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The Determinants of Financial Performance in the Romanian Insurance Market

Ana-Maria BURCĂ[1]
Ghiorghe BĂTRÎNCA[2]

[1]*Faculty of Finance, Insurance, Banking and Stock Exchange, Department of Finance, Bucharest University of Economic Studies, Bucharest, Romania,* [1]*E-mail: burca.anamaria@yahoo.com*
[2]*Faculty of Navigation and Naval Transport, Department of Economic Engineering in Transports, Constanta Maritime University, Constanta, Romania,* [2]*E-mail: gbatrinca@imc.ro*

Abstract *The financial analysis of a company is an important tool used by actuaries in the process of decision-making on underwriting and investment activities of the insurance company. The financial performance of insurance companies is also relevant within the macroeconomic context since the insurance industry is one of the financial system' components, fostering economic growth and stability. The financial performance of insurance companies can be analyzed at micro and macroeconomic level, being determined both by internal factors represented by specific characteristics of the company, and external factors regarding connected institutions and macroeconomic environment. This study attempts to analyze the determinants of the financial performance in the Romanian insurance market during the period 2008–2012. According to the final results achieved by applying specific panel data techniques, the determinants of the financial performance in the Romanian insurance market are the financial leverage in insurance, company size, growth of gross written premiums, underwriting risk, risk retention ratio and solvency margin.*

Key words Financial performance, Romanian insurance market, panel data, fixed effects model, random effects model

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1. Introduction

Performance represents a difficult concept, both in terms of definition and quantification. It was defined as output of activity, and the appropriate measure selected to assess corporate performance is considered according to the organization type and objectives of evaluation. Researchers in strategic management have offered a variety of models that can be used to analyze financial performance. Nevertheless, there is no consensus on what constitutes a valid set of performance criteria (Ostroff and Schmidt, 1993).

Profitability, defined as proxy of financial performance, is one of the main objectives of insurance companies' management. Profit is an essential prerequisite for an increasing competitiveness of a company that operates in a globalized market. In addition, profit attracts investors and improves the level of solvency, and thus, strengthens consumers' confidence. The financial analysis of a company is an important tool used by actuaries in the process of decision-making on underwriting and investment activities of the insurance company. The financial performance of insurance companies is also relevant within the macroeconomic context since the insurance industry is one of the financial system' components, fostering economic growth and stability.

The financial performance of insurance companies can be analyzed at micro and macroeconomic level, being determined both by internal factors represented by specific characteristics of the company, and external factors regarding connected institutions and macroeconomic environment.

Identifying the factors that contribute to insurance companies' profitability is useful for investors, researchers, financial analysts and supervisory authorities.

Although there are numerous approaches, generally, insurers' profitability is estimated through the examination of premium and investment income and of the underwriting results or of the overall operating performance. In order to get an accurate picture of insurers' profitability, it is important to consider the total loss or benefit resulting from the operations performed during several years, as any insurance company can have one unprofitable year, which is compensated by a certain form of profitability achieved over several years (Kearney, 2010).

According to experts, the Romanian insurance market is below its potential, but has a significant value of approximately 2 billion €. In terms of profitability as proxy of financial performance, the insurance companies from Romania are facing the combined effects of deteriorating market conditions and financial crisis impact.

2. Literature review

Research papers on performance in insurance industry are scarce, and most of the papers on financial performance are focused on banks. As for performance in insurance industry, most of the studies are recent, being performed after 2000. Among those performed before 2000, we can mention Spiller 1972, Chidambaran *et al*. 1997, Cummins and Weiss 1998, Genetay 1999.

Within the context of rapid growth and development of offshore financial centres, Adams and Buckle (2003) examine the determinants of operational performance in the Bermudian insurance market, during 1993–1997. By applying a model of panel data to 47 insurance companies, the authors highlight the fact that firms with high leverage, low liquidity and reinsurers have better operational performance than those situated to the opposite pole. In terms of underwriting risk, contrary to expectations, the results indicate a positive relationship between this type of risk and insurers' operational performance. Also, it was shown that company size and scope of activities are not factors with explanatory power.

