

INTEGRATION WITH THE EUROPEAN FINANCIAL SYSTEM AND CHANGES OF THE NON-LIFE INSURANCE SECTOR CONCENTRATION IN POLAND

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Abstract. Integration of the Polish financial system with European financial markets was not limited solely to the increase of foreign capital, but influenced the manner of its operations, in particular, market structure and level of competition prevailing on it. In the case of non-life insurance sector, at that time, the share of foreign investors in the sector's primary equity, and their total market share increased. This contributed to lower of the market concentration, and improvement of conditions of the competition. Tests conducted on panel data from 35 companies, including data from non-life insurance and macroeconomic sectors from years 2002 to 2009, indicate that the decrease in market concentration was affected by, among others, the increase in foreign investment in the insurance companies' equity, increase of the market share of medium-sized firms, the growth in sales through the establishment of banks and other financial institutions and reduction of direct sales by the companies' establishment. Furthermore, it was found that such changes of concentration were positively impacted by the favorable state of the economy and especially low inflation level.

Key words: financial system, non-life insurance, market concentration, financial integration, UE

INTRODUCTION

The appropriate level of market concentration has a significant impact on the functioning of the financial institutions as it provides the right conditions for the competition and contributes to raising the quality of service delivery and profitability of companies. As a result, firms become more competitive and able to obtain better financial results while their customers can get higher quality products and services, including the insurance coverage. The idea of integration of Polish financial institutions, including the insurance,

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with the European financial system was to allow the unhindered transfer of investment capital into the Polish market, and transfer of new technologies and management systems. Domestic firms, by including them among institutions of higher technological level and more extensive product range, have been subjected to competition from foreign institutions, but on the other hand, have won the chance to improve their efficiency and profitability of the operations.

During the financial integration, the non-life insurance sector¹ in Poland underwent a strong transition. For many years the sector was dominated by a single state-owned entity, i.e. the Powszechny Zakład Ubezpieczeń (PZU). In recent times a group of medium sized foreign-owned companies emerged covering about half of the insurance market. The weakening of PZU dominance improved conditions for the competition mainly due to the entrance of new firms, both of the domestic and foreign ownership. The integration of the insurance sector was also carried out by an influx of new capital investments. At that time, the share of foreign capital rose in the primary capital of the sector, as well as the participation of foreign-owned companies in the total premium of the non-life insurance sector.

Processes, initiated by the integration with the EU financial markets are not limited to the inflow of investment capital. At that time, there was a substantial change in the scope of offered products and the way of their distribution. In the case of non-life insurance, there was a reduction in the share of the communication insurance with a simultaneous increase in the share of financial insurance. In terms of the distribution of insurance products, the share of direct sales conducted in companies' facilities was significantly reduced, while the share of sales through bank network increased, and more recently in the direct system, i.e. via Internet and telephone. Financial integration was accompanied by changes in Poland's economic situation. In the initial phase, it was a period of strong economic growth. However the economy development during the period of 2008–2009 was subjected to the effects of the global financial crisis, which had a significant impact on the functioning of the insurance sector by reducing its financial results.

The purpose of this study was to identify the degree of concentration of the non-life insurance sector in Poland during the period of its integration into the European financial system; it means the time of harmonization of regulation and next direct accession into the single financial market. The next stage was to determine factors, which significantly affected the level of the sector's concentration. The study used the method of regression for panel data of 35 companies operating in Poland in the years 2002–2009. The results indicate that during analyzing period the level of concentration of the non-life insurance sector has substantially decreased, and the favorable factors are: increase of foreign investment in the sector's primary capital, increase of the market share of medium-sized firms, the growth in sales through the establishment of banks and other financial institutions and reduction of direct sales by the companies' establishment. Furthermore, such changes of concentration were positively impacted by the economic environment with

¹ As the non-life insurance it is understood classes of insurance indicated in the Section II – Other personal insurance and property insurance of the act of 22 May 2003 on insurance activity (Dz.U. No 124, item 1151).

lower inflation influenced by the favorable state of the economy and especially low inflation level.

