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ANALYSIS OF FINANCIAL RATIOS OF INSURER FOR RISK MANAGEMENT

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In the given paper some aspects of a use of the financial estimate ratios by the balance data of the insurer acting in terms of the insurance market of Latvia are suggested for considering. For evaluation of the insurer's activity the existing but not obligatory for reporting financial ratios are determined. The financial analysis of the insurance society ratios allows defining the financial stability of a company for future and finding out the financial possibilities. A comparative analysis of the calculated ratios for the leading insurers of Latvia is being performed. Use of the analysis results allows evaluating the financial state of the insurer and making decisions for a certain programme of the insurer's risk management.

Keywords: insurer, ratios, financial, risk, management

1. Introduction

For determination of the insurer's risk management policy it is necessary to evaluate objectively risks taken for insurance that is a rather important fact when realizing insurance especially in terms of the economic crisis. For the present moment insurers face a problem of choice and application of certain methods, because the corresponding complex methods approved by the Commission of Finance Market in Latvia are absent apart from SOLVENCY 2 that is accepted for implementation and that does not cover all amount of financial ratios. In the given paper some aspects of the use of the financial estimate indicators for balance data of the insurer acting in terms of the insurance market of Latvia are suggested for considering. The use of the results of the analysis allows the insurer evaluating the financial state of the insurer and taking decision on a certain programme of the insurer's risk management.

For determination of the insurer's risk management policy it is necessary to evaluate objectively risks taken for insurance that is a rather important fact when realizing insurance especially in terms of the economic crisis. For the present moment insurers face a problem of choice and application of certain methods, because the corresponding complex methods approved by the Commission of Finance Market in Latvia are absent apart from SOLVENCY 2 that is accepted for implementation and that does not cover all amount of financial ratios [1].

In the given paper the financial estimate indicators that are not obligatory for the insurer's reporting and that are not submitted in the Commission of Finance Market in terms of the insurance market of Latvia are suggested for considering [2]. The given paper has been written in compliance with the recommendations of the participants of the 4th session of the 11th International Conference “Reliability and Statistics in Transportation and Communication”(19–22 October, 2011), and actually, it is a continuation of the material presented at the given conference. During a discussion of the presentation the analysis of the calculated ratios aroused an interest and it was recommended to conduct a comparative analysis of the calculated ratios for the insurers of the Latvian insurance market.

Insurance activity as any business activity in terms of the market is unavoidably connected with risks. Insurers, due to the specificity of their activity, are under the influence of two types of risks: risks conditioned by the activity of the insurance organization as an object of the economic activity, and also risks accepted from insureds [3, 4, 5]. For determination of the risk management policy of the insurer it is necessary to evaluate objectively the risks undertaken for insurance that is quite important when realizing insurance especially in terms of the economic crisis [6]. For the creation of the risk management programme of the insurer it is necessary to analyse indices characterizing a status of the insurer in mutual insurance market, to evaluate a structure of portfolio payments [7, 8]. The given indices allow assessing

an adequacy of the insurance reserves calculation, influence of the insurance tariffs change on the investment activity of the insurance organization including an efficiency of the investment policy. For the assessment of the insurer's activity separate financial indices are determined. Indices are determined for the acting leading insurers of Latvia and a comparative analysis of data is performed. As information base for the financial analysis the table of the generalized data serves that has been composed by the author, first of all, on the basis of balance and its supplements, and also the statement of profit and loss for the financial year [9, 10, 11].

For the analysis the following indices will be calculated: the analysis of the business activity; indices of solvency; indices of profitability; indices of financial possibilities. The detailed description of the essence of ratios in the given paper is not submitted due to the limited text size. A description of ratios in rather full amount is suggested in the previous paper of the author and in other sources [8, 12, 13]. The conducted financial analysis of the insurance society allows determining a long term financial stability of the company and to identify the financial possibilities. The main purpose of the financial analysis is to obtain several key (most informative) parameters giving an objective and precise picture of the financial state of the enterprise, its profit and losses, changes in the structure of assets and liabilities, and in settlements with debtors and creditors. At that, the analyst and manager may be interested in both the correct financial state of the enterprise and its nearest and remote perspectives, namely, the expected parameters of the financial state. Also, the analysis of the relative indices (ratios) that is a calculation of relations between separate positions of the statement and positions of various forms of accounting, determination of interconnection of indices. The results are used for decision-making for the risk management of the insurer.

