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The Influence of Reinsurance on Insurance Companies' Profitability: Evidence from the Austrian, Croatian and Romanian Insurance Industry

Tomislava Pavic Kramaric[1] and Fran Galetic[2]

Abstract

This paper reveals the influence of insurance premiums ceded to reinsurance on insurance companies' profitability in the 2007-2011 period of the insurance industry in Austria, Croatia and Romania revealing the relationship between the cedants and reinsurers. The analysis conducted using panel analysis shows different results depending on the insurance market being analyzed. Specifically, results of the analysis referring to insurance market in Croatia reveal that insurance companies with higher share of premiums ceded to reinsurance have lower level of profitability measured by ROA indicator. Contrary results were obtained for insurance market in Austria where insurance companies with higher share of premiums ceded to reinsurance reported higher levels of profitability. Moreover, the influence of reinsurance on insurance companies' profitability proved to be insignificant in Romania.

JEL classification numbers: C23, G22
Keywords: Reinsurance, profitability, Austrian, Croatian and Romanian insurance

1 Introduction

Reinsurance is the activity consisting of accepting risks ceded by an insurance company or by another reinsurance company. Insurance companies are obliged to dispose of any risk in excess of its own risk-bearing capability on its own account through reinsurance with companies which conduct active reinsurance operations, i.e. insurance company must reinsure that portion of the risks accepted which, according to the table of maximum covers, exceed the shares in risk compensation.

[1]University of Split, University Department for Professional Studies, Croatia.
[2]University of Zagreb, Faculty of Economics and Business, Croatia.

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According to the [1] reinsurance is a major financial activity as it allows direct insurance companies, by facilitating a wider distribution of risks at worldwide level, to have a higher underwriting capacity to engage in insurance business and provide insurance cover and also to reduce their capital costs; furthermore, reinsurance plays a fundamental role in financial stability, since it is an essential element in ensuring the financial soundness and the stability of direct insurance markets as well as the financial system as a whole, because it involves major financial intermediaries and institutional investors.

For example, [2] stipulates that reinsurance business constitutes the conclusion and execution of reinsurance contracts, whereby the risk in excess of the retention of an insurance company is transferred to a reinsurance company, that is, the activities involving acceptance of the risks ceded by an insurance company. Moreover, according to [3] the insurance companies calculate retention levels in tables of maximum coverage taking account of the total volume of business, insurance premium written for each insurance class, results equalisation, the amount of capital and capital adequacy, return on capital, the probability of a loss event having regard to the structure of the insurance company's portfolio, the amount of loss, business policy of the insurance company.

According to the data from the [4] global premium volume in 2010 amounted to US $ 4,338 billion while 9% of it relating to non-life insurance business was ceded to reinsurance and only 2% of total premium relating to life insurance was ceded to reinsurers pointing out that the reinsurance sector is small compared to the primary insurance sector.

However, as stated in [4], reinsurance is an integral part of the insurance market and plays the vital role regarding the financial stability of the global insurance markets.

Since the reinsurance is not widely investigated topic except in terms of financial stability we wanted to test the influence of the premiums ceded to reinsurance on insurance companies' profitability measured by ROA indicator. The influence of this variable on insurers' profitability is somewhat ambiguous, i. e. it may depend on different facts.

One may suggest that insurance companies which tend to cede higher shares of premiums to reinsurance have worse performance since they are, in that way, losing part of their income. This might be true for smaller or undeveloped insurance markets with activities limited to national boundaries and not exposed to the impact of severe losses. This can describe, for example, insurance markets in Croatia or Romania.

However, developed insurance markets with companies that are conducting insurance business across many countries, especially in the regions with high risk accumulation see reinsurance as a tool for better risk diversification mitigating in that way potential losses. An example of such a market can be insurance market in Austria.

Therefore, we have decided to conduct our analysis on the sample of three countries: Austria - representing old EU member state with well developed insurance market, Romania - new EU member state and Croatia - latest EU member state with relatively small and undeveloped insurance markets, but with great potentials for growth.

This paper consists of four sections. The first section refers to the introductory remarks. Basic characteristics of insurance markets in the observed countries are given in the third section, while the fourth section deals with the empirical analysis. In the final section conclusions are drawn. The references follow after the concluding remarks.

2 Basic Characteristics of Insurance Markets in the Observed Countries

These countries encompassed by the analysis represent the old and the new EU member states, whilst Croatia is latest EU member. Therefore, their insurance markets also differ which can be seen from the tables below.

