

FOREIGN CAPITAL IMPACT ON THE DEVELOPMENT OF INSURANCE MARKETS IN THE EU COUNTRIES

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Abstract

Insurance markets in particular countries develop under impact of many factors. Those factors can be classified as economics, demographic, social and cultural. The share of foreign insurance companies is treated as a one of the structural factors. The research on this subject was conducted among others by Outrevilee (1996), Li et al. (2007), Bukowski and Lament (2019, 2020). The results of those authors do not confirm clearly impact of foreign capital on the insurance market's development. For the research following hypothesis has formulated: The share of foreign capital in the insurance sector is an important factor of insurance market development in the EU countries. The aim of this paper is an investigation concern how foreign capital influence insurance market's development in the UE countries in the period of 1999-2019. A critical review of literature is undertaken, contents of factors which influence development of insurance markets are analysed, and econometric methods are applied. Annual financial data are utilized from the EIOPA and OECD databases. A panel model is constructed and results of its estimation are analysed. Research carried out shows that the share of foreign capital influences the development of insurance markets in the UE countries in the period of 1999-2019.

Key words: insurance, insurance companies, capital and ownership structure.

JEL Code: G22, G32.

Introduction

Insurance markets in particular countries develop under impact of many factors. Those factors can be classified as economics, demographic, social and cultural. The share of foreign insurance companies is treated as a one of the structural factor. The research on this subject was conducted among others by Outrevilee (1996), Sen and Madheswaran (2013), Li et al. (2007), Bukowski and Lament (2019, 2020). The results of those authors do not confirm clearly impact of foreign capital on the insurance market's development.

The aim of this paper is an investigation concern how foreign capital influence insurance market's development in the UE countries in the period of 1999-2019.

This required answers to the following research questions:

- What factors determine development of insurance markets?
- Does foreign capital influence development of insurance markets in EU countries?

In search of answers, a critical review of literature is undertaken, contents of factors which influence development of insurance markets are analyzed, and econometric methods are applied. A panel model is constructed and results of its estimation are analyzed. As an explained variable, as measure of insurance market's development have been taken ratio of insurance penetration. The development of insurance market is determined by following factors: the share of foreign capital in the total equity capital in the country (in division of life insurance companies and non-life insurance companies), size of insurance market (measured by number of insurance companies), insurance market structure (measured by the share of the life insurance companies in the insurance market and retention rate).

The insurance markets of all the EU countries are studied regardless of the date of joining or leaving the EU – 28 countries. The years 1999 – 2019 are covered. Annual financial data from the following databases are utilized: EIOPA and OECD Statistics. The analysis of the obtained results was carried out using the STATISTICA 12 and GRETL software.

This article is structured as follows: first part of the article presents a review of specialist literature, second part describes research methods, and third part of the article presents model and reports empirical findings.

1 Literature review

The development of insurance markets is assumed to vary across the particular countries and depend on:

- Macroeconomic factors - the degree of development of an insurance market depends on the level of economic development of the country. This is corroborated by, among others, Zheng et al. (2009), Ostrowska-Dankiewicz and Simionescu (2020),
- The size of an insurance market measured with the number of insurance companies. The size drives the development of an insurance market, which is upheld by Outreville (1996), Li et al. (2007), inter alia,

- The structure of an insurance market measured with the shares of life insurance and foreign capital in an insurance market. Research confirms a positive impact of life insurers on market development, e.g., Arena (2008), and of foreign capital on the development of an insurance market, e.g., Carson et al. (2014), Bukowski and Lament (2019, 2020),
- The efficiency of an insurance market, largely dependent on financial results of its companies. This has been studied by, inter alia, Mutairi et al. (2021), Bukowski and Lament (2021),
- The significance of insurance market in the economy of a given country, measured with the density rate (gross written premium/population). The higher a density rate, the greater the development standard of an insurance market. This is upheld by T. Bednarczyk (2012) among others.

Internationalization of insurance services plays an important, both direct and indirect, role in the development process. The direct impact is linked to modification of composition of the supply of funds to an economy: the relative supply of funds increases in the long term, which translates into increased demand for financial instruments, e.g. insurance products. The indirect impact consists in more institutional investors who, by means of innovative solutions, contributed to improved market efficiency by specialization of both financial intermediaries and the corporate sector, among other ways. According to Ma and Pope (2003, pp. 235-248) foreign participation in non-life insurance market influences market competition and market liberalization.