The rest of the article is structured as follows. The first part presents the results of previously published studies dealing with changes of concentration and competition due to financial integration and consolidation in the European Union and other countries. The second part presents methodology of the study, the third the course of changes undergone by the non-life insurance industry in the years 2002–2009, and in the fourth data and results of the research are discussed. The whole analysis is summarized in the conclusion.

LITERATURE REVIEW

Issues of concentration and competition in the insurance sector, according to the author's knowledge, are not frequent subject of literature analysis. The study usually includes companies operating in the U.S. market and, to a much lesser extent, in Europe. Cummins et al. [1999] observe that the consolidation process, as well as economic growth, improves the financial performance of insurance companies in the U.S. In turn, Cummins and Rubio-Mises [2003], based on analysis of data from life and non-life insurance companies state that consolidation brings only a minimal improvement in the efficiency and competitiveness. They emphasize, however, that the process reduces the operating costs of companies and prices for insurance products.

While examining the effects of integration of insurance industry in the EU during first half of 1990s, on the functioning and performance of national and multinational companies, Cummins and Weiss [2004] claim that freedom to conduct activities in all EU member states contributes to improvement in efficiency of the insurance companies. They stress that this is particularly important for countries that have the ability to acquire foreign capital for further development. In turn, Bikker and Leuvensteijn [2008], by analyzing the results of life insurance in the Netherlands, point out that the process of financial integration in the EU has contributed to the increase of competition, which mainly reflected on the market entry of new small businesses. Ennsfellner, Lewis and Anderson [2004] come to similar conclusions on the basis of analysis of Austrian life and non-life insurance during the financial integration in the EU. They state that this process positively affects the efficiency and competitiveness of Austrian companies and could have similar effects on insurance entities in new member countries of Central-Eastern Europe.

The first assessment of efficiency and competition of the Polish insurance sector carried out by Pawlowska and Kozak [2009], indicate that full integration of the insurance sector at the time of Poland's accession to the euro area should not introduce risk of reduction in its financial results since the level of competition in the sector is comparable to the other EU countries. Kozak [2010], analyzing the processes of consolidation in the non-life insurance sector, notes that during that time insurance companies have decreased the level of effectiveness, which may result from increased operating costs during this period. Also Kozak [2011] based on data on 25 non-life insurance companies for the period of 2002–2009 notes that reduction in the share of motor insurance in the portfolio, with simultaneous increase of other types of insurance, has a positive impact on profitability

and cost-efficiency of insurance companies. However, offering too broad spectrum of classes of insurance negatively impacts its profitability and cost efficiency. Additionally increases of the GDP growth and the market share of foreign-owned companies positively impact profitability of non-life insurance companies during the integration period.

METHODOLOGY

To estimate the degree of dependence of sectoral and macroeconomic factors on the market concentration, the method of regression with fixed effects for panel data was applied. Using this method makes it possible not only to assess dependence in time, it would also take into account the specifics of every insurance company (refer to [Hsiao 1986] and [Greene, 2003]).

Regression equations for panel data as follows:

$$Y_t = F\{X_{it}, Z_t\} + \varepsilon_{it}$$

where: Y_t is the degree of concentration of the sector in year t , X_{it} is a vector of parameters characterizing the insurance company i in year t , Z_t is the vector of variables explaining the structure of non-life insurance sector and the macroeconomic situation in year t , ε_{it} is the random component.

In order to confirm the correctness of the obtained results estimation was carried out in two versions, i.e. for the concentration indices of CR₃ and CR₅.

Definitions of variables are given in Table 1.

Table 1. Definitions of dependent and independent variables
Tabela 1. Definicje zmiennych objaśniających i objaśnianych

Variable	Definition
Degree of the sector concentration	
CR ₅ and CR ₃	Participation of top five (three) insurance companies in premiums of the non-life insurance sector
Insurance companies parameters	
COMMM	Share of communication insurance in the total premiums
GRPRM	Total gross written premiums
INVESTMENT	Financial investments of insurance company
CLASSES	Number of classes of insurance offered by the company
Non-life insurance sector and the macroeconomic parameters	
DIRECTSALES	The Share of sales through its own outlets in the total non-life insurance premiums
BANK	The share of sales through branches of banks in the total non-life insurance premiums
FOREIGN	The share of foreign capital in the capital of the primary life insurance sector
CPI(-1)	The annual rate of CPI inflation delayed by one year

Source: Own elaboration.