Shiu (2004) analyzes the determinants of the performance of the UK general insurance companies, over the period 1986–1999, by using three key indicators: investment yield, percentage change in shareholders' funds and return on shareholders' funds. Based on a panel data set, the author empirically tested 12 explanatory variables and showed that the performance of insurers have a positive correlation with the interest rate, return on equity, solvency margin and liquidity, and a negative correlation with inflation and reinsurance dependence.

Ćurak *et al*. (2011) examine the determinants of the financial performance of the Croatian composite insurers, between 2004 and 2009. The determinants of profitability, selected as explanatory variables include both internal factors specific to insurance companies and external factors specific to the economic environment. By applying panel data technique, the authors show that company size, underwriting risk, inflation and return on equity have a significant influence on insurers' profitability. The final results indicate that the Croatian insurance market has a low level of development, but it is very dynamic.

Nowadays, insurance is one of the most profitable activities in European economies. Based on this reality, Ikonić *et al*. (2011) analyze the profitability of the Serbian insurance companies by applying the IMF CARMEL methodology. Thus, by determining 4 indicators related to the capital adequacy of insurers, the authors highlight that capital adequacy is vital for a company, as it may generate a good level of profitability. Their analysis indicates that the Serbian insurance market falls into the category of developed markets and that there are good perspectives of evolution.

The integration of a country's financial system within the EU markets significantly affects the profitability of the insurance sector. Based on these major changes, Kozak (2011) analyzes the determinants of the profitability of 25 general insurance companies from Poland during 2002–2009. By applying a regression model, the author notices that the reduction of motor insurance and simultaneously the increase of other classes of insurance, growth of gross written premiums, operating costs reduction, GDP growth and growth of the market share of the companies with foreign ownership have a positive impact on insurance companies during the period of integration. In contrast, providing a wide range of insurance classes affects negatively the profitability and the expenses efficiency.

For a better understanding of the financial performance of the insurance sector from Pakistan, Malik (2011) examines 35 insurance companies, during the interval 2005–2009, by applying a multiple regression with 6 variables. Results emphasize that company size and volume of equity affects positively and

significantly the profitability of insurers, while leverage and loss ratio have a negative influence. The last variable tested, company age, does not affect the profitability of insurance companies.

In countries with less developed economy, the insurance industry does not have an essential role in fostering economic growth due to the weak financial performance of insurers. In order to identify the factors that affect the financial performance of the Jordanian insurance market, Almajali *et al*. (2012) analyze the insurance companies listed on the Amman Stock Exchange during 2002-2007, by applying tests and multiple regressions. Their study shows that, in terms of financial performance, liquidity, leverage, company size and management competence index have a statistical positive effect on insurers. In this context, their recommendations include increasing of assets' number and hiring competent managers.

Life insurance companies manage significant amounts of money and, therefore, supervisory authorities monitor their financial performance. The first study of the financial performance of the Indian life insurers belongs to Charumathi (2012), who took into account a number of 6 independent variables. In India, life insurers' profitability is significantly and positively influenced by company size and liquidity, while leverage, growth of gross written premiums and volume of equity have a negative and significant influence. Moreover, it can be noticed that there is no linkage between underwriting risk and profitability. Concluding, in order to improve the performance of insurance companies, the author provides certain recommendations regarding the supervisory authority and competition in the insurance market, capital market participation, streghtening connections with banks and increasing foreign direct investment.

Bosnia – Herzegovina is another developing country whose insurance sector is examined in terms of performance. Pervan *et al*. (2012) studied the factors that affected the profitability of the insurance companies between 2005 and 2010, in the context of the radical changes that occurred within this industry. By using a dynamic panel model with GMM estimator, the empirical analysis shows a significant and negative influence of the loss ratio on profitability and a significant and positive influence of age, market share and past performance on current performance. It was also found that diversification does not significantly influence profitability, and foreign-owned companies were more efficient.

In developing countries, the importance of the insurance industry as an essential component of the financial system it is not fairly appreciated. In this context, Mehari and Aemiro (2013) assess the impact of the Ethiopian insurance companies' characteristics on their performance. The study includes 9 insurance companies which are analyzed through panel data technique, during 2005–2010. According to the results, company size, loss ratio, tangibility and leverage represent important determinants of insurers' performance, while growth of gross written premiums, age and liquidity have an insignificant statistical power.

