

D. A. TSENOV ACADEMY OF ECONOMICS – SVISHTOV

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**GUIDELINES FOR THE DEVELOPMENT OF MOTOR INSURANCE
IN BULGARIA**

AUTHOR'S ABSTRACT

of dissertation for awarding of educational and scientific degree
"Doctor" in the scientific field "Finance, Money Circulation,
Credit and Insurance (Insurance and Social Security)"

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The dissertation consists of 181 pages, including: Title page - 1 page;
Table of contents - 3 pages; Introduction - 4 pages; Main text (three chapters) -

166 pages; Conclusion - 4 pages; Declaration of originality and authenticity - 1 page; Bibliography - 3 pages (30 sources). In support of the exposition, there are 31 tables and 16 figures.

The dissertation work has been discussed and proposed for defence in accordance with the procedures outlined in the Law on the Development of the Academic Staff in the Republic of Bulgaria by the Department of Insurance and Social Security at the D. A. Tsenov Academy of Economics in Svishtov.

I. GENERAL CHARACTERISTICS OF THE DISSERTATION THESIS

1. Relevance of the topic

In modern life, road accidents are a daily occurrence. High speeds, increased traffic on the roads, driver behaviour and experience, road conditions, weather conditions, etc., are all factors that contribute to the increasing number of road accidents. After the 1920s, with the mass introduction of automobiles and the significant increase in traffic, road accidents became more and more frequent. This is a problem both for wealthy and developed societies and for developing nations. In Bulgaria, in 2021, there were registered 30 536 road accidents, resulting in both material and non-material damages related to the lives, health, and working ability of people.

With the advancement of IT technologies, it has become possible to produce and equip automobiles that can be autonomously driven. However, the introduction of such vehicles will lead to a series of problems, including insurance-related issues that have not existed until now.

Motor insurance, represented by the "Motor Vehicle CASCO Insurance" and "Motor Third Party Liability Insurance", has gradually become an undisputed leader in terms of the premium income generated by insurers. Its market share has consistently exceeded 70% for years, and expectations are that this trend will continue in the future. Therefore, it is particularly relevant and of vital importance for insurance as a socially significant activity to examine the issues accompanying auto insurance while simultaneously outlining guidelines for its future development.

2. Object and subject of research

The object of the dissertation is motor insurance in Bulgaria, represented through the insurance policies "Motor Vehicle CASCO Insurance" and "Motor Third Party Liability Insurance".

The subject of study is the current state, trends, and possibilities for the development of motor insurance.

3. Research thesis

The defended research thesis in the dissertation work is as follows: *By implementing specific legislative and organisational changes, it is possible to improve the insurance operations, leading to an increase in the scope and realised premium income of insurers offering motor insurance policies in the Bulgarian insurance market.*

4. Purpose and tasks of the dissertation thesis

The main *purpose* of the dissertation work is to assess the current state and outline directions for the future development of motor insurance in Bulgaria.

Achieving the set objective requires the fulfilment of the following key *research tasks*:

- to examine the characteristics of the automobile as an object of insurance;
- to assess the significance of motor insurance for the Bulgarian insurance market;
- to examine the economic essence and characteristics of auto insurance policies;
- to bring out the factors that influence the development of motor insurance;
- to track the dynamics in the development of key indicators such as gross written premiums and insurance payments, as well as derived technical

indicators for the insurance policies "Motor Vehicle CASCO Insurance" and "Motor Third Party Liability Insurance";

- to assess the impact of the recent health crisis caused by the spread of the SARS-CoV-2 virus on motor insurance in the country;
- to propose legislative and organisational changes aimed at improving insurance operations and increasing the premium income realised by insurers in the Bulgarian market for motor insurance.

5. Research methodology

To address the research tasks, achieve the goal, and substantiate the research thesis, the following methods have been utilised: historical method, comparative method, methods for collecting primary information, and statistical methods for data processing. The calculations made are based on official statistical information extracted from publications by the National Statistical Institute (NSI) and the Financial Supervision Commission (FSC).

6. Scope of the research

The research work in the dissertation is focused on defining the problems associated with the development of motor insurance in Bulgaria. The study emphasizes the possibilities for improving insurance operations with the aim of increasing the coverage and, consequently, the realised premium income for the insurance policies "Motor Vehicle CASCO Insurance" and "Motor Third Party Liability Insurance".

The current presentation does not claim to be comprehensive. It is impossible to cover all aspects related to the possibilities for improving insurance operations and increasing the realised premium income by insurers in motor insurance in a single study. Therefore, some potential solutions to the defined problems are beyond the scope of the dissertation work.

7. Approbation of the dissertation

The dissertation work has been discussed at meetings of the Department of Insurance and Social Security at the D.A. Tsenov Academy of Economics in Svishtov. Parts of the research have been presented at scientific forums and published in specialised scientific journals.

II. STRUCTURE AND CONTENT OF THE DISSERTATION

The dissertation work consists of an introduction, the main text (three chapters), and a conclusion. The total volume of the introduction, three chapters, and conclusion is 178 pages. The presentation is supplemented with 31 tables and 16 figures, providing visual representations and illustrations to support the content.

The dissertation work also includes a declaration of originality and authenticity, as well as a bibliography.