2. Analysis and Tendencies of Insurance Market in Latvia

Risks of contingent losses conditioned by human errors, peculiarities of acts of nature, and, sometimes, by the intentional acts of ill-wishers, may threaten the most reliable objects. But, with the help of various mechanisms these risks may be considerably decreased. One of such mechanisms is insurance. Owing to the risk insurance it is possible to make long-term plans for the enterprise's activity. In situation of the insurance case attachment the risk insurance will serve as a guarantee for a quick obtaining of the financial means for the recovery efforts, and will become a source of funds for the current expenditures during delay of production and will defend a balance of the enterprise. This type of insurance is important for large enterprises where considerable investments are being attracted [7, 8].

In Latvia the insurance market is compiled by the insurance societies, which realize the life insurance and risk insurance. Of 11 Latvian insurance societies dealing with the insurance activity, 8 perform the risk insurance.

For determination of the market share it is necessary to consider a capacity of the market by types of insurance for the year 2011. The market capacity means a general sum of responsibility, which the insurance companies participating in insurance, co-insurance and re-insurance may take proceeding from their financial possibilities. If a capacity of one market is not enough for providing insurance in a complete sum, risk via channels of re-insurance is transferred to other markets. As a result of insurance, especially when it concerns very large and hazardous risks, up to hundred insurance societies take part there.

A share of market characterizes a situation of the insurance societies in the market relatively to their competitors. For this purpose the rating formula 1 is used:

$$D_i = \frac{P}{V_{2011}} * 100\%, \quad (1)$$

where D_i – share of market;

P – gross-premiums, mln. LVL (see supplement 2);

V_{2011} – capacity of insurance market in 2011, mln. LVL.

Let's calculate a share of the market for each insurance society and in Figure 1 there is a share of the market of each insurance society in 2011. The largest share of the market belongs to the BTA (46,9%), Gjensidige Baltic (19,7%) and Balta (15,2%) insurance societies.

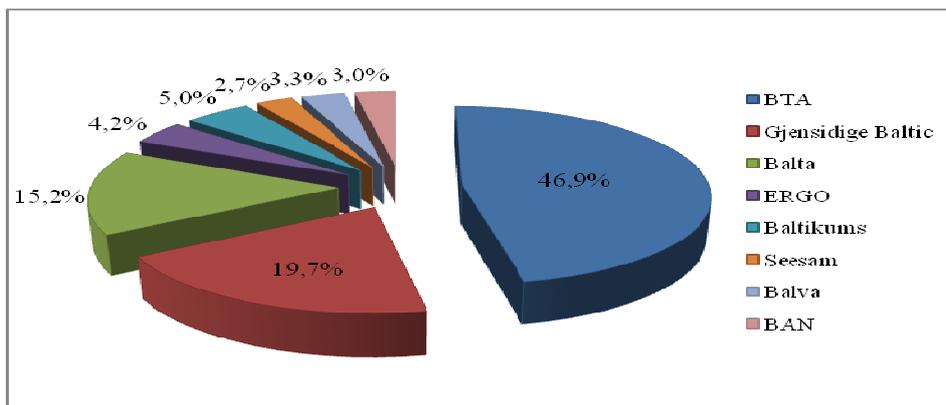


Figure 1. Share of market of insurance societies of Latvia in 2011

An assessment of the competitiveness rate in the insurance market is conducted with the help of the market *concentration* ratio, where the specific weight of gross-premiums is calculated with the help of five or three largest societies, damage in total sum of the signed gross-premiums of all insurance companies in the studied market. A concentration of the market is calculated in percentage terms. This ratio shows five largest companies by gross-premiums in the insurance market. This ratio is determined by the statistical data of the Commission of Finance Market in Latvia. Such data about a distribution of the market shares between companies allows analysing a competitive structure of the market as well. The stronger competition is between the insurance societies, which are the leaders in the market, the greater is their wish to struggle for their places in the market and to increase their shares. The market concentration ratio CR (5 or 3 leaders of the market) represents the percentage ratio of gross-premiums of the societies having the most significant shares in the market relatively to a general amount of gross-premiums and is calculated by formula 2:

$$CR = \frac{\sum^m Q_k}{\sum^m Q_k + \sum^n Q_j}, \tag{2}$$

where CR – market concentration ratio;

Q_k – amount of k -larger insurance society of gross-premiums;

Q_j – amount of j -smaller insurance society of gross-premiums;

m – number of largest (by market share) insurance societies of gross-premiums;

n – number of smaller (by market share) insurance societies of gross-premiums.