Table 1: Total premiums' market share by country in the 2007-2011 period

Country/Year	2007	2008	2009	2010	2011
AUSTRIA	1.3%	1.5%	1.5%	1.5%	1.5%
CROATIA	0.1%	0.1%	0.1%	0.1%	0.1%
ROMANIA	0.2%	0.2%	0.2%	0.2%	0.2%

Source: [5]

Austrian insurance market comprises 1.5% of the total European market, while Croatian and Romanian insurance market have 0.1% and 0.2% share respectively. However, the differences between these countries are more noticeable when observing the level of insurance market development indicators. The most common used insurance market development indicators are premiums per inhabitant as well as the premiums to GDP ratio shown in Tables 2 and 3. These indicators suggest significant differences between the observed countries suggesting higher level of development of the Austrian insurance market. According to the levels of both development indicators shown here Croatian insurance market is significantly below the EU average while the Romanian insurance market performed even worse.

Table 2: Average total premiums per capita in the 2007-2011 period

Country/Year	2007	2008	2009	2010	2011
AUSTRIA	1.916	1.949	1.965	1.999	1.958
CROATIA	278	302	289	287	279
ROMANIA	94	113	84	92	86

Source: [5]

Table 3: Total premiums to GDP ratio in the 2007-2011 period

Country/Year	2007	2008	2009	2010	2011
AUSTRIA	5.8%	5.7%	5.9%	5.8%	5.5%
CROATIA	2.8%	2.8%	2.9%	2.8%	2.7%
ROMANIA	1.6%	1.7%	1.5%	1.6%	1.4%

Source: [5]

Figure 1 shows the share of total premium ceded to reinsurance in all three observed countries in the 2007-2011 period. Among the observed countries Croatia is the one with the lowest share of premiums ceded to reinsurance. Austria shows a steady trend with a share of premiums ceded to reinsurance ranging between 17.63% and 19.50%. The dynamics of the share of reinsurance premium in total premium in Romania has been uneven, i. e. in the first three years Romanian insurance companies ceded the highest amount of total premiums to reinsurance, though in the last two years of the observed period this trend has slowed down.

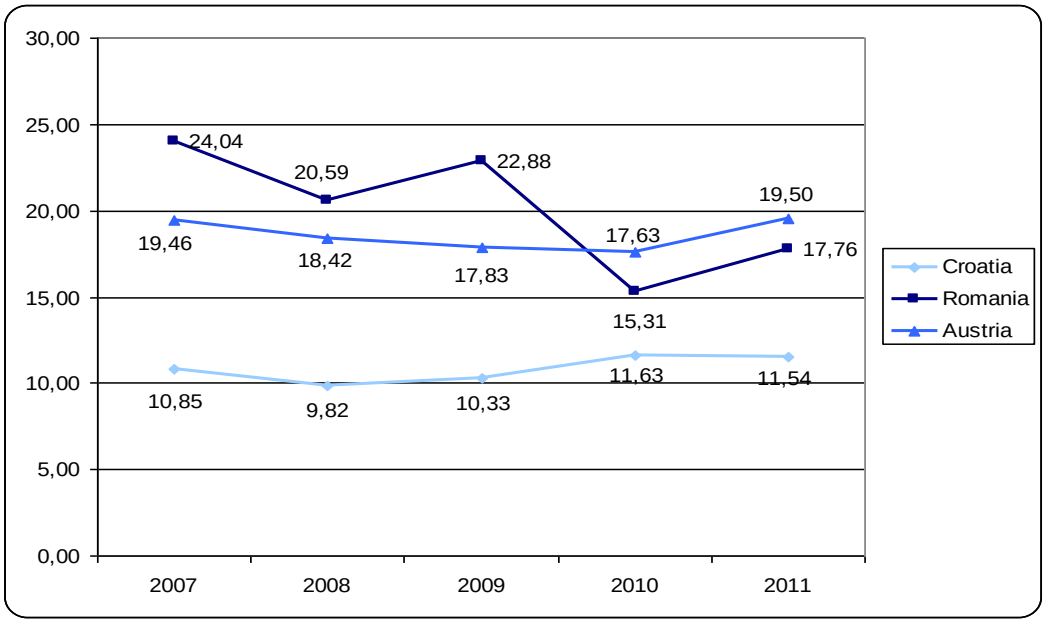

Figure 1: The Share of Reinsurance in Total Premium
Source: authors' calculation based on the data from [6], [7] and [8]

3 Empirical Analysis

Important question when it comes to the observed three countries according to the influence of reinsurance on insurance companies' profitability is whether there is a similar trend in each country. The authors tried to answer this question using the panel analysis, which analyzes, according to [9] and [10], the temporal and special dimension simultaneously. Therefore, the following model is developed:

ROA = c(1)*SHA_RE

where ROA (return on assets) denotes the level of profitability and SHA_RE refers to the share of premium cede to reinsurance.
The results of the empirical analysis referring to the insurance market in Croatia are contained in Table 4. As shown in Table 4, estimated parameters in the model were significant at the level of 10%. The level of significance of 10% was chosen according to [11] and [12]. Moreover, variable *share of reinsurance in total premium* has negative and statistically significant influence on insures' profitability. According to this, the increase in premiums ceded to reinsurance decreases the insurers' profitability. More specifically, the increase of premiums ceded to reinsurance by 1% decreases the insurers' profitability measured by ROA indicator, by 0,080. Similar findings were obtained in [13] and [14].