The literature review demonstrates development of insurance markets is determined by a variety of factors, macroeconomic, cultural, and social. Economic (e.g. GNP, employment), demographic (age, gender), and social (education, development of insurance culture) factors are studied most frequently. Involvement of foreign capital in insurance companies is treated as a structural factor of insurance markets development. Research fails to corroborate unambiguously that participation of international capital affects development of insurance markets. This effect normally applies only to life insurance companies – e.g. Outreville (1996, pp. 263-278), Bukowski and Lament (2020, pp. 205-209) and Carson et al. (2014, pp. 1-15). But according Bukowski and Lament (2019, pp. 33-45) Visegrad Group countries with higher foreign investment tend to have a higher insurance penetration in property and personal insurance companies.

Therefore, the research hypothesis was formulated: the share of foreign capital in the insurance sector is an important factor of insurance market development in the EU countries.

2 Research method

The existence of a dependence between the development of insurance markets and the share of foreign capital in the insurance sector is the research problem. A panel model is constructed to explore this dependence in the EU countries. As a explained variable, as measure of insurance market's development have been taken ratio of insurance penetration. The model explains the evolution of insurance penetration rate as dependent on five independent variables: the share of foreign capital in the total equity capital in the country (in division of life insurance companies and non-life insurance companies), size of insurance market (measured by number of insurance companies), insurance market structure (measured by share of the life insurance companies in the insurance market and retention rate). Methods of calculating these variables are set out in Table 1.

Tab. 1: Methods of calculating the variables analysed

Variable	Variable designation	Method of calculating the variable
Insurance penetration rate	$PR_{i,t}$	Gross written premium * 100/ GDP (Gross Domestic Product)
Share of life insurance in total market	$SL_{i,t}$	Gross written premium in life insurance companies *100/Total gross written premium
Retention rate	$RR_{i,t}$	Written premium nett of reinsurance * 100 / Gross written premium
Share of foreign equity capital in life insurance companies	$FL_{i,t}$	Foreign equity capital in life insurance companies *100/Total equity capital in life insurance companies
Share of foreign equity capital in non-life insurance companies	$FNL_{i,t}$	Foreign equity capital in non-life insurance companies *100/Total equity capital in non-life insurance companies
Number of insurance companies	$N_{i,t}$	Number of insurance companies in an insurance market

Source: The author's own compilation.

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The key descriptive statistics that characterise the variables are shown in Table 2.

Tab. 2: Basic statistics concerning the variables studied of the EU insurance markets in 1999-2019

Specification	PR	SL	RR	FL	FNL	N
N importance	588	588	588	588	588	588
Average	6.608479	47.34516	86.30004	45.32445	43.22136	146.8231
Median	5.098500	46.21950	88.35950	39.70900	43.01100	63.00000
Maximum	51.20400	94.28600	113.0700	100.0000	100.0000	777.0000
Minimum	0.753000	12.74800	48.63800	0.00	0.118000	12.00000
Variance	44.77260	367.3550	92.30135	1177.782	917.2013	24997.28
Standard deviation	6.691233	19.16651	9.607359	34.31882	30.28533	158.1053

Source: The authors' own research on STATISTICA 12.

Explanation:

PR – insurance penetration rate – gross written premium/GDP

SL – share of life insurance in total market (life gross written premium/total gross written premium)

RR – retention rate

FL – share of foreign equity capital in life insurance companies

FNL - share of foreign equity capital in non-life insurance companies

N – number of insurance companies

Causes of the large divergences of the variables examined should be sought both in the extensive group of the countries studied and their significant diversity in terms of economic development, the development of insurance markets, and the relatively long research period, which was varied, as proven by the key statistic of the variables studied – hence the high differences between the minimum and maximum values of the variables reviewed.

