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CAN INSURANCE COMPANIES CONTROL THEIR FINANCIAL STABILITY? PRACTICAL SOLUTIONS

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Abstract. Taking into account the actual economic situation of the world with numerous financial crisis, the insurance companies should control their financial stability in order to avoid the insolvency or even bankruptcy state. Thus, the insurers should find the adequate methods of substantiating the premium installments, the adequate ways of attracting insurances in order to achieve the right structure of the portfolio and the desired level of financial stability within the company. The present paper proposes mathematical calculation, through which different solution may be given in order to optimize insurance portfolio, determining thus its adequate structure to a certain level of stability planned by the company. The result of elaborated studies and analysis represents an useful instrument for the insured persons, being able to choose the right type of insurance, resting on its comparisons, analysis and conclusions, and for the insurance companies, being meant to improve their subscription and investment activity, as well as the financial stability. The mathematical calculation shown within this paper may be applied in practice and improved.

Key-words: insurance, financial stability, optimize subscription portfolio, mathematical calculation

INTRODUCTION

World economy crosses a tough period, struck by intense tensions, thus, starting with the second half of the year 2007, the financial markets indicate new essential features, influenced by the issues existing on the high-risk mortgage market of the USA (well-known subprime crisis) most of them generating a wrong perception of the investors' risk and a liquidity diminution. In 2008, global financial stability will be confronted as well, with the aversion to risk and with the price increase for raw materials, food and oil.

When insurance companies transfer risks via the capital markets, the insurance industry becomes increasingly interconnected with the banking sector. Most of the risks that the banks are subject to, such as market risk, liquidity risk or operational risk, these risks also arise in the insurance industry. However, it must be pointed out that these individual risks have a significance for and impact on the insurance industry that is very different from that in the banking sector. Furthermore, there are risks, such as

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underwriting risk, which are intrinsic to insurance companies' business, and therefore only apply to the insurance industry (Krenn, Oschischnig, 2003).

However, the insurance market, in full expansion and finalizing the stage of harmonization with the European legislation, was not troubled by these issues existing on the financial markets, due to the insurance features and to their development and integration with external financial markets.

The main evolutions which are essential for a careful observation are the increase of the indemnification installment for non-life insurances and the return dynamics of the personal asset portfolio for life insurances.

An insurance company should undertake the risk assessment taking into account the subscription activity as well as the investment activity. The two activities performed by the insurer interfere, thus the risk administration is accomplished considering the possibilities of substantiating the premiums and the reserves.

It is important for the insurance company to calculate in a very strict manner the premiums owed by the insured persons in order to create an adequate insurance fund necessary to cover the indemnifications, diminishing thus the insolvability risk.

Considering the subscription activity, the return of each portfolio, belonging to the insurance companies, registers an annual growth, but it does not approach the real possibilities of the market. The reasons for this situation are beyond the insurers' control, and they are: the lack of information of the population regarding the insurance products; the reduced purchasing power; the role of the insurance products which is not palpable arousing thus suspicion from the part of the possible insured persons.

The structure of the subscription portfolio should be elaborated by means of the return analysis as well as the financial stability analysis of the insurance activity. Thus, the insurers should find the adequate methods of substantiating the premium

installments, the adequate ways of attracting insurances in order to achieve the right structure of the portfolio and the desired level of financial stability within the company.

Though, the economic situation of the world was influenced by numerous financial crisis, there is no definition accepted unanimously within the specialized literature for the *concept of financial stability*.

Thus, the term of financial stability is defined as: "that distinctive feature of the financial system meant to deal with systemic shocks on a lasting basis and without generating major disturbances, to allot efficiently the financial resources within the economic department and to identify and manage efficiently the risks"; "the economic situation with no manifestation of systemic crisis"; the financial system capacity of "allotting efficiently the economic resources (spatial and transitory ability), managing financial risks by means of an adequate measuring and self-improving whenever the system is affected by external shocks" (NBR, Report of the financial stability, 2008).

The International Association of Insurance Supervisors - IAIS²- establishes the purpose of solvency "to ensure that insurers have the capacity to meet their obligations to pay the present and future claims to policyholders" (International Actuarial Association, 2002, p. 6).

Several independent rating agencies (A. M. Best Company, Moody's Investor Service, Standard & Poor's, Weiss Research, Inc.) evaluate the financial stability of insurance companies. The rating for an individual insurance company is an opinion as to its financial strength and ability to pay claims in the future. Since the 1980s, large numbers of insolvencies have occurred in the insurance sector at irregular intervals, most recently in the past two years.