When converting in the percentage ratio, the market concentration ratio is equal to 81,8%. The calculated concentration ratio characterizes a share of 3 large insurance organisations in a general amount of the market in the percentage terms. It is considered that if the concentration ratio is approaching 100, then the market is characterized by a high degree of monopolization, if it is a bit higher than zero, then it is possible to view it as a competitive one. The concentration of the risk insurance market for the year 2011 is depicted on Figure 2.

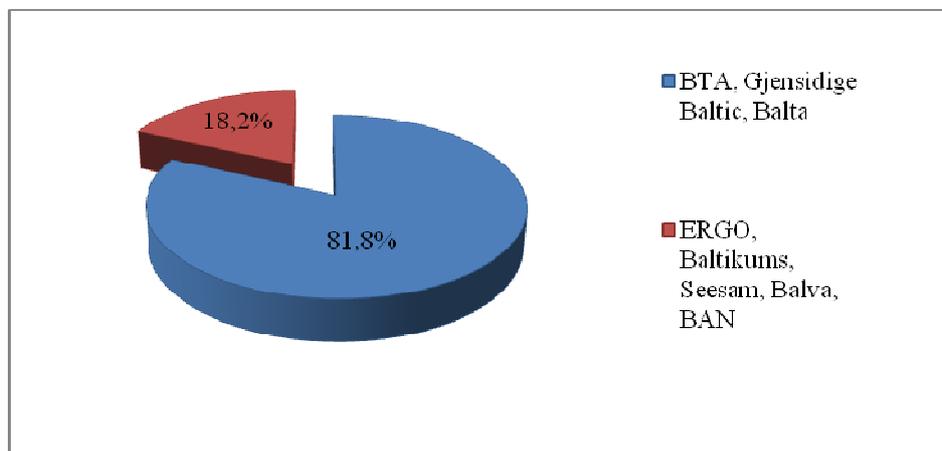


Figure 2. Concentration of risk insurance market of Latvia in 2011

It is efficient to use not only the market concentration ratio calculated by the Commission of Finance Market in Latvia, but, also the Herfindahl-Hirschman *Index Calculator* (HHI) for comparison of the results. [7] When the market concentration ratio shows five or three largest insurance societies, then these ratios characterize a predominance of one or another company. The HHI index is determined as a sum of squares of the market shares of each large society (Formula 3):

$$HHI = \sum^m D_k^2, \quad (3)$$

where HHI – Herfindahl-Hirschman Index;

D_k – share of k -large society in the market;

m – number of large societies.

This index has value 0 (full deconcentration) to 10000 (absolute monopoly). Zero value shows a maximum competition, value 10000 corresponds to the monopoly situation, when there is just one insurer that provides 100 per cent own share in the market. In compliance with various values of the concentration ratios and Herfindahl-Hirschman indices three types of the market are distinguished:

- Type 1. High concentrated market: with $70\% < CR < 100\%$ and $2000 < HHI < 10000$;
- Type 2. Moderate concentrated market: with $45\% < CR < 70\%$ and $1000 < HHI < 2000$;
- Type 3. Low concentrated market: with $CR < 45\%$ and $HHI < 2000$.

When comparing the market concentration ratio $70\% < 81,8\% < 100\%$, when comparing the Herfindahl-Hirschman indices $2000 < 2818,74 < 10000$, the calculated index by ratios of the leading societies BTA, Gjensidige Baltic and Balta refers to the first type of the market – that is the high concentration market.

Importance and influence of the transport insurance market of Latvia – transport insurance in the risk market compiles of the following 10 types of insurance. A share of the transport insurance is determined proceeding from the statistical data of the Commission of Finance Market in Latvia by the following way (Formula 4):

$$D_{TRA} = \frac{P_{TRA}}{V_{2011}} * 100\%, \quad (4)$$

where D_{TRA} – share of transport insurance in the risk market;

P_{TRA} – sum of signed gross-premiums for transport insurance, mln. LVL;

V_{2011} – insurance market capacity in 2011, mln. LVL.

On Figure 3 the per cent composition of the transport insurance and other types of insurance in the insurance market.