Źródło: Opracowanie własne.

POLISH NON-LIFE INSURANCE SECTOR

The non-life insurance sector in Poland has undergone a strong transition during the period of integration with the European Union's financial system. One of the most important aspects of this process is the change in concentration levels of the sector. Maintaining an adequate level of competition and market concentration has a significant impact on the functioning of financial institutions because it creates proper conditions for development and provision of higher quality services. The process of integration of institutions and financial systems is one of the final stages of creating a common economic area that is based on the principle of free movement of capital between entities registered in all participated countries.

During the integration of European financial system in Poland, the structure of the non-life insurance sector has evolved due to be carried out consolidation and market entry of new players. During this time, involvement of foreign investors in the sector increased, which contributed to the growth of the industry premiums from 13 billion PLN in year 2002 to 21 billion PLN in year 2009. Despite the growth of penetration rate, which measures the importance of the insurance sector in the national economy, it reached 1.9% in Poland in year 2009, which is one of the lowest in Europe (Figure 1). The low level

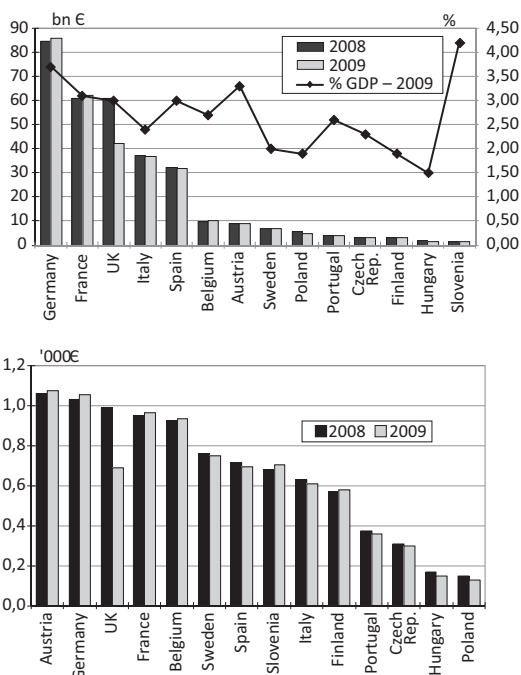


Fig. 1. Gross premiums of the non-life insurance sector: in relation to GDP (upper) and *per capita* (lower panel)

Rys. 1. Składka przypisana brutto w sektorze ubezpieczeń majątkowych: w relacji do PKB (górny panel) oraz na jednego mieszkańca (dolny panel)

Source: CEA, Swiss Re.

Źródło: CEA, Swiss Re.

of development of the Polish non-life insurance sector indicates low values of density coefficient, which measures the development of the insurance sector. In 2009, the average Pole dedicated 128 euros for the purchase of insurance policies, while Hungarian and Czech spent 147 euros and 298 euros, respectively. An average person, living the Western European countries, spent around one thousand euros on the purchase of life insurance policies, this includes countries like Austria – 1,075 euros, Germany – 1,052 euros and France – 964 euros.

Acquisitions, liquidations and entry of new plants have contributed to changes in the population of sector, which in 2002 consisted of 36, and in 2009 of 35 companies (Figure 2). Most of the operating entities during this period took the form of joint stock companies, whereas the mutual insurance societies accounted for only a small group of insurers. The changes in the number of establishments were reflected on the level of concentration of the sector. The rate of participation of top five companies in the sector,