²Established in 1994, the International Association of Insurance Supervisors (IAIS) represents insurance regulators and supervisors of some 190 jurisdictions.

The present paper views the analysis of the subscription portfolio within an insurance company considering the number of estates comprised by the insurance and the net premium installment in order to obtain a certain level of financial stability. This analysis represents an essential instrument for each insurer as the optimization of the subscription portfolio generates more important returns for the company; it also improves the financial stability and reduces the possibility of insolvency. Using mathematical calculation, different solution may be given in order to optimize this portfolio, determining thus its adequate structure to a certain level of stability planned by the company. Thus, the mathematical calculation shown below within this paper may be applied in practice and improved.

MATERIAL AND METHOD

The solvency represents an important aspect of the operational regulation within an insurance company, thus, for every year of the next period, the manager is concerned with the knowledge of the following aspects: the level of the indemnifications to pay; the level of the indemnifications compared to level of the net premium paid for each estate category; the possibility that the amount of indemnifications exceeds the amount of paid premiums $P_{(D>PnT)}$

The denomination used by the insurers for the insurance premium owed by insured persons is **gross insurance premium** and is made up of two elements: net premium³ (or basic installment) and the supplement or the additional premium⁴.

In principle, the risk factors in the insurance industry can be divided into three groups: underwriting risk, investment risk and nontechnical risk. Underwriting risk

³ ***Net insurance premium*** serves to the creation of the fund needed for the indemnification or the insurance compensation payment. The probability for risk occurrence, as well as the risk manifestation intensity or frequency are considered for the *net premium calculation*

focuses on the nature of the insurance risk that the insurance company is assuming by selling insurance contracts. This includes risks associated with calculating premiums, calculating contingent commissions, operating expenses, number of policy underwritten. (Krenn and Oschischnig, 2003, p. 63).

Compared to the multiannual average of the risk indicators, considered for the net premium substantiation, there are deviations reflected by the dissimilarities between the indemnifications to pay currently and those belonging to the considered period.

In order to establish the value of the difference between the indemnifications which ought to be paid currently and the indemnifications registered during the analyzed period, **mean squared deviation calculations** are used:

$$\sigma = S \cdot \sqrt{n \cdot q(1-q)}, \tag{1}$$

Where:

S – insured sum of an indemnified estate;

n – number of insured estates;

q – probability of damage occurrence;

(1-q) - probability of having no damage occurring

$$\text{For an estate, } q = \frac{P_n/b}{S}, \tag{2}$$

Where: b = number of estates.

⁴ **Supplement or additional premium** covers the insurer’s purchase and administration fees, as well as a return achievement. These fees vary according to the category of insurance products and the ways of distribution applied

$\frac{P_n}{b}$ - net premium for an estate.

For the total amount of estates,
$$q = \frac{Pnt}{S_t} = \frac{\frac{P_n}{b} \cdot n}{S \cdot n}, \quad (3)$$

Where: Pnt – total net premium.

The interval meant for the indemnification variation is given by the following relation:
$$D: [Pnt - \sigma; Pnt + \sigma] \quad (4)$$

The **financial stability level** is given by the value of the K coefficient:

$$K = \frac{\sigma}{Pnt} \quad (5)$$

As the K coefficient is lower, the financial stability level is higher (the deviation is reduced).

The **probability** according to which the insurance company might deal with the situation where the **total amount of indemnifications exceeds the total amount of paid net premiums** is equivalent with the probability according to which the total amount of indemnifications is lower than the total amount of paid net premiums:

$$P_{(D > Pnt)} = \frac{K}{2} \cdot 100 \quad (6)$$

In order to establish the **number of years counted until a favorable year occurs**,

“a” is determined as it follows:

$$a = \frac{100}{\frac{K}{2} \cdot 100} = \frac{1}{P_{(D > Pnt)}} \quad (7)$$

The following conditions are necessary, in order to obtain an **improvement of the financial stability level**:

- a large number of insured estates;
- the increase of the net premium rate;
- the cession to reinsurance.

For knowing if the cession for reinsurance is required, we calculate the maximum insured sum for each insured risk (X), this calculation should be maintained by the insurer, in order to obtain an adequate stability level:

$$X = 2K^2 \cdot Pnt, \quad (8)$$

Where K is the average coefficient of financial stability, for all risks, and Pnt is the net premium within the insurance company.

