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SERBIAN INSURANCE MARKET - SELECT ISSUES

ABSTRACT: Every day insurance companies face a number of risks arising from the insurance industry itself, as well as risks arising from insurance company operations. In this constant fight against risks insurance companies use different models and methods that help them better understand, have a more comprehensive view of, and develop greater tolerance towards risks, in order to reduce their exposure to these risks.

The model presented in this paper has been developed for implementation in insurance risk management directly related to

insurance company risk, i.e. it is a model that can reliably determine the manner and intensity with which deviations in the initial insurance risk assessment affect insurance company operations, in the form of changes in operational risks and consequently in insurance companies' business strategies. Additionally we present the implementation of the model in the Serbian market for the period 2005 - 2010.

KEY WORDS: insurance, risk, risk management, insurance market, risk management model

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1. INTRODUCTION

In the circumstances in which modern society functions, uncertainty has become an inevitable occurrence in all life processes. Therefore the insurance industry has significantly exceeded its basic requirements and grown into a kind of public service.

There are many definitions of risk. Risk can be defined as a variation in possible outcomes of an event based on chance. The degree of risk is a measure of the accuracy with which the outcome of an event based on chance can be predicted. Thus the more accurate the prediction of possible outcomes the lower the degree of risk, and, vice versa, the harder it is to predict the outcome of an event, the greater the degree of risk. Uncertainty and loss are common to all definitions of risk. Uncertainty exists when one cannot know with any certainty the outcome of an event. In insurance terminology, risk means risk insured against specific potential perils.

Insurance companies face daily numerous risks arising from the insurance industry itself, as well as risks arising from insurance company operations, such as placing free funds, fulfilling obligations under insurance premiums, and harmonizing resources and placement of available funds.

Insurance risk is the main risk and represents the risk of the insurers. It may be defined as the inability of insurance companies to absorb risks taken on the basis of concluded insurance contracts. This risk includes in particular:

- 1) risk of inadequately determined premium/insurance price;
- 2) risk of inadequate assessment of a risk to be insured;
- 3) risk of inadequately determined levels of the company's retention, or risk-taking while conducting deals that exceed the amount of retention, or failure to transfer excess risk exceeding the retention through coinsurance i.e. reinsurance;
- 4) risk of the company's uncoordinated, uncompliant, and economically harmful tariff policy in connection to the dispersion (temporal and spatial) of risks to be insured, i.e. inadequate determination of the insurance premium structure;
- 5) risk of inadequate determination of general, special, additional or individual insurance terms;
- 6) risk of all the company's technical reserves being inadequately secured;
- 7) other insurance risks (professional and technical) that depend on the nature, scope, and complexity of the company's operations.

The two main risk groups covered by insurance are life insurance risk and non-life i.e. property insurance risk.

Types of risk confronted by life insurers are:

1. Mortality and longevity risk - sensitivity of the insurance company to an increased mortality rate, i.e. the insurer's sensitivity occurring when the actual mortality rate is higher than was predicted and calculated for the premium. The longevity risk is included in any product where the insurer is exposed to financial losses if policy holders live longer than expected.
2. Disease risk - insurers are exposed to many types of disease risk, including accelerated payments on the basis of death, disability, and sudden death and disability. Therefore the disease risk includes:
 - increase in the general rates of disability, medical, dental insurance, critical illness and other coverage;
 - increase in the rate of claims.
3. Risk of disability – represents uncertainty in claims pertaining to disability rates and levels that are higher than expected and may, for example, appear in disability and health portfolios and employee compensation.

Insurance against random occurrences and uncertainty about the amount to be paid when the insured event occurs represent non-life insurance risks. Random events and uncertainty about the amount to be paid include the following non-life insurance risks: risks of claims under home insurance, automobile insurance, insurance against liability, accident, interruption of business, travel, etc.