The dissertation work is structured as follows:

Introduction

Chapter 1

THEORETICAL FOUNDATIONS AND SPECIFICITIES OF MOTOR INSURANCE

1. Problem statement

- 1.1. Characteristics of the vehicle from an insurance perspective
- 1.2. Contemporary trends in the development of automobiles
- 1.3. Significance of motor insurance for the Bulgarian insurance market

2. Economic essence and organisation of Motor Vehicle CASCO Insurance

- 2.1. Essence and peculiarities of risk coverage and liability assumption by insurers under Motor Vehicle CASCO Insurance
- 2.2. Peculiarities of concluding an insurance contract for Motor Vehicle CASCO Insurance
- 2.3. Peculiarities of the claims settlement (liquidation) process for Motor Vehicle CASCO Insurance policy

3. Economic essence and organisation of Motor Third Party Liability Insurance

- 3.1. Essence and features of Motor Third Party Liability Insurance Policy
- 3.2. Peculiarities of concluding an insurance contract for Motor Third Party Liability Insurance
- 3.3. Peculiarities of the claims settlement (liquidation) process for Motor Third Party Liability Insurance

Conclusions from Chapter One

Chapter 2

STATE AND DEVELOPMENT OF MOTOR INSURANCE IN BULGARIA

1. Factors influencing the development of Motor Insurance in Bulgaria

- 1.1. Factors related to the object of insurance
- 1.2. Factors related to legislation

2. Dynamics in the development of Motor Vehicle CASCO Insurance in Bulgaria

- 2.1. Dynamics in the development of premium income for the insurance
- 2.2. Dynamics in the development of insurance claims payments for the insurance
- 2.3. Impact of COVID-19 on the development of Motor Vehicle CASCO Insurance

3. Dynamics in the development of Motor Third Party Liability Insurance in Bulgaria

- 3.1. Dynamics in the development of gross written premiums for the insurance
- 3.2. Dynamics in the development of insurance claims payments for the insurance

Conclusions from Chapter Two

Chapter 3

CHALLENGES AND PERSPECTIVES FOR THE DEVELOPMENT OF MOTOR INSURANCE IN BULGARIA

1. Challenges in implementing the Bonus-Malus System in Bulgaria

1.1. Methods for risk assessment in Insurance

1.2. European practices for applying the Bonus-Malus System

1.3. Key challenges in implementing the Bonus-Malus System in Bulgaria

1.4. Possibilities for implementing the Bonus-Malus System in Bulgaria

2. Challenges in increasing the coverage of voluntary insurance related to ownership and use of motor vehicles

2.1. Opportunities to expand the scope of Motor Vehicle CASCO Insurance

2.2. Comprehensive motor insurance policy

3. Perspectives for the development of additional coverage in auto insurance

3.1. Essence and features of Auto Assistance insurance coverage

3.2. Methods of offering Auto Assistance coverage

Conclusions from Chapter Three

Conclusion

Declaration of Originality and Authenticity

Bibliography

III. BRIEF SUMMARY OF RESEARCH CONTENTS AND RESULTS

INTRODUCTION

The introduction of the dissertation work is developed within a scope of 4 pages and provides a rationale for the relevance and significance of the topic. It defines the object and subject of the study and formulates the research thesis. The main objective is identified, the tasks for its accomplishment are formulated, and the research methodology is presented.

Chapter 1

THEORETICAL FOUNDATIONS AND SPECIFICITIES OF MOTOR INSURANCE

The first chapter of the dissertation work is developed within a scope of 69 pages and is structured into paragraphs as follows:

Paragraph 1. Problem Statement consists of three sub-paragraphs:

- 1.1. Characteristics of the vehicle from an insurance perspective
- 1.2. Contemporary trends in the development of automobiles
- 1.3. Significance of motor insurance for the Bulgarian insurance market

The first sub-paragraph examines, from a historical perspective, the issues accompanying the development of automobile transportation. It is noted that in modern life, road traffic accidents are a daily occurrence. The high speeds achievable with modern automobiles, increased traffic on the roads, driver behaviour and experience, road conditions, weather conditions, etc., are all factors contributing to their increasing number. After the 1920s, with the mass influx of automobiles and the significant intensification of traffic, road accidents have become increasingly frequent. This is a problem both for wealthy

and developed societies as well as for developing nations. According to the data from the traffic police in our country, in 2021 alone, there were 30 536 road traffic accidents. They result in both material and non-material damages. While material damages can be compensated and restored, unfortunately, in 2021, there were 561 citizens who lost their lives as a result of road traffic accidents, and 7 609 were injured. A significant portion of the injured individuals remain disabled for the rest of their lives.

The introduction of motor insurance on a global scale and specifically in Bulgaria has been demonstrated, and it has been established that in our country, it is currently represented through two main types of insurance: Land Vehicles (other than railway rolling stock) Insurance (popularly known as "Motor Vehicle CASCO Insurance") and Motor Third Party Liability Insurance.

The second sub-paragraph draws attention to contemporary trends in the development of automobiles. It is noted that automotive engineering is constantly evolving and improving. Consumer demands have led to the implementation of the latest technologies in automobiles. In addition to the traditional manufacturers from the USA, Japan, Germany, South Korea, France, Italy, and the United Kingdom, new manufacturers from countries such as China and India have taken a leading position in the automotive industry.

In recent years, the automotive industry has faced yet another significant challenge – the possibility of autonomous vehicle driving. However, every new technology, along with its advantages, also brings new risks. The anticipated widespread adoption of autonomous driving vehicles will lead to the emergence of new relationships between manufacturers and consumers, as well as the introduction of new insurance risks that did not previously exist.