The risk dispersion process on an international scale is expressed by giving up to certain payment obligations of the insurer toward reinsurers. The insurance companies resort to reinsurance for protecting its clients, the insured persons, whenever the assumed risks are too important. Through reinsurance, an insurance company gets a higher financial stability and, in addition to this, a higher ability of dealing with the new risks. The reinsurance interferes whenever the insured sum allotted to a risk or a group

of risks exceeds the limit that an insurance company is able to sustain without affecting the protection of the other insured persons. One of the reinsurance functions is constrained by the monitoring and control institutions of the insurance market in each country by imposing a minimum level of solvency.

In order to apply this mathematical calculation, we consider an insurance company for which we determine the financial stability level according to the variation of the net premium rate and to the number of insured estates. Thus, the insurance company underwrites 920 estates belonging to a certain category, being insured for an average sum of 23,000.00 euros, with a premium rate of 1.3%.

RESULTS AND DISCUSSIONS

Considering the above presented data, the insurance company is able to create an analysis of its financial stability variation, for different situations that may occur in practice.

1) When the net premium rate increases, for example 1.6%, the financial stability level of the company is changed.

According to the relation (5), the calculation of the coefficient of financial stability indicating the financial stability level can be known:

$$K = \frac{\sigma}{Pnt}$$

For the initial situation,

$$\begin{aligned} K_0 &= \frac{\sigma_0}{Pnt_0} = \frac{S \cdot \sqrt{n \cdot q_0 (1 - q_0)}}{q_0 \cdot S \cdot n} = \frac{23,000 \cdot \sqrt{920 \cdot 0.013 \cdot (1 - 0.013)}}{0.013 \cdot 23,000 \cdot 920} = \\ &= \frac{79,023}{275,080} = 0.287 \end{aligned}$$

When the net premium rate increases, the coefficient of financial stability

becomes:

$$K_1 = \frac{\sigma_1}{Pnt_1} = \frac{S \cdot \sqrt{n \cdot q_1 (1 - q_1)}}{q_1 \cdot S \cdot n} = \frac{23,000 \cdot \sqrt{920 \cdot 0.016 \cdot (1 - 0.016)}}{0.016 \cdot 23,000 \cdot 920} =$$
$$= \frac{87,535}{338,560} = 0.259$$

The change index for the coefficient of financial stability is determined as it

follows:

$$I_K = \frac{K_1}{K_0} \cdot 100 = \frac{0.259}{0.287} \cdot 100 = 90.24\% \Rightarrow \% \Delta_K = |90.24 - 100| = 9.76\%$$

Therefore, the ***increase of the net premium rate*** from 1.3% to 1.6%, ***considering***

the fact that the number of insured estates and the insured value do not change, leads to

a growth of the financial stability level of 9.76%, this percentage is given by the

diminution of the financial stability coefficient, K, from 0.287 to 0.259. Of course, this

situation is recorded only if the market, the competition respectively, allows it.

2) *When the number of insured estates increases with 50%, and the net premium rate of 1.3%, as well as the insured value remain unchanged, the financial stability level of the insurance company withstands modifications.*

The initial number of insured estates, n^0 , was 920; its rise to 50% is expected, obtaining thus n^1 , which becomes 1.380 estates.

The modification of the financial stability coefficient is given by the following formula:

$$\begin{aligned}
 I_K &= \frac{K_1}{K_0} \cdot 100 \Rightarrow I_K = \frac{S \cdot \sqrt{n_1 \cdot q \cdot (1-q)}}{q \cdot S \cdot n_1} \cdot \frac{q \cdot S \cdot n_0}{S \cdot \sqrt{n_0 \cdot q \cdot (1-q)}} \Rightarrow \\
 \Rightarrow I_K^2 &= \frac{n_1 \cdot q \cdot (1-q) \cdot n_0^2}{n_1^2 \cdot n_0 \cdot q \cdot (1-q)} = \frac{n_0}{n_1} = \frac{920}{1,380} = 0.6666 \Rightarrow \\
 \Rightarrow I_K &= \sqrt{0.6666} \cdot 100 = 0.8165 \cdot 100 = 81.65\% \Rightarrow \\
 \Rightarrow \% \Delta_K &= |81.65 - 100| = 18.35\%
 \end{aligned}$$

If the competition does not allow the increase of the net premium rate, the insurance company will make efforts for the growth of the number of customers, raising the number of insured estates. *The underwriting of over 50% of the initial number of*

insured estates leads to an increase of 18.35% of the financial stability level, creating

thus a favorable situation for the insurance company.