3. Data and methodology

This study attempts to analyze the determinants of the financial performance in the Romanian insurance market. For the Romanian insurance market, no study on the insurers' financial performance was performed. Therefore, this analysis improves the understanding of the Romanian insurance market and can provide useful information to insurance companies, investors, experts and supervisory authorities.

Depending on data availability, out of the 41 insurance companies that operated in the Romanian insurance market in 2012, 21 companies were selected; in terms of total market share, these companies accounted approximately 70% in 2012. Annual data were collected from the annual reports of the Insurance Supervisory Commission and from the insurers' financial statements. The econometric model was performed with EViews 7.

In order to determine the factors that influence the financial performance in the Romanian insurance market during the interval 2008 – 2012, 13 explanatory variables were tested: insurance financial leverage, company size, number of years since the company operates in the Romanian market, growth of gross written premiums, equity, total market share, diversification, underwriting risk, investment ratio, reinsurance dependence, retained risk ratio, solvency margin and growth of GDP/capita. As for the dependent variable, the financial performance of the insurance companies is measured through the return on total assets ratio. It is expected that the evolution of the independent variables to explain the evolution of the dependent variable.

The return on total assets ratio represents one of the most used methods of quantifying financial performance. It was developed in 1919 by Dupont and it emphasizes the company's ability to efficiently use its assets. ROA (Return on Assets) is computed as the ratio of net income to total assets.

The insurance financial leverage is calculated as the ratio of net technical reserves to equity, and reflects the potential impact of technical reserves' deficit on equity in the event of unexpected losses. A negative linkage between the insurance financial leverage and the insurers' financial performance is expected.

Company size is computed as decimal logarithm of total assets of the insurance company. A positive linkage between company size and its financial performance is expected, since larger firms have more resources, a better risk diversification, complex information systems and a better expenses management.

As for the number of years since the insurer operates in the Romanian insurance market, a positive linkage between this variable and the insurer's financial performance is expected, because the company gets a certain reputation, a greater experience and designs efficient strategies over the years.

The growth of the gross written premiums is expected to have a positive influence on financial performance as a result of an increased underwriting activity and market share expansion.

With regard to equity measured through decimal logarithm, a positive connection between their volume and insurers' financial performance is expected, given that a greater flow of equity generates a better financial stability and the possibility of expanding the business. In Romania, the Solvency II regime requires insurance companies to hold adequate equity by properly determining their technical reserves, solvency capital and minimum capital.

Total market share shows the position of the insurance company in the insurance market, and it is determined based on the amount of the insurer's gross written premiums. A positive linkage between the total market share and the insurer's financial performance is expected, since a good position in the market provides benefits in terms of expenses, capital, innovation and reputation.

Diversification is measured through Herfindahl index, which is computed as: $I_H = \sum_{i=1}^{n} \left(\frac{PBS_i}{TPBS} \right)^2$ where PBS_i represents the gross written premiums of the business line "i" of the insurer and TPBS represents the total gross written premiums of the insurer. The higher the Herfindahl index is, the higher the business concentration and the lower the diversification is, and vice versa. Diversification is expected to have a positive influence on the insurers' financial performance, because it provides various advantages, such as risk reduction and growth of market power.

The underwriting risk emphasizes the efficiency of the insurer's underwriting activity and it is measured through the loss rate, which is computed as a ratio of gross claims to gross written premiums. A negative connection between the underwriting risk and the insurer's financial performance is expected, since taking an excessive underwriting risk can affect the company's stability through higher expenses.

The investment ratio is computed by dividing investments to total assets, being expected a positive influence of this variable on the financial performance, as investments generate investment income.

The reinsurance dependence is calculated as ratio of gross written premiums ceded in reinsurance to total assets. Insurance companies reinsure a certain amount of the risk underwritten in order to reduce bankruptcy risk in the case of high losses. Although reinsurance improves the stability of the insurance company through risk dispersion, achievement of solvency requirements, risk profile equilibration and growth of the underwriting capacity, it involves a certain cost. Therefore, a negative connection between the reinsurance dependence and the insurer's financial performance is expected.