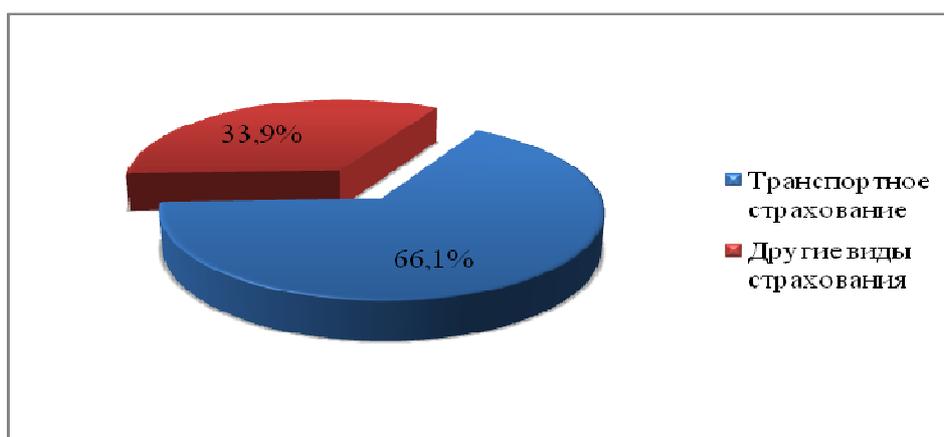


Figure 3. Share of transport insurance in risk market of Latvia (gross-premium)

A share of the transport insurance compiled 66,1% of amount of the total risk insurance market in Latvia in 2011.

3. Analysis of Financial Results of Leading Insurers` Activity

A balance and correspondent supplements of the financial results of insurers that are submitted in the Internet serve as the information base of the financial analysis, first of all.[9, 10, 11]. The summarized balance data about the leaders of the insurance market is presented in Table 1 (composed by the author).

Table 1. Summarized data of balance sheet ratios of insurers of Latvia for 2011

Nr.	Balance sheet ratios of insurer (LVL)	BTA	Gjensidige Baltic	BALTA
1	PSP – obtained insurance premiums	82750000	39 001000	30093377
2	A – assets	118079000	68541000	49116441
3	SK – company`s own capital	29150000	30034000	15675402
4	DI – investment income	2414000	2141000	1058987
5	IFV – investment and financial placements	74064000	41914000	27074571
6	OBS – current assets	2178000	8679000	1066035
7	KO – current liabilities	17991000	2307000	5648935
8	DS – funds	2178000	8679000	1066035
9	OU – paid losses	46196000	2487900	17471061
10	DOU – share of re-insurers in paid losses	2779000	1520000	452859
11	PP – premiums subjected to re-insurance	5897000	927000	138459
12	PVD – business expenditures	12715000	3012000	11846817
13	RI – expenditures for investments	73000	10000	271609
14	Pb – accounting profit	3455000	1443000	-1941837
15	KK – company`s capital	10000000	22500000	4652067
16	SR – insurance reserves	79747000	34370000	28321074
17	PSR – share of re-insurers in insurance reserves	10267000	2607000	4271713

It should be reminded that the detailed description of the used existing ratios 2.1. and 2.2. has been presented in the papers of various authors and in the paper of the author “Problems and Practice of Insurers Risk Management (The 11th International Conference “Reliability and Statistics in Transportation and Communication””, which actually is an integral part of the given paper. [8, 12, 13]. The author uses the existing formulas, calculates the corresponding ratios and conducts a comparative analysis of ratios by the data of the insurance market of Latvia for the leading insurers BTA,BALTA, Gjensidige Baltic.

Business activity analysis [13].

Let us analyse the financial ratios characterizing the business activity (turnover) of the insurance organization, namely:

- turnover of assets is calculated by formula 5:

$$K_1 = \frac{PSP}{A}, \quad (5)$$

where

PSP – obtained insurance premiums thous.lats;

A – assets, thous.lats;

- turnover of own capital, calculated by formula 6:

$$K_2 = \frac{PSP}{SK}, \quad (6)$$

where

SK – own capital of company, thous.lats;

- turnover of invested assets, calculated by formula 7:

$$K_3 = \frac{DI}{IFV}, \quad (7)$$

where

DI – revenues from investments, thous.lats;
 IFV – investments and financial allocations, thous.lats.

The indices of the business activity are generalized in Table 2.