A special type of risk that stands out is catastrophe risk, which represents an individual threat to a relatively large number of people/property, whose appearance threatens not only the insurer's economic strength but also the company as a whole, i.e. the part affected by the appearance of the catastrophe risk¹.

Apart from insurance risks, insurance companies also face the risks originating as a direct result of insurance company operations. Just like other financial entities operating in the financial market, insurance companies face market risk, risk of maturity and structural mismatch of assets and liabilities, risk of depositing and investing the company's assets, and other risks arising from operations, such as operational, legal, and reputational risk.

¹ Avdalović, Cosic & Avdalović (2008),

2. INSURANCE RISK MANAGEMENT

The presence of risk cannot be neutralized, but individuals as well as the company may undertake activities that will partially control the amount and time of risk realization and the consequent damages. These activities are referred to as risk management and, if successfully implemented, can reduce the costs of realized losses.

Risk management is a dynamic process and it can be defined as identification, analysis, and economic control of those risks that threaten assets or profit-earning capacity². It is a strategy that plans the fund resources that will be used to cover the damages when they occur.

The risk management process consists of three steps. The first is identification and measurement of potential losses. The second is development and execution of the plan to manage these potential losses, and the third is continuous revision of the plan subsequent to its execution.

Therefore an insurance company should first identify the level of risk it is currently facing, then decide on the level of risk it wants to retain, and take the necessary steps towards equalization of the two, i.e. bring the current level of risk to the desired level.

Risk measurement is of crucial importance to the effective risk management of every financial institution. Given the nature of insurance business, risk management is an inherent part of all company activities. Depending on how effective the risk management is, an insurance company either operates successfully, or not.

With the growth in shareholder activity over the past two decades managers' responsibility for operating errors has increased. Major mistakes can cost them their jobs. Therefore they are restrained when embracing risk, even when it is desirable and appropriate.

Completely avoiding risk may result in relatively poor financial returns, which will set back the insurer's competitive position and thus reduce its sales and financial performance. On the other hand excessive risk-taking may contribute

² Dorfman M., (2005), *Introduction to Risk Management and Insurance*, Prentice Hall, New Jersey.

to high short-term gains, but also to future financial losses or even insolvency. Successful companies are learning how to control risk in order to survive and prosper in the long term. Companies need to pursue a policy of risk-taking in a manner that enables their competitiveness, growth, and development.

3. MODEL FOR MEASURING THE IMPACT OF INSURANCE RISK AND PROFIT RISK

The model for implementation of insurance risk management that is directly related to insurance company risk (hereinafter referred to as the Model) shows the impact of realized insurance risk, manifested as insurance claims based on the payment of insurance premiums, on insurance company risks, which affect the amount of free funds available to an insurer after settlement of claims .

The following terms are suggested when determining this risk impact as a complex function of parameters:

- settled insurance claims,
- technical insurance premium,
- total insurance premium,
- generated profit expressed in percentages in relation to the total premium collected,

mutually related in a specific manner expressed by the formula:

$$RIRM = \frac{\textit{settled claims}}{\textit{total premium}} \quad (1)$$

$$SCTP = \frac{\textit{settled claims}}{\textit{technical premium}} \quad (2)$$

$$PROFIT = \frac{\textit{profit before tax}}{\textit{gross premium}} \quad (3)$$

$$\frac{PROFIT}{RIRM} \quad (4)$$

where RIRM is the Result of Insurance Risk Management and SCTP represents the share of Settled Claims in the Technical Premium. The results obtained by formula (4) show how much the insurance market managed to affect the increase of the realized market profit by proper insurance risk management.

Implementation of these ratios in the Serbian market produced over 200 results, which give a clear picture of the status of the Serbian insurance market, and demonstrate the impact of insurance risk on operations and the operational risk management of a company.

4. MODEL IMPLEMENTATION IN THE SERBIAN INSURANCE MARKET

Implementation of the Model in the Serbian insurance market can be realized measuring various segments of the market. In this paper implementation has been carried out in several phases in the period 2005 - 2010.

