots + MS_n = \sum_{i=1}^n MS_i \quad (2)$$

where MS_i represents the market share of the i^{th} company and n is the number of the *leading companies* that are observed in a particular industry.

Concentration ratios usually take into consideration 4 largest companies in the industry and therefore in this research are being calculated as:

$$CR_4 = MS_1 + MS_2 + MS_3 + MS_4 \quad (3)$$

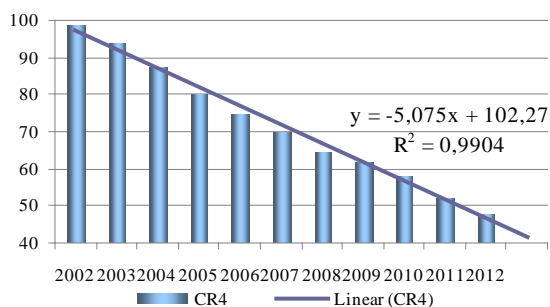


Fig. 6 Concentration ratio and linear trend line
Source: Authors' calculation

As it can be seen from the Fig. 6 the value of four-firm concentration ratio is continuously showing declining trend during the all period covered by this analysis. In 2002 four leading companies controlled almost entire industry. However, in 2012 the value of industrial concentration has halved (form 99% in 2002 to 48% in 2012). It is worth mentioning that the incumbent (former monopolistic company) lost most of its dominance in the industry (i.e. its market share drop down form 67% in 2002 to only 11% in 2012).

In order to estimate the changes in concentration over the coming period, a linear trend line (model) is applied and the results are reported on the Fig. 5. High level of R^2 indicates that the data points fit a line extremely well, i.e. 99% of the variation of the dependent variable (concentration) is explained by the regression equation. Based on this model, it is expected for the concentration of the insurance industry to

fall by additional 5% in 2013 and to take the value of 42%.

Next method of assessing the degree of industrial concentration is *Herfindahl-Hirschman index* (HHI). This index presents the sum of the squared market shares of all companies in the industry, i.e.

$$HHI = \sum_{i=1}^n MS_i^2 \quad (4)$$

where MS_i represents the market share of the i^{th} company and n is the total number of the companies in the industry. Unlike concentration ratios, Herfindahl-Hirschman index does not only show the distribution of the market shares of the leading companies, but also the market shares of the other companies as well. The value of the index can vary from 0 (in case of perfect competition) to 10 000 (monopoly). The lower the index, the more competitive the market, and vice versa, the higher the index, the more concentrated is the market.

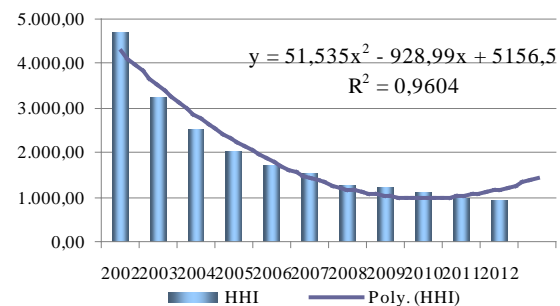


Fig. 7 Concentration ratio and linear trend line
Source: Authors' calculation

The results presented in Fig. 7 suggest that the Macedonian insurance industry can be categorized as a *low concentrated industry*. During the last few years (from 2008 onwards), values of HH index are below the critical level of 1500. Precisely, the Herfindahl-Hirshman index was 951.1 in 2012, progressively decreasing from 4,710.22 in 2002. The dynamics of concentration calculated by this indicator undoubtedly suggests its decrease over the respective period.

Since the R^2 of the linear model for the HHI variable explained only 76% of variance, a polynomial model of second order is evaluated. According to the results presented on Fig. 6, a slight increase in concentration is expected in the near future. However, it is more realistic to expect further fall in dominance of the leading companies, unless M&A activities occur between top companies.