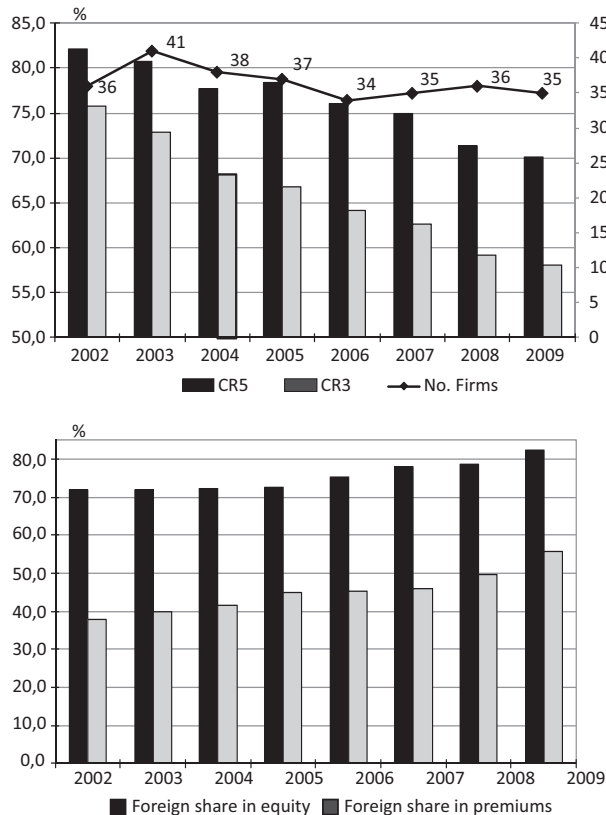


Fig. 2. Market structure (upper panel) and ownership structure (lower panel) of the non-life insurance sector in Poland for the period 2002–2009

Rys. 2. Struktura rynku (górny panel) i struktura własnościowa (dolny panel) sektora ubezpieczeń majątkowych w Polsce w latach 2002–2009

Source: Own calculations based on PFA and PCI data.

Źródło: Obliczenia własne na podstawie danych KNF oraz PIU.

CR₅, declined between years 2002–2009 from 82% to 70%, and the rate calculated for top three companies, CR₃, decreased during the same time period from 76% to 58%. This mainly resulted from the rapid development of medium sized businesses, mostly controlled by foreign investors and weakened the long domination of the biggest insurer PZU. Its market share fell from 56% in 2002 to 38% in 2009. It should be noted that, despite such a high market concentration, market entry of several new insurance companies, both of domestic and foreign capital, as well as a public company and mutual insurance societies, provides a low entry barriers to the market and behaves highly competitive on it.

Integration of the EU financial markets was favorable to the increase of the involvement of foreign capital in non-life insurance companies. This trend was particularly noticeable during the period after Poland joined into the EU. The share of foreign capital in total primary capital of the sector increased from 72% in 2004 to 82% in 2009. The process was conducted through the capitalization of companies that were not yet in operation and the introduction of new entities on the market. The increase was accompanied by the involvement of foreign investors to improve the market position of their control of insurance companies. Their share in total gross written premiums increased from 38% in 2002 to 56% in 2009.

During the financial integration, the non-life insurance companies changed the method of their products distribution. The most common way of selling policies was still sale by private agents (Figure 3). The share of this form of distribution remained relatively stable, slightly exceeding 40%. However, the importance of direct sales at the offices of insurance companies significantly decreased for the benefit of distribution through brokers, and above all by bank networks. The share of sales through banking facilities rose from 0.04% in 2002 to 6% in 2009 and was related, among others, to the development of European financial conglomerates in Poland and the spread of *bancassurance* system, which is a simultaneous sale of banking and insurance services.

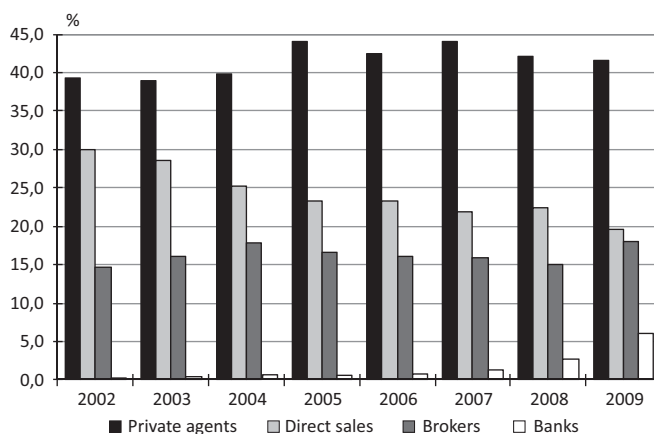


Fig. 3. Channels of non-life insurance distribution in Poland for the period 2002–2009

Rys. 3. Kanały dystrybucji ubezpieczeń majątkowych w Polsce w latach 2002–2009

Source: Own calculations based on PFS and PCI data.