The third sub-paragraph emphasizes the significance of auto insurance for the Bulgarian insurance market. Based on official statistical information, the market shares of the two main segments in insurance, "Life Insurance" and "Non-Life Insurance", have been calculated for a period of 12 consecutive years

(2010 – 2021). It has been established that the gross written premiums generated by insurers operating in Non-Life Insurance significantly exceed that generated by Life Insurers. On the other hand, the share of auto insurance, represented by Motor Vehicle CASCO Insurance and Motor Third-Party Liability Insurance significantly exceeds the share of all other types of insurance for the same period. This is also the reason why the focus of the dissertation study is entirely on their development.

Paragraph 2. Economic Essence and Organisation of Motor Vehicle CASCO Insurance consists of three sub-paragraphs:

2.1. Essence and peculiarities of risk coverage and liability assumption by insurers under Motor Vehicle CASCO Insurance;

2.2. Peculiarities of concluding an insurance contract for Motor Vehicle CASCO Insurance;

2.3. Peculiarities of the claims settlement (liquidation) process for Motor Vehicle CASCO Insurance policy.

In the first sub-paragraph, a justification is made for the economic essence of the Motor Vehicle CASCO Insurance policy. The object and subject of insurance, as well as the covered and excluded risks are described.

The second sub-paragraph focuses on the specifics of the process of concluding an insurance contract. The issue related to the price of the insurance service is discussed, with an emphasis on the discounts provided by insurers and the respective surcharges imposed by them on top of the insurance premium.

The third sub-paragraph focuses on the process of claims settlement, also known as "liquidation" under the "Motor Vehicle CASCO" insurance. There is a description of all the steps of this process, which need to be taken when an insurance event occurs, in order for the insured party to be compensated for the damages suffered.

Paragraph 3. Economic Essence and Organisation of Motor Third Party Liability Insurance is structured into three subparagraphs and covers the

specific aspects of entering into and maintaining the insurance contract for the mandatory insurance “Motor Third Party Liability”.

The first sub-paragraph begins by clarifying the economic essence of the mandatory insurance "Motor Third Party Liability". The dynamics of the liability limits determined by the legislator for material and non-material damages are shown, with a constant increase in the amount of the latter over time being noted.

Attention is also drawn to the obligation of every motor vehicle driver traveling outside the country's borders to possess valid insurance. In this regard, the international insurance system known as the "Green Card" is examined, which helps save time and costs in concluding the mandatory insurance "Motor Third Party Liability" each time when a state border is crossed.

The second sub-paragraph is dedicated to the specifics of organising the Motor Third Party Liability Insurance. The issues related to the object and subject of the insurance are outlined. The procedure for concluding the insurance contract is described.

The third sub-paragraph presents the characteristics of the claims settlement process. These arise from the fact that the "Motor Third Party Liability" insurance compensates for damages caused culpably by the insured to third parties. In this sub-paragraph, the cases, where the intervention of competent state authorities (such as the Ministry of Interior) is mandatory to establish the circumstances of a road traffic accident, are described. It also covers cases where it is sufficient for the participants in the accident to agree on the circumstances through a bilateral record protocol.

Based on the summary provided in the first chapter, the following **conclusions** have been drawn:

First. Alongside the freedom and convenience of transportation, the mass utilization of automobiles has brought forth new challenges and risks. The first road traffic incident was caused even during the use of Nikolas Cugnot's steam-

powered vehicle. The incident, which occurred despite the vehicle's maximum speed of only 4 km/h, demonstrated that the introduction of any new technology inevitably leads to new risks.

Second. In modern life, road traffic accidents are a daily occurrence. The high speeds that can be reached with modern vehicles, increased traffic on the roads, driver behaviour and experience, road conditions, weather conditions, etc., are all factors contributing to the increase in their number.

Third. Insurance, as one of the main ways to mitigate risk, was called upon from the very introduction of automobiles to provide protection for both motorists and those affected by traffic accidents. From the very beginning, a number of insurance companies kept pace with the times and started providing insurance protection to car owners.

Fourth. With the development of IT technologies and the significant increase in internet connection speeds, it became possible to produce and equip vehicles that can be autonomously driven. However, the introduction of autonomous vehicles will lead to a range of problems that did not exist until this point. The main question, which arises not only from a legal but also from an insurance perspective, is: Who will be responsible for the damages caused as a result of using an autonomous vehicle?

Fifth. "Motor Vehicle CASCO" and "Motor Third Party Liability" insurances are both the most sought after and the most offered on the Bulgarian insurance market. Shares ranging from 68.30% to 74.40% show their popularity. With a high degree of accuracy, we can argue that the development of insurance in Bulgaria, following the democratic changes of 1989 and even after the country's accession to the European Union, can be closely identified with the development of motor insurance.

Chapter 2

STATE AND DEVELOPMENT OF MOTOR INSURANCE IN BULGARIA

The second chapter of the dissertation is developed in a volume of 55 standard pages and is structured into three paragraphs as follows:

Paragraph 1. Factors Influencing the Development of Motor Insurance in Bulgaria, with two sub-paragraphs:

- 1.1. Factors related to the object and subject of insurance;
- 1.2. Factors related to legislation.

The first sub-paragraph begins with a justification of the fact that in both main types of motor insurance, the object of insurance is the vehicle itself, not the driver. Therefore, the proportion of cars to the country's population is calculated. It has been observed that this proportion has been continuously increasing over time, reaching 55.37% in 2021. This is due to two factors: an increasing number of registered motor vehicles and a continuous decrease in the country's population. Based on statistical information regarding the number of registered vehicles and the number of insurance contracts concluded, the scope of "Motor Vehicle CASCO" insurance has been determined. The calculations show that since 2017, there has been a consistent increase in this indicator, which confirms the leading position of this insurance type in voluntary insurance.