Table 4: Parameter estimates of dynamic panel model for Croatia

Dependent Variable: ROA
Method: Panel Least Squares
Sample: 2007 2011
Periods included: 5
Cross-sections included: 26
Total panel (unbalanced) observations: 115

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SHA_RE	-0.080761	0.042430	-1.903424	0.0595

R-squared	-0.066701	Mean dependent var	-2.399565
Adjusted R-squared	-0.066701	S.D. dependent var	7.598460
S.E. of regression	7.847784	Akaike info criterion	6.966997
Sum squared resid	7020.999	Schwarz criterion	6.990866
Log likelihood	-399.6023	Hannan-Quinn criter.	6.976685
Durbin-Watson stat	0.194681		

Source: Authors` calculations

The results of the empirical analysis of the influence of the premiums ceded to reinsurance on profitability of Austrian insurance companies are shown in Table 5. All estimated parameters in the model are significant suggesting the suitability of the model. Contrary to the results obtained for Croatia, here we have obtained positive signed of the *share of reinsurance in total premium* variable indicating that insurance companies which cede higher shares of premiums to reinsurance are more profitable. The increase of shares of premiums ceded to reinsurance by one percent will increase the insurers' profitability on the average by 0,039.

Table 5: Parameter estimates of dynamic panel model for Austria

Dependent Variable: ROA
Method: Panel Least Squares
Sample: 2007 2011
Periods included: 5
Cross-sections included: 52
Total panel (balanced) observations: 260
ROA=C(1)*SHA_RE

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.039221	0.006131	6.397272	0.0000

R-squared	-0.047128	Mean dependent var	1.413423
Adjusted R-squared	-0.047128	S.D. dependent var	3.071431
S.E. of regression	3.142973	Akaike info criterion	5.132054
Sum squared resid	2558.475	Schwarz criterion	5.145749
Log likelihood	-666.1670	Hannan-Quinn criter.	5.137560
Durbin-Watson stat	0.898757		

Source: Authors` calculations

The results of the empirical analysis of the influence of the share of premiums ceded to reinsurance on insurance companies' profitability in Romania can be seen in Table 3. Contrary to the results obtained for insurance markets in Croatia and Austria, the model showed the insignificance of this variable on insurers' profitability (p=0,9572). According to the results, it seems that *the share of reinsurance in total premium* variable doesn't influence on insurance companies' profitability in Romania. i. e. the insignificant value of this variable suggests that the influence of reinsurance on insurance companies' profitability hypothesis can be rejected.

Table 6: Parameter estimates of dynamic panel model for Romania

Dependent Variable: ROA
Method: Panel Least Squares
Sample: 2007 2011
Periods included: 5
Cross-sections included: 56
Total panel (unbalanced) observations: 211

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SHA_RE	-0.000710	0.013225	-0.053707	0.9572

R-squared	-0.043098	Mean dependent var	-5.806066
Adjusted R-squared	-0.043098	S.D. dependent var	28.02949
S.E. of regression	28.62712	Akaike info criterion	9.551314
Sum squared resid	172097.6	Schwarz criterion	9.567200
Log likelihood	-1006.664	Hannan-Quinn criter.	9.557736
Durbin-Watson stat	2.066376		

Source: Authors` calculations

4 Concluding Remarks

Reinsurance plays a vital role in financial stability since it allows direct insurance companies, by facilitating a wider distribution of risks at worldwide level, to have a higher underwriting capacity to engage in insurance business and provide insurance cover. Reinsurance operations ensure the stability of direct insurance markets as well as the financial system as a whole, because it involves major financial intermediaries and institutional investors. Therefore, the authors tried to explore how reinsurance affected profitability of insurance markets in Austria, Croatia and Romania in the five year period. These countries were chosen due to the fact that they represent group of underdeveloped as well as the group of developed insurance markets and, of course, due to the data availability. The results of the analysis vary depending on the country being subject of investigation. The relationship between direct insurers and reinsurers in Croatia proved to be significant and negative indicating that insurance companies with higher share of premiums ceded to reinsurance have lower level of profitability. This is in accordance with the assumption that smaller or undeveloped insurance markets with activities limited to national boundaries which not exposed to the impact of severe losses cede lower shares of premiums to reinsurance.

However, contrary results were obtained for insurance market in Austria where insurance companies with higher share of premiums ceded to reinsurance reported higher levels of profitability. This is in accordance with the explanation that developed insurance markets with companies that are conducting insurance business across many countries, especially in the regions with high risk accumulation see reinsurance as a tool for better risk diversification mitigating in that way potential losses.

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