3) In order to increase the financial stability level to a certain percentage, for

example 40%, compared to the initial situation, then what is the number of estates

needed to be underwritten?

The increase of the financial stability level with 40%, implies the reduction of

the K coefficient with 60%, resulting I^k , as it follows:

$$I_K = 60\% \Rightarrow I_k = 0.60 \Rightarrow I_K^2 = 0.36 \Rightarrow \frac{n_0}{n_1} = 0.36 \Rightarrow \\ \Rightarrow n_1 = \frac{n_0}{0.36} = \frac{920}{0.36} = 2,555 \text{ estates.}$$

The result can be verified as it follows:

$$K_1 = \frac{\sigma_1}{Pnt_1} = \frac{S \cdot \sqrt{n_1 \cdot q \cdot (1-q)}}{q \cdot S \cdot n_1} = \frac{23,000 \cdot \sqrt{2,555 \cdot 0.013 \cdot (1-0.013)}}{0.013 \cdot 23,000 \cdot 2,555} = \\ = \frac{131,690}{763,945} = 0.172$$

$$\% \Delta_K = \left| \frac{K_1}{K_0} \cdot 100 - 100 \right| = \left| \frac{0.172}{0.287} \cdot 100 - 100 \right| = 40\%$$

For increasing the financial stability level with 40%, the insurance company is forced to increase the number of insured estates about three times, from 920 insured estates, to 2,555 estates.

4) If it is not possible to increase the number of insured estates (the market is saturated or other different reasons), for increasing the financial stability level with 40% compared to the initial circumstances, the insurer may resort to the increase of the net premium rate. *The question is then, which is the level of the net premium rate in order to provide a certain coefficient of the financial stability?*

As in the previous case, the growth of 40% of the financial stability level implies a reduction of 60% of the K coefficient, given by I^k , as it follows:

$$I_K = 60\% \Rightarrow I_k = 0.60 \Rightarrow I_K^2 = 0.36.$$

When only the net premium rate is changed, I^{k^2} becomes:

$$\begin{aligned}
I_K^2 &= \frac{n \cdot q_1 \cdot (1 - q_1) \cdot q_0^2}{q_1^2 \cdot n \cdot q_0 \cdot (1 - q_0)} = \frac{q_0 \cdot (1 - q_1)}{q_1 \cdot (1 - q_0)} = \frac{0.013 \cdot (1 - q_1)}{q_1 \cdot (1 - 0.013)} = 0.36 \Rightarrow \\
&\Rightarrow 0.013 \cdot (1 - q_1) = 0.36 \cdot q_1 \cdot (1 - 0.013) \Rightarrow \\
&\Rightarrow 0.013 = 0.013q_1 + 0.36q_1 - 0.00468q_1 \Rightarrow \\
&\Rightarrow q_1 = 0.0353 = 3.53\%.
\end{aligned}$$

So, *in order to allow the growth of the financial stability level with 40%, the*

insurance company has to increase the net premium rate about three times, from 1.3% to

3.53%, fact that leads to a pretty high value considering the market average. As, there is

the addition which represents the insurer's expenses and profit, the insurance company

is not able to maintain the number of insured estates unchanged on a competitive

market, in terms of an important growth of the net premium rate.

A synthesis of the four cases leads to the following results obtained by an insurance company, as shown in the Table 1.

Analyzing these cases, for a higher financial stability level, the insurer has to make his option for the increase of the net premium rate to a certain level, taking into account the competition on the market, and for the increase of the number of insured estates belonging to the same category of risk.

In practice, the portfolio of insurance companies, for the same category of insured estates, includes several risk groups.

In addition to the initial case mentioned above, belonging to a certain category of risk (for example risk category type I), the insurance company disposes for the same class of three risk categories (see Table 2), thus the manager may adopt decisions according to a series of eventual situations.

In order to establish the financial stability level for the whole insured class, respectively for the entire insurance company, it is important to determine first the financial stability coefficient for the other risk categories (risk category type II and III).