Another factor influencing the development of motor insurance is the occurrence of road traffic accidents and the resulting injuries to citizens. Despite the reported decrease in both the number of road traffic accidents and the number of injured individuals, the numbers are still significant. While in Scandinavian countries like Sweden, 10 fatalities resulting from road traffic accidents in one year are considered an unacceptably high number, in our country, despite the noted decrease, the 463 fatalities in 2020 should not reassure anyone. Furthermore, after the easing of measures related to the spread of COVID-19, the trend has reversed, and in 2021, we witnessed an increase in both the number of fatalities and injuries resulting from road traffic accidents.

The second sub-paragraph is dedicated to legislative factors that

influence the development of motor insurance. It justifies the need for the "Motor Third Party Liability Insurance" to be made mandatory through legislation. The requirement for drivers who are not from a country that is a member of the "Green Card" system to obtain "Border Insurance" at border checkpoints is described. Based on primary statistical information, the scope of "Motor Third Party Liability Insurance" has been calculated. It has been observed that after the adoption of legislative measures concerning the risk of reintroducing border controls, the scope of the insurance significantly increases, even exceeding 100% in 2019, 2020, and 2021. The latter is due to organisational problems related to the deregistration of motor vehicles, for which the insured individuals have stopped paying the corresponding portion of the deferred insurance premium, and the reinstatement of vehicle registration when a new "Motor Third Party Liability Insurance" is concluded. Thus, for some motor vehicles, more than one insurance contract is concluded per year.

Paragraph 2. Dynamics in the Development of Motor Vehicle CASCO Insurance in Bulgaria is developed in three sub-paragraphs:

2.1. Dynamics in the development of premium income for the insurance

2.2. Dynamics in the development of insurance claims payments for the insurance

2.3. Impact of COVID-19 on the development of Motor Vehicle CASCO Insurance

The first sub-paragraph is dedicated to the most important indicator for the development of a specific type of insurance. Statistical data shows that after a decline in gross written premiums generated by insurers in the first three years of the period, the trend reverses, and insurers operating in the Bulgarian insurance market consistently register an increase. The highest growth rate was recorded in 2015 (12.16%), while the lowest was in 2020 (0.11%). The increase over the entire 12-year period compared to the base year 2010 is a significant 43.55%. This growth directly corresponds to the increased number of registered

vehicles in the country, as well as the proportion of cars to the country's population. There is also an increase in the amount of liability assumed by insurers, which is logical considering the growing number of "Motor Vehicle CASCO Insurance" policies being concluded over time. This is reflected in the commented increase in gross written premiums generated by insurance companies. On the other hand, the calculated average sum insured shows a sustainable amount. Obviously, "Motor Vehicle CASCO" insurance policy is taken out by owners of cars with an average price range of BGN 22 000 – 24 000. Therefore, although it is the most preferred voluntary insurance in Bulgaria and only second to the mandatory "Motor Third Party Liability Insurance" in terms of gross written premiums, its coverage, as mentioned above, does not exceed 25%. According to data from the Ministry of Interior, approximately 50% of registered motor vehicles in the country are over 20 years old. This is a factor that contributes to a low growth in premium income for insurers, firstly as a direct consequence of the low market value of the vehicles and secondly due to a decrease in the number of motor vehicles within the preferred price range for insurance coverage. This also leads to a decrease in the market share of the Motor Third Party Liability Insurance, which has declined from over 45% in 2008 to 26.86% in the last year of the observed period.

The second sub-paragraph examines and analyses the data on another key indicator that can be used to assess the state and trends in the development of a particular type of insurance. It has been established that during the period the insurance claims paid by the insurers fluctuated around BGN 300 million per year, and despite the increase in recent years in the number of the insured and the respective premium income, the insurance payments marked a slight decline. These seemingly contradictory data have their explanation. It turns out that the number of claims filed with insurers for compensation payment has decreased. For the entire observation period, it amounts to 14.30%. This indicates good claims settlement work by insurance companies. On the other hand, an

increasing number of insurance companies are implementing a form of insurance known as "deductible" (involving policyholders' participation in covering damages), as defined in specialized literature. Their main objective is to avoid costs associated with assessing and settling "minor" damages.

To assess the quality of insurance work and the condition of the Motor Vehicle CASCO Insurance, the "Loss Ratio" (Claims Ratio) has been calculated in both gross and net variants. As a result, it has been established that the average weighted value of the net claims ratio for the observed period is 82.07%. This means that for every 100 BGN of net premium, insurers have paid out 82.07 BGN in compensation. Therefore, the insurance can be considered financially stable.

The third sub-paragraph is dedicated to studying the impact of the recent global health crisis associated with the spread of COVID-19 on the development of the voluntary insurance "Motor Vehicle CASCO". The changes, analysed sequentially, and occurred in 2020 and 2021 are:

- in the number of newly registered vehicles;
- in the number of insurance policies concluded;
- in the amount of the sum insured;
- in the scope of the insurance coverage;
- in the realised premium income from insurers;
- in the average price of the insurance service;
- in the frequency of filed claims;
- in the number of road traffic accidents;
- in the number of fatalities and injuries in road accidents;
- in the amount of insurance claims paid out.

As a result of the conducted analysis, it was found that the measures imposed to limit the spread of COVID-19 did not significantly impact the development of the Motor Vehicle CASCO Insurance in Bulgaria but rather delayed its pace. Unfortunately, with a decrease in control over the enforcement

of measures and the lifting of some of them in 2021, an increase in the number of road traffic accidents has been observed.