All data used for obtaining the results in this paper were taken from regular annual reports on insurance companies operations, published by the National Bank of Serbia.

In phase one, the implementation was firstly done for RIRM (formula (1)) and SCTP (formula (2)) ratios of non-life insurance in the Serbian insurance market, followed by the analysis of RIRM and SCTP ratios of the life insurance segment of the Serbian insurance market and, in particular, the analysis of overall operating results for the Serbian insurance market that include both life and non-life segments of the Serbia insurance market.

Table 1. shows the results of RIRM and SCTP ratios, obtained by the comparison of settled claims and total/technical premium of the non-life insurance market in Serbia.

Table 1. RESULTS OF RIRM AND SCTP RATIOS OF NON-LIFE INSURANCE SEGMENT IN THE SERBIAN MARKET

<i>YEAR</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>
SCTP	55%	66%	65%	73%	72%
RIRM	36%	43%	42%	43%	45%

Source: authors' calculations from National Bank of Serbia data

The results of the analysis show that SCTP of non-life insurance amounted to 72% in 2009, showing an increase since 2005, when it was 55%. If we compare the obtained result with the expected result of 90% (due to the nature of property insurance, where a small number of incurred but unsettled claims is transferred to the following year), it is obvious that in the non-life insurance market the share

of settled claims in the technical insurance premium shows a growing trend, but with a huge gap between them still evident.

There are two explanations for the amount in the obtained results. One is that, in their perpetual struggle against insurance risk, insurers managed to reduce the number of claims in 2005 by 45%, followed by 34% in 2006, 35% in 2007, 27% in 2008, and 28% in 2009. However these are high percentages for the amount of technical premium to remain at the same level; which points to another explanation of the obtained results, which is that the technical premium was calculated at a high level.

The analysis of the obtained results of the RIRM ratio for non-life insurance shows that settled claims get quite a small share of the total non-life insurance premium, respectively 36%, 43%, 42%, 43%, and 45% between 2005 and 2009. This is far from the predicted and expected 70%, an amount calculated due to the fact that the total or gross premium is in practice generally divided into the net premium and loading. For non-life insurance, the net premium is balanced with the technical premium and usually amounts to approximately 70% of the total premium.

The comparative review shows that the overall growth of SCTP between 2005 and 2010 amounted to about 32%, while the overall growth of RIRM was around 20%. Consequently both indicators demonstrated increase, but the growth of SCTP was higher. The growth of these indicators shows that over the years insurance companies have been adapting the amount of premium to new trends of incurred and settled claims, while it is evident from the final results that there is still room to reduce the cost of premiums without harming the operations of insurance companies.

Table 2. shows the results of RIRM and SCTP ratios obtained by comparison of settled claims and total/technical premium of the life insurance market in Serbia.

Table 2. RESULTS FOR RIRM AND SCTP RATIOS OF THE LIFE INSURANCE SEGMENT IN THE SERBIAN MARKET

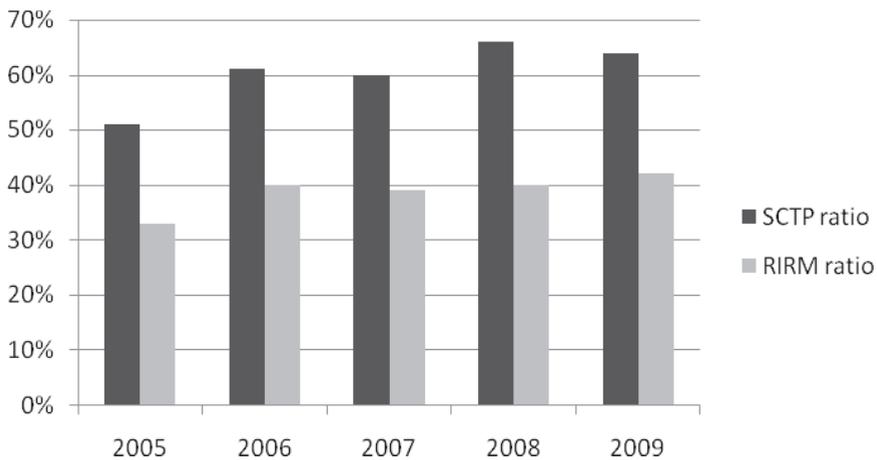
<i>YEAR</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>
SCTP	17%	25%	27%	26%	30%
RIRM	13%	16%	20%	21%	24%