Źródło: Obliczenia własne na podstawie danych KNF oraz PIU.

Another feature of the non-life insurance sector in Poland, characteristic for the period of European integration, is a change of its products' structure. Although communication insurance, with about 60-percent share, is still the most dominant product group, its position noticeably weakened (Figure 4). At the same time, the importance of financial risk protection products has increased. In the period between years 2002 and 2009, the share of financial insurance has increased from 3% to 8%.

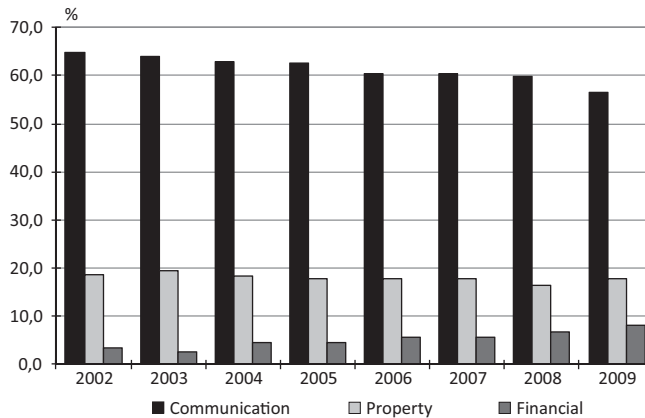


Fig. 4. Product structure of the non-life insurance sector in Poland for the period 2002–2009

Rys. 4. Struktura rodzajowa ubezpieczeń sektora ubezpieczeń majątkowych w Polsce w latach 2002–2009

Source: Own calculations based on PFS and PIU data.

Źródło: Obliczenia własne na podstawie danych KNF oraz PIU.

Functioning and ability to generate profits from the insurance operations during the integration of EU financial system, was highly affected by the country's macroeconomic situation. Preparations for the EU integration were carried out in an economic environment characterized by a low dynamics of GDP growth, which amounted to around 1.3% in year 2002. In turn, during the years 2004–2008, which are the time after joining to the EU, the economy grew at a rapid pace, with an average annual GDP growth of around 5.4%. Again, in 2009 as a result of the impact of the global financial crisis, economic growth slowed to 1.8% per year². Variation of the economic environment is reflected in the values of the technical results on insurance operations, which, both in 2002 and in 2009 reached a negative value, while the highest in the period 2006–2007 (Figure 5). The size of the profit sector was significantly influenced by the share of operating costs. Throughout the analyzed period operating expenses ratio to gross written premiums stood at about 25%, with the largest value of around 28%, reached in 2009, which was the consequence of the global financial crisis.

²More on the impact of the financial crisis on the insurance sector in: Kozak S., 2008. Oddziaływanie kryzysu sub-prime na dochodowość zakładów ubezpieczeń [Impact of the sub-prime crisis on profitability of insurance companies], *Acta Scientiarum Polonorum – Oeconomia* 7 (4), p. 97–106 [in Polish].

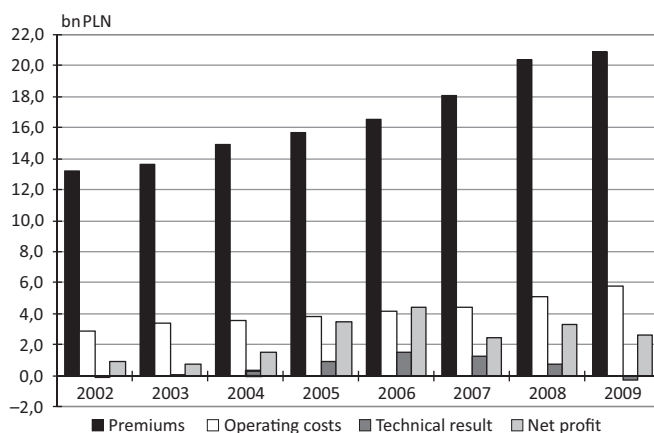


Fig. 5. Financial performance of the non-life insurance sector in Poland for the period 2002–2009

Rys. 5. Wyniki finansowe sektora ubezpieczeń majątkowych w Polsce w latach 2002–2009

Source: Own calculations based on PFA and PIU data.