The *Hall-Tideman Index* (HTI) and *Rosenbluth Index* (RI) resemble one another in form as well as in character. They emphasize the importance of the absolute number of the companies operating in the industry. This number reflects to a certain extent the conditions of entry of a new company into the industry. The formula for calculating HTI is the following:

$$HTI = \frac{1}{2 \sum_{i=1}^n i \cdot MS_i - 1} \quad (5)$$

where market share (MS) of each insurer is weight by its rank (i). The highest rank (rank 1) is assigned to the largest insurer. Value of HTI spans from 1/n (value of 0 is expected in case of perfect competition) to 1 (in case of monopoly).

On the other hand, Rosenbluth Index (RI) assigns the highest rank (j) to the smallest company. Because of that, RI is sensitive to the changes in the size distribution of smaller insurers. This index takes the form:

$$RI = \frac{1}{2 \sum_{i=1}^n j \cdot MS_i - 1} \quad (6)$$

The value of this index ranges from 1/n to 1, where the value close to 0 indicates perfect competition, while value of 1 denotes a monopoly. Both of the above indices reflect the assumptions that the new insurer will easier get into the insurance sector in which large number of insurers already operate [20]. Contrary to the above, it is assumed that it will be difficult to enter into the insurance sector in which a small number of large insurers perform.

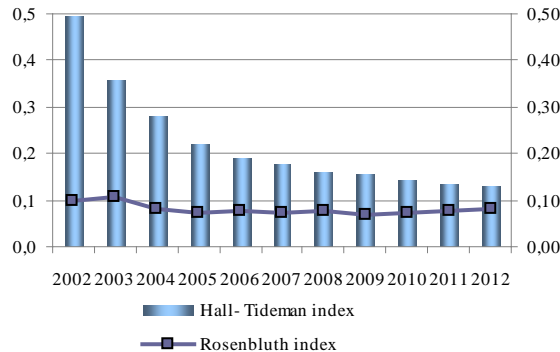


Fig. 8 Hall-Tideman Index and Rosenbluth Index
Source: Authors' calculation

From the Fig. 8 one can notice slight variations of the Rosenbluth Index during the all period under the analysis. The reason for this relatively small variation can be found in the fact that this index highlights the importance of small companies, while a closer look into the distribution of market shares of smaller companies indicate almost unchanged situation in the industry in 2002 when compared to 2012. On the other hand, a permanent decrease of Hall-Tideman Index in noticeable.

Entropy index (E) has its roots in information theory and varies inversely to the degree of industrial concentration [21]. When concentration is low (i.e. market shares of all insurers are equal) this indicator reaches its highest value (E=log n).

Alternatively, if industry is monopolized the value of Entropy index will approach to zero. This indicator gives relatively more weight to smaller insurers in the industry. It can be calculated in a following way:

$$E = \sum_{i=1}^n MS_i \cdot \ln \frac{1}{MS_i} \quad (7)$$

Gini coefficient (G) reflects the area between the Lorenz curve and the absolute equality line. This measure gives only information about the distribution, and therefore the value of the index will be the same regardless of whether in the industry operate two or ten companies with the same shares. Gini coefficient can be calculated according to following formula:

$$G = \frac{N+1}{N-1} - \frac{2}{N(N-1) \cdot u} \left(\sum_{i=1}^N i \cdot MS_i \right) \quad (8)$$

where u is mean value of the market shares of all insurers in the industry, i is the rank of the company, such that the leading company receives a rank of 1 and the smallest company a rank of N.