Paragraph 3. Dynamics in the Development of "Motor Third Party Liability Insurance" in Bulgaria, as part of the second chapter of the dissertation, is structured into two sub-paragraphs:

3.1. Dynamics in the development of gross written premiums for the insurance;

3.2. Dynamics in the development of insurance claims payments for the insurance.

In *the first sub-paragraph*, the focus is on the primary indicator (gross written premiums) that characterises the development of the "Motor Third Party Liability Insurance" in Bulgaria. The statistical data shows that during the observed period, there has been an increase in gross written premiums by nearly BGN 690 million, i.e. a growth of over 142%, which represents an average annual growth of nearly 12%. One of the reasons for the observed increase is the higher number of registered motor vehicles. During the period under consideration, this growth amounted to 15.21%. Additionally, the number of insurance policies being concluded is also increasing, with a calculated growth of 35.79% for the period. Another reason for the increase in gross written premiums for the insurance is the higher price of the insurance service. This is due to the significant expansion of its territorial coverage in recent years and the increased legally defined liability limits imposed on insurers over time. The exception is the year 2020, in which a slight decrease in the amount of the insurance premium was registered, which is due to the restrictions imposed in the country in response to the spread of Covid-19 and the reduced number of road traffic accidents.

Despite the observed increase in the average insurance premium for the observed period, certain decisions by the Bulgarian court regarding the possibility for a wide range of individuals to claim compensation for non-

material damages have led some practitioners to believe that it has not yet reached the necessary level. Furthermore, in most countries of the European Union, the average price of "Motor Third Party Liability Insurance" significantly exceeds the average insurance premium reached in Bulgaria.

The second sub-paragraph is dedicated to the examination of another key indicator influencing the development of "Motor Third Party Liability" Insurance. Unlike the "Motor Vehicle CASCO" insurance, where we observed a decrease, the numbers show a significant increase in the amount of compensations paid out by insurance companies. For the period under review, the increase amounts to more than BGN 364 million, representing a growth of almost 155%. The increasing market share and the higher premium income are the main factors contributing to this result.

As a result of the investigation, it was found that the frequency of claims submitted to insurers for payment under the examined insurance policy remains at a relatively constant level throughout the period of observation. This indicates that a good risk balancing has been achieved due to the almost 100% coverage of the insurance. The latter circumstance allows for the normal operation of the Law of Large Numbers and the uniform manifestation of risk over time. However, deviations are still possible, but they are not significant. For instance, in 2020, there was a decline in the number of submitted claims, despite an increased number of insured individuals. This is most likely due to the aforementioned restrictions imposed by the government in connection with the spread of Covid-19, leading to a reduced number of road traffic accidents.

By means of the "Loss Ratio" indicator in the sub-paragraph, it has been established that during the observation period (2010-2021), there was no year in which it exceeded 100%. The Weighted Net Average Ratio for the period is 77.98%. This means that the insurance can be considered profitable because for every collected 100 BGN as net insurance premium, the insurers have paid out approximately 77.98 BGN in compensations. These circumstances lead to the

maintenance of relatively low levels of insurance premiums compared to those in other European Union countries.

One of the issues with "Motor Third Party Liability" insurance is the fact that there is still no established methodology, outlined in regulatory documents, for determining the amount of compensation for non-material damages (such as pain and suffering). The practice demonstrates that different judicial bodies award varying amounts of compensation for similar insurance cases. Due to the disputed decisions in the Bulgarian court system, insurance companies are exposed to the risk of facing claims with retrospective effect, potentially increasing the value of the claims ratio for the respective year and turning the insurance policy into a losing one. Therefore, the surplus resulting from favourable risk developments should not be considered as a profit for the insurer. The surplus must be set aside in a separate time reserve to cover any potential overpayments in years with unfavourable risk developments and/or compensations for previous periods resulting from court decisions.

In summary of the points presented in the second chapter, the following **conclusions** have been drawn:

Firstly, the indicators of gross written premiums and insurance payments are crucial for identifying the trends in the development of each type or branch of insurance. In the context of auto insurance, these indicators depend on a series of factors that can be categorised into two main groups: factors related to the object of insurance and factors related to legislation.

Secondly, the observed increase in the number of registered vehicles in Bulgaria contrasts with the continuously decreasing population of the country. As a result, the share of motor vehicles per population reaches levels of 55.37% in 2021, indicating that automobiles are becoming increasingly important for Bulgarian citizens. While in the past, it was common for households to own one car, more and more families are now acquiring two or more vehicles.

Thirdly, despite the reported decrease in both the number of road traffic

accidents and the number of injured citizens, the figures are still quite high. In 2021, there were 561 fatalities, which is far from the situation in other European countries, especially in Sweden, where 10 fatalities are considered an unacceptably high number.

Fourthly, the "Motor Third Party Liability" insurance is mandatory because it ensures the interests of innocent third parties who suffer damages due to road traffic accidents. However, the coverage of the insurance policy until 2016 was relatively low, reaching only 79.19%. The possibility of reintroducing border control concerning the presence of "Motor Third Party Liability" insurance contributed to the implementation of various measures. The state, represented by the traffic police and the Guarantee Fund, initiated a warning procedure against individuals who own vehicles but do not have the mandatory "Motor Third Party Liability" insurance. As a result, the coverage of the insurance policy increased significantly and even surpassed 100% in 2019, 2020, and 2021. This paradox is due to the possibility of having multiple insurance policies for a single vehicle, caused by non-payment of a portion of the instalment of the insurance premium and subsequent administrative deregistration of the vehicle. Restoring the vehicle's registration requires entering into a new insurance contract, leading to insurance coverage exceeding 100%.