For the risk category type II:

$$K_{II} = \frac{\sigma_{II}}{Pnt_{II}} = \frac{S_{II} \cdot \sqrt{n_{II} \cdot q_{II} (1 - q_{II})}}{q_{II} \cdot S_{II} \cdot n_{II}} = \frac{20,000 \cdot \sqrt{1,200 \cdot 0.011 \cdot (1 - 0.011)}}{0.011 \cdot 20,000 \cdot 1,200} =$$

$$= \frac{72,263}{264,000} = 0.274$$

For the risk category type III:

$$K_{III} = \frac{\sigma_{III}}{Pnt_{III}} = \frac{S_{III} \cdot \sqrt{n_{III} \cdot q_{III} (1 - q_{III})}}{q_{III} \cdot S_{III} \cdot n_{III}} = \frac{15,000 \cdot \sqrt{1,360 \cdot 0.009 \cdot (1 - 0.009)}}{0.009 \cdot 15,000 \cdot 1,360} =$$

$$= \frac{52,242}{183,600} = 0.285$$

The *financial stability level, for the whole class* or for the entire portfolio of the insurance company is determined as it follows:

$$K_T = \frac{\sigma_T}{Pn_T}$$

where: $\sigma_T = \sqrt{\sum_{i=1}^n \sigma_i^2}$; $Pn_T = \sum_{i=1}^n Pnt_i$; i – number of risk categories.

Thus, K_T becomes:

$$K_T = \frac{\sqrt{\sum_{i=1}^n \sigma_i^2}}{\sum_{i=1}^n Pnt_i} = \frac{\sqrt{\sigma_I^2 + \sigma_{II}^2 + \sigma_{III}^2}}{Pnt_I + Pnt_{II} + Pnt_{III}} = \frac{\sqrt{79,023^2 + 72,263^2 + 52,242^2}}{275,080 + 264,000 + 183,600} =$$

$$= \frac{119,146}{722,680} = 0.165$$

The insurance company is able to determine the probability of paying indemnifications more important as value than the paid net premium, applying the relation indicated above.

$$P_{(D>Pnt)} = \frac{K}{2} \cdot 100$$

$$P_{I(D>Pnt)} = \frac{K_I}{2} \cdot 100 = \frac{0.287}{2} \cdot 100 = 14,35\%$$

$$P_{II(D>Pnt)} = \frac{K_{II}}{2} \cdot 100 = \frac{0.274}{2} \cdot 100 = 13,7\%$$

$$P_{III(D>Pnt)} = \frac{K_{III}}{2} \cdot 100 = \frac{0.285}{2} \cdot 100 = 14,25\%$$

$$P_{T(D>Pnt)} = \frac{K_T}{2} \cdot 100 = \frac{0.165}{2} \cdot 100 = 8,25\%$$

In addition, the insurance company is able to determine the *interval of years (a)* to which an unfavorable year is recorded for each risk category, respectively for the *entire portfolio* of the insurance company, taking into account the relation (7).

$$a = \frac{100}{\frac{K}{2} \cdot 100} = \frac{1}{P_{(D>Pnt)}}$$

$$a_I = \frac{100}{14,35} = 6.968 \approx 7 \text{ years}$$

$$a_{II} = \frac{100}{13,7} = 7.299 \approx 7 \text{ years}$$

$$a_{III} = \frac{100}{14,25} = 7.017 \approx 7 \text{ years}$$

$$a_T = \frac{100}{8,25} = 12.121 \approx 12 \text{ years}$$

In order to prevent losses hard to bear, the insurance company may cede a part of the concluded policies to reinsurance. ***Thus, in order to know whether the cession to reinsurance is imperious or not, it is necessary to compare the maximum insured value for each insured risk (X) to the insured sum meant for each risk.*** If the insured sum is lower than the maximum insured sum, the insurer is able to bear alone the insured risks and he is not forced to cede them to reinsurance.

$$X = 2K^2 \cdot Pnt$$

$$X_I = 2K_I^2 \cdot Pnt_I = 2 \cdot 0.287^2 \cdot 275,080 = 45,316$$

$$X_{II} = 2K_{II}^2 \cdot Pnt_{II} = 2 \cdot 0.274^2 \cdot 264,000 = 39,640$$

$$X_{III} = 2K_{III}^2 \cdot Pnt_{III} = 2 \cdot 0.285^2 \cdot 183,600 = 29,826$$

$$X_T = 2K_T^2 \cdot Pnt_T = 2 \cdot 0.165^2 \cdot 722,680 = 39,350$$

We notice that $X_I > S_I (45,316 > 23,000)$, $X_{II} > S_{II}$, $X_{III} > S_{III}$, $X_T > S_T$. Therefore, the insurance company is not forced to cede the policies to reinsurance because it is able to undertake all the insured risks.