Źródło: Obliczenia własne na podstawie danych KNF oraz PIU.

DATA AND RESULTS

To examine levels of the non-life insurance market concentration and its determinants, during the period of integration of the Polish insurance sector with the European Union financial system, there were used the data on individual companies published by the Polish Financial Authorities (PFA) and the Polish Chamber of Insurance (PIU)³. The source of macroeconomic data reports are posted on the Central Statistical Office. The study included 35 insurance companies operating between years 2002 and 2009.

To eliminate the impact of inflation on gross written premiums and investments, discount to the price level in 2009 was done using the CPI inflation rate. In turn, due to the fact that usually the macroeconomic conditions influence the operation of enterprises with a certain time delay, the explanatory variable, the CPI inflation rate delayed by one year was used. The range of variables and the ratio of variability are characterized by descriptive statistics in Table 2.

In order to ensure the correctness of the results, estimations for two concentration ratios (CR_5 and CR_3) were performed. In both cases, the regression coefficients describing the directions of the impact of variables on the explanatory variable had a similar character. Values of regression coefficients are included in Table 3.

³The data available on websites, respectively: www.knf.gov.pl/opracowania/rynek_ubezpieczen/index.html and www.piu.org.pl/analizy-i-raporty.

Table 2. Descriptive statistics of the regression equation variables
Tabela 2. Statystyki opisowe zmiennych równania regresji

Variable	Units	Average Value	Standard Deviation	Minimum	Maximum
CR ₅	%	76.24457	3.894965	70.1	82.16956
CR ₃	%	65.63011	5.643491	58.1	75.73058
COMMM	%	61.36104	2.467019	56.6	64.8
GRPRM	PLN '000	5.82×10^7	1.52×10^8	13214.4	8.82×10^8
INVESTMENT	PLN '000	1.15×10^8	4.37×10^8	213290.4	3.15×10^9
CLASSES	–	10.78715	5.098117	0	18
DIRECTSALES	%	24.10133	3.155651	19.55	30.03
BANK	%	1.615622	1.854023	0.04	6.02
FOREIGN	%	75.41165	3.6329	71.9	82.2
CPI(-1)	%	102.6356	1.458434	100.8	105.5

Source: Own elaboration.

Źródło: Opracowanie własne.

Table 3. Regression coefficients of the econometric model
Tabela 3. Współczynniki regresji modelu ekonometrycznego

	CR ₅	CR ₃
COMMM	0.2221421 (1.50)	0.3079912 * (1.74)
GRPRM	-1.03×10^{-8} * (-1.76)	-1.27×10^{-08} * (-1.83)
INVESTMENT	-8.76×10^{-10} (-1.16)	-1.19×10^{-09} (-1.32)
CLASSES	-0.0409517 (-0.77)	-0.0418282 (-0.66)
DIRECTSALES	0.293151 *** (4.70)	0.9773602 *** (13.17)
BANK	-0.376965 *** (-3.47)	0.3248651 *** (2.51)
FOREIGN	-0.455499 *** (-6.11)	-0.6115748 *** (-6.89)
CPI(-1)	0.3244255 *** (5.58)	0.3009821 *** (4.35)
Constant	58.351 *** (4.43)	39.2078 *** (2.51)
F-statistics	348.97	530.01
Number of observations	249	249
R-square	0.7198	0.7858

Notes: ***, **, * – level of significance, respectively, 1%, 5%, 10%; t-statistics in brackets.

Uwaga: ***, **, * – poziom istotności, odpowiednio, 1%, 5%, 10%; w nawiasach wartości statystyki t.

Source: Author's calculation using STATA statistical software.

Źródło: Obliczenia własne przy użyciu programu STATA.