Fifthly, despite the "Motor Vehicle Casco" insurance remaining a leader in terms of premium income realised by insurance companies for voluntary insurance, its loss of the top position and the continued decline in its market share indicate problems in its development. To reclaim the top position in terms of premium income, significant modernisation of the vehicles in the country is necessary, especially those with higher market values, as the demand for insurance protection for such vehicles is higher.

Sixthly, the significantly increased coverage of the "Motor Third Party Liability" insurance after 2017, along with the moderately higher average price

of the insurance service, has led to a growth of over 142% in gross written premiums realised by insurers during the observed period. The insurance policy has permanently held the leading positions in terms of market share since 2010, and the trend is expected to remain unchanged in the near future.

Seventhly, the "Motor Vehicle Casco" and "Motor Third Party Liability" insurance policies can be considered financially stable due to the average weighted net claims ratio, which is below 100% for the observed period.

Chapter 3

CHALLENGES AND PERSPECTIVES FOR THE DEVELOPMENT OF MOTOR INSURANCE IN BULGARIA

The third chapter of the dissertation consists of 42 standard pages and is structured into three paragraphs, as follows:

Paragraph 1: Challenges in Implementing the Bonus-Malus System in Bulgaria, structured into four sub-paragraphs:

- 1.1. Methods for risk assessment in Insurance
- 1.2. European practices for applying the Bonus-Malus System
- 1.3. Key challenges in implementing the Bonus-Malus System in Bulgaria
- 1.4. Possibilities for implementing the Bonus-Malus System in Bulgaria

The "Motor Third Party Liability" insurance is socially significant because it protects the interests of individuals who suffer damages as a result of road traffic accidents. The use of equalisation, which insurers largely rely on when constructing their tariffs for this insurance policy, has caused increasing discontent, especially among careful drivers who abide by traffic rules and do not cause road accidents. Therefore, one of the directions for the development of auto insurance in Bulgaria, discussed in the dissertation, is the implementation of the "Bonus-Malus" insurance system, which aims to achieve a fair distribution of funds in the insurance pool.

In the *first sub-paragraph*, the theoretical aspect of the risk assessment methods used in insurance has been examined. These methods include:

- the method of average risk;
- risk classification and risk assessment based on established risk groups;
- the method of individual risk.

It has been observed that in recent years, there is a clear tendency in our country towards the individualisation of risk assessment and, accordingly, the determination of insurance premiums for the "Motor Third Party Liability" insurance. To a large extent, this could be achieved by implementing a unified method for risk assessment and premium determination, following the well-known practice in many countries of the Bonus-Malus system.

In *the second sub-paragraph*, the main aspects of implementing the Bonus-Malus insurance system in some European countries (Switzerland, Portugal, Germany, and Austria) have been outlined. It has been found that in all of these countries, traffic violations and penalties imposed on drivers are not taken into account if they have not resulted in insurance claims for damages caused by the insured individuals.

The third sub-paragraph focuses on the main problems that have hindered the implementation of the Bonus-Malus system in Bulgaria so far. It examines the two attempts made in recent years to introduce the system and analyses the reasons for their failure. The main drawback identified by experts is the classification of risk based on the vehicle rather than the driver. Another key conceptual characteristic that has received numerous criticisms is the reliance solely on traffic violations as the primary and only factors considered for risk assessment and determining the Bonus-Malus class.

Performing a financial and actuarial assessment of the impact of implementing the proposed system by the Financial Supervision Commission (FSC), Ministry of Interior (MoI), and Ministry of Transport, Information

Technology, and Communications (MTITC) requires the development and testing of a model that includes information on administrative violations and crimes, their frequency, and dynamics. Without such a model, the proposed scale and adjusting coefficients are unmotivated and risky to apply in practice. However, the absence of an analogue (due to basing the system on traffic violations rather than paid claims) assumes behaviour that significantly differs from the familiar and tested Bonus-Malus systems in European countries, which have been in use for decades.

In *the fourth sub-paragraph*, an attempt is made to outline the possibilities for overcoming the aforementioned issues and implementing the Bonus-Malus system in our country.

The identified problems and weaknesses in the Bonus-Malus system would be avoided if the object for the insurance is clearly and categorically defined as its driver, the holder of a driver's license, rather than the vehicle itself.

A solution to the main problem of introducing a fair for all Bonus-Malus system is related to changes in the Insurance Code. It is necessary for all individuals holding a valid motor vehicle driving license to be obliged to contract the "Motor Third Party Liability" insurance.

It is possible for individuals who do not comply to temporarily lose their driving privileges, and this will be done automatically, just as the registration of a vehicle without such insurance is automatically cancelled at present. If an individual with temporarily revoked driving privileges applies for their reinstatement, it will be necessary to present a regularly contracted insurance policy as well. In this way, the personal responsibility of the driver, rather than the vehicle, will be the primary factor in determining the price of the insurance service. This approach will allow for a comprehensive assessment of the risk history of each driver and assign them the appropriate class in the Bonus-Malus system. As a result, there will be no need for individuals who own more than one vehicle to purchase additional insurance policies to ensure their

responsibility as drivers. On the contrary, it will be necessary for every individual who operates a specific vehicle to have their own "Motor Third Party Liability" insurance policy.

