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MANAGEMENT OF RISK AND FINANCIAL CONDITION OF INSURANCE COMPANIES THROUGH REINSURANCE

ABSTRACT

of a dissertation for the award of the Academic Doctoral Degree (Ph.D.)
under the Finance, Money Circulation, Credit and Insurance (Finance)
Doctoral Program

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Svishtov
2021

This dissertation is comprised of a total of 179 pages, of which: Title Page; Contents Page; Introduction; Main Body of Text; Conclusion; Bibliography (One hundred and eight (108) Reference Literature sources, three (3) Regulatory sources, and ten (10) Internet sources); and Appendices. This paper is structurally organized to include an introduction, a three-chapter exposition and a conclusion. It also includes three (3) Figures, four (4) Diagrams and thirty-one (31) Tables in support of the exposition.

The dissertation was discussed and referred for defense pursuant to procedure under the Act on the Development of the Academic Staff, as implemented by the Department of Finance and Credit at the D. A. Tsenov Academy of Economics at a meeting held on December 20, 2021.

The open meeting of the scientific panel for the defense of the dissertation is scheduled at 2.00 p.m. on February 22, 2022, in the Rectorate Conference Hall of the Dimitar A. Tsenov Academy of Economics – town of Svishtov.

The relevant materials for the defense of the dissertation are available to the stakeholders at the Department of Doctoral Studies and Academic Development of the Dimitar A. Tsenov Academy of Economics – town of Svishtov.

CONTENTS

I. GENERAL OVERVIEW OF THE DISSERTATION

1. Relevance of the topic researched

This is a scientific and theoretical applied paper. The important scientific and practical significance of the dissertation and the limited number of scientific papers available on the topic make the topic a relatively new and insufficiently researched one in financial and analytical terms. A current study from the capital point of view of the impact of reinsurance on the balance sheet positions and financial indicators of non-life insurance companies is presented herein. The activities of insurance companies (as a specific part of the financial system – being intermediaries in the risk management and main participants in both the insurance and reinsurance market) are analyzed. Dynamic changes and market competition pose new threats and challenges to the financial stability of any insurer aspiring for taking responsibility for bigger and bigger sites without actually being able to afford it. These modern conditions determine the important place of reinsurance as a possible and necessary policy for the insurer's risk management.

2. Object and subject of the research thesis

*The **object*** of the research thesis are the financial dimensions of the reinsurance activities of insurance companies, and the ***subject*** is the options for risk management through reinsurance and the financial position of insurance companies.

3. Research thesis, purpose and tasks of the dissertation

Within this study the author tests the ***thesis*** that risk management through balanced reinsurance solutions in the context of dynamically changing market conditions is a prerequisite for achieving lasting financial stability in the operations of insurance companies.

Further to the above thesis, the ***main goal*** of this study is to conduct a systematic analysis of regulatory and financial aspects of reinsurance under the compulsory Motor Third Party Liability insurance in Bulgaria as a key tool for ensuring financial stability of the insurance business in the dynamically developing insurance market. In the context of the above formulated goal, the author sets the following research tasks:

- To derive the problems and propose guidelines for the development of a stable insurance market in the country, where reinsurance in turbulent conditions is the most widely used method for risk management;

- To review and present the European legislative changes in the insurance market and their role in the challenges in the development of insurance companies, and the effects of restrictive regulations on investment on the financial sustainability of insurance companies;

- To justify the importance of achieving a balanced system for risk management through the use of reinsurance in the activities of insurance companies, with the ultimate goal of insurance activities and the insurance market as whole achieving financial stability in a pandemic and economic recession and vague perspectives in this Chaotic era.

4. Research methodology

This dissertation uses standard research methods such as: the inductive and deductive methods, the method of analysis and synthesis, the descriptive method, the method of observation, the historical method, the comparative method, in addition to widely used and accepted statistical tools and publicly available data from the Financial Supervision Commission regarding the insurance market in the country, specialized analyzes and research concerning reinsurance issues, and financial data on the activities of insurance companies.

The data presented in this dissertation were processed and presented in tabular format and diagrams using MS Office Excel 2016.

5. *Limitations of the research*

This dissertation focuses from a theoretical and practical viewpoint on the financial aspects of risk management and financial condition of insurance companies through reinsurance, as the scope of study is limited to the adopted regulatory changes and the challenges posed by effective court decisions in the country relating to the financial risks of compulsory Motor Third Party Liability insurance as one of the most important insurance products which is central to Insurance Code.

Regulatory changes, peculiarities, development issues, and the impact of other types of insurance in Bulgaria on the financial position of insurance companies are not included in the *scope* of this research.

This dissertation uses confidential and non-public reinsurance and financial information which belongs to one of the leading insurance companies in Bulgaria – JSIC OZK-Insurance and, therefore, the analytical results include data about the OZK's activities, however, the data have been transformed using a special factor.

6. *Approbation of the dissertation*

This dissertation was discussed on November 5, 2021 at a meeting of the Department of Finance and Credit at the D. A. Tsenov Academy of Economics – town of Svishtov, and a three-stage procedure for commencing the defense of the dissertation was launched, which procedure was completed at a final meeting of the Council of the Department of Finance and Credit, held on December 20, 2021. One study and two reports on the topic of this dissertation have been published in specialized scientific journals. The author has been working for a company operating in the non-life insurance sector and has been applying the results presented in this dissertation in her professional practice.

II. STRUCTURE AND CONTENT OF THE DISSERTATION

This dissertation is prepared in compliance with the requirements of Art. 27, para. 2 of the Implementing Regulations of the Act on the Development of the Academic Staff in the Republic of Bulgaria. It includes an introduction, a three-chapter exposition, a conclusion, a bibliography and appendices. The study comprises a total of 177 standard pages, of which 149 pages form the main body of the text and 13 pages in appendices. The main body of the text includes three (3) Figures, four (4) Diagrams and thirty-one (31) Tables. Seventeen (17) appendices are appended at the end of the paper.

The bibliographic reference includes 106 sources, incl. 19 sources from the Scientific School of the Department of Finance, a total of 76 sources in Bulgarian, and 30 foreign-language sources, 3 regulations and 12 electronic sources.

The dissertation is structured specifically as follows:

INTRODUCTION

CHAPTER ONE

REINSURANCE AS A MEANS OF RISK MANAGEMENT FOR INSURANCE COMPANIES

    1. Prerequisites for and the essence of reinsurance

    2. Specific features of reinsurance

    3. The importance of reinsurance in the insurer's risk management

CHAPTER TWO

CHANGES IN REGULATIONS AIMED AT FINANCIAL STABILITY OF INSURANCE COMPANIES

    1. Challenges in the development of the Motor Third Party Liability insurance on the national insurance market

2. Impact of the legislative changes made to the Motor Third Party Liability insurance on insurance payments and financial stability of insurance companies

3. Importance of reinsurance policy for the development of the Motor Third Party Liability insurance and the financial sustainability of insurance companies

CHAPTER THREE

PRACTICAL EFFECTS OF REINSURANCE OF INSURANCE COMPANIES SPECIALIZING IN MOTOR INSURANCE ON THE NATIONAL INSURANCE MARKET (FOLLOWING THE EXAMPLE OF JSIC OZK-INSURANCE AD)

1. Effects of the monitoring imposed by the Council of Bureaux on the activities of the National Bureau of Bulgarian Motor Insurers (NBBMI)

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STATEMENT OF ORIGINALITY & AUTHENTICITY OF THE DISSERTATION

III. SUMMARY OF THE DISSERTATION

INTRODUCTION

The introduction of the dissertation outlines the relevance of the topic, the object and subject of the thesis of the dissertation, main goal and tasks. The research thesis has been formulated and the limitations of the study indicated.

CHAPTER ONE
REINSURANCE AS A MEANS OF RISK MANAGEMENT FOR INSURANCE COMPANIES

Reinsurance as a means and option for risk management needs to determine and analyze the overall condition of the non-life insurance market, which means exploring the participants and meeting points where insurers and brokers meet insurance or reinsurance clients. The dynamic development of the financial and insurance sector requires effective decision making on the part of brokers and insurers in determining their participation in the insurance of various clients and sites, and making the necessary changes to reinsurance contracts to achieve good and sustainable financial results.

Financial analysis is a complex process which involves exploring background data, going through relevant calculation procedures and ending with the formulation of conclusions about the events studied for making effective management decisions. (Zahariev, 2006).

The scientific literature determines the use of financial analysis of non-life insurance in the context of the national insurance market as being important for making optimal management decisions. This includes analysis of information from typical economic indicators and activities in this area. Some of the studies in the scientific literature are related to the so-called dynamic financial analysis. The latter can be defined as "a systematic approach to financial modeling which

can forecast financial results in different possible scenarios, showing how results can affect changing business, competitive and economic conditions."

Prof. B. Iliev defined the essence of non-life insurance as the provision of funding for needs which are not known at individual level but can be generally estimated on average through risk equalization in aggregate and over time. According to Prof. Iliev, any non-life insurance company is a bank-like organization that raises funds to accumulate them, and then upon expiration of the relevant contract or occurrence of the relevant insured event, it pays compensation in an amount depending on the amount of damages and other clauses, as may be specified in the relevant General Terms and Conditions. (Iliev, The Essence and Features of Insurance, 2007). Following the adoption of the Insurance Code back in 2005, non-life insurance in Bulgaria had been developing steadily within the period of sustainable economic development until the crisis of 2008-2009, and after that. Important indicators, such as *"gross premium income[1]"*, *"insurance penetration"* and *"insurance density"*, which serve as a measure of the development trend of non-life insurance in macroeconomic terms, show outpacing development of the insurance for the period 2005-2009, as compared to the main macroeconomic indicator – Gross Domestic Product (GDP), which is an expression of the *growing importance of the non-life insurance sector in the national economy.* During 2010 and 2011 (after the financial crisis) – the indicators of "insurance penetration" and "insurance density" marked a trend of retreat from the stable positions gained in the general structure of the economy. This is shown by the time-series analysis, examining the dynamics, the peculiarities in the development and the time structure of the data on the development of the insurance business in the country during the period 2005-2011. This trend is expected to continue after the pandemic and economic

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[1] Note. The *"Gross Premium Income"* indicator is used as the main measure for making estimates about the overall condition of the insurance market. The gross premium income and benefits paid out are the most widely used quantitative measures of the level of economic activity in the insurance sector.

recession of 2020-2021, and after that. (Stoykov & Tsanov, 2010, p. 152) (See Table 1)

Table 1

Macroeconomic features of non-life insurance business*

Years	Gross Domestic Product (Million BGN)	Growth rate of GDP with constant base (%)	Gross Premium Income (Million BGN)	Rate of GDP development with constant base (%)	Insurance penetration (%)	Average annual population - amount	Insurance density (BGN/ person)
2005	45 484	100.00	922.80	100.00	2.03	7 739 900	119.22
2006	51 783	113.85	1 060.14	114.88	2.05	7 699 020	137.68
2007	60 185	132.32	1 268.58	1 370.47	2.11	7 640 238	166.04
2008	69 295	152.35	1 532.44	166.06	2.21	7 606 551	201.37
2009	68 322	150.68	1 456.84	157.87	2.13	7 585 131	191.94
2010	70 511	155.02	1 374.79	148.98	1.94	7 504 868	183.31
2011	75 265	165.48	1 362.06	147.60	1.81	7 327 224	185.82
…	…	…	…	…	…	…	…
2018	109 964	241.76	2 087.78	226.24	1.90	7 025 037	297.19
2019	120 395	264.70	2 413.21	261.51	2.00	6 975 761	345.94
2020	119 951	263.72	2 438.73	264.28	2.03	6 934 015	351.71

* Source: NSI data and the author's calculations

The indicators *"Insurance Penetration"* and *"Insurance Density"* which give an idea where non-life insurance stands with the national economy can be calculated by the following formulas[2]:

*1. **Insurance Penetration Rate** (K_p)* – used to determine the relative share of Gross Premium Income in relation to the GDP amount for the relevant year, expressed as a percentage:

$$K_p = \frac{GPR}{GDP} \times 100,$$

(1)

where:

GDP is the GDP amount;

GPR - Gross Premium Income.