Source: authors' calculations, National Bank of Serbia

The results obtained by analyzing the life insurance market are typical for a poorly developed market, in which life insurance has a small share. Specifically the Sctp indicator is very low at about 26%, while the RIRM indicator amounted to 24% in 2009. Again, as with non-life insurance, there is an upward trend for these indicators, which shows the adjustment of premium to incurred claims.

The overall results, which include both the life and non-life insurance industries in the Serbian market, show that the Sctp indicator had a growing trend year over year and that in 2009 it amounted to 64%, while in the last three observed years the RIRM indicator had a constant result of about 42%, as shown in Figure 1.

Figure 1. COMPARATIVE REVIEW OF THE SHARE OF CLAIMS IN TECHNICAL AND TOTAL INSURANCE PREMIUM IN THE SERBIAN MARKET



Source: authors' calculations, National Bank of Serbia

This tells us that, although insurance companies adapt the technical premium to the minor settled claims that may also partly be the result of proper risk management, they do not adjust the total premium, additionally increasing it instead. Therefore the growth of total premium cannot be attributed to the rising technical premium, because it has been proportionally decreasing over the years, but it can be attributed to the growth of loading, i.e. growth of operating costs.

In the second phase of the model implementation RIRM and Sctp ratios were tested in terms of the most common types of property insurance, individually for

mandatory automobile liability insurance (Table 3) and other major insurances, such as accident insurance (Table 4), motor vehicle insurance, property insurance against fire and other hazards (Table 5) and other property insurances (Table 6).

The obtained RIRM and SCTP ratios demonstrate how much the property insurance market managed to reduce the claims incurred in this line of insurance by managing the property insurance risk, thus increasing the profit realized by the insurance companies that deal with property insurance.

The non-life insurance market largely determines the entire insurance market in Serbia, given the poor development of life insurance.

Table 3. RESULTS FOR RIRM AND SCTP RATIOS OF MANDATORY AUTOMOBILE LIABILITY INSURANCE

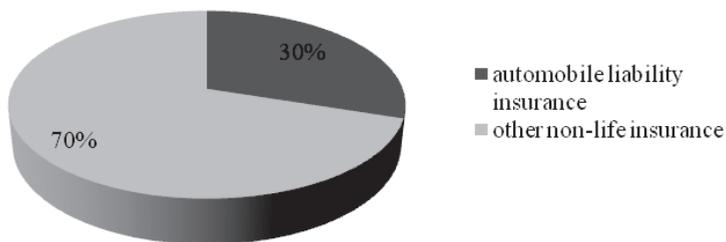
YEAR	2005	2006	2007	2008	2009
SCTP	41%	45%	53%	56%	59%
RIRM	31%	34%	40%	42%	44%

Source: authors' calculations, National Bank of Serbia

The analysis of the share of settled claims in the technical and total premium of mandatory automobile liability insurance shows little difference between SCTP and RIRM ratios, which significantly deviates from the results obtained by analyzing these indicators for total non-life insurance.

This is important because the automobile liability insurance covers over 30% of the non-life insurance market (Figure 2) and it should have a greater impact on the total result.

Figure 2. SHARE OF MANDATORY AUTOMOBILE LIABILITY INSURANCE IN THE NON-LIFE INSURANCE MARKET



Source: authors' calculations, National Bank of Serbia

For the total non-life insurance market the SCTP indicator is 30%-40% higher than the RIRM indicator; however this difference is smaller for mandatory automobile liability insurance and has amounted to a constant 25% over the years.