Table 2. Analysis of financial ratios of insurance organization

Ratio	BTA	Gjensidige Baltic	BALTA
K1	0.70	0.57	0.61
K2	2.84	1.30	1.92
K3	0.03	0.05	0.04

From the calculated data it follows that the assets turnover ratio (K1) of the leading insurers is at the equal level, but with BTA it is higher that confirms its leading position among the Latvian insurers. The assets turnover ratios of own capital (K2) also confirm the higher business activity of BTA, the invested asset turnover (K3) is the highest with Gjensidige Baltic and BALTA that speaks about less successful investment activity of the leader of the Latvian market, therefore the given policy will possibly demand a correction.

The main ratios characterizing the business activity of the leading insurers for the fiscal 2011 year are at the comparable level that confirms the higher level of the business activity, efficiency of use of resources, capital and successful management of the insurance society.

3.1. Assessment of financial status of insurance societies

Efficiency ratios

Analysing efficiency (profitability), it is necessary to calculate an efficiency of the insurance organization, profitability of capital [13].

Let us analyze main coefficients characterizing an efficiency of the insurance organization; the following ratios refer to them:

- loss ratio, which is calculated by formula 8:

$$K_4 = \frac{OU - DOU}{PSP}, \quad (8)$$

where

OU – paid losses, thous.lats;
 DOU – share of reinsurers in paid losses, thous.lats;

- reinsurer share ratio, which is calculated by formula 9:

$$K_5 = \frac{PP}{PSP}, \quad (9)$$

where

PP – premiums are to be forwarded to reinsurance, thous.lats;

- expense ratio, which is calculated by formula 10:

$$K_6 = \frac{PVD}{PSP}, \quad (10)$$

where

PVD – expenses for business, thous.lats;

- income level ratio by investments, which is calculated by formula 11:

$$K_7 = \frac{DI - RI}{PSP}, \tag{11}$$

where

RI – expenses by investments, thous.lats;

- investment activity efficiency ratio, which is calculated by formula 12:

$$K_8 = \frac{DI - RI}{IFB}, \tag{12}$$

where

IFB – investments and financial allocations, thous.lats;

- summarize profitability ratio of the insurance organization, which is calculated by formula 13:

$$K_9 = 1 + K_8 - (K_5 + K_6 + K_7). \tag{13}$$

This coefficient reflects the results of the insurance and investment activity of the insurance society and its value must be $K_9 > 0$;

- profitability of capital calculated by formula 14:

$$K_{10} = \frac{Pb}{SK}, \tag{14}$$

where

Pb– balance income, thous.lats.

The given ratio characterizes an efficiency of a use of capital by the insurance society;

- Profitability of the insurance activity is calculated by formula 15:

$$K_{11} = \frac{Pb}{PVD}, \tag{15}$$

where

PVD – expenses for business, thous.lats.

For convenience of the analysis all performed calculations are generalized in Table 3.

Table 3. Analysis of financial ratios of insurance societies

Ratio	BTA	Gjensidige Baltic	BALTA
K4	0.53	0.60	0.57
K5	0.07	0.02	0.5
K6	0.15	0.80	0.39
K7	0.03	0.06	0.03
K8	0.03	0.05	0.03
K9	0.78	0.90	0.57
K10	0.12	0.5	- 0.12
K11	0.27	0.48	- 0.16

The loss ratio (K4) of the insurance market leaders is almost at the same level, at that, the loss ratio up to 60% is considered quite rentable for the insurance activity and does not demand a correction in the policy of the insurer’s activity.

A ratio of re-insurers` share (K5) is rather low 2% to 7%, it speaks about sufficient accumulated amounts of the insurance reserves and own means. The smallest share belongs to Gjensidige Baltic 2%,

but it might be considered as the current policy of the insurer that thinks it possible to keep a big responsibility and a large share of the insurance premium for increasing a size of the insurance reserves.

The expense ratio (K6) reflects a share of the insurer's expenditures in the insurance income – it is the less costly activity that is performed by BTA. An increase of this ratio witnesses about decreasing of rentability and economic efficiency of investments that speaks about possible necessary corrections in the policy of expenses of Gjensidige Baltic (it exceeds the expenses of BTA 5 times and almost 2 times – the expenses of BALTA), if only it is not connected with the expenses for the development of the insurance activity and bears a temporary character.