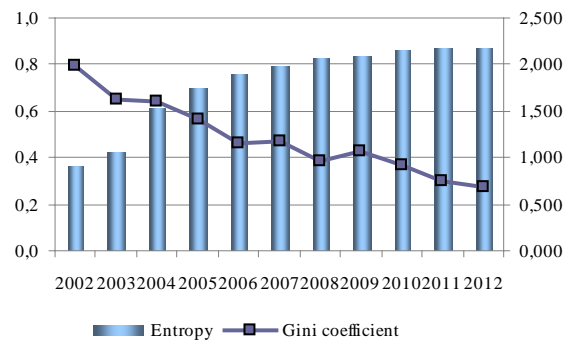


Fig. 9 Entropy index and Gini coefficient
Source: Authors' calculation

It is clear from the Fig. 9 that the value of the Gini coefficient has been decreasing during the years from 2002 to 2012, suggesting that the distribution of total gross written premium among companies becomes gradually more and more equal. This equality is enhanced by 140% in 2012 when compared with the situation in 2002. On the other hand Entropy index shows continuous growth. Having in mind that the higher value of the Entropy index indicates a lower level of industrial concentration, this index confirms the higher level of competitiveness among companies that operate on the Macedonian insurance industry.

Comprehensive Concentration index (CCI) takes into account the relative dispersion and absolute number of insurers in particular industry. In defining the CCI, a functional form of HHI was used. The formula for calculating the index is as follows:

$$CCI = MS_1 + \sum_{i=2}^n MS_i^2 (2 - MS_i) \quad (9)$$

where MS_1 indicates the market share of the first i.e. the largest insurer in the industry, while n denote the overall number of insurers in the sector. Comprehensive index of industrial concentration emphasizes the dominance of the leading company compared to other companies in the insurance industry. Therefore this measure is not adequate for the analysis of the concentration of the industry in which operate several large insurers. The index can range from 0 to 1. It takes the value of 1 when monopoly is present in the industry.

Hannah-Kay index (HKI) index has the general form

$$HKI = \left(\sum_{i=1}^n MS_i^\alpha \right)^{1/(1-\alpha)}, \alpha > 0, \alpha \neq 1 \quad (10)$$

where α is parameter to be specified. It reflects changes of concentration as a result of changes in the number and insurer's size. The lowest values of the parameter α stressed the influence of small insurers, while the highest values emphasize the impact of large insurers on concentration. The most commonly used values of α are: 0.005, 0.25, 5 and 10. For $\alpha \rightarrow 0$, the value of the index converges towards the total number of the insurers in the industry, while for $\alpha \rightarrow \infty$ it approaches the reciprocal of the market share of the leading company in the insurance market [22].

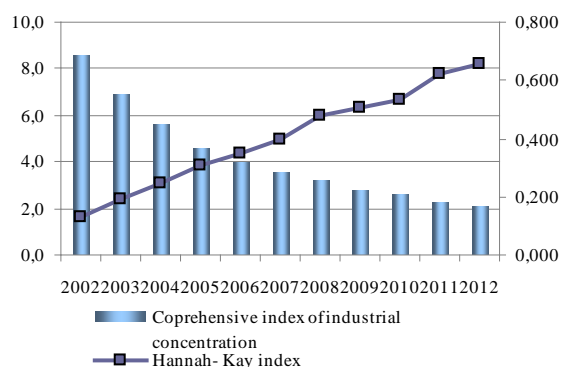


Fig. 10 Comprehensive Concentration index and Hannah-Kay index
Source: Authors' calculation

Due to the significant decrease in market share of the largest insurer in the industry, the value of Comprehensive Concentration index (which highlights the importance of the leading company) shows notable decline (Fig. 10). For the same reason, the Hannah-Kay index (calculated for the $\alpha=5$) demonstrates significant growth. Both indexes support the results obtained by the other indicators of concentration presented in this research.

Summarizing the results obtained from the application of the different concentration measures, it can be concluded

following. Regardless of the measure used to detect the level of the industrial concentration in the insurance sector of the Republic of Macedonia, the final conclusion is always the same: declining trend of the industrial concentration. From former monopolistic situation, that has been present on the insurance industry until the late '90s, the structure of the insurance industry, during the last decade, transform into the more competitive one.

IV. SWOT ANALYSIS

In order to determine strategic position of Macedonian insurance industry and insurers operating in it, a SWOT analysis is used. We identify internal characteristics of insurance companies and external factors from their business environment, both favourable and unfavourable ones. Considering the factors we summarize strengths, weaknesses, opportunities and threats of Macedonian insurance industry.