Paragraph 2: Challenges in Increasing the Coverage of Voluntary Insurance related to Ownership and Use of Motor Vehicles is structured into two sub-paragraphs:

2.1. Opportunities to increase the coverage of the "Motor Vehicle CASCO" insurance.

2.2. Comprehensive motor insurance policy.

In this paragraph, a solution is sought for the problem identified in the second chapter, which is the low coverage of "Motor Vehicle CASCO" insurance.

In the first sub-paragraph, the possibilities for increasing the coverage of the insurance are presented through the offering of combined insurance products. These products are one of the approaches to expanding the coverage of various insurances. It is not mandatory for the combined insurance product to offer insurance coverage for the same object only. Practice shows that it is possible to provide insurance protection for various items such as automobiles, buildings, household property, etc. The legislative limitation in this case applies only to the offering of combined coverage for insurances from different sections – "Life Insurance" and "Non-life Insurance".

The main role in the development of the idea for the combined offering of multiple insurance coverages is played by the collaboration between insurance companies and professional insurance intermediaries. It is possible for the combined insurance product to be offered in the form of "First Loss Insurance", thereby reducing the expenses associated with assessing the object of insurance. The insured party determines the limit of the insurer's liability, and the assessment is made after the occurrence of the insurable event. Depending on the size of the damages, the compensation can either fully cover the losses or

leave a portion of them to be borne by the insured.

The second sub-paragraph is dedicated to another alternative that can lead to an increase in the coverage of "Motor Vehicle CASCO" insurance. The natural combination between the mandatory "Motor Third Party Liability" insurance and the "Motor Vehicle CASCO" insurance can be supplemented with coverages, including: auto assistance; passenger accident coverage; legal expenses coverage; damage to personal belongings in transit, and so on. Such comprehensive products (complex products) aim to cover more of the possible risks associated with the vehicle and its operation. Additionally, cost savings are achieved through economies of scale, resulting in a lower price for the insurance service. These types of insurance packages are particularly suitable for new and expensive vehicles, where a broader insurance coverage is usually sought, both in terms of the number of risks covered and the territorial scope.

The comprehensive car insurance will still be evolving. A prerequisite for this is the expected widespread adoption of autonomous vehicles, where it is still unclear which entity will be responsible for road traffic accidents that may occur. It is possible that in the future, cars will not be sold as physical objects, and their manufacturers will instead offer car services. In this way, ownership remains with the manufacturer, and the customer pays for the transportation service. A future where car transportation is a service, and citizens rent motor vehicles instead of buying them, will lead to a fundamental change in the relationship between the manufacturer and the consumer.

Indeed, this will also affect the insurance industry, and comprehensive car insurance will become mandatory. It will be offered to manufacturers, and consequently, the compensations related to its coverage will be paid directly to them.

Paragraph 3. Perspectives for the Development of Additional Coverage in Auto Insurance is structured into two sub-paragraphs:

3.1. Essence and features of Auto Assistance insurance coverage

3.2. Methods of offering Auto Assistance coverage.

In *the first sub-paragraph*, the essence and features of the insurance coverage "Auto Assistance" have been discussed. The name of the insurance stems from the way the obligations assumed by the insurer under the contract are fulfilled. In the event of an incident described in the contract, another company, not the insurance company itself, takes on the responsibility for providing the services. This company is referred to as the "assisting" company, which is quite normal considering the functions it performs. Hence, the coverage has gained popularity as "Auto Assistance".

The insurance can be concluded for regularly registered motor vehicles owned by individuals or legal entities. Once the registration is revoked, regardless of the reasons, the insurer's responsibility terminates.

The second sub-paragraph presents the ways in which the "Auto Assistance" insurance can be offered. It is noted that most insurance companies prefer to offer it as an additional coverage to the "Motor Vehicle CASCO" insurance. This circumstance limits the owners of older cars, for which it is economically impractical to seek Casco insurance. According to the aforementioned information from the Ministry of Interior, these older vehicles represent approximately 50% of all registered motor vehicles in the country. Therefore, in this sub-paragraph, an independent offering of the "Auto Assistance" insurance has been proposed, which is another direction for the development of motor insurance and an opportunity for increasing the premium revenue realised by insurers.

Based on the information presented in the third chapter, the following **conclusions** have been drawn:

Firstly, only two European countries, one of which is Bulgaria, still do not have an implemented Bonus-Malus insurance system. This system aims to achieve a fair distribution of proceeds in the insurance fund by differentiating

the insurance companies' tariffs based on the behaviour of the motor vehicle driver and the registered past damages.

Secondly, the European experience shows that the Bonus-Malus system can be offered as a unified system mandatory for all insurers, or as a standalone system, with the scale being determined by individual insurance companies.

Thirdly, all the problems hindering the implementation of the Bonus-Malus system in Bulgaria stem from the object of the insurance. According to the Insurance Code, the object of insurance is the motor vehicle, even though the insurance is referred to as "Motor Third Party Liability". The identified issues and weaknesses found in the study can be avoided if the object of the insurance is clearly and categorically defined as the driver of the vehicle holding a valid driver's license, rather than the vehicle itself. It is necessary for all individuals possessing a valid driver's license for motor vehicles to be required to take out the "Motor Third Party Liability" insurance. It is possible that individuals who do not comply may temporarily lose their driving privileges automatically, similar to the current automatic deregistration of vehicles without such insurance. If a person with temporarily revoked driving privileges applies for reinstatement, they will be required to present a valid insurance policy. This way, the driver's personal responsibility, rather than the vehicle's, will be the primary factor in determining the price of the insurance service.