Investment income level ratio (K7) reflects the level of the insurance society income from the investments of temporary free funds obtained from the insurance activity that speaks about more efficient investment policy of Gjensidige Baltic, because an increase of this ratio speaks about an increase of profitability of the insurance society from investing, and therefore, about an increase of the company's rentability (twice exceeds BTA and BALTA indices). Possibly BTA and BALTA should revise their investment policy, because it is traditionally considered that an insurer earns not from the insurance activity but from investments.

The efficiency ratio of the invested activity (K8) will repeat completely the situation with ratio K7 and the comments are similar.

The summarize profit ratio of the insurance organization (K9) is the highest with Gjensidige Baltic that is confirmed by its economically more efficient investment activity, because just these incomings may compensate enough various costly positions of significant amount.

The return on equity (K10) – this index is used for the characteristics of the capital use efficiency by the insurance society; taking into account the above said the most efficient policy is being implemented by Gjensidige Baltic, and BTA has enough level of efficiency, while BALTA needs a correction of the policy for capital use, otherwise a loss of the leading positions in the insurance market is possible.

The insurance activity rentability (K11) – here comments are similar to the above mentioned related to K10.

Financial possibility ratio [13].

It is necessary to analyse the main ratios characterizing the financial stability of the insurance organization by the beginning and end of the year, namely:

- own capital share ratio in a whole capital of a company, it is calculated by formula 16:

$$K_{12} = \frac{SK}{KK}, \quad (16)$$

where

KK – capital of company, thous.lats;

- bond share ratio in a company's capital, which is calculated by formula 17:

$$K_{13} = \frac{SR}{KK}, \quad (17)$$

where

SR – insurance reserves, thous.lats;

- adequacy ratio for the bonds cover, which is calculated by formula 18:

$$K_{14} = \frac{SK}{SR - PSR}, \quad (18)$$

where

PSR – a share of reinsurers in the insurance reserves, thous.lats.

The ratios are presented in Table 4.

Table 4. Analysis of financial stability ratios

Ratio	BTA	Gjensidige Baltic	BALTA
K12	2.92	1.33	3.37
K13	8.0	1.53	6.09
K14	0.42	0.95	0.65

A ratio of the own capital share in total capital of the company (K12) – the higher is a value of this ratio the higher is the financial steadiness and stability of the insurance society; the data confirms a stable position of the leading insurers and possibilities of fulfilment of bonds.

The ratio of the bond share in the company's capital (K13) – this ratio characterizes a rather complete provision of the leading insurers with the insurance reserves, and the capital adequacy ratio for covering of bonds (K14) – confirms an adequacy of own capital, but an increase of this ratio with Gjensidige Baltic to 0.95 speaks about a decrease of the financial stability as a result of increasing the re-insurance transactions; it is possible that the society passes over risks to re-insurance due to inadequacy of own capital.

4. Conclusions

In the given paper some aspects of a use of the financial estimate ratios by the balance data of the insurer acting in terms of the insurance market of Latvia are suggested for considering. A use of the analysis results allows the insurer evaluating the financial state of the insurer more well-founded and to make decisions for a certain programme of the insurer risk management. Triggering the insurer's risk management and taking into account the technical, operational and legal risks will allow increasing an efficiency and reliability of the insurance activity that is confirmed by the results of the analysis of the calculated indices. The development of main procedures and activities directed to assessment and risk management will be provided by the risk management at all stages while the insurance agreements are in force. A great role is given to the assessment of the financial state of the insurer, because a viability of the insurance mechanism depends on the insurer's ability to perform the contractual obligations.

A share and concentration of the risk market of the insurance societies (8 insurance companies) performing the insurance activity in Latvia in 2011 is determined. This ratio characterizes a predominance, competitiveness and steadiness of the insurance organizations in the risk market. Three leaders of the insurance market of Latvia: BTA Insurance Company SE –, Gjensidige Baltic, Balta and general amount of premiums characterize the insurance market of Latvia as high concentrated. A great role is given to the assessment of the financial state of the insurer, because a viability of the insurance mechanism depends on the insurer's ability to perform the contractual obligations. The analysis of the calculated ratios for the assessment of the financial state of the leading insurers has confirmed their stable financial position and possibilities for bonds fulfilling. It is possible to add a list of ratios by such important indices as the current ratio, acid test ratio etc. The given ratios are not submitted in the official information about the financial results of an insurer that decreases a possibility of the objective data obtaining about an actual financial state of the insurer. The author considers that an inputting of the enlisted above ratios in the official statements would be rational and it coincides with goals of Solvency 2 introduction [1].

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