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[2] Data source for Table 1: http://www.nsi.bg/ORPDOCS/GDP_1.1.1.xls; http://www.nsi.bg/ORPDOCS/Pop_6.1.1_Pop_DR.xls; http://www.fsc.bg/media_center/files/Insurance_sector.xls;

For the study period between 2005 and 2009, the *Insurance Penetration Rate* had been increasing until 2008, and then it fell after the financial crisis, as may be expected. (See Table 1)

2. **Insurance Density Rate** (K_p) – it is characteristic of the amount of Gross Premium Income per capita:

$$K_p = \frac{GPR}{\overline{S}},$$

(2)

where: $\overline{S}$ is the average annual population.

The result of this ratio shows what is the average amount set aside for insurance by each citizen. Back in 2005 every citizen in the country spent BGN 119.22 on insurance. After that it increased to BGN 201.37 in 2008, and then marked a slight decrease to BGN 185.82 in 2011, and after that it has been continuously on the increase and despite the pandemic it reached BGN 351.71 in 2020 – the amount set aside for insurance by each citizen.

3. **Development rate with constant base** ($T_{i/0}$) – shows the change of the relevant indicator (GDP and Gross Premium Income) for each year in comparison with the first year:

$$T_{i/0} = \frac{y_i}{y_0} \times 100,$$

(3)

where:

y_i are the values of the relevant indicator for the i - year;

y_0 - is the value of the relevant indicator for the base year 2005

The data given in Table 1 show that despite the crisis in all sectors of the economy the non-life insurance business is relatively stable in the market,

regardless of the slow development pace immediately after 2009, followed by a steady development pace until 2020.

These data confirm that the insurance sector in an important and specific part of the financial sector and can be considered as a major barometer of economic growth which indicate changing of economic cycles, acceleration or slowing down of the economic progress, and trends in the country's overall development.

The use of the financial analysis of insurance activities focuses on the aggregate balance sheet, and on the income of insurance companies in aggregate. The magnitude and dynamics of the two main financial indicators of companies are estimated – assets and equity. Table 2 shows the dynamics of the change of these two balance sheet indicators before and after the latest global financial crisis and until the outbreak of the pandemic of 2019-2020.

Table 2

Key balance sheet indicators in the insurance sector

(Million BGN)*

Years	Assets		Equity	
	Non-Life Insurance	**Life Insurance**	**Non-Life Insurance**	**Life Insurance**
2005	876.5	352.7	309.4	140.2
2006	1 122.1	633.1	390.3	336.3
2007	1 358.8	807.3	438.5	418.4
2008	1 649.9	900.0	456.1	417.5
2009	1 811.0	975.0	519.1	447.4
2010	1 864.3	1 058.4	526.3	451.1
2011	1 929.9	1 043.7	538.7	370.0
…	…	…	…	…
2018	3 852.7	1 651.5	806.3	441.8
2019	4 437.4	1 915.0	914.0	553.0
2020	4 857.4	2 043.2	1 068.4	542.5

* Source*: FSC data and the author's calculations.*

The data show that in the period 2005-2011 the assets (total amount) of the insurance companies increased by BGN 1744.4 million, and in the period 2011-2020 – by BGN 3,927 million, where the assets in life insurance companies enjoyed higher growth as compared to the assets in non-life insurance companies.

The equity increase for the period analyzed between 2005 and 2020 (despite the crisis and the pandemic) testifies to securing relative sustainability in the development of the insurance business in the country.

The relative share of the reserves in the balance sheet liabilities of these two types of insurance is different, which is determined by the specifics of their activities[3]. Estimates show that the reserves of life insurance companies form about 80% of their liabilities, as these companies guarantee the amounts that will be used to make payments on various policy claims. *The question remains, however, whether the reserves will be sufficient to make payments on all policy claims.* This risk depends on the investments made by insurance companies which are exposed to market and credit risks. The reserves of non-life insurance companies for the period analyzed between 2005 and 2020 vary between 60-67% of the liabilities, because the greater uncertainty of the liabilities of non-life insurance companies. (Todorov, 2004) (See Table 3).

Table 3

Aggregate balance sheet of non-life insurance companies as of December 31 (Thousand BGN) *

Years	Amount of assets	Investments (Thousand BGN)	Relative share (%)	Amount of liabilities	Insurance reserves (Thousand BGN)	Relative share (%)
2005	876 458	505 463	57.67	876 458	567 288	64.73
2006	1 122 184	663 021	59.08	1 122 184	567 288	50.55
2007	1 358 814	839 012	61.75	1 358 814	735 555	54.13
2008	1 649 005	975 422	59.15	1 649 005	992 082	60.16
2009	1 811 039	1 101 818	60.84	1 811 039	1 092 492	60.32
2010	1 864 346	1 200 687	64.4	1 864 346	1 121 606	60.16
2011	1 929 923	1 233 511	63.92	1 929 923	1 170 223	60.64
…	…	…	…	…	…	…
2018	3 852 652	1 514 124	39.30	3 852 652	2 611 475	67.78
2019	4 437 415	1 749 048	39.42	4 437 415	3 051 142	68.76
2020	4 857 408	2 083 239	42.89	4 857 408	3 289 039	67.71

* Source: FSC data and the author's calculations.

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[3] The term "insurance reserves" is used in this study as a synonym for "reserves of insurance companies", which includes both general and technical reserves.

The data for the period 2005-2020 show that the investments made by non-life insurance companies marked a steady growth throughout the period before and after the crisis of 2008-2009, where the increase in 2011 as compared to 2005 was 144%. Almost the same trend is valid for the insurance reserves of the companies - increase in 2011 by 106% as compared to 2005, and for the entire study period the absolute amount of the investments of BGN 505.46 million in 2005 increased to BGN 2.083 billion in 2020, and the insurance reserves of BGN 567.29 million in 2005 increased to BGN 3.289 billion in 2020.

The studied issue is related to the risk of loss of financial stability of insurance companies during a pandemic and crisis, and it will further suggest the following question to be answered: whether insurers' reserves during a crisis will be sufficient to make payments on all claims under insurance policies. *This risk is related to the expected financial gains from the investments made by insurance companies, as different trends in investment income exist*, which is evident from the data for the study period before and after the financial crisis between 2005 and 2020. (See Figure 1)
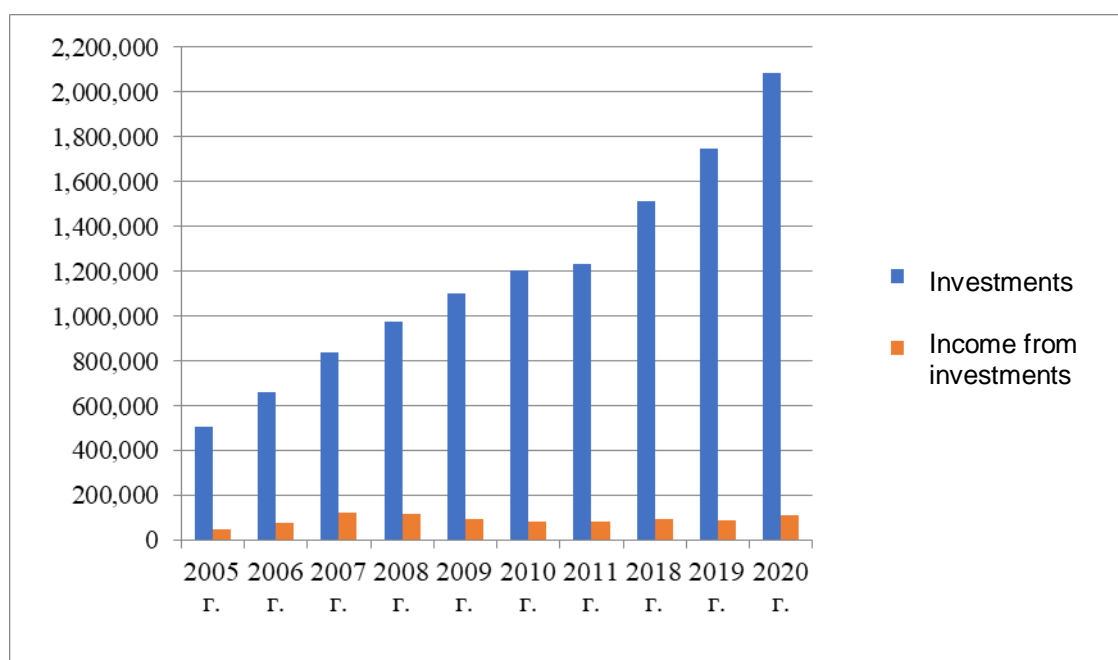

Figure 1. Investment activities of non-life insurance companies in Bulgaria

An increase in investment income can be observed until 2009, and after the crisis there was a slight stagnation until 2011 due to the legislative restrictive measures imposed on the options for investing the technical reserves, and then the upward trend continued until 2020, despite the pandemic[4].

The existing international regulations and fixed regulatory requirements for diversification of the investment portfolio of insurance companies effectively limit the insurance management to develop their intellectual potential and skills and invest profitably in other areas in order to achieve better return on investment. Under the current conditions of a pandemic and economic recession with low interest rates and negative yields on deposits and government securities - it is possible that the investment activities of a significant number of insurers will turn to be unprofitable in 2021. We need to conclude that a faster exit from the 2020-2021 crisis after the pandemic may be possible through changes in the legal framework that regulates and limits the investment activities of insurance companies - including new directions for investing the technical reserves in attractive financial assets and instruments in order to ensure higher profitability and insurance against bankruptcy, reinsurance by bigger insurance companies, etc.

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[4] The insurance companies have to invest the gross amount of the technical reserves formed in compliance with the following restrictions, according to Art. 74 of the IC:

First. Up to 20% in real estate but not more than 10% in a single real estate property or in a single group of real estate properties which by virtue of their locations can be considered as one investment;

Second. Up to 80% in securities but not more than 30% in assets other than qualified bonds or other qualified debt securities;

Third. Unlimited investment in securities issued or guaranteed by the Republic of Bulgaria or another EU Member State, as well as in qualified debt securities issued or guaranteed by third countries, central banks thereof or international organizations of which the Republic of Bulgaria or another EU Member State is a member;

Fourth. Up to 5% in securities issued by one issuer, where this restriction does not apply to the securities under the previous item;

Fifth. Up to 50% in bank deposits but not more than 25% of the gross amount in a single bank;

Sixth. Up to 3% in cash and on current accounts.

The calculation of the "**Return on Investment indicator**" of non-life insurance companies as a relative indicator of income relative to the amount of investments made includes in itself combined trends for the two absolute indicators based on which it is calculated - the "*Investment Income Amount*" of non-life insurance companies and *"Investment Amount"* of non-life insurance companies. It shows how much revenue is generated by BGN 100 when invested by non-life insurance companies, and it can be calculated by the formula:

$$R_{inv} = \frac{II_{ins}}{I_{ins}} \times 100,$$

(4)

where:

R_{inv} is the **Return on Investment indicator** of non-life insurance companies;

II_{inv} - the **investment income amount** of non-life insurance companies;

I_{inv} - the **amount of investments** made by non-life insurance companies.

The leading role of insurance as an important part of the financial sector has been established by mediating in the process of efficient resource allocation between the individual industries in the economy, and by reducing transaction costs by resolving the issue of asymmetric information. In addition, the insurance sector plays the role of a major risk manager in the economy, as well as in the processes of mediating the transactions of economic entities and the transformation of savings into investments. Cutting-edge financial engineering and financial innovation have been improving for decades the efficiency of the financial system by sharing risks, reducing transaction costs, information related and agency costs. (Prodanov, Economics and the Insurance Market in Bulgaria, 2020, pp. 9-13)

Prof. B. Iliev defined insurance as the provision of funding for needs which are not known at individual level but can be generally estimated on average through risk equalization in aggregate and over time.