Fourthly, a crucial role in developing the idea of combined offering of multiple insurance coverages is played by the cooperation between insurance companies and professional insurance intermediaries. Combined insurance products can be offered in the form of "First Loss" insurance, which reduces the expenses related to assessing the object of insurance. The insured individual determines the limit of liability of the insurer, and the assessment is made after the occurrence of an insured event. Depending on the extent of the damages, the compensation (claims) may fully cover them, or some of the damages may remain the responsibility of the insured.

Fifthly, combined insurance products with "Motor Vehicle CASCO" coverage will increasingly enter our insurance market. The primary reason for this is the aging vehicle fleet in the country. On the other hand, offering different insurances in a package saves time and effort for consumers of insurance services. Not only are costs reduced due to lower insurance sums for "Motor Vehicle CASCO Insurance" coverage, but also due to savings on expenses related to the conclusion of insurance contracts.

Sixthly, with the development of IT technologies and a significant increase in internet connection speed, it has become possible to manufacture and equip vehicles that can be autonomously driven. However, every new technology, along with its advantages, also brings new risks. The introduction of autonomous vehicles will lead to a series of problems that have not existed up until this point. The main question that arises, not only from a legal but also from an insurance perspective, is: who will be responsible for the damages caused as a result of using a level five autonomous vehicle – the owner, the manufacturer, or the software provider for the autonomous system?

Seventhly, the comprehensive car insurance is the most suitable insurance product for autonomous vehicles. An alternative approach for offering comprehensive car insurance is connected to a change in the entire model concerning the ownership of motor vehicles. It is possible that in the future, cars will not be sold as physical objects, and their manufacturers will instead offer car services. In this way, ownership remains with the manufacturer, and the customer pays for the transportation service. A future where car transportation is a service, and citizens rent motor vehicles instead of buying them, will lead to a fundamental change in the relationship between the manufacturer and the consumer. This will also impact the insurance industry, and comprehensive car insurance will become mandatory. It will be offered to manufacturers, and consequently, the compensations related to its coverage will be paid directly to them.

Eighthly, introducing a standalone insurance product like "Auto Assistance" to the market is yet another opportunity for the development of motor insurance and an increase in the premium income realised by insurers. Such an insurance product has the potential to capture a market niche of 75% of uninsured motor vehicles in the country.

CONCLUSION

In conclusion, in a generalised form, the main findings and achieved research results are presented. The fulfilment of the set goal and tasks has been established, which substantiates the thesis of the dissertation work. The proposed legislative and organisational solutions represent a logical conclusion to the study. These are the results of systematising, summarising, and the author's interpretation of a sufficient amount of data with theoretical, methodological, and empirical characteristics. They possess significant potential for improving insurance practices and increasing the premium income realised by insurers in automobile insurance.

The challenges related to the development of technologies and the necessary legislative and organisational changes in automobile insurance are tasks that must be solved jointly by the government, the insurance industry and the representatives of the scientific community in the country.

IV. DECLARATION OF ORIGINALITY AND AUTHENTICITY

Regarding the procedure for acquiring the educational and scientific degree "Doctor" in the scientific specialty of "Finance, Monetary Circulation, Credit, and Insurance (Insurance and Social Security)", I declare:

1. The results and contributions in the dissertation work on the topic **"Guidelines for the Development of Motor Insurance in Bulgaria"** are original and have not been borrowed from studies and publications in which the author did not participate.

2. The information presented by the author in the form of copies of documents and publications, personally compiled references, and other materials correspond to the objective truth.

3. The results obtained, described, and/or published by other authors are duly and thoroughly cited in the bibliography.

Svishtov

19 July 2023

PhD student:

/Nikolay Iliev/

V. REFERENCE ON SCIENTIFIC AND SCIENTIFIC-APPLIED CONTRIBUTIONS IN THE DISSERTATION WORK

The current work, in all its distinct parts, provides various contributions that stem from the following:

1. Based on an analysis of empirical information, the significance of automobiles for Bulgarian citizens and the importance of motor insurance for the Bulgarian insurance market have been derived.

2. The trends in the development of key indicators – gross written premiums and insurance payments – for the "Motor Vehicle CASCO Insurance" and "Motor Third Party Liability" policies have been identified. Based on this, the financial condition of auto insurance in Bulgaria has been determined.

3. A legislative solution to the main problem hindering the introduction of the Bonus-Malus insurance system in Bulgaria has been argued. This solution involves changing the object of insurance under the mandatory "Motor Third Party Liability" insurance.

4. A variety of organisational solutions to the problems related to the offer of insurance protection in auto insurance are proposed, with a view to improving the insurance practices and coverage, and hence increasing the premium income realised by the insurers.

VI. LIST OF PUBLICATIONS BY THE DOCTORAL CANDIDATE ON THE TOPIC OF THE DISSERTATION WORK

I. Studies:

1. Iliev, N. Guidelines for Implementation of the Bonus-Malus System in the Motor Third Party Liability Insurance of Motor Vehicle Owners // Annual Almanac of Scientific Research by Doctoral Students, Volume XIII - 2020, Book 16, 2021.

II. Articles:

1. Erusalimov, R., **Iliev, N.** The Impact of COVID-19 on Development of Motor Casco Insurance" in Bulgaria. // Business Management, 2022, issue 1.

III. Reports:

1. Iliev, N. Reflection of COVID-19 on the Premium Income of Motor Casco Insurance in Bulgaria // In: International Scientific-Practical Conference "Sustainable Development and Socio-Economic Cohesion in the 21st Century: Trends and Challenges", Svishtov, November 8-9, 2021.