These results also demonstrate that the technical premium was calculated at 75% of the total premium, i.e. the loading for this type of insurance amounts to 25%, which is a satisfactory level. Likewise these results suggest that other non-life insurance was calculated so that the loading level is too high and creates a huge difference between RIRM and SCTP indicators.

If we observe SCTP and RIRM ratios of the mandatory liability insurance we can see that over the years they ranged at a very low level. The SCTP ranged between 41% and 59% and the RIRM ranged between 31% and 44%, which is a low result and tells us that insurers can lower their premiums significantly and thus impact cost reduction for the entire non-life insurance market.

Table 4. RESULTS FOR RIRM AND SCTP RATIOS OF ACCIDENT INSURANCE

<i>YEAR</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>
SCTP	80%	93%	81%	79%	86%
RIRM	55%	63%	55%	53%	55%

Source: authors' calculations, National Bank of Serbia

Insurance from the consequences of accidents demonstrates significantly higher results than the mandatory automobile liability insurance, which for the five observed years starting from 2005 amounted to the following: SCTP - 80%, 93%, 81%, 79% and 86%, and RIRM - 55%, 63%, 55%, 53% and 55%, respectively.

The obtained results are similar to the results obtained by analyzing motor vehicle insurance. These results suggest that insurance companies are very successful in managing risks that affect these types of insurance and they create room for adjustment and reduction of the total insurance premium. The price of the technical premium was calculated so that it constitutes 67% of the total insurance premium, which deviates by only 3% from its ideal level.

The reason for the huge gap between the results obtained for these types of non-life insurance and for mandatory liability insurance probably originates from the monopolistic position that mandatory liability insurance provides for insurance

companies, since, as its name implies, it is mandatory for all persons owning a car. Other types of non-life insurance offer better results, precisely because they are not mandatory and there is much more competition among insurers.

Table 5. RESULTS FOR RIRM AND SCTP RATIOS OF PROPERTY INSURANCE AGAINST FIRE AND OTHER HAZARDS

<i>YEAR</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>
SCTP	48%	54%	49%	53%	46%
RIRM	24%	25%	23%	26%	20%

Source: authors' calculations, National Bank of Serbia

The analysis of property insurance against fire and other hazards provided somewhat low values for the SCTP and RIRM indicators. This is more a result of the underdeveloped market for this type of insurance than of proper insurance risk management, thus causing a reduction in the level of settled claims in relation to the level of technical and total insurance premiums.

Table 6. RESULTS FOR RIRM AND SCTP RATIOS OF OTHER PROPERTY INSURANCES

<i>YEAR</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>
SCTP	74%	93%	83%	73%	81%
RIRM	47%	57%	49%	44%	44%

Source: authors' calculations, National Bank of Serbia

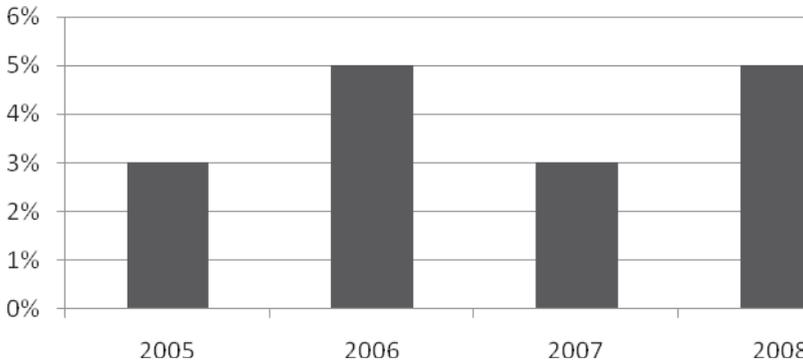
The analysis of other property insurances provides results that represent a balance to the results obtained for the previously analyzed property insurances. They range at a level that shows a growing skill of proper risk management, but also shows that the operating costs are calculated at quite a high level, since the technical premium is 60% of the total premium amount.