The retained risk ratio is computed as ratio of net written premiums to gross written premiums, and reflects the proportion of the underwritten risk retained by the insurer, the difference being ceded in reinsurance. This variable is expected to have a positive influence on the insurer's financial performance, as reinsurance involves a certain cost.

The solvency margin is calculated as ratio of net assets to net written premiums, and represents a key indicator of the insurer's financial stability. A positive linkage between this variable and the insurer's financial performance is expected, since the insurer's financial stability is an important benchmark to potential customers.

Regarding the last independent variable, the growth of real GDP/capita, it is a macroeconomic variable, and it is expected to have a positive influence on the insurers' financial performance, since economic growth improves the living standards and the levels of income, increasing the purchasing power of population.

This study tests the following hypotheses, which were building based on the connections between the explanatory variables and the dependent variable:

H1: There is a negative linkage between financial leverage in insurance and return on total assets ratio.

H2: There is a positive linkage between company size and return on total assets ratio.

H3: There is a positive linkage between the number of years since the company operates in the Romanian insurance market and the return on total assets ratio.

H4: There is a positive linkage between growth of gross written premiums and return on total assets ratio.

H5: There is a positive linkage between equity and return on total assets ratio.

H6: There is a positive linkage between total market share and return on total assets ratio.

H7: There is a positive linkage between diversification and return on total assets ratio.

H8: There is a negative linkage between underwriting risk and return on total assets ratio.

H9: There is a positive linkage between investment ratio and return on total assets ratio.

H10: There is a negative linkage between reinsurance dependence and return on total assets ratio.

H11: There is a positive linkage between retained risk ratio and return on total assets ratio.

H12: There is a positive linkage between solvency margin and return on total assets ratio.

H13: There is a positive linkage between growth of real GDP/capita and return on total assets ratio.

Based on these hypotheses, we can build the multiple regression of the econometric model through which the financial performance of the insurance companies in the Romanian market is analyzed:

$$ROA = \alpha_0 + \alpha_1 Lev + \alpha_2 Size + \alpha_3 Age + \alpha_4 GWP + \alpha_5 Equity + \alpha_6 MkShare + \alpha_7 Div + \alpha_8 LossRatio + \alpha_9 Inv + \alpha_{10} \mathrm{Re}ins + \alpha_{11} Risk\mathrm{Re}t + \alpha_{12} Solvency + \alpha_{13} GDP + \varepsilon \quad (1)$$

Where:
ROA – return on total assets ratio;
Lev – financial leverage in insurance;
Size – company size;
Age – number of years since the company operates in the Romanian insurance market;
GWP – growth of gross written premiums;
Equity – equity;
MkShare – total market share;
Div – diversification;
LossRatio – underwriting risk;
Inv – investment ratio;
Reins – reinsurance dependence;
RiskRet – retained risk ratio;
Solvency – solvency margin;
GDP – growth of real GDP/capita.

All the variables were organized in a balanced panel database, which was analyzed by applying models with fixed effects and with random effects.

Panel data comprise data sets consisting of multiple observations for each sampling unit. By using panel data, we can get better estimations and we can test more sophisticated behavioural models, with less restrictive assumptions (Baltagi, 2008).

Working with panel data allows using various techniques to estimate models with specific effects. The cross-sectional or cross-temporal specific effects can be identified and analyzed by using techniques for fixed effects and random effects.

4. Empirical analysis

This part of the study highlights the results achieved by applying the specific analysis techniques of panel data in order to identify the determinants of financial performance in the Romanian insurance market. In the first instance, the group stationarity of each variable is tested through Levin, Lin & Chu test. Since the variable real GDP/capita is constant for all the companies, in its case, the ADF (Augmented Dickey-Fuller) test is applied. From an economic point of view, shocks to a stationary time series are temporary and, over time, the effects of the shocks will be absorbed. The absence of a unit root for the original data was estimated for all the variables, the data being stationary. If the probability is lower than the significance level of 10%, the variable is stationary (Table 1).