Considering the crisis of the external financial markets and the control of financial stability, the AIG, the most important insurer of the world, has announced accountable reductions in assets because of the subprime crisis, of about 40 billion dollars, the most considerable loss in the insurance industry. One of the methods meant to protect the financial stability of the company is the reduction of premiums for the insurance policies of the trade estates, as an attempt to gain market share. Prices for this type of insurances diminished with 11% since June 2007 till June 2008.

Beside the financial issues generated by the subprime crisis in the USA, insurers are confronted with the loss resulting from the damages caused by natural catastrophes.

Thus, during the first semester of 2008, the world insurance industry met costs representing 8.2 billion euros as an effect of natural catastrophes, slightly over the average recorded during the last 10 years. The record-value of losses generated by tornadoes, the weakening of the economy and the diminution of underwritten premiums may also reduce the insurers' profit with 30% during the second trimester of the year 2008.

CONCLUSIONS

In the last few years, the insurance industry has gained significance for financial markets: first, the market for direct insurers and reinsurers has grown in the last twenty years as a result of the increased events of loss, especially in the non-life insurance segment; second, insurance companies have become more important on global financial markets in their role as investors and financial intermediaries.

More, insurance companies not only insure the financial risks of other market participants, but are also increasingly transferring their own risks via the capital markets. As a result, the boundaries between the insurance sector and the banking sector are becoming more and more blurred, in particular because of the numerous financial instruments that have been developed in recent years. (Krenn and Oschischnig, 2003, p. 70-71).

Auto, life, casualty, health or property insurances represent the existing products on the insurance market; they provide protection against risks having the highest financial impact. Thus, the consumers' trust in the financial stability of the insurance sector is extremely important. The European Union proposed an indicator meant to measure the insurance company solvency, denominated as the solvency margin, being available for all the member countries.

In July 2007, the European Commission launched an ample process meant to review the EU regulation regarding the insurances. This process is known as the initiative “Solvency II”. The Solvency II aims to change the norms which prevent the insolvency among the insurers, to create a regulatory framework for insurance companies in the spirit of the Basel Committee, and in that respect it is far more ambitious than all the previous European directives in this field (Bomhard, 2005, p. 54).

Within the scope of “SolvencyII”, it has been provided for that insurers calculate the risk-based own funds needed using a standard model or their own internal risk model. The working groups of insurance supervisors (CEIOPS – Committee of European Insurance and Occupational Pension Supervisors) have been discussing the actual design of this new system since the summer of 2004 and published a first interim report on their discussion – inter alia on the standard model and on requirements for internal models – in November 2005. This report mentions the risk categories to be quantified and points out several possibilities of how these might be reflected (Schubert and Grießmann, 2007).

The Solvency II provides profit for the consumers, as well as for the insurance companies. All the consumers will benefit of the same level of protection, no matter their legal status or the dimension and location of the company which provided their insurance policy. On the other side, the new system offers more flexibility to the insurance companies for calculating the capital need and the possibility of owning more capital in order to approach new fields of activity. There is no doubt that this fact will stimulate the competition on the European insurance market.

This norm Solvency II is currently debated within the European Union Council and the Parliament. Its passage is foreseen for the year 2009, and its transposition into

the legislation of the member States should be finalized before the beginning of the year 2012 (http://ec.europa.eu/internal_market/insurance/solvency/index_en.htm).

The implementation of Solvency II will seek to cede the advantageous elements of these independently created internal models, as well as the regulatory advances, and apply them across the European industry (Butt, 2007).

An analysis of the insurance companies generates the identification of several factors which lead to the insolvency, among the most important factors, we may mention: underwriting and creation of reserves, as well as resolution of unsuitable indemnification requests; financial situation of the reinsurer; improper control of expenses; incorrect transactions undertaken by agents, brokers and reinsurers.

In Romania, the impact produced by the issues existing on the external financial markets over the insurance sector was limited, with no risks over its financial stability. The rate of growth specific to the underwriting activity in Romania was exceeded on the whole market by the evolution of indemnifications with 27.7% compared with 25% registered in the case of the underwritten premiums. This fact may generate negative implications over the financial stability of the insurance sector on middle term (Report of the financial stability, NBR, 2008). This evolution was generated by the auto insurances, because of the competition rise and the high costs meant for repairs, thus the requested premiums were inappropriate, unable to cover the underwritten risks. The penetration rate registered by insurances increased to 1.8% of the GDP at the end of the year 2007, and to 1.67% in 2006, still inferior to the one registered by the Eastern and Central Europe.