Insurance companies protect through risk transfer the economic entities from all sectors of the actual economy from loss of assets or income. The insurance sector has been enjoying a growing importance in the financial industry of most of the emerging and developed economies alike, and a growing importance for the economy as a whole. Insurance companies are among the major institutional investors, with an increasing share of investments in the capital market and the real estate market. (Prodanov, Economics and the Insurance Market in Bulgaria, 2020)

A study by Prof. Andrey Zahariev made recommendations that portfolio managers should better analyze the options for achieving maximum returns through a variety of financial instruments opted for during the "selection of investment portfolios, which can be carried out either within the market portfolio or within a more limited set of assets. If carried out within the market portfolio, the latter can include not ordinary shares only, but also any more risky assets, both national and foreign stocks and bonds, options, etc." (Zahariev, 2006, p. 601). A particularly important part of the investment policy of insurance companies when investing their temporarily free funds is the optimization of the Risk/Return ratio, ie. achieving maximum return by taking minimal investment risk. This aspect of the financial management should be the main point of the financial management, because "return and risk are the two mainstays of the financial analysis" (Angelov & Nenkov, 2009, p. 115), which in a broader sense of the word "analysis" can be interpreted as the use of appropriate financial methods to represent certain quantitative features of the activities studied in the context of insurance. In a narrower sense the analysis of insurance activities is a "scientifically sound methodology for estimating the activities of insurance companies, the drafting of insurance rates, implementation of current and future insurance plans, sources of

financial results, and identifying measures to improve these activities" (Iliev et al., 1997, p. 7), and the insurance-technical analysis itself can be defined as "a system of methods by which the insurance activities are studied in their entirety and as separate units". (Erusalimov et al., 2015)

Risk is an underlying concept in the insurance business. The definition of the word "risk" is associated with the adoption of a decision with unknown outcome, and "financiers most often understand risk as deviations from the expected return." (Patev, Angelov & Kanaryan, 2002, p. 11)

Everything stated so far defines the insurance and insurance companies as an important part of the financial system, as a specific intermediary specializing in activities related to risk management. The financial sustainability of the insurance market and of the insurance companies in particular depends definitely on the competent performance of their activities, and the investment efficiency – on the manner of building an investment portfolio during the investment process and within the financial markets, and any abrupt changes in the financial environment.

The ability of the insurance management to make a flawless management decision in the area of risk management through reinsurance should be based on adequate and accurate financial analysis results, information regarding the economic indicators and the activities of non-life insurance companies.

The activities of insurance companies and the insurance market – as the main components of the insurance system – are subject to national and international regulations. Insurance supervision is considered as an important part of the applied concept for the functioning and supervision of the insurance market, where insurance activities are carried out by insurers, reinsurers and insurance brokers. Their financial stability is crucial for the positive relationship between the insurance sector and the economic development of the country. According to the established practice, a non-life insurance company is considered to be financially stable (FS) when Insurance Reserves and Funds (IRF) are at least equal

to its annual Gross Premium Income (GPI). Such financial condition can be defined as an equation of symmetrical stability, as follows:

(5) $IRF \cong GPI \Rightarrow FS$

Carrying out insurance activities in turbulent conditions means that it is becoming increasingly challenging for the insurance companies to maintain financial stability in the current environment of frequent economic ups and downs, natural disasters, pandemics and economic recessions with vague perspectives. (See Table 4)

The data presented in Tables 2, 3 and 4 show the relative resilience of the insurance companies in Bulgaria before and after the crisis of 2008-2009 and the economic recession of 2019-2020, which was a consequence of the pandemic. The emerging trend of more frequent local or global crises leads to the conclusion that reinsurance is becoming a quite possible and effective method of risk management which can bring financial stability to the insurance market.

Table 4

Insurance Reserves and Funds and Gross Premium Income of non-life insurance companies for the period 2005-2020

*(Million BGN) ***

Years	Insurance Reserves and Funds (IRF)	Gross Premium Income (GPI)	Difference (+/-)
2005	716.88	919.19	-202.31
2008	1 448.19	1 534.40	-86.21
2009	1 610.57	1 049.84	560.73
2011	1 708.96	1 362.06	346.90
…	…	…	…
2018	3 417.78	2 087.78	1 330.00
2019	3 965.11	2 413.21	1 551.90
2020	4 357.48	2 438.73	1 918.75

*   * Source: FSC data and the author's calculations.*

The need for reinsurance nowadays can be explained by the increasing frequency and severity of the risks arising from the society, some of which may lead to environmental disasters. This results not only in new insurance needs and

interests and the search for new types of insurance, but also in looking for greater security through reinsurance by the direct insurer. Such environmental risks are: environmental pollution risk, risk of terrorism, industrial accidents at enterprises with hazardous production processes, etc. (Markova, Ir., 2021)

The beginnings of reinsurance first appeared back in the 14th century. The first contract which can rightly be called a reinsurance contract was made on July 12, 1370 in Genoa. This contract undoubtedly had the essential marks of a reinsurance contract. It was a contract aimed at taking over the risk and made between a direct insurer and a reinsurer, without any direct contractual relationship between the reinsurer and the insured. Generally speaking, the reinsurance agreement in the contract from Genoa was aimed at limiting the risk by partially transferring the risk (but not splitting the risk), as the direct insurer was willing to insure the transportation from Genoa to Sluis only if someone else was willing to take over the risk for the more dangerous part of the route. (Draganov, Reinsurance, 2001, p. 201)

Evidence of reinsurance is also an entry in the Commercial Book of Florence dated February 19, 1457, which recorded the reinsurance of an insurance liability. This document is important primarily because of the terminology it contains, as the Italian term "rasichurare" (reinsure) was used for the first time. The term "reinsurance" was used as early as the 15th century.

The Italian reinsurance market was relocated concurrently with the relocation of the center of maritime transport insurance from Italy to England. During the 16th century the largest number of individual reinsurance contracts were made in England. It was not until the early 1820s when the first reinsurance contracts for grouped items were made. And during the following decades, reinsurance gradually grew to the point of being the basis of insurance. Because reinsurance came into existence in connection with the marine insurance and was associated with the flourishing of the European trade for several centuries in a

row, reinsurance can be regarded as a historical basis for the beginnings of marine insurance. (Draganov, Reinsurance, 2001, p. 203)

With the growth of the global trade during the Middle Ages and the related development of credit facilities, there was a growing need for security, which resulted in the development of an independent legal form of a certain deal from which the insurance originated. The prevailing opinion is that insurance came into being precisely from a maritime loan back in the 14th century and, undergoing various modifications, it finally became an independent agreement. Modern science has accepted that during the late Middle Ages, traditional commercial contracts were associated with risk-taking agreements, giving rise to risk related deals of a nature similar to insurance. The link between the maritime loan and the insurance stems from the well-known fact that the obligation to repay the borrowed amount and the interest on the loan was conditioned by the successful completion of the sea voyage for which the loan was taken. Insurance has gradually become an indispensable tool in economic life. (Draganov, Reinsurance, 2001, p. 205)

We can summarize that reinsurance is fast becoming one of the most important risk management tools available to insurance companies. However, outside the scope of insurance and reinsurance professionals, the nature of reinsurance, its methods and forms are almost unknown. (Vassilev, 2012, p. 3). Researchers treat reinsurance as an option for equalizing the risk outside the insurance company. This is the so-called vertical risk allocation through which the insurance management has the opportunity to limit through reinsurance their liability for major risks, and to maintain the financial stability of insurance companies within acceptable limits in view of claims and other shocks and challenges in the insurance market during the more frequent crises in this turbulent age.

In his scientific paper titled "Economics and the Insurance Market in Bulgaria", Prof. St. Prodanov makes a professional analysis of the impact of the

macroeconomic environment on the insurance market, because the insurance sector, being part of the financial sector of the economy, and the development in the insurance sector, are closely linked to the economic environment, economic activities and risks faced by the national and global economy (Dimov, 2015). He uses two regression models with added fictitious variables in order to study the impact of the financial and economic crisis of 2008-2009, and determine under normal conditions how it affected the rate of change of the *Gross Premium Income* (*GDI*) of non-life insurance, the rate of change of the GDP, and other indicators characterizing the insurance sector.

The analysis of the financial policy of insurance companies during the period 2005-2011 (before and after the latest global financial crisis) shows an increase in the Gross Premium Income before the crisis and an expected decrease in the relative share of the Gross Premium Income from insurance following the crisis of 2008-2009, which is due to the change of the policy of insurance companies aimed at reinsurance of the risks. This has proven to be an effective and balanced anti-crisis measure for maintaining financial stability during crises and during the post-crisis period. (See Table 5.)[5]

The decrease in *Gross Premium Income* (*GPI*) from insurance in the period 2009-2011 and after that, as compared to previous years, is due to the deteriorating macroeconomic indicators of Bulgaria as a result of the financial and economic crisis, which caused a reduction in GDP, employment and income of economic operators. This slowed down the dynamics in the development of the insurance sector in the country, however, it experienced a stable growth after 2011 and until 2019. The GPI decrease in 2020 was a consequence of the pandemic, accompanied by a decline in the relative reinsurance share, which is evidence for

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[5] Note. The development of active reinsurance is thanks to the efforts of GP Reinsurance EAD (GP Re), which was granted a reinsurance license back in 2008, generating Gross Premium Income of more than one million.

a balanced approach to reinsurance, ensuring good financial results and the necessary financial sustainability of insurance companies.

Adopting this mechanism which enables companies to limit losses through reinsurance to levels proportional to net results, will make it possible for any insurance company to offer a higher collateral guarantee.

Table 5

Dynamics of the indicator "Gross Premium Income" from insurance and from reinsurance on the Bulgarian insurance market in the period 2005-2020.[6]

Years	Gross Premium Income from Insurance (Million BGN)	Gross Premium Income from Reinsurance (Million BGN)	Relative Reinsurance Share (%)
2005	1 069.20	0.00	0.00
2006	1 253.50	0.00	0.00
2007	1 520.36	0.00	0.00
2008	1 810.85	21.79	1.20
2009	1 681.50	19.06	1.13
2010	1 623.46	17.78	1.10
2011	1 613.76	23.20	1.44
…	…	…	…
2018	2 535.71	58.53	2.31
2019	2 911.94	51.28	1.76
2020	2 635.20	25.76	0.98

* Source: FSC data and the author's calculations.

This reinsurance function is important because it enables companies to offer a collateral guarantee that meets the needs of policyholders. Thus reinsurance enables smaller companies to maintain financial stability by competing with the major insurance companies. (Draganov, Reinsurance, 2001, p. 26). The positive financial result of the insurance companies in the country during the study period (2009-2020) was maintained mainly due to the high rate of increase of their assets at the beginning of the 21st century, and the return on assets calculated as the ratio between profit (loss) and the total amount of assets, and the return on equity calculated as the ratio between profit (loss) and equity.

These two indicators can be calculated by the following formulas:

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[6] Source: http://www.fsc.bg and the author's calculations.

(5)
$$RA = \frac{P/L}{A} \times 100,$$

(6)
$$REC = \frac{P/L}{EC} \times 100,$$

where:

RA (return of assets) is the **asset return indicator**;

P/L (profit/loss);

A (assets) - the amount of assets;

REC (return on equity capital) - the **return on equity indicator;**

EC (equity capital).

In his book titled Financial Theory, Prof. Zahariev looked at the insurance market as a place where cash flows converge, transforming the country's GDP into income of the main economic operators. We therefore argue that achieving optimal balance in risk management for ensuring a positive financial result and financial stability in the market is an important part of the activities of insurance companies, which stems directly from the very nature of insurance and reinsurance.

Reinsurance makes possible the transfer of risks assumed by a direct insurer in order to achieve financial stability of the direct insurer's portfolio. In turn, the insurer decide alone which risks to reinsure. Thus reinsurance becomes a necessary condition for ensuring the financial stability and normal operation of any insurer.

Alternative Risk Transfer (ART) dates back to the advent of captives before the end of the 20th century. During this time large and financially powerful corporations created captives in offshore areas, with the main goal being to retain more risk through various risk management activities that extended the mechanisms of self-financing. Specialized insurance and reinsurance companies were established during the 1980s in financial and offshore centers. These

companies offered a variety of financial reinsurance products which included a limited share of the insurance risk transferred. The increased demand for financial concepts involving risk transfer resulted in the development of a second generation of the so-called "finite risk reinsurance products", combining financing and risk transfer techniques in one product. The changing regulatory and accounting requirements concerning the financial markets also contributed to this increase in demand. (Vassilev, Introduction to Reinsurance, 2012)

Agreements related to the conditional provision of capital are used to protect against extremely rare catastrophic events. Unlike other forms of Alternative Risk Transfer, these agreements do not allow to smooth out the risk impact on the financial result from the company's activities – any and all losses directly impact the company's current financial performance. In addition, the purchase of this product enables an insurance company to continue its activities even during catastrophic events. In such case, the product helps avoiding insolvency due to lack of free cash. (Vassilev, Introduction to Reinsurance, 2012)

Finite risk reinsurance, also called financial reinsurance, is based on the same principles that are typical of traditional reinsurance.