Table 1. Group stationarity of variables

Variable	Statistic	Probability
ROA	-30.7068	2.307797538599119e-207
Lev	-176.378	0
Size	-6.11792	4.740271489308685e-10
Age	-	-
GWP growth	-18.7249	1.550529529574853e-78
Loss ratio	-8.29454	5.450396026430489e-17
Equity	-93.1244	0
Market share	-13.5799	2.634855453889327e-42
Diversification	-83.5929	0
Investment	-17.1258	4.761868333360074e-66
Reinsurance	-8.25772	7.424178081798519e-17
Risk retention	-1.91091	0.02800823716090469
Solvency	-91.2361	0
GDP per capita (ADF)	-3.615401	0.0666452169127152

Source: Own estimations with Eviews 7

Table 2 shows the descriptive statistics of each variable, computed based on the 105 observations recorded. It can be noticed that the return on total assets ratio fluctuates between -60.99% and 15.39%, with an average value of -3.69%, due to the fact that certain insurance companies had negative financial results. ROA deviates from the average value with about 13.03%.

Table 2. Descriptive statistics of variables

Variable	Observations	Mean	Standard deviation	Minimum	Maximum
ROA	105	-0.0369	0.1303	-0.6099	0.1539
Lev	105	2.4523	2.7469	0.0019	12.7388
Size	105	8.2051	0.7493	6.9143	9.4048
Age	105	12.2381	5.6322	1	22
GWP growth	105	0.6338	2.901	-0.4925	28.1347
Loss ratio	105	0.3608	0.298	0	1.2758
Equity	105	7.6643	0.5476	6.4946	8.9532
Market share	105	0.03	0.0402	0	0.1549
Diversification	105	0.5067	0.2457	0.1742	1
Investment	105	0.566	0.2712	0.004	0.9398
Reinsurance	105	0.1077	0.1887	0	1.1648
Risk retention	105	0.8113	0.2181	0.0743	1
Solvency	105	8.7777	50.4535	0.8337	520.0484
GDP per capita	105	0.007	0.0456	-0.064	0.075

Source: Own estimation with Eviews 7

Prior to design panel data models, it is necessary to verify the problem of multicollinearity between independent variables. In this respect, the matrix of Pearson correlation coefficients is computed. A value of the Pearson coefficient higher than 0.7 indicates a strong correlation, which can be identified between company size and equity, company size and total market share, equity and total market share, reinsurance dependence and retained risk ratio (Table 3).

Table 3. The matrix of Pearson correlation coefficients

Variable	Lev	Size	Age	GWP	Loss ratio	Equity	Mk share	Div	Inv	Reins	Risk ret	Solvency	GDP
Lev	1	0.6566	0.2181	-0.1309	-0.0854	0.4225	0.3981	-0.089	0.2062	-0.2888	0.4137	-0.1047	0.0251
Size		1	0.5795	-0.1904	0.4352	0.9335	0.8328	-0.3654	0.1053	-0.1545	0.2507	-0.1431	-0.0298
Age			1	-0.275	0.4576	0.6138	0.5806	-0.4756	-0.1767	-0.128	0.2351	-0.2144	-0.0338
GWP growth				1	-0.1739	-0.149	-0.1278	0.1692	0.0858	-0.0641	0.0794	0.0027	-0.0843
Loss ratio					1	0.4941	0.403	-0.5394	-0.1978	0.0516	-0.104	-0.1378	-0.0647
Equity						1	0.8594	-0.358	0.1754	-0.1644	0.2335	-0.0873	-0.0567
Market share							1	-0.4262	-0.0794	-0.074	0.1093	-0.0972	-0.0094
Diversification								1	0.3353	-0.1458	0.1638	0.2164	-0.0803
Investment									1	-0.2134	0.2006	0.1331	-0.0098
Reinsurance										1	-0.8768	-0.0452	0.0117
Risk retention											1	0.0722	-0.029
Solvency												1	0.1403
GDP													1

Source: Own estimations with Eviews 7

As the issue of multicollinearity may affect the final results of the models, the variables equity, total market share and reinsurance dependence will be eliminated.