The profitability of insurance companies derives from the adequate administration of risks specific to the underwriting activity, as well as from investments. The descendent tendency recorded during the last years continued to be obvious during

the first half of the year 2007, the aggregate net financial exercise on the whole market reaching a negative value of 84 million ROL (around 2.3% of the amount of underwritten gross premiums). According to the Insurance Supervisory Commission, for the year 2007, the insurance companies registered a net loss of around 75 million euros, mostly due to the high indemnifications paid for auto loan insurances.

If there is no way to compensate the negative technical results with the profit resulting from investment activities, the insurance companies should increase the capital in order to maintain their solvency. The main challenge on long and middle term for this financial market remains the premium adjustment, thus an adequate risk management will be provided meant to improve the technical results.

Among the most underwritten category of insurances are the auto insurances (72%), the most dynamic classes being represented by means of land transport insurances, along with financial loss insurances registering positive evolutions of 41.2% and 50.95% respectively, compared to the year 2007. The negative tendency indicated by general insurances is mainly due to the superior rate of growth specific to indemnifications compared to that of underwritten premiums, especially in the case of auto and loan insurances.

The economic development registered in Romania, including the improvement of the financial state of the population and the sense of need for additional protection apart public protection, especially within the retirement and health system, contributed to the growth of underwritten gross premiums assumed by life insurances. The most important records continue to be assigned to life insurances, annuities and additional life insurances (64.1%), especially to life insurances and annuities related to investment funds (33.9%).

Life insurance sector continues to provide a positive evolution, but the increase of purchasing costs, as well as the fees necessary for the penetration on the facultative private pension market tempered the evolution rhythm. The technical result registered by the life insurance sector, mainly resulting from the rise of the underwritten premiums, could be negatively affected by the capital market dynamics by means of diminishing the demand for life insurances including the investment component. These insurances represent a less stable source of returns for the companies, compared to the traditional insurances, due to the direct relation existing between the underwritten premium volume and the financial market evolution.

The aggregate indicators of financial stability maintained their values which provided the insurance company operation on optimum terms (see Figure 1), unaffected by the important volume of indemnifications registered during the last years. The coverage degree of paid net indemnifications, considered as the aggregate of net technical reserves, knew a significant growth in 2007 compared to 2006, due to the evolution of underwritten gross premiums and to the fact that the rate of assigning to reinsurance remained constant, and the general insurance companies also benefited from capital injections.

Life insurances sector continued to develop without registering any deterioration of financial stability indicators (see Figure 2). The evolution of costs share, considered as the aggregate of underwritten net premiums did not lead to a diminution of the rentability segment generated by life insurances, due to the efficient risk administration undertaken by insurance companies.

We consider that this paper, the result of elaborated studies and analysis, represents an useful instrument for the insured persons, thus, they are able to choose the right type of insurance appropriate for their services, resting on its comparisons,

analysis and conclusions, and for the insurance companies, being meant to improve their subscription and investment activity, as well as the financial stability.

Bibliography

1. Alexandru., F., and D. Armeanu, 2003, "Non-life and Life Insurance", (Economica Publishing, Bucharest)

2. Bomhard, N., 2005, "Risk and Capital Management in Insurance Companies", The Geneva Papers on Risk and Insurance—Issues and Practice, 30/2005, 52–59, doi:10.1057/palgrave.gpp.2510008

3. Butt, M., 2007, "Insurance, Finance, Solvency II and Financial Market Interaction", The Geneva Papers on Risk and Insurance—Issues and Practice, 32/2007, 42–45, www.palgrave-journals.com/gpp

4. ECB — European Central Bank, 2007, "EU Banking Sector Stability", November, <http://www.ecb.int/pub/pdf/other/eubankingsectorstability2007en.pdf>

5. International Actuarial Association. 2002, "Report of Solvency — Working Party", Prepared for IAA, Insurance Regulation Committee, February, www.actuaries.org/CTTEES_INSREG/Documents/Solvency_Report_EN.pdf

6. Krenn, G., and U. Oschischinig, 2003, "Systemic Risk Factors in the Insurance Industry and Methods for Risk Assessment", Financial Stability Report 6, 11/2003, The Oesterreichische Nationalbank (OeNB), Central bank of the Republic of Austria, www.oenb.at/en/img/fsr_06_risk_factors_tcm16-9500.pdf, 62-70