Due to the great variety of financial products of this type being available, it is very difficult to find a common definition of financial reinsurance (finite risk reinsurance). However, it is indisputable that it is a combination of risk transfer and risk financing with an emphasis on the time value of money. (Vassilev, Introduction to Reinsurance, 2012)

The importance of reinsurance from the viewpoint of risk management in the insurance business should be studied based on its functions, the most important function being limiting the risk. Limiting the risk means the reduction of the insurance risk of the individual insurer to an extent to which the insurer can take responsibility according to the insurer's financial capacity. Another function of reinsurance, which is of paramount importance for reducing the insurer's risk, has to do with the operations of starting-up or financially weak

insurers. These insurers can take on greater responsibilities with the help of reinsurance, and thus gradually establish themselves in the insurance market.

The importance of reinsurance in reducing the insurer's risk should also be viewed as entrepreneurial risk insurance. An insurer makes an insurance contract, counting on the reinsurer to "follow the insurer's destiny". Or the importance of reinsurance can be viewed as a "risk-sharing". To avoid any unfavorable consequences of the obligations assumed with the reinsurance contract, one or more consecutive reinsurance contracts can be made. By accepting a certain risk in one's responsibility, the reinsurer may transfer part of the risk assumed to another reinsurer. The process of "transferring" the risk to a reinsurer is called a reinsurance cession, in which the direct insurer is the cedent, and the reinsurer is the cessionary. Any subsequent transfer of responsibility is called retrocession, and the parties to the reinsurance contract are called retrocedent and retro cessionary respectively. (Draganov, Risk Management, 2003, p. 229)

CHAPTER TWO
CHANGES IN REGULATIONS AIMED AT FINANCIAL STABILITY OF INSURANCE COMPANIES

The Motor Third Party Liability insurance is a specific insurance product which features cab be derived from the common features of all types of liability insurance.

The Motor Third Party Liability insurance falls into the group of liability insurance along with various types of professional liability insurance. The insurance product in question is developed and applied according to the same principles as, for example, the liability insurance against environmental pollution, or the employer's or lawyer's or notary public's liability insurance, etc. (Misheva, 2015, p. 83). In this sense, any and all types of liability insurance can be considered as "liability for tort" or "tort liability". Thus, the liability for damages caused to a third party is considered together with contractual liability as a variant

of civil liability. (Misheva, Environmental Insurance - a Factor for the Sustainable Development of Industrial Enterprises, 2016)

The relationship that arises between the subjects in the context of Motor Third Party Liability insurance is related to certain specific elements and relationships. The basis of the insurance payments under the Motor Third Party Liability insurance is the insured's fault and damage caused to third parties. The reason for the occurrence of an insured event is the illegal behavior of the insured, which may be an action or inaction. A claim needs to be filed and a causal relationship must exist between the fault and the damage caused before any payment is made on the part of the insurer. (Draganov & Misheva, 2007, pp. 56-57)

With the adoption of the Solvency II Directive in 2016, stricter regulations have been imposed on the insurance companies in the European market, along with higher requirements for capital adequacy, risk assessment and solvency. This requires stricter financial discipline in the insurance market.

The Solvency II Directive is a Directive aimed at all insurers and reinsurers in the European Union. The Directive itself corresponds to the regulatory evolution in the banking sector during the transition from Basel II to Basel III (Zahariev & Lichev, 2010), (Dimitrova, 2006), (Penev N., 2019). The Solvency II project was launched at the initiative of the European Commission back in 2001. The Commission relies on the advice of the European Insurance and Occupational Pensions Authority (EIOPA).

The Solvency II regime has a three-pillar structure covering Quantitative requirements, Supervisor Review, and Market Disclosures. This structure is shown in the figure below.[7](See Figure 2):

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[7] (https://www.genre.com/knowledge/blog/the-crucial-role-of-reinsurance-in-solvency-II.html)

The Solvency II has introduced risk-based capital requirements for insurance companies, but how does reinsurance affect the capital position of the reinsured under the new rules?

A simple starting point for estimating the value of reinsurance for the cedent's capital position is to consider the solvency ratio which must always be greater than 100%.
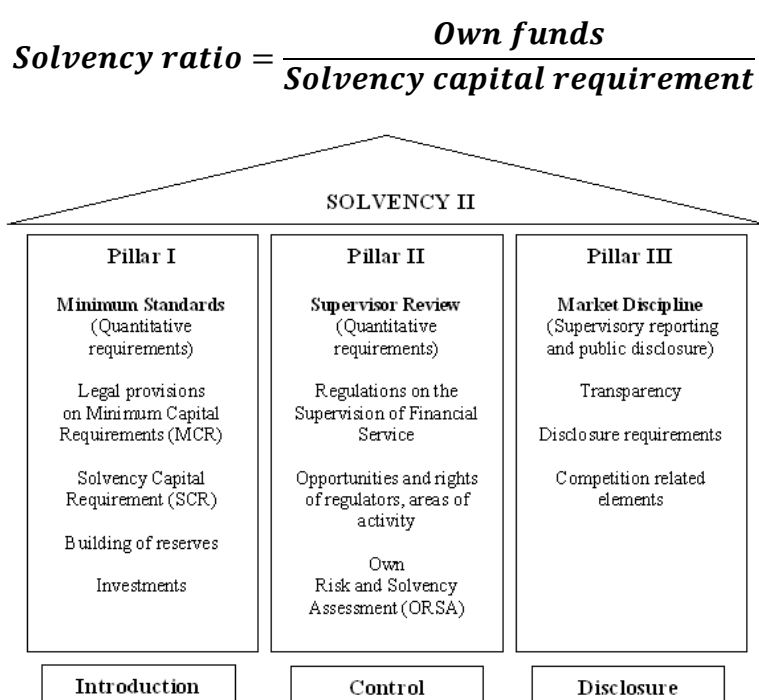
$$Solvency\ ratio = \frac{Own\ funds}{Solvency\ capital\ requirement}$$

Figure 2. Solvency II Pillars

Own funds refer to the capital obtained when liabilities are deducted from the total amount of assets. The Solvency Capital Requirement ensures that each insurer will be able to meet its obligations over the next 12 months with a probability of 99.5%. Various risk "modules" play a role in its calculation, incl. insurance risk, counterparty default risk and market risk.

The Solvency Capital Requirement is reduced through the use of reinsurance with the transfer of the relevant portion of the cedent's risk to the reinsurer. In the standard Solvency II model, the Subscriber Risk module includes mainly catastrophic risk, premium and reserve risk, and reinsurance can have a

risk-reducing effect on all these elements. Reinsurance also reduces the risk on the Market Risk module, as the value of available assets decreases with the reinsurance premium, and the effect of reinsurance is reported as an asset.

Looking beyond the Solvency Capital Requirement, reinsurance can also have a positive effect on the cedent's own funds. The Solvency II standard model establishes an economic assessment of the balance sheet (economic balance), which determines the value of own funds by subtracting the best forecast for the commitments made, plus the risk margin, from the market value of the insurer's assets (See Figure 3).[8]
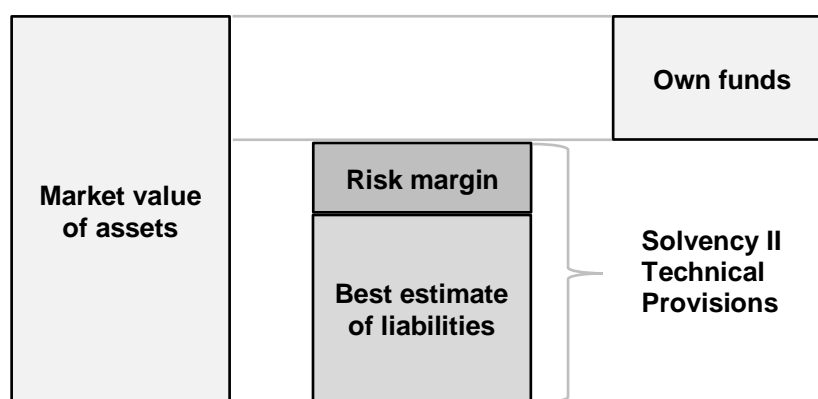

Figure 3. Economic balance (Solvency II)

One of the main reinsurance objectives is to reduce the volatility of liabilities, which in turn will lead to a lower risk margin and the cedent's own funds will increase.

The purchase of reinsurance is one of the key elements of the effective capital management under the Solvency II regime. Transferring risk to reinsurers appears to be a cheaper and more efficient alternative to raising own funds. Reinsurance companies have been creating new products to support insurance companies, such as the Loss Portfolio Transfer Agreement, the Adverse Development Cover Agreement, etc.

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[8] (https://www.genre.com/knowledge/blog/the-crucial-role-of-reinsurance-in-solvency-II.html)

Reinsurance strategies to cover the minimum capital requirements for solvency have also been used in the Bulgarian insurance market (See Table 6).

Table 6

Dynamics of the indicator "Gross Premium Income" from insurance and from reinsurance on the Bulgarian insurance market (for the period 2016-2020)

Indicators	Year (BGN)				
	2016	2017	2018	2019	2020
Gross Premium Income from non-life insurance	1 619 653 994	1 748 778 218	2 087 776 434	2 413 209 562	2 438 730 350
Gross Premium Income from reinsurance	31 761 628	42 391 651	40 702 494	29 881 295	23 491 797
Relative share of active reinsurance	1.96 %	2.42 %	1.95 %	1.24 %	0.96 %
Total premiums ceded to reinsurers	439 683 142	506 089 881	642 550 671	792 260 488	814 366 661
Relative share of ceded premiums in premium income	27.15 %	28.94 %	30.78 %	32.83 %	33.39 %

Source: FSC Statistics, the author's calculations

Table 6 shows the increase in the share of ceded premiums in the premium income as a result of the aspiration of insurance companies in Bulgaria to meet the minimum capital requirements after the adoption of the Solvency II Directive.

Any relationship between the insurance company and reinsurers ultimately have a direct impact on the income from insurance activities, as well as on the income from the activities of the reinsurance company. The impact of reinsurance operations can be seen both in the Balance Sheet and in the Profit and Loss Account of the insurance company. (See Table 7)

Despite the decline during this dynamic period – in the amount of the gross premiums earned, there is an expected reduction of the expenditure part of the technical report following the reinsurance, and because of that the financial result from the insurance activities is positive. A greater reduction in the financial result of insurers and registration of negative values during years of crisis and recession may be due to a poor balance between gross premium income, premiums ceded to reinsurers, or the cost of claims paid, or a faster rate of increase in net claims against the rate of increase in net gross premiums earned.