Table 4. Fixed effects model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.040832	0.486596	-4.194100	0.0001
LEV?	-0.018332	0.007975	-2.298838	0.0243
SIZE?	0.228612	0.060112	3.803114	0.0003
AGE?	-0.000457	0.005680	-0.080430	0.9361
GWP?	-0.008147	0.002669	-3.051985	0.0032
LOSS_RATIO?	-0.101678	0.048133	-2.112433	0.0380
DIV?	0.010003	0.057023	0.175416	0.8612
INVEST?	-0.027209	0.083204	-0.327016	0.7446
RISK_RET?	0.278866	0.098000	2.845573	0.0057
SOLVENCY?	0.000610	0.000159	3.825790	0.0003
GDP	-0.099621	0.148344	-0.671551	0.5040

R-squared = 0.827822; Adjusted R-squared = 0.758020;
F-statistic = 11.85958; Prob(F-statistic) = 0.000000.

Source: Own estimations with Eviews 7

Table 4 shows the results of the fixed effects model. It can be noticed that the variables number of years since the company operates in the Romanian insurance market; diversification, investment ratio and growth of real GDP/capita are not statistically significant, because the probabilities associated to coefficients are higher than the significance level of 10%. The value of R-squared shows that the independent variables explain 82.78% of the entire panel's variations. The model is appropriate because F-statistic has a value of 11.86% at a significance level of 1%.

Table 5. Random effects model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.841411	0.226298	-3.718155	0.0003
LEV?	-0.014830	0.006284	-2.359864	0.0203
SIZE?	0.103133	0.029926	3.446268	0.0009
AGE?	0.002244	0.003288	0.682577	0.4966
GWP?	-0.011426	0.002554	-4.473593	0.0000
LOSS_RATIO?	-0.141981	0.041382	-3.430990	0.0009
DIV?	0.034498	0.047699	0.723244	0.4713
INVEST?	0.026104	0.050794	0.513926	0.6085
RISK_RET?	-0.010992	0.063258	-0.173767	0.8624
SOLVENCY?	0.000414	0.000149	2.774601	0.0067
GDP	-0.185837	0.144363	-1.287291	0.2012

R-squared = 0.343337; Adjusted R-squared = 0.273480;
F-statistic = 4.914811; Prob(F-statistic) = 0.000011.

Source: Own estimations with Eviews 7

As for the presence of cross-sectional effects, Table 5 illustrates the results of the random effects model. It can be noticed that the variables number of years since the company operates in the Romanian insurance market, diversification, investment ratio; retained risk ratio and growth of real GDP/capita are not statistically significant, because the probabilities associated to coefficients are higher than the significance level of 10%. The value of R-squared shows that the independent variables explain 34.33% of the entire panel's variations. The model is appropriate because F-statistic has a value of 4.91% at a significance level of 1%.

Despite the fact that the results of the fixed effects model are better than those of the random effects model, since both models are valid, the Hausman test will be performed. According to Table 6, the results of the fixed effects model are better than those of the random effects model, as the Chi-Sq. value of 37.09 is significant at a significance level of 1%.

Table 6. The Hausman test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	37.085363	10	0.0001

Source: Own estimations with Eviews 7

Since there are no cross-sectional effects, the fixed effects model is appropriate in this case. In order to get relevant results, the model will be re-estimated by eliminating variables statistically insignificant, namely, number of years since the company operates in the Romanian insurance market, diversification, investment ratio and growth of real GDP/capita (Table 7).

Table 7. Fixed effects model re-estimated

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.047366	0.407892	-5.019389	0.0000
LEV?	-0.019566	0.007501	-2.608503	0.0109
SIZE?	0.227831	0.047016	4.845774	0.0000
GWP?	-0.007997	0.002533	-3.157237	0.0023
LOSS_RATIO?	-0.099219	0.045565	-2.177532	0.0325
RISK_RET?	0.276965	0.089010	3.111615	0.0026
SOLVENCY?	0.000599	0.000144	4.169928	0.0001

R-squared = 0.826189; Adjusted R-squared = 0.768252;
F-statistic = 14.26012; Prob(F-statistic) = 0.000000.

Source: Own estimations with Eviews 7

According to Table 7, all variables are statistically significant and explain 82.62% of the entire panel's variations. The model is appropriate because F-statistic has a value of 14.26% at a significance level of 1%.

In order to test the cross-sectional effects, the random effects model will be computed, according to the new number of variables taken into account (Table 8).