The obtained results show the following dependency:

- **the share of the communication insurance in gross premium** – a positive value of regression coefficient indicates that high level of communication insurance raises the level of the market concentration, while the decline in this share, and broadening of the insurance product portfolio and the rise of insurance classes offered by the companies', including financial insurance, may favor reducing the non-life insurance market concentration,
- **the value of gross written premiums** – a negative value of the regression coefficient suggests that the growth of premiums of medium size insurance companies, mainly controlled by foreign capital, lowers the market concentration, which typically leads to increasing competition in the market,
- **the channels of distribution** – the share of sales by companies own facilities and the share of sales by bank networks affect the level of concentration in the sector in opposite directions. The sales of insurance policies through the establishment of banks and other financial institutions may be particularly beneficial for smaller companies that do not have an extensive network of its own, enabling them to increase sales growth and increase market share and thereby reduce the concentration of the sector,
- **the participation of foreign capital in the core capital of insurance companies** – a negative value of regression coefficient for this variable indicates that an increase in activity of foreign investors, which means the increase in the market foreign owned companies, can contribute to lowering the concentration of non-life insurance sector,
- **the annual inflation rate** – a positive value of the regression coefficient for the level of inflation may suggest that in periods of higher inflation and worsened macroeconomic conditions, enterprises and households may concentrate their interest in larger entities in the sector, expecting that they are safer in during time of crisis. This may lead to the development of primarily large corporations and increasing of concentration of the market.

CONCLUSIONS

1. The integration process of non-life insurance sector with the EU financial system significantly changed the market structure and the functioning of insurance companies.
2. The financial integration is not restricted only to increase of the share of foreign capital in the sector's equity, but also influenced the manner of its operation, in particular, the structure of the market and its level of competition.
3. Integration has helped to reduce the concentration of the non-life insurance sector, which was impacted, among others, by: increased foreign investment in the primary equity of insurance companies, the increase in the share of medium sized companies, as well as a decline in the share of communication insurance and increase in other classes of insurance, mainly the financial insurance.
4. Lowering the sector concentration was favored by the change in the sale systems which restricted the participation of direct sales by the firms' facilities, and simultaneously increase of the share of sales through the establishment of banks and other financial institutions.

5. Economic environment characterized by a lower level of inflation is conducive to lowering the concentration of non-life insurance.

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INTEGRACJA Z EUROPEJSKIM SYSTEMEM FINANSOWYM A ZMIANY KONCENTRACJI SEKTORA UBEZPIECZEŃ MAJĄTKOWYCH W POLSCE

Streszczenie. Integracja polskiego systemu finansowego z europejskimi rynkami finansowymi nie ograniczała się wyłącznie do zwiększania zaangażowanego kapitału zagranicznego, ale oddziaływała na sposób jego funkcjonowania, w szczególności na strukturę rynku i poziom panującej na nim konkurencji. W przypadku sektora ubezpieczeń majątkowych⁴,

⁴Przez ubezpieczenia majątkowe rozumie się ubezpieczenia wymienione w dziale II ustawy o z dnia 22 maja 2003 r. o działalności ubezpieczeniowej (Dz.U. z 2003 r. Nr 124, poz. 1151).

w tym czasie zwiększył się udział inwestorów zagranicznych w kapitałach podstawowych firm ubezpieczeniowych, a także ich całkowity udział kontrolowanych przez nich zakładów w składce sektora. Przyczyniło się to do obniżenia koncentracji rynku ubezpieczeniowego, co sprzyja poprawie konkurencji. Badania prowadzone na danych panelowych z 35 firm oraz danych z sektora ubezpieczeń majątkowych i makroekonomicznych za lata 2002–2009 wskazują, że na obniżenie się koncentracji rynku wpływ miały m.in. wzrost inwestycji zagranicznych w kapitały firm ubezpieczeniowych, wzrost średniej wielkości firm, wzrost udziału sprzedaży poprzez placówki banków i innych instytucji finansowych oraz zmiana systemu sprzedaży polegająca na ograniczeniu udziału bezpośredniej sprzedaży przez placówki własne zakładów. Ponadto stwierdzono, że na taki kierunek zmian koncentracji pozytywny wpływ ma otoczenie gospodarcze charakteryzujące się niższym poziomem inflacji.

Słowa kluczowe: system finansowy, ubezpieczenia majątkowe, koncentracja rynku, integracja finansowa, UE

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