Table 7

Impact of reinsurance on the financial statements of JSIC OZK-Insurance[9]

/In thousands BGN/	No reinsurance	With reinsurance	Difference
Profit or Loss Statement			
Gross premiums	109 211	182 019	72 808
Premiums ceded to reinsurers		-83 092	-83 092
Change in unearned premium reserve	-679	-679	0
Change in reinsurer's share in unearned premium reserve		-1373	-1373
Net premiums	**108 532**	**96 875**	**-11 657**
Investment income	695	695	0
Total other income	**695**	**695**	**0**
Expenses for claims paid - gross	-57 678	-67 857	-10 179
Claims ceded to reinsurer		39 479	39 479
Change in obligations under insurance contracts concerning forthcoming payments - gross	-1 997	-1 997	0
Change in obligations under insurance contracts concerning forthcoming payments ceded to a reinsurer		-14 382	-14 382
Expenses for claims paid, net	**-59 675**	**-44 757**	**14 918**
Acquisition costs	-27 596	-45 994	-18 398
Administrative expenses	-9 185	-9 185	0
Reinsurance commissions and interest in the result		17 066	17 066
Other operating expenses/incomes, net	-8 689	-8 689	0
Other expenses	**-45 470**	**-46 802**	**-1 332**
Total costs for paid claims and other costs	**-105 146**	**-91 559**	**13 587**
Profit before taxes	**4 082**	**6 011**	**1 929**
Income tax expense	-408	-601	-193
Profit for the year	**3 673**	**5 410**	**1 737**
Balance Sheet			
Assets			
Non-current assets			
Investment property	5 621	5 621	0
Financial assets available for sale	62 352	62 352	0
Property, plant and equipment	9 975	9 975	0
Share of reinsurers in reserves	0	155 236	155 236
Total non-current assets	**77 948**	**233 184**	**155 236**
Current assets			
Receivables from insurance operations	46 892	55 167	8 275
Cash and cash equivalents	24 237	28 514	4 277
Total current assets	**71 129**	**83 681**	**12 552**
Total assets	**149 077**	**316 865**	**167 788**
Equity and liabilities			
Equity	**28 325**	**30 062**	**1 737**
Technical reserves	**113 429**	**272 227**	**158 798**
Current liabilities			
Liabilities to reinsurers	0	5 962	5 962
Liabilities to insurance brokers	7 322	8 614	1 292
Total current liabilities	**7 322**	**14 576**	**7 254**
Total liabilities	**120 751**	**286 803**	**166 052**
Total equity and liabilities	**149 077**	**316 865**	**167 788**

[9] Note. This dissertation uses confidential and non-public reinsurance and financial information and, therefore, the analytical results included in the exposition of the dissertation are based on initial data transformed by using a special factor.

Insurance companies faced a new challenge during the period analyzed with the discussion of the "Bulgarian version" of the "Bonus-Malus" system for the Motor Third Party Liability insurance, which caused serious disturbance in the system due to many ill-considered texts. An Interpretative Decision 1/2016 of 2018 of the Supreme Court of Cassation was adopted, which effectively extends the range of persons entitled to receive insurance compensation for non-pecuniary damage arising from the death of relatives in an accident. All this will bring significant financial changes for the insurance companies which have also been placed under monitoring.

The model of the "Bonus-Malus" system proposed for the country has been the subject of scientific discussions and has caused tension in insurers. The introduction of this system has been conceived with good intentions and its goal is to minimize the incidents with undisciplined drivers and reduced the number of people being disabled or killed as a result of traffic accidents.

The insurance sector has concerns on the implementation of the "Bonus-Malus" system and how this will affect the overall financial condition of the insurance market, as companies cannot make the relevant calculations due to missing data on traffic tickets issued to drivers. This data will be made available at a later stage.

The stable and sound financial management of insurance companies is at the heart of the new European insurance regulation – the Solvency II Directive. It has set new requirements for the Bulgarian insurance market and introduced a new three-pillar model of management. The main objective of the Directive is to create conditions for better cooperation between insurance companies and supervision in order to achieve better financial sustainability of insurance companies. Higher requirements for capital adequacy, risk assessment and solvency have been introduced, which will ensure better protection of those using insurance products, and will boost the capacity of insurers to deal with difficult to predict financial challenges that currently exist in the insurance market. Such

unexpected event in the insurance market in the country is the Interpretative Decision 1/2016 of 2018 of the Supreme Court of Cassation of the Republic of Bulgaria, which has resulted in a significant increase in the price of the Motor Third Party Liability insurance, so that insurance companies can set aside additional reserves to meet new compensation payment requirements related to this Court Decision, effectively extending the range of persons entitled to compensation for non-pecuniary damage arising from the death of relatives, including siblings of the deceased and their ascendants and descendants of the second degree, as well as "any other person who had established a lasting and deep emotional connection with the deceased, and is experiencing prolonged pain and suffering from the death of the deceased person, which in this case is deemed fair to be compensated. Compensation is also awarded for proven particularly close relationship with the deceased and actual damage suffered from the death of the deceased person".[10]

The tables below include an analysis of the impact of the above Decision, drafted by using forecast data which belong to one of the total of twenty-five (25) non-life insurance companies on the Bulgarian market.

The choice to present this methodological case through the activities of JSIC OZK-Insurance is determined by the fact that this company is a leading participant in the non-life insurance business in the country, for which reinsurance is a priority and accounts for a significant contribution to the overall financial stability of the company. The activities and financial vision of the company, which is a reasonably typical statistical average company representing the non-life insurance sector, take place under the influence of the negative effects of

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[10] Note. Interpretative Decision 1/2016 of the Supreme Court of Cassation, Sofia City, dated June 21, 2018, which has affected all insurance companies operating on the Bulgarian insurance market and offering Motor Third Party Liability insurance.

global and local crises, unexpected decisions of the judiciary and ill-considered regulatory proposals, etc. (See Table 8)[11]

Table 8

Claims and claim amount filed as a result of deaths in traffic accidents during the period 2013 - 2017

Event Year	Number of deaths	Number of claims	Claim amount
2013	16	20	2 484 456
2014	69	82	17 532 132
2015	53	82	11 312 108
2016	33	49	3 894 857
2017	16	16	4 484 400
TOTAL	186	249	39 707 952

Source: FSC, the author's calculations

The data in Table 8 cover the number of deaths in traffic accidents during the period 2013 - 2017, the resulting claims and claim amount filed. (See Table 8).

Table 9

Degree of risk exposure for the period 2013-2017

Event Year	Risk exposure	Event frequency	Average number of claims	Average claim amount
2013	272 014	0.00006	1.29	124 347
2014	334 945	0.00021	1.19	213 442
2015	384 901	0.00014	1.54	137 717
2016	386 020	0.00009	1.47	79 747
2017	388 334	0.00004	1.00	288 571
ON AVERAGE	353 243	0.00011	1.33	159 701

Source: FSC, the author's calculations

In Table 9 the author looks at the risk exposure (average number of policies), event frequency (number of deaths per policy), average number of

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[11] Note. This dissertation uses confidential and non-public reinsurance and financial information and, therefore, the analytical results included in the exposition of the dissertation are based on initial data transformed by using a special factor.

claims (the ratio of the number of claims to the number of deaths), and the average amount per claim.[12] (See Table 9)

The above data for the studied insurance company were used by the author to draft forecast for the period 2018 – 2020, as follows:

- Anticipated deaths, claim number and value for the current and next two years.[13] (See Table 10)

The author presents the risk exposure forecast based on the data studied, which forecast is made based on the results achieved under the Motor Third Party Liability insurance as of June 30, 2018, and forecast increase of 5% for 2019 and for 2020, as compared to the previous year. *Anticipated deaths* are the product of the *anticipated risk exposure* and the *average event frequency,* with the *anticipated number of claims* being the product of the *average number of claims* and the *anticipated number of deaths* for each event year. *The anticipated claim amount (ACA)* can be represented by an equation as the product of the *anticipated number of claims* (ANC) and the *average amount per claim (AAC).*

(1)   ACA = ANC x AAC

Table 10

*Risk exposure forecast for the period 2018-2020 ***

Event Year	Risk exposure	Anticipated deaths	Anticipated claims	Anticipated claim amount, BGN
2018	407 750	56	75	12 018 607
2019	428 138	59	79	12 619 537
2020	449 545	62	83	13 250 514
TOTAL	1 285 432	178	237	37 888 659

* *The author's calculations.*

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[12] Note. This dissertation uses confidential and non-public reinsurance and financial information and, therefore, the analytical results included in the exposition of the dissertation are based on initial data transformed by using a special factor.

[13] Note. This dissertation uses confidential and non-public reinsurance and financial information and, therefore, the analytical results included in the exposition of the dissertation are based on initial data transformed by using a special factor.

- The author's forecast about the additional claims anticipated is based on the results of previous research and analysis, and the number of additional claims anticipated is based on the statistics published on the official website of the National Statistical Institute (NSI) regarding the number of children in families in Bulgaria. (See Table 11). The forecasts made using the statistics in Table 11 show that in 63% of the cases there is no reason to anticipate additional claims from siblings of the deceased. One additional claim can be anticipated in 32% of the cases, two additional claims can be anticipated in 3% of the cases, and only in 1% of the cases four additional claims can be anticipated. (See Table 11)

Table 11

Forecast on additional claims filed by siblings of the deceased. *

Families with children	One child	Two children	Three children	Four or more children
Relative share	63.30%	32.40%	3.20%	1.10%
Anticipated number of additional claims	0.000	0.324	0.064	0.044

* The author's calculations.

- Summary results based on the author's calculations are presented in absolute values for the years during the period 2013-2020[14] (See Table 12)

Table 12

Summary forecast results for additional claims anticipated, expressed in absolute values for the years during the period 2013-2020.*

Event Year	Additional claims anticipated	Additional claim amount anticipated, BGN
2013	7	1 072 115
2014	30	4 747 937
2015	23	3 675 822
2016	14	2 297 389
2017	7	1 072 115
2018	24	3 894 029
2019	26	4 088 730
2020	27	4 293 167
TOTAL	157	25 141 302

Source: The author's calculations*.

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[14] Note. This dissertation uses confidential and non-public reinsurance and financial information and, therefore, the analytical results included in the exposition of the dissertation are based on initial data transformed by using a special factor.

As a result of the above forecast data the author draws several important conclusions:

First: The new Interpretative Court Decision of the Supreme Court of Cassation will be a serious financial challenge for the existing insurance companies operating on the Bulgarian insurance and reinsurance market. The Decision of the Supreme Court of Cassation for the studied insurance company will be the reason for an increase of more than 30% in the number of insurance claims and in the costs of insurance benefits respectively, and for past events that had occurred prior to this Decision but which are still within the five-year period under the statutes of prescription – a total of eighty-one (81) new claims are anticipated to be filed, worth BGN 13 million.

Second: The Interpretative Decision 1/2016 of the Supreme Court of Cassation has an impact not only on the costs for insurance compensation paid out by insurance companies, but also on the costs for providing reinsurance protection under the Motor Third Party Liability insurance. Following the Decision, international reinsurance companies are also likely to face new lawsuits filed by second-degree relatives of those killed in traffic accidents for some of the damages for which the relevant reinsurance claims have already been paid and closed but are still within the five-year period under the statutes of limitations. At the same time new claims for damages can be expected to fall within the scope of reinsurers' liability – claims for damages which had occurred prior to the effective date of the Decision and which currently remain as part of the self-insured retention on the part of insurance companies.

Third: As a result of the Decision of the Supreme Court of Cassation and the anticipated increase in reinsurance costs, international reinsurance markets have already declared their intention to increase tariff rates under reinsurance contracts and, at the same time, increase the retention of individual companies during 2019.