The third phase involves implementation of the formulas (3) and (4) in the insurance market in Serbia. The obtained results demonstrate how much the insurance market in Serbia affected the increase of generated profit by successful insurance risk management.

Therefore the impact of insurance risk management on the financial management of insurance companies is analyzed, giving as the final result business performance expressed through generated company profit. Profit is expressed in

percentage compared to the realized premium (formula (3)) and then related to a corresponding RIRM indicator (formula (4)).

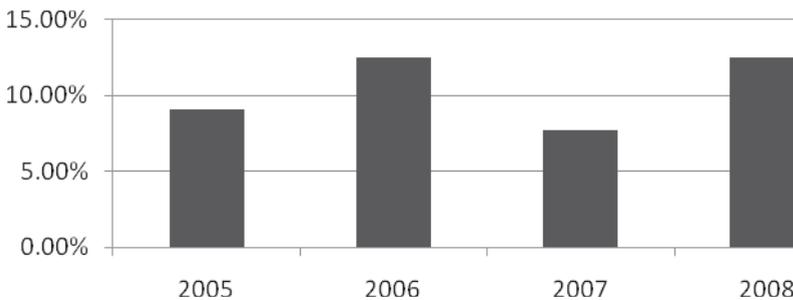
Figure 3. REALIZED PROFIT VERSUS COLLECTED PREMIUM



Source: authors' calculations, National Bank of Serbia

The analysis of the overall insurance market in Serbia shows that during the observed years insurance companies generated profit amounting on average to about 4% in relation to the total premium collected.

Figure 4. EFFECT OF RIRM ON PROFIT REALIZED IN THE SERBIAN INSURANCE INDUSTRY



Source: authors' calculations, National Bank of Serbia

Further analysis shows that the impact of RIRM on the profit generated in 2008 amounted to 12.5%, i.e. with successful insurance risk management insurance companies effected the decrease of incurred and settled insurance claims, thus

releasing a portion of funds to be engaged in the financial market and causing an increase in the realized profit.

5. FINAL CONSIDERATIONS

Insurance companies are facing the challenges of balancing risk exposure with protection of the insured from the consequences of adverse events. In order for insurance companies to meet the challenges they are exposed to and to successfully fulfill their primary role of protecting the insured, they have to be able to comprehensively manage the overall risk portfolio.

With proper management of insurance premiums insurance companies can consolidate and improve their competitive position in the insurance market, and thus fortify the position and level of the share of the insurance sector in the overall financial market.

The results obtained by the analysis lead to the conclusion that, due to proper insurance risk management, the cost of the premium could be reduced without jeopardizing the operations and the positive result achieved. Likewise surplus premiums resulting from proper insurance risk management can be invested in the financial market, thereby further increasing profit.

Reducing the cost of the premium is very important, especially in times of crisis when the solvency of the insured is substantially reduced. By reducing the cost of premiums insurance companies can not only prevent the churn rate of the current insured but even increase their number, while keeping profits at the same level.

fewer insured + larger premiums = profit?

more insured + insurance risk management + smaller premiums = higher profit

Thus fewer insured paying a higher premium can make the same profit for insurance companies as when there are more insured paying a lower premium.

Reducing premiums and increasing the number of the insured would raise citizens' standard of living, since their purchasing power would grow. With an increased workload insurance companies would require an increased number

of employees. This would mean additional jobs for citizens, while for insurance companies it would mean additional justified loading.

With proper cost-benefit analysis and implementation of the Model for management of the risks of insurance and insurance companies, insurance companies could reduce insurance premiums, enhance profits by increasing the number of insured, as well as increase the number of employees without jeopardizing profits, thus participating in the growth of society's living standard and general public prosperity in the country.

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