Strengths

- Dynamical development of established insurance products
- Increased transparency of operations of the insurance undertakings
- Increase in numbers and market share of foreign insurance groups
- Low levels of exposure in complex high-risk financial instruments
- Increase in numbers of highly educated insurance specialists (insurance professionals)
- Stable financial system
- Complete insurance legal framework (laws and by-laws) harmonized with the international insurance core principles and standards
- Macroeconomic stability and high level of predictability of macroeconomic parameters
- Continued development of actuarial profession

Weaknesses

- Low public awareness for insurance
- Low financial literacy
- Low level of trust in the insurance companies
- Lack of alternative distribution channels
- Insufficient application of tools for early warning of risks from the insurance companies
- Poorly developed capital market and hampered opportunities for investing in different financial instruments and establishing the fair value
- Stalling the liabilities for claims payment
- Poorly developed corporate governance for risk management and underwriting functions
- Unfair competition expressed through breach of the existent tariffs of insurance premium with a goal of increasing the sale and market share

Opportunities

- An emerging economy
- Recent pension and health insurance reforms
- Cooperation and participation in projects with international organizations in the field of insurance

- Continuous educational programs towards better understanding of the insurance products among the public
- Reduced market concentration
- Low level of life insurance penetration
- Low range of risks offered for underwriting
- Increased awareness among insurance companies for financial education of the clients

Threats

- Management's short-term financial results objectives prevail
- Low level of liquidity in the national economy
- Low level of living standard
- Solvency I rules are still applied for calculation of the required solvency margin and available solvency margin (Capital) – It is not clear when transition to Solvency II shall begin
- Insurance fraud prevention system has been considered as insufficient
- Consumer (insurance policyholders and beneficiaries) protection system has not been adequately developed
- Internal controls in the insurance undertakings are insufficient
- Lack of rules for determination and disclosure of the life insurance contracts maximum guaranteed interest rate

V. PERFORMANCE OF INSURANCE COMPANIES BEFORE AND DURING THE CRISIS

Although the financial crisis 2007-2009 had root in the U.S. credit market, increased interaction among various financial intermediaries and markets as well as globalization, resulted in spreading the crisis into other parts of financial system as well as among financial systems of different countries. Considering insurance industry, although there were negative effects on the core business of insurance companies (underwriting risk), the crisis even strongly affected results of the investment activities.

Despite liberalization and ownership integration with large European insurance groups, Macedonian insurance sector remained isolated. Consequently significant effects of the crisis on the performances of the insurance companies are not expected.

In order to test this assumption, a paired (or "dependent") t-test is performed in SPSS statistical package. As a measure of profitability, we used ROA and ROE indicators. A period before crisis (2007) is confronted with the period during the crises (2009, 2010, 2011 and 2012 respectively). The results of the conducted analysis for ROA indicator are presented in Tables 1 to 4, while Tables 5 to 8 provides results for the ROE indicator.

Paired Differences					t	df	Sig. (2-tailed)
Mean	Std. Dev.	Std. Error Mean	95% Confidence Interval of the Difference				
			Lower	Upper			
-0,022	0,235	0,074	-0,190	0,147	-0,291	9,000	0,778

Table 1 Paired sample test: ROA 2007 – ROA 2009

Source: Authors' calculations based on data of Insurance Supervisory Agency of Republic of Macedonia

Paired Differences					t	df	Sig. (2-tailed)
Mean	Std. Dev.	Std. Error Mean	95% Confidence Interval of the Difference				
			Lower	Upper			
-0,036	0,201	0,064	-0,180	0,108	-0,572	9,000	0,581

Table 2 Paired sample test: ROA 2007 – ROA 2010

Source: Authors' calculations based on data of Insurance Supervisory Agency of Republic of Macedonia

Paired Differences					t	df	Sig. (2-tailed)
Mean	Std. Dev.	Std. Error Mean	95% Confidence Interval of the Difference				
			Lower	Upper			
-0,022	0,202	0,064	-0,166	0,122	-0,347	9,000	0,737