The diagram below shows the development retention on disproportionate Motor Third Party Liability insurance contracts over the years and the increase anticipated during the next two years. (See Diagram 1)
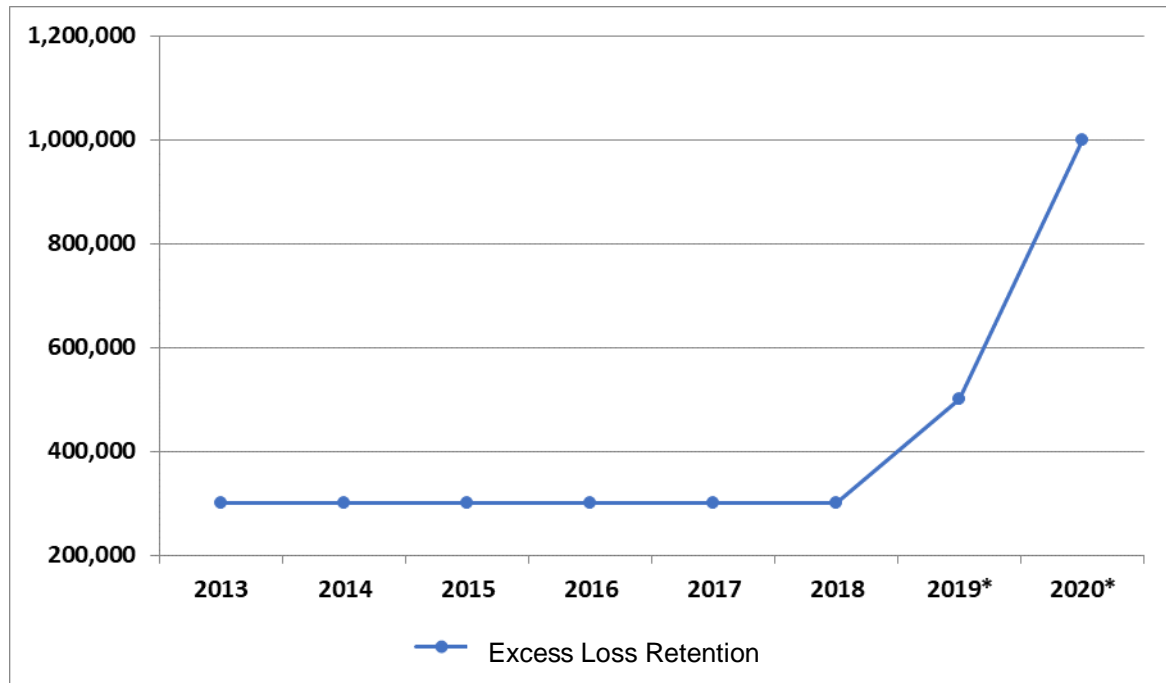

Diagram 1. Development of retention on disproportionate Motor Third Party Liability insurance contracts

The impact of the latest Interpretative Decision 1/2016 of the Supreme Court of Cassation on the study period is evident not only in terms of the retention but also in terms of the increase in the price of the Motor Third Party Liability insurance. And because the financial implications of the Decision had obviously not been taken into account when calculating the premiums prior to the effective date of the Decision, insurance companies responded right away by increasing the prices of the Motor Third Party Liability insurance in order to meet the anticipated increase in insurance costs. This increase is shown on the diagram below. (See Diagram 2)
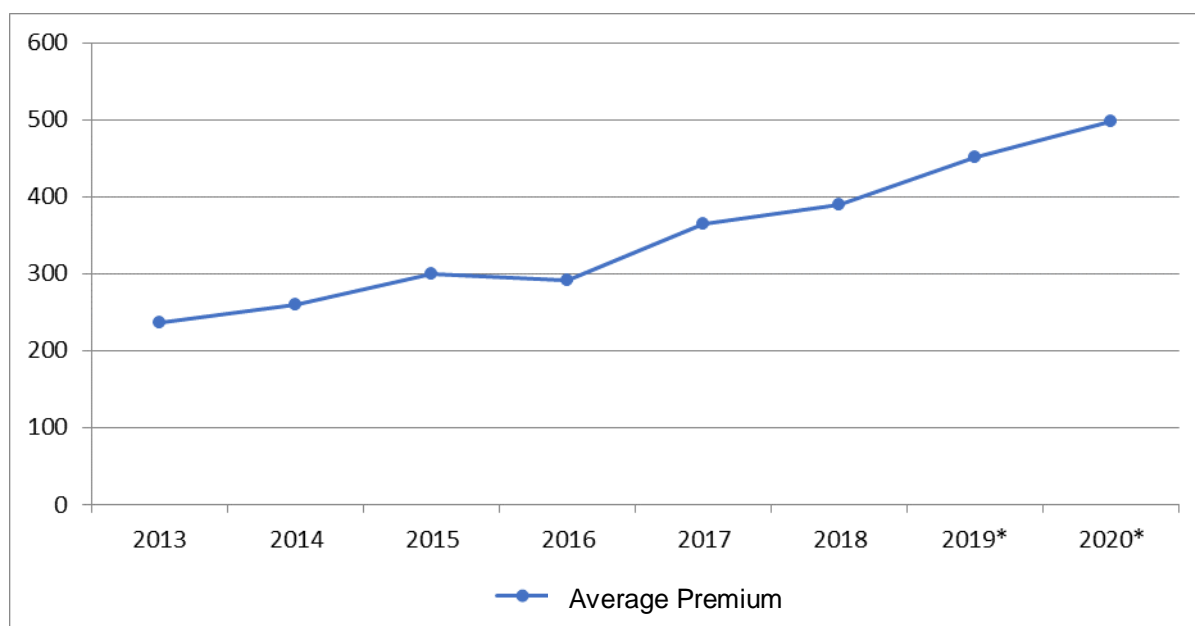
Diagram 2. Price increase of the Motor Third Party Liability insurance

The main conclusion that the author draws in this study of the financial challenges posed by the Interpretative Decision 1/2016 of 2018 of the Supreme Court of Cassation to insurance companies is related to the fact that ensuring the financial stability of the insurance market can be done with one most important step, i.e. by introducing clearer rules in determining the insurance compensation. It is imperative to commence working on a long-term solution, namely the development of a methodology that will provide clear and objective regulatory criteria by which eligible persons shall be entitled to compensation for any property and non-property damages.

At the same time it is extremely important to include in the Insurance Code fixed limits of compensation for the pain and sufferings on the part of relatives of traffic accident victims. These compensation limits must in turn be aligned with both the European practice and the standard of living in Bulgaria.

Further to the above and to avoid a drastic increase in the price of Motor Third Party Liability insurance, a proposal to amend the Insurance Code was submitted to the National Assembly. The amendments provide for the Code to set limits for non-pecuniary damages for pain and sufferings, as follows:

- Up to BGN 20,000 - for children, parents and spouse of the deceased;
- Up to BGN 15,000 - for siblings;
- Up to BGN 5,000 - for all persons with whom the victim had had an emotional connection.

Regardless of the need to set limits for all relatives of the victims, on November 22, 2018 an amendment to the Insurance Code was adopted, setting a limit of BGN 5,000 for non-pecuniary damages to second-degree relatives of those killed in traffic accidents, as well as to any other person who can prove a lasting emotional connection with the deceased. For all other relatives of the closest circle of victims, ie. spouses, children and parents, no limit on the compensation for pain and sufferings will be imposed, as it has been so far.

The author's research and analysis of how the new changes that have come into force as a result of the Interpretative Decision 1/2016 of the Supreme Court of Cassation will affect the financial stability of the studied insurance company are based on the forecast of the amount of the new claims anticipated, as given in Table 13[15].

Table 13

Forecast of the amount of the additional claims anticipated for the period 2013-2020

Event Year	Additional claims anticipated	Additional claim amount anticipated, BGN
2013	7	33 566
2014	30	148 651
2015	23	115 085
2016	14	71 928
2017	7	33 566
2018	24	121 917
2019	26	128 012
2020	27	134 413
TOTAL	157	787 139

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[15] Note. This dissertation uses confidential and non-public reinsurance and financial information and, therefore, the analytical results included in the exposition of the dissertation are based on initial data transformed by using a special factor.

However, regardless of the setting of limits on compensation for non-pecuniary damage to second-degree relatives of those killed in traffic accidents, the current price levels of the Motor Third Party Liability insurance cannot remain the same, as the premiums that insurers collect under this insurance have been insufficient. The expected change in the price of insurance will at this stage be, of course, less than the price forecast before passing the new limits.

The forecast increase in the price of insurance before and after the new amendments to the Insurance Code is shown on the diagram below. (See Diagram 3)
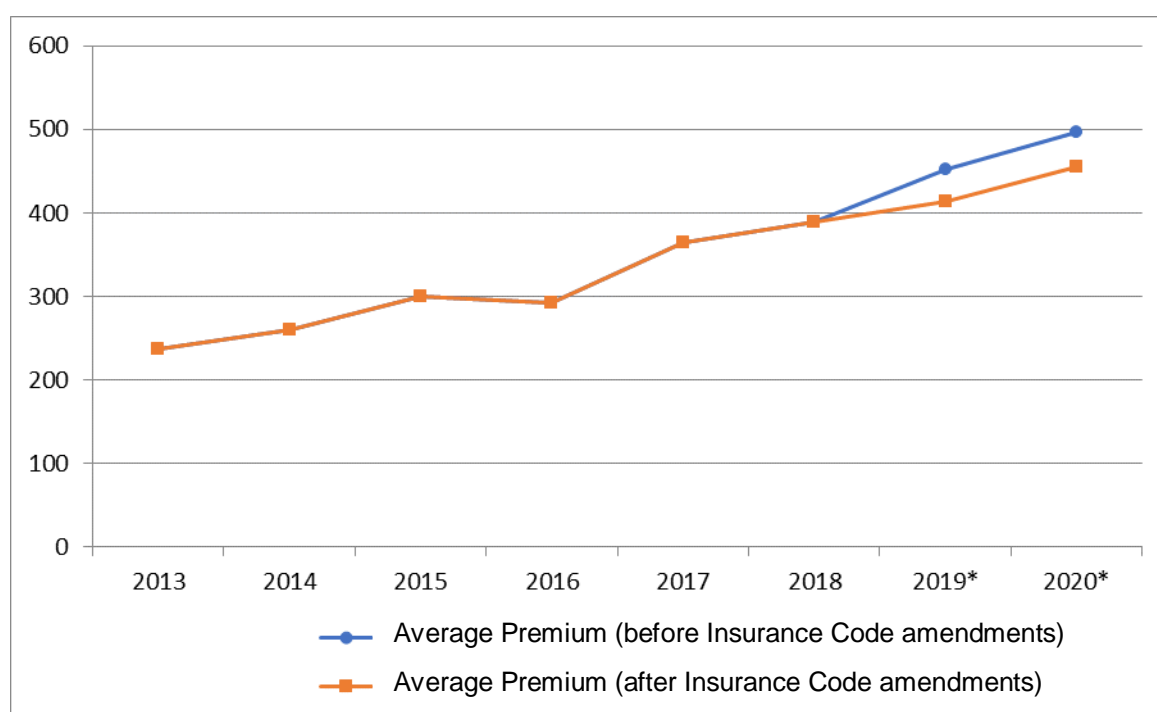

Diagram 3. Forecast increase in the price of insurance before and after the new amendments to the Insurance Code

An increase in the price of the Motor Third Party Liability insurance can be expected, on the one hand, due to the fact that:

First - regardless of the limits passed, insurance companies will have to set aside additional reserves, albeit to a lesser extent.

Second - despite the adoption of the current changes, the Decision 1/2016 of the Supreme Court of Cassation has already had an impact on the prices and

parameters of reinsurance contracts that insurance companies must make in 2019. Taking into account the new Decision of the SCC, reinsurers' calculations show that reinsurers will have to set aside larger reserves and that a larger number of insurance claims will fall within the scope of reinsurers' payments. The response of the reinsurance market to the Interpretative Decision 1/2016 is as expected and can be seen in the quotations of international reinsurers for the renewal of contracts effective from January 1, 2019. As predicted, Bulgarian insurance companies are facing additional financial challenges expressed in an increased retention under the contracts, as well as in the price of the reinsurance coverage. In order to meet all these additional costs and to remain financially stable, insurance companies will have to increase the Motor Third Party Liability insurance premiums.