3 Model and empirical result

After analyzing the data, the backward stepwise regression method was used, eliminating statistically insignificant predictors and collinearity. On this basis, a panel model was constructed in the form of:

$$\ln PR_{i,t} = a_1 + a_2 \ln SL_{i,t} + a_3 \ln RR_{i,t} + a_4 \ln FL_{i,t} + a_5 \ln FNL_{i,t} + a_6 \Delta N_{i,t} + u_{i,t} \quad (1)$$

Where:

$PR_{i,t}$ – insurance penetration rate - gross written premium/GDP

$SL_{i,t}$ – share of life insurance in total market (gross written premium in life insurance companies/total gross written premium)

$RR_{i,t}$ – retention rate (retention of insurance premium)

$FL_{i,t}$ – share of foreign equity capital in life insurance companies

$FNL_{i,t}$ – share of foreign equity capital in non-life insurance companies

$N_{i,t}$ – number of insurance companies

\ln – natural logarithm

Δ - the operator of first differences

$u_{i,t}$ - joint random factor

The performed statistical tests showed that there is autocorrelation of residuals and heteroscedasticity. Therefore, the weighted least squares (WLS) was chosen as the method of estimating the panel model. The obtained model estimation results are presented in Table 3.

Tab. 3: Results of model estimation: weighted least squares (WLS) method, using 560 observations. Included 21 cross-sectional units. Dependent variable: \ln_PR . Weights based on per-unit error variances

Specification	Coefficient	Std. Error	t-ratio	p-value	
Const.	-2.38711	0.0586958	-40.67	<0.0001	***
\ln_SL	1.07961	0.0519780	20.77	<0.0001	***
\ln_RR	-0.691824	0.166456	-4.156	<0.0001	***
\ln_FL	0.0624832	0.0299159	2.089	0.0372	**
\ln_FNL	-0.143044	0.0280926	-5.092	<0.0001	***
d_N	0.00120015	0.000117814	10.19	<0.0001	***
Statistics based on the weighted data:					
Sum squared resid		559.8839	S.E. of regression		1.005296
R-squared		0.678729	Adjusted R-squared		0.675830
F(5, 554)		234.0806	P-value(F)		5.0e-134
Log-likelihood		-794.5475	Akaike criterion		1601.095
Schwarz criterion		1627.063	Hannan-Quinn		1611.235
Statistics based on the original data:					
Mean dependent var		-3.044211	S.D. dependent var		0.811739
Sum squared resid		121.1047	S.E. of regression		0.467547
Test for normality of residual:					
Null hypothesis:			error is normally distributed		
Test statistic:			Chi-square(2) = 17.7745		
			with p-value = 0.000138142		

Source: own research based on GRETL.

Explanation:

*** The variable is significant at the significance level of 0.01,

** The variable is significant at the significance level of 0.05,

* The variable is significant at the significance level of 0.1

The results of model's estimation indicated that all independent variables are statistically significant and the signs are in accordance with theory and hypothesis. The explanatory variables explain the variability of the explained variable in 67.87%, considering the coefficient of determination and in 67.58%, considering the adjusted coefficient of determination. The conducted research shows that the development of insurance markets in the studied countries of the European Union in the years 1999-2019 was statistically significantly influenced by: share of life insurance in total market (variable SL), retention rate (variable RR), share of foreign equity capital in life and non-life insurance companies (variables: FL and FNL) and number of insurance companies on the insurance market (variable N). Thus, foreign capital was an important determinant of the development of insurance markets in the analyzed countries.

Conclusion

A critical review of specialist literature and analysis of the results of the authors' research into insurance markets of the EU countries in 1999-2019 have helped to answer the research question and verify the hypothesis: the share of foreign capital in the insurance sector is an important factor of insurance market development in the EU countries.

The literature review demonstrates development of insurance markets is determined by a variety of factors. Research fails to corroborate unambiguously that participation of international capital affects development of insurance markets. This effect normally applies only to life insurance companies – e.g. Outreville (1996, pp. 263-278), Bukowski and Lament (2020, pp. 205-2019) and Carson et al. (2014, pp. 1-15).

Analysis of the authors' study of the EU countries in 1999-2019 proves development of insurance markets measured with penetration rate is determined by share of foreign equity capital in life and in non-life insurance companies. It can be concluded that the share of foreign capital influences the development of insurance markets.

Our research results strengthens research on development of theories concerning factors of the development the insurance markets. More research is needed, however, examine impact of macro- and microeconomics factors on development of insurance markets operating in different parts of worldwide. This would broaden the scope of research to insurance

markets in different parts of worldwide and improve methodology by selecting diverse metrics of panel model data. This will be the subject of further research by the authors.

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