Table 3 Paired sample test: ROA 2007 – ROA 2011

Source: Authors' calculations based on data of Insurance Supervisory Agency of Republic of Macedonia

Paired Differences					t	df	Sig. (2-tailed)
Mean	Std. Dev.	Std. Error Mean	95% Confidence Interval of the Difference				
			Lower	Upper			
-0,019	0,189	0,060	-0,154	0,116	-0,323	9,000	0,754

Table 4 Paired sample test: ROA 2007 – ROA 2012

Source: Authors' calculations based on data of Insurance Supervisory Agency of Republic of Macedonia

Paired Differences					t	df	Sig. (2-tailed)
Mean	Std. Dev.	Std. Error Mean	95% Confidence Interval of the Difference				
			Lower	Upper			
0,631	1,429	0,452	-0,392	1,653	1,395	9,000	0,196

Table 5 Paired sample test: ROE 2007 – ROE 2009

Source: Authors' calculations based on data of Insurance Supervisory Agency of Republic of Macedonia

Paired Differences					t	df	Sig. (2-tailed)
Mean	Std. Dev.	Std. Error Mean	95% Confidence Interval of the Difference				
			Lower	Upper			
0,566	1,363	0,431	-0,409	1,540	1,313	9,000	0,222

Table 6 Paired sample test: ROE 2007 – ROE 2010

Source: Authors' calculations based on data of Insurance Supervisory Agency of Republic of Macedonia

Paired Differences					t	df	Sig. (2-tailed)
Mean	Std. Dev.	Std. Error Mean	95% Confidence Interval of the Difference				
			Lower	Upper			
-0,873	5,025	1,589	-4,468	2,722	-0,549	9,000	0,596

Table 7 Paired sample test: ROE 2007 – ROE 2011

Source: Authors' calculations based on data of Insurance Supervisory Agency of Republic of Macedonia

Paired Differences					t	df	Sig. (2-tailed)
Mean	Std. Dev.	Std. Error Mean	95% Confidence Interval of the Difference				
			Lower	Upper			
0,507	1,287	0,407	-0,414	1,427	1,245	9,000	0,245

Table 8 Paired sample test: ROE 2007 – ROE 2012

Source: Authors' calculations based on data of Insurance Supervisory Agency of Republic of Macedonia

As it can be seen from any of the Tables 1 to 8, the p-value is insignificant and therefore we can accept the null hypothesis and conclude that the mean difference between insurers' performances before crises and insurers' performances during crises is statistically insignificantly different from zero (i.e. there is no difference in the mean profitability measures for the period before and during the crises). The reasons for these findings are presented in the next few paragraphs.

Historical analyses of the return from non-technical (investment income) and technical results (underwriting) show that Macedonian non-life insurance undertakings didn't suffer during the crisis period. The companies have implemented conservative investment strategy, where more than 95% of the investments are in bank deposits and short term government securities issued by the Republic of Macedonia. Government securities offer attractive interest rates and are of short duration. Insurance undertakings buy government securities and hold them to maturity, therefore securing programmed financial returns, and avoiding the risk of securities price volatility.

Bank deposits are usually short term investments with interest rates that are 2-3% above the inflation rate and

therefore give opportunity for insurance undertakings to realize low but stable returns.

In addition, underwriting results didn't show weaknesses. They were not exposed to catastrophic risks, so that claims experience did not have negative impact on the loss ratio, and positive trends were recorded also in the gross written premium. The period was characterized with continuous growth of the gross written premiums without changes in Tariff that were immanent for the developed insurance markets as a direct consequence of the crisis. The main driver who had directly affected the level of profitability was continuous pressure on operating expenses, including administration expenses, marketing, and acquisition costs.

VI. CONCLUSION

The results of the conducted analysis indicated relatively low level of development of the Macedonian insurance industry. However, despite some weaknesses, this sector has enough strength for further growth and development. The finding also confirms industrial structure transformation from monopolistic to a more competitive one. Finally, according to the obtained results, crisis did not significantly influenced insurers' performance.

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