Changes in the parameters of reinsurance contracts are shown in the diagram below (See Diagram 4)
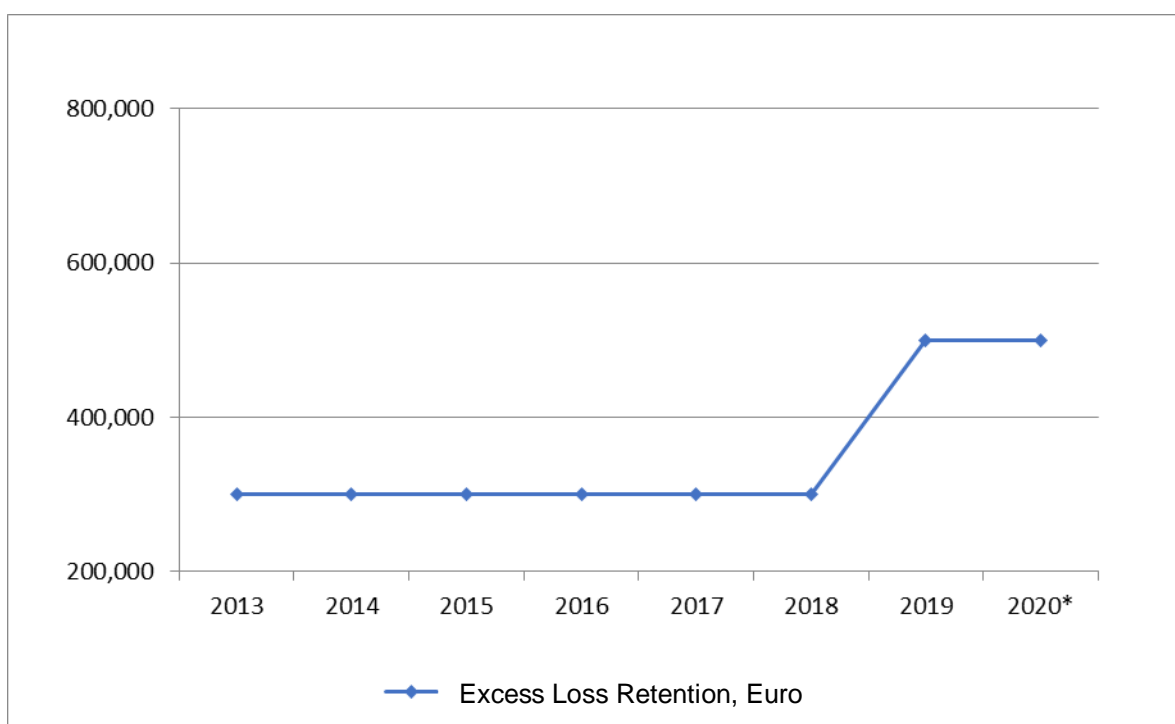

Diagram 4. Changes in the parameters of reinsurance contracts

As can be seen on the diagram above, the increase in retention is less than originally expected, but nevertheless, insurance companies will have to retain nearly 70% more from any damage under the Motor Third Party Liability insurance than before. And because the above data used in this study is based on information from one of the twenty-five (25) non-life insurance companies on the Bulgarian market, even a larger increase in the retention and in the price of reinsurance coverage for some insurers can be expected, depending on their portfolio structure and damage developments.

CHAPTER THREE

PRACTICAL EFFECTS OF REINSURANCE OF INSURANCE COMPANIES SPECIALIZING IN MOTOR INSURANCE ON THE NATIONAL INSURANCE MARKET (FOLLOWING THE EXAMPLE OF JSIC OZK-INSURANCE AD)

One of the biggest challenges faced by the Bulgarian insurance market is the monitoring imposed by the Council of Bureaux during the period 2017-2018. By decision of the Management Committee of the Council of Bureaux dated December 7, 2017, the National Bureau of Bulgarian Motor Insurers (NBBMI), being part of the "Green Card" International System, was obliged by March 9, 2018 to provide a financial guarantee in the form of a bank guarantee or a cash deposit of EUR 4,000,000, which was fulfilled in a timely manner.

Table 14

Setting the bank guarantee

Number of registered vehicles	Guarantee (EUR)
<1 000 000	€ 1 000 000
between 1 000 001 and 5 000 000	€ 1 000 000 + € 0.50 for each vehicle in excess of € 1 000 000
between 5 000 001 and 10 000 000	€ 3 000 000 + € 0.40 for each vehicle in excess of € 5 000 000
between 10 000 001 and 20 000 000	€ 5 000 000 + € 0.30 for each vehicle in excess of € 10 000 000
> 20 000 000	€ 8 000 000 + € 0.20 for each vehicle in excess of € 20 000 000

The bank guarantee or cash deposit is set depending on the number of motor vehicles registered in the country, based on the following scale. (See Table 14).

However, the minimum level of bank guarantee depends on the retention under the Excess Loss Reinsurance Contract, as shown in Table 15.

Table 15

Minimum level of bank guarantee

Retention	Minimum Bank Guarantee Amount
≤ € 200 000	20 x retention
Between € 200,001 and € 300,000	€ 4 000 000 + 5 x € 200 000 retention
Between € 300,001 and € 400,000	€ 4 500 000 + 3 x € 300 000 retention
Between € 400,001 and € 500,000	€ 4 800 000 + 2 x € 400 000 retention

The important steps are:

- The bank guarantee or cash deposit must be opened up with a bank located in an EEA Member State and outside the Republic of Bulgaria, which bank has a Standard and Poor's credit rating equivalent to "A-" and has been approved by the Management Committee.

- The terms and conditions of the bank guarantee or the cash deposit must be in accordance with the standard requirements of the Council of Bureaux or be subject to approval by the Management Committee.

- In case of changes in the bank guarantee at a later stage, the transitional member has the obligation to disclose to the Management Committee all changes in the terms and conditions of the guarantee. The Management Committee, for its part, has the right to approve or reject the above transaction without stating any reason in case of refusal.

- The Council of Bureaux has the right to use the guarantee or the deposit in settling the outstanding debts of the transitional member. Outstanding debts include unpaid recovery claims made by other Member Bureaux under the agreements and regulations of the Council of Bureaux, unpaid reinsurance

premiums to brokers and/or reinsurers, and unpaid membership fees due to the Council of Bureaux.

- In the case of a cash deposit, any interest accrued on it remains in favor of the transitional member. The said guarantee or deposit shall not be a substitute for payments due under the Internal Rules. Upon each utilization of the deposit, the latter will be restored to the initial total amount by the transitional member.

One of the main issues the Bulgarian insurance market is facing at this initial moment in the process of obtaining quotations is the allocation of the total contract price among the individual companies. This is extremely difficult, as the criteria for allocating the reinsurance premium must be clearly defined and the relevant criteria approved by all sixteen companies included in the common market contract.

To solve this issue, the National Bureau of Bulgarian Motor Insurers (NBBMI) quite naturally turned to the market player wishing to be the leader under the common reinsurance contract, and which offered the best quotation, namely Munich Re. In turn Munich Re, having all the information they needed, could have easily allocated the premium among the individual insurance companies. And while this hurdle did not seem to be insurmountable, the bigger reinsurer refused to do so, arguing that the allocation of the premium among the companies was an internal issue in which the reinsurer did not want to intervene. The Munich Re's response, although undesirable, could have been anticipated, as the company left the Bulgarian car market back in 2010 and, therefore it is no longer aware of the situation of the individual companies offering Motor Third Party Liability insurance, or of the market as a whole. This decision of Munich Re forced the NBBMI and the entire insurance market to turn to the consortium of brokers to solve this issue.

Further to the above and to a proposal received from Willis Re, the Bulgarian insurance market reached a consensus on the allocation of premium under the following parameters:

➢ Step 1 - reinsurance premium based on the initial exposure.

- The initial reinsurance premium for each insurance company is calculated based on the company exposure by vehicle type, as follows:

- Cars and trucks < 3.5 tons

- Trucks of 3.5 to 20 tons

- Trucks over 20 tons, and buses

- Semi-tractor trucks

- Other

The reinsurance premium by motor vehicle type is included in the reinsurers' offer, therefore the starting point (reinsurance premium for covering the risk exposure) is calculated as follows:

➢ The sum of the products of the number of motor vehicles of the relevant type and the reinsurance premium for the motor vehicle type concerned:

$$(2)\ ERP_x = \sum_i (n_i * RPV_i)$$

where:

ERP_x - reinsurance premium to cover the exposure of member x

i - motor vehicle type (e.g. car, truck, etc.)

ni - number of vehicles of the type i

➢ Step 2 (Part 1) - adjustment of the reinsurance premium based on the actual damages.

- As a second step, the exposure reinsurance premium (*ERP*) for each company is adjusted based on the damage suffered in order to determine the final Adjusted Reinsurance Premium (*ARP*).

- Calculation of the risk premium for the past 12 years using the Burning Cost (*BC*) method.[16]

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[16] **BC** is calculated as the sum of all damages in excess of the retention under the market contract, divided by the number of years observed. * If an insurance company has been in

$$(3) \quad BC_x = \frac{\sum_i max(loss_i - retention; 0)}{No\ of\ years}$$

- The **BC** of each company is then divided by the relevant Exposure Reinsurance Premium (*ERP*) to reach the anticipated reinsurance damage quota (*RI/LR*).

$$(4)\ LR_x = \frac{BC_x}{ERP_x}$$

➢ Step 2 (Part 2) - adjustment of the reinsurance premium in respect of actual damage suffered.

- BC is calculated for the whole market and then divided by the ERP for the whole market in order to determine the anticipated average loss ratio (*avg LR*) for the whole market and the standard deviation (*SD*).

- To avoid an excessive burden on any insurance company for "bad luck", or too great a discount for "good luck", the external values are adjusted and entered within the selected standard deviation interval[17].

Having reached a consensus on the method of allocating the premium, Willis Re and AON turned to the quoting markets in order to get a price by motor vehicle type for the above five groups approved.

It became clear from the Swiss Re's offer that it was fully in line with the market's desire to remain independent in the context of the common contract. At the same time it expressed the reinsurer's desire to retain its market-leading role and avoid being pushed out of all the current reinsurance coverage for which it had been the lead reinsurer. The proposed share of 2.5% in each of the sixteen sections enabled the contract to be presented and treated as a single contract, on the one hand, and on the other hand, the minimum share requested by the reinsurer

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existence for a shorter period, the years available are considered for the purposes of calculating the **BC**.

[17] Source: Willis Re - RFP response February 2019

made it possible for all those international companies in which Swiss Re did not participate to be affected to a minimum, i.e. this was an elegant solution through which all those companies had to cede 2.5% to Swiss Re and keep the remaining 97.5% for their group coverage. Given the reinsurer's participation with a higher percentage in all the contracts, the only issue left was the administration of the contract and its presentation in a form acceptable to the Council of Bureaux.

Meanwhile the lack of a resolution satisfactory to all insurance companies had resulted in the imposition of financial penalties by the Council of Bureaux. The fine imposed by the Council of Bureaux on the National Bureau of Bulgarian Motor Insurers (NBBMI) and on the Bulgarian insurance companies as of September 2019 amounted to EUR 139,180.40, and the delay in concluding a common reinsurance contract and its entry into force on February 1, 2020 resulted in an additional financial penalty of EUR 55,673.36. It can be noted that it is obviously more economically advantageous for insurance companies to pay the penalties imposed by the Council of Bureaux until a reasonable resolution is found rather than to pay the price of the common reinsurance contract as per the Munich Re's quotation.

Such a resolution uniting all Bulgarian insurance companies was that of Swiss Re, as evident above from the new offers proposed. The reinsurer's proposal embodied to the greatest extent what the entire insurance market was striving for, namely maintaining relative autonomy and the possibility of obtaining individual quotations according to the portfolio structure and damages.

Further to the above decision which was satisfactory to the Bulgarian insurance market, the NBBMI forwarded the Swiss Re's offer to the Council of Bureaux for approval. For its part, the Monitoring Committee of the Council of Bureaux issued the opinion that the Swiss Re's proposed resolution for a common reinsurance contract would be compatible with the financial guarantee criteria of the Council of Bureaux, provided that the following conditions were met:

➤ The Reinsurance Slip be signed by the NBBMI, incl. all the 16 sections thereof.

➤ All reinsurers be approved by the Council of Bureaux before joining the contract.

➤ The contract be signed only after prior approval by the Monitoring Committee of Reinsurers in each section. To facilitate this process, the National Bureau of Bulgarian Motor Insurers (NBBMI) had to send for approval the subscribed shares of the reinsurers all at once, upon the completion of the placement in all sixteen sections ("All or nothing")

➤ Version 9 of the reinsurance contract be approved and any change in the body of text, or inclusion of additional remarks and agreements by the reinsurers be approved in advance by the Monitoring Committee.

Due to the complexity of both the common reinsurance contract and the placement, the Council of Bureaux proposed that the individual sections be placed at the same layer limits, namely EUR 4,500,000 in excess of EUR 500,000, and an unlimited limit in excess of EUR 5,000,000. Three free refunds were approved for each insurance company. Their number was accepted by the Monitoring Committee as the probability of exhaustion of refunds was below 0.5%. [18]

Concurrently with the efforts of the Bulgarian insurance market, and particularly with the efforts of the NBBMI and the Reinsurance Commission, aimed at reaching a consensus resolution satisfactory to all parties, JSIC OZK-Insurance AD commenced negotiations on the renewal of its reinsurance coverage effective from January 1, 2020. Information on the renewal on which subsequent negotiations for the conclusion of the reinsurance contract for 2020 would be based is shown in the tables below. The type of data and the manner of presenting the data are no different from those used in the renewal of the reinsurance coverage for 2019.