7. National Bank of Romania, 2008, "Report of the financial stability", Bucharest, www.bnr.ro/RO/Pubs/RSF/RSF2008.pdf

8. Schubert, T., and G. Griebmann, 2007, "German Proposal for a Standard Approach for Solvency II", The Geneva Papers on Risk and Insurance—Issues and Practice, 32/2007, 133–150, www.palgrave-journals.com/gpp

9. Senior Health Insurance Information Program, SHIIP, 2007, "Understanding Insurance Company Financial Stability Ratings", January 2007, www.shiip.state.ia.us

10. World Economic and Financial Surveys, 2007, "Global Financial Stability Report, Financial Market Turbulence Causes, Consequences, and Policies" Oct. 2007, International Monetary Fund, Washington DC, www.imf.org/External/Pubs/FT/GFSR/2007/02/pdf/text.pdf

Possible cases registered within an insurance company

Table 1

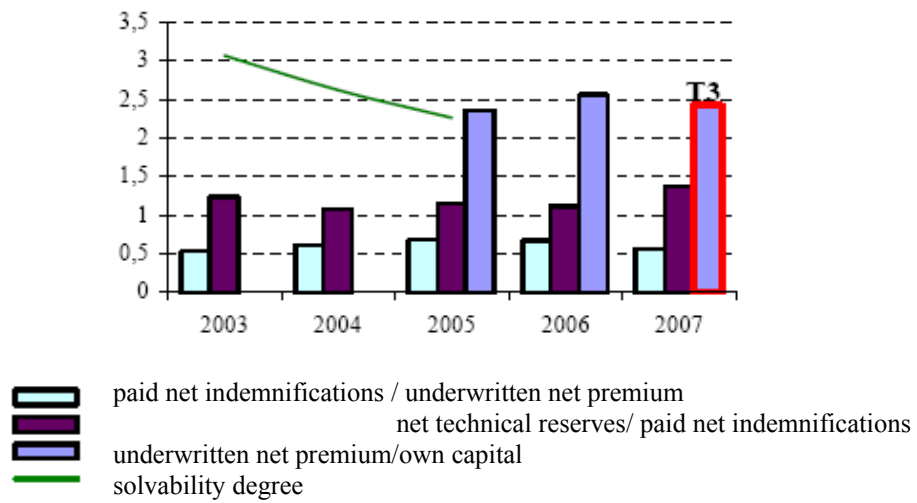
Case	No of insured estates	Net premium rate	Value of the K coefficient
Initial	920	1.3%	0.287
1	920	1.6%	0.259
2	1,380	1.3%	0.234
3	2,555	1.3%	0.172
4	920	3.53%	0.172

The portfolio of an insurance company for a class of three risk categories

Table 2

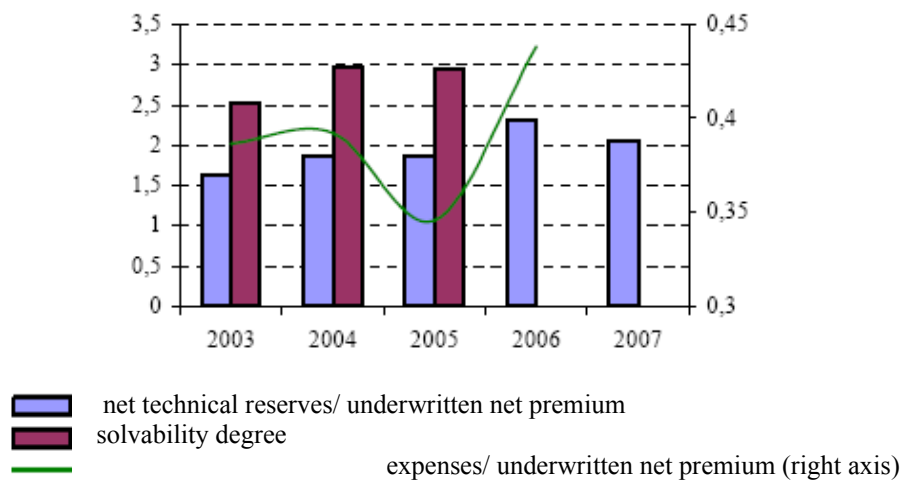
Risk category	No of insured estates	Average insured sum (euro)	Net premium rate (%)
I	920	23,000	1.3
II	1,200	20,000	1.1
III	1,360	15,000	0.9

Figure 1. Financial stability indicators for non-life insurance in Romania



Source: NBR, "Report of the financial stability", 2008, p. 49

Figure 2. Financial stability indicators for life insurance in Romania



Source: NBR, "Report of the financial stability", 2008, p. 49