Table 8. Random effects model re-estimated

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.905023	0.200049	-4.524005	0.0000
LEV?	-0.016692	0.005994	-2.784747	0.0064
SIZE?	0.115936	0.025089	4.620987	0.0000
GWP?	-0.011166	0.002455	-4.548109	0.0000
LOSS_RATIO?	-0.138941	0.039693	-3.500399	0.0007
RISK_RET?	0.014089	0.059628	0.236283	0.8137
SOLVENCY?	0.000408	0.000139	2.925267	0.0043

R-squared = 0.326368; Adjusted R-squared = 0.285125;
F-statistic = 7.913333; Prob(F-statistic) = 0.000001.

Source: Own estimations with Eviews 7

According to Table 8, the variable retained risk ratio is statistically insignificant. The independent variables explain 32.64% of the entire panel's variations. The model is appropriate because F-statistic has a value of 7.91% at a significance level of 1%.

Obviously, the results of the fixed effects model are superior to those of the random effects model, also confirmed by the Hausman test (Table 9), as the Chi-Sq. value of 38.44 is significant at a significance level of 1%.

Table 9. The Hausman test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	38.445097	6	0.0000

Source: Own estimations with Eviews 7

Therefore, the fixed effects model is relevant to our analysis, confirming the absence of the cross-sectional effects. In this case, the performance of the insurance companies in the Romanian market, measured through the return on total assets ratio, can be illustrated as follows:

$$ROA = -2.047366 + (-0.019566) * Lev + 0.227831 * Size + (-0.007997) * GWP + (-0.099219) * LossRatio + \\ + 0.276965 * RiskRet + 0.000599 * Solvency \quad (2)$$

With regard to the hypotheses tested, H1, H2, H8, H11 and H12 are valid; H4 is rejected, while for the other hypotheses, the related variables do not have significant linkages with the insurers' financial performance. As for the hypothesis H4, the linkage between the growth of gross written premiums and insurers' financial performance is negative, as in some cases, an excessive growth of underwritings generates a higher underwriting risk and the necessity to increase the volume of technical reserves. More, Chen and Wong (2004) argue that the obsession to excessively increase the volume of the gross written premiums may lead to self-destruction, as other important objectives, such as selecting profitable investment portfolios, could be neglected. According to the final results, the determinants of the financial performance in the Romanian insurance market are the financial leverage in insurance, company size, growth of gross written premiums, underwriting risk, risk retention ratio and solvency margin.

5. Conclusions

The financial performance of insurance companies can be analyzed at micro and macroeconomic level, being determined both by internal factors represented by specific characteristics of the company, and external factors regarding connected institutions and macroeconomic environment.

This analysis improves the understanding of the Romanian insurance market and can provide useful information to insurance companies, investors, experts and supervisory authorities.

According to the final results achieved by applying specific panel data techniques, the determinants of the financial performance in the Romanian insurance market are the financial leverage in insurance, company size, growth of gross written premiums, underwriting risk, risk retention ratio and solvency margin. The insurance financial leverage reflects the potential impact of technical reserves' deficit on equity in the event of unexpected losses and has a negative influence on the insurers' financial performance. As for the company size, there is a positive linkage between this variable and the insurers' financial performance, since larger firms have more resources, a better risk diversification, complex information systems and a better expenses management. The linkage between the growth of gross written premiums and insurers' financial performance is not positive, as expected, as in some cases, an excessive growth of underwritings generates a higher underwriting risk and the necessity to increase the volume of technical reserves. The underwriting risk emphasizes the efficiency of the insurer's underwriting activity and it is measured through the loss rate, which is computed as a ratio of gross claims to gross written premiums. The underwriting risk has a negative influence on the insurer's financial performance, since taking an excessive underwriting risk can affect the company's stability through higher expenses. The retained risk ratio has a positive influence on the insurer's financial performance, as reinsurance involves a certain cost. As for the solvency margin, there is a positive linkage between this variable and the insurer's

financial performance, because the insurer's financial stability is an important benchmark to potential customers.

The interpretation of this analysis' results should be made considering the fact that the insurance companies from Romania are facing the combined effects of deteriorating market conditions and financial crisis impact. Nevertheless, despite the fact that the effects of the financial crisis are still present and that the Romanian insurance market is below its potential, the insurance industry has interesting perspectives of evolution.

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