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[18] Source: M Henry email 17.12.19 SRe offer conf.

It is evident from the above information that JSIC OZK-Insurance AD achieved an increase in revenue as compared to the previous year, while its exposure remained unchanged. In other words, the company was able to increase its premium income solely on the basis of an increase in the base premium for the separate motor vehicles types. There is a continuing trend for the company to increase tariffs for semi-tractor trucks – an important part of its portfolio – accounting for 6.7% of the total number of vehicles insured and 50.8% of total premium income. Thanks to its internal risk management system or the so-called "Bonus-Malus", JSIC OZK-Insurance AD was able to offer an average price of EUR 1,895 per semi-tractor truck. A positive trend can also be observed for the other types of vehicles. The company reported an increase in the average prices for the entire Motor Third Party Liability insurance portfolio (see Tables 27 & 29). Regarding the company's forecast for 2020, as shown in Table 28, it is evident that the company anticipates the premium income increase to continue – in the first place due to the increase in premiums, and in the second place – due to the slight increase in the number of cars insured.

Regarding the damages in excess of 50% of the current retention and reported to reinsurers, several new developments are notable, one of which is the aforementioned market exception in France. The damage claims are for various event years – 2017, 2018, and 2019. The conservative policy regarding claims reserves, as adopted by the JSIC OZK-Insurance AD, is the reason for the only four insured events declared to the reinsurers, which events occurred in the Republic of Bulgaria. The company's expectations are that the majority of these insured events will be closed within the limit of retention. (See Table 30)

The positive developments with regard to the Motor Third Party Liability insurance portfolio gave the confidence to JSIC OZK-Insurance AD necessary for achieving favorable conditions when negotiating its reinsurance coverage for 2020. The optimistic attitudes of the company found an expression in its reluctance to participate in a common reinsurance contract with a common market

quotation, where none of the positive trends would be taken into account. On the contrary, as already discussed above, in allocating the total premium of the market contract among the individual companies, the company would certainly pay a higher premium than the one which it would pay in the case of individual coverage.

Despite the reluctance of JSIC OZK-Insurance AD to join the common market coverage, the company agreed on changes in the reinsurance contract with reinsurance brokers and markets in order to comply with the requirements of the Council of Bureaux. The company planned to split the new coverage effective from January 1, 2020 into two segments, and the clauses and refunds under this coverage to be fully compliant with the Council of Bureaux recommendations. The contractual parameters are as follows:

> Coverage for damages occurring abroad (Green Card Segment)

- 1st Layer with a limit of EUR 3,500,000 in excess of EUR 500,000

- 2nd Layer – unlimited in excess of EUR 4,000,000

> Coverage for damage occurring in the Republic of Bulgaria (Domestic Segment)

- 1st Layer with a limit of EUR 5,902,000 in excess of EUR 500,000

Contractual changes could be made only to those parts of the Reinsurance Slip that did not meet the Council of Bureaux requirements. The company's expectations regarding the quotations were that the reinsurers would be applying a common tariff to the contract and having reached the final price and up to 100% placement, the lead reinsurer would split the total premium between the two sections at its own discretion. The reinsurers' quotation split into the two sections of the company's individual coverage, namely into the "Semi-Tractor Trucks" and "Other" sections, would also remain unchanged. The individual tariff treatment of the semi-tractor trucks with a fixed premium provided additional security to the lead reinsurer and subsequent markets that the insurance company would not

allow in its pricing policy any reduction of premiums below a certain level for this vehicle type. It is also important that the insurance companies retained the opportunity to continue the placement of their individual sections with the reinsurance brokers with whom they had been working so far.

The changes initiated by JSIC OZK-Insurance AD stemmed from the positive response of the Council of Bureaux regarding the offer of Swiss Re for a single Slip with 16 sections for the members of the National Bureau of Bulgarian Motor Insurers (NBBMI). Upon signing a common market agreement the company wished to terminate the segment covering damages abroad and "attach" it to the single Slip.

The final quotation for the individual coverage of JSIC OZK-Insurance AD, effective from January 1, 2020, was set at 7.82%, with an anticipated premium income of EUR 66,000,000 or 100% premium in the amount of EUR 5,161,200. The lead reinsurer Swiss Re split the quotation between the two segments in the contract, where for damages occurring in the Republic of Bulgaria the price was 1.01% or 100% premium in the amount of EUR 666,643, and for damages abroad - 6.81% or 100% premium in the amount of EUR 4,494,438.

The final quotation and the allocation of the premium in the reinsurance contract between the two coverages has once again confirmed that it was possible to obtain such quotation only with the use of a reinsurance contract covering solely the portfolio of JSIC OZK-Insurance AD.

The quoted rate for damages occurring in the Republic of Bulgaria was achieved only due to the fact that the panel of reinsurers was the same for both segments, and the allocation was made subsequently to the single quotation of the lead reinsurer Swiss Re. In the case of the single market agreement no individual company features could be taken into account, as mentioned earlier. In particular, upon signing such contract, JSIC OZK-Insurance AD would be faced with the practical impossibility to attract the entire panel of reinsurers participating in the Green Card general agreement for the purposes of its internal coverage. This was

due to the fact that some reinsurers, such as the lead reinsurer Munich Re, did not wish to participate in any individual coverage of insurance companies, and at the same time other part of the markets that would support individual companies was not ready to participate in a common contract by which they would be providing coverage to companies which they do not wish to do business with. Or the price that JSIC OZK-Insurance AD would achieve for a contract covering its internal damages would be much greater than the price already achieved under the reinsurance contract effective from January 1, 2021.

To successfully complete the process of signing the common reinsurance contract all 16 insurance companies were required to have successfully completed the placement under their individual sections.

The following conclusions can be made further to the research conducted and the data presented in this Chapter Three:

1. The imposition of inadequate measures by a supervisory body, such as the Council of Bureaux, on the monitored Bulgarian insurance market, can lead to major financial obstacles and refusal to implement the measures imposed. Imposing penalties unfit for implementation on a EU Member State can lead to refusal on the part of insurance companies to sign a single market reinsurance contract. The results of such disobedience are financial losses arising from fines imposed by the National Bureau of Bulgarian Motor Insurers, and hence the entire market.

2. Financial penalties turns out to be a negligible price to pay, as insurers will have to sustain financial losses in the course of agreeing on a reinsurance contract that meets their needs and does not compromise their financial stability.

3. The contract signed is a great victory for the NBBMI and for the entire Bulgarian insurance market. There is no other Council of Bureaux member that has been placed under monitoring and has not purchased a single combined contract to cover damages under the Green Card system, but instead has managed to preserve the freedom and flexibility of its members and their individual

reinsurance contracts. Thanks to the adequate attitude and expertise of the NBBMI all sixteen insurance companies have *managed to achieve a huge reduction in reinsurance costs, and at the same time each company has preserved its financial stability for the future.* This is an extremely important fact, as the monitoring imposed on the NBBMI is anticipated to continue at least until the end of 2023.

CONCLUSION

The conclusion includes formulated and summarized main conclusions and results of the theoretical and empirical study of investments in mortgage bonds, as presented in this dissertation.

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IV. GUIDELINES FOR FUTURE RESEARCH ON THE DISSERTATION TOPIC

The important results and applied scientific contributions achieved with this dissertation warrant further studies by the author on regulatory changes, specifics, development issues and their impact on the financial position of insurance companies in terms of other types of insurance in Bulgaria.

V. ACKNOWLEDGEMENTS FOR THE DISSERTATION

The following important results and scientific contributions that the author has achieved during this research can be deduced based on the research, analyses and summaries included in this dissertation:

First. This dissertation presents an original study from a capital viewpoint of the impact of reinsurance on the balance sheet positions and financial performance of non-life insurance companies. In the era of pandemic and economic recession with vague perspectives, reinsurance will continue to play an increasingly important role in the activities of insurance companies while limiting liability for specific risks in order to boost their capacity to provide effective insurance protection to clients.

Second. Insurance companies need to use reinsurance as a means of balancing the risk outside the insurance community and limiting the risk down in line with the financial capacity of individual insurers. In the context of dynamically changing market conditions, risk management through balanced reinsurance solutions will be an important prerequisite for achieving lasting financial stability in the operations of insurance companies.

Third. The study of the most popular insurance product in Bulgaria – Motor Third Party Liability insurance, empirically linked to the financial data of JSIC OZK-Insurance, has confirmed the positive effects of reinsurance to preserve the financial stability of insurance companies by analyzing various methodological cases (Effective court decisions or forthcoming dynamic changes in the regulatory framework of the compulsory Motor Third Party Liability insurance), which may have unpredictable financial implications for the insurers operating on the Bulgarian insurance market, and for the end users of the Motor Third Party Liability insurance - due to the necessary insurance price increase.

Fourth. The adoption of the new European regulations for diversification of the investment portfolio of insurance companies is aimed at protecting them from future investment risk and significant financial losses. Therefore, the new European regulations are mandatory for all in the context of dynamically changing financial markets, however, if we have more confidence in the skilled financial and insurance managers who are capable of estimating and better assessing the current risk and return relationship, incl. the risk/return ratio, in order to achieve a better return on a particular investment in the conditions of low or negative interest rates – this will definitely have a positive impact on the financial sustainability of insurance companies.

Fifth. The inadequate measures applied by the Council of Bureaux and the many anticipated negative financial implications for the Bulgarian insurance market require reaching a consensus on the reinsurance contract with sixteen slips under the conditions of Swiss Re, as discussed in this paper. This has enabled the JSIC OZK-Insurance AD to request the cancellation of the part of its reinsurance contract for the Motor Third Party Liability insurance, covering damages occurring in the countries on the Green Card system.

VI. LIST OF PUBLICATIONS ON THE DISSERTATION TOPIC

1. PAPER (ONE)

Monova, M. (2019). New Legislative Changes in Motor Third Party Liability Insurance and Their Implications on the Financial Stability of the Bulgarian Insurance Market, Doctoral Research Session - Doctoral Students' Research Almanac, Volume XII, 2019, Book 15, pp. 125-154, ISBN 1313-6542

2. REPORTS (TWO)

Monova, M. (2018). Financial Challenges for the Bulgarian Insurance Market in Connection with the Legislative Changes in the Motor Third Party Liability Insurance // National Round Table: 80 Years of Academic Teaching in Insurance and Social Affairs, 70 Years of Insurance and Social Affairs Major, 80 Years of Tradition, Leadership, Challenge. Svishtov, October 13, 2018. (Collection of reports) AI Tsenov, 2018, pp. 201-207, ISBN 978-954-23-1712-8

Monova, M. (2019). The Bulgarian model of the "bonus-malus" system and another challenge for insurance companies. Scientific-practical conference on "Bulgaria's economy - 30 years after the beginning of change", dedicated to the 75th anniversary of the Union of Scientists in Bulgaria, *Svishtov, November 22, 2019,* (Collection of reports) Tsenov Academy of Economics, pp.220-228, ISBN 978-954-23-1815-6

VII. COMPLIANCE WITH THE NATIONAL REQUIREMENTS UNDER THE IMPLEMENTING REGULATIONS OF THE ACT ON THE DEVELOPMENT OF THE ACADEMIC STAFF IN THE REPUBLIC OF BULGARIA

National requirement expressed in points: **30**

Number of papers indexed at the National Center for Information and Documentation (NCID): One

Number of points acquired from articles indexed at the National Center for Information and Documentation (NCID): **15.00**

Number of reports indexed at the National Center for Information and Documentation (NCID): Two

Points reported by the author through scientific reports: **35.00**

Total points: 3**5.00 > 30.00**

VIII. STATEMENT OF ORIGINALITY & AUTHENTICITY OF THE DISSERTATION

This dissertation is authentic and it is the result of the author's own intellectual creation. This dissertation includes the author's own ideas, texts, reliable data and images in the form of diagrams, tables and formulas. All requirements set out in the Copyright and Related Rights Act have been complied with by duly quoting and referring to foreign copyright and data, including:

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December 13, 2021   Mihaela Monova, Doctoral Student

Town of Svishtov