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Ownership Structure and Development of Polish Life Insurance

Companies: Evidence from 1991 to 2004

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**OWNERSHIP STRUCTURE AND DEVELOPMENT OF POLISH LIFE INSURANCE
COMPANIES – EVIDENCE FROM 1991 TO 2004**

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Abstract

The main aim of this paper is to demonstrate the relationship between changes in the ownership structure and the development of life insurance companies in Poland. The simple regression model is used to reveal the relation. The findings of this study, that the solvency ratio, overall indebtedness ratio, premiums retention ratio and profitability ratio on technical activity and sales are positively related with the changes in the share of foreign capital and especially that the claims ratio is negatively related, suggest that foreign investments have greatly influenced the development of the life insurance industry in Poland during the transition period.

JEL classification: G32, C1

Key words: ownership structure, insurance, performance

1. Introduction

The Polish insurance market is still regarded as an emerging market. When we compare it to mature western European markets, for example the British, we can assume that the Polish market is rather small. The number of companies operating is 74 including life insurance and general insurance companies. However, during the last fifteen years of its development the Polish insurance market experienced two huge events, which undoubtedly had a significant impact on its shape and performance.

First was the introduction of a new insurance law in July 1990, the main idea of which was to allow private and foreign investors to invest in the Polish insurance market. Since 1990 they have been able to open insurance companies. The market was dominated by two main State-owned insurance companies (PZU and Warta). July 1990 was the starting point in the creation of a new, free Polish insurance market.

The second huge event was European integration in May 2004, which ultimately opened up the market. At present, according to the three main pillars of integration included in the Treaty of Rome, European companies are able to open branches or subsidiaries in Poland without permission or a license from the Insurance Supervision Committee. Despite this, the market is still rather small but these two events and 15 years of transition allow us to do the research.

Also there are no publications about the impact of the particular type of ownership structure or origin of capital on the development of insurance companies in Poland. The fact that the Polish market is still one of the biggest among the other post-communist countries is also good justification for studying the market. On the other hand, during the transition period the Polish insurance market underwent significant changes, particularly to ownership structure. For example, domestic capital accounts for 75% total subscribed capital in 1991. During the period of 14 years of transition (to 2004) the share of domestic capital decreased to only 27%. The decrease in the level of domestic capital has been gradual. However, we can assume that the change is significant. The growth is very remarkable especially when considering changes in the life insurance sector, where the number of companies increased almost eight and half times in the period of 15 years of transition. The rapid growth in the life insurance world sector has probably contributed to these changes. According to the world's data, the life insurance industry faces rapid growth with the

rate of approximately 30% annually, while the non-life sector has grown approximately at the rate of 19%¹. The life insurance sector faced fast development in Poland as well. The gross written premium during the transition period increased approximately sixty times where non-life insurance in the same period of time increased 10 times². Therefore, it is interesting to answer a question: How have the changes influenced the development of life insurance companies? The main aim of the paper is to find the answer to the above question.

1. The Polish life insurance market – characteristics of foreign investments

The development of the Polish life insurance market can be divided into four main stages, which are the result of historical events.

The first stage was the period of occupation by Russia, Prussia and Austria, ending in 1918. The second stage is the development from 1918 to the Second World War. The third is the period of communism when the insurance sector can be characterised as a centrally-planned State monopoly. As mentioned in the introduction, that period ended in 1990 with the introduction of the new insurance law.

The main aim of the paper is to demonstrate the influence of the changes in foreign investments on the development of life insurance companies. In this paper, the author concentrates on describing the period of economic transformation from 1991 to 2004.

Under communism State-owned companies dominated the insurance market in Poland. In the life insurance sector 98.43% of gross written premiums came from group insurance organised by big State-owned companies. The gross written premiums from individual policies accounted for merely 1.57%. The first sight of a change came in 1984 when the communist government introduced the new insurance act. The act allowed private companies to operate. However, the share of private capital could not exceed 49% in total subscribed capital, in practice giving full control to the State.

¹ M.Browne, K.Kim, An International Analysis of Life Insurance Demand, *The Journal of Risk and Insurance*, Vol.60, No.4 Dec 1993, (616-634)

² Calculation based on data published by the Polish Insurance Supervision Committee. Gross written premiums for life insurance in 1991 was equal to 208 MLN. PLN. and in 2004 the premium was equal to 12 735 MLN. PLZ (in a nominal value)

The situation changed radically after 1990 when the new insurance law was introduced. The new act distinguished the life insurance and non-life insurance market and, for the first time, allowed foreign investors to invest in the Polish insurance industry. A new, competitive market replaced the State monopoly. In the life insurance sector more than nine companies began to operate at this time. The majority of them were international companies. Among them, AIG Life, Nationale Nederlanden Life and Commercial Union. Since 1991 the number of companies licensed to transact life insurance business increased eight and half times. Table 1 shows the number of insurance companies during the period of transition from 1991 to 2004.

Table 1. Number of insurers during the transition period in Poland.

No.	Branch	Year												
		1991	1992	1993	1994	1995	1996	1997	1998	1999	2001	2002	2003	2004
1.	Life	5	6	7	10	13	15	21	24	31	35	36	37	36
2.	Non-Life	19	20	23	26	27	31	32	31	36	33	35	36	37
3.	Total	24	26	30	36	40	46	53	55	67	68	71	73	74

Source: Polish Chamber of Commerce. Insurance report 2002, 2004

The insurance market has been undergoing significant structural changes for the last 14 years. The share of the life insurance gross written premiums in total premiums rose from 14% in 1991 to 46% in 2004. Chart 1 shows changes in insurance market gross written premiums structure according to the type of insurance.

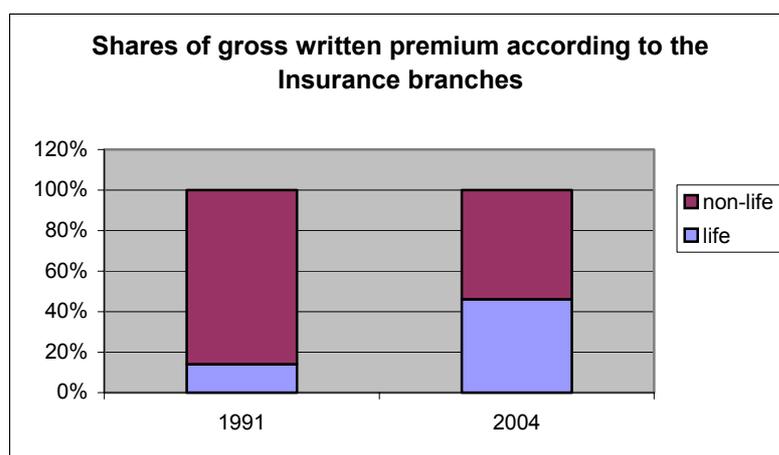


Chart 1. Gross written premium structure according to type of insurance in 1991 and 2004

Source: Author

In the period of 1991 to 2004 the dynamic of the real growth of gross written premiums was 354% in life insurance and higher than in non-life insurance, where the real growth was equal to 68% (real decrease). However, since 2000 stabilisation in both branches is visible.

Accordingly to the increase in the number of insurance companies, the value of subscribed capital grew significantly. At the end of 2004 the total value of the subscribed capital was equal to 4 651 032 842 PLZ and in real terms it was merely three and half times higher than in 1991. The changes in the value of subscribed capital grew faster in terms of life insurance. The value of the capital during the period under discussion increased almost four times in real terms. Table 2 shows the real value of subscribed capital (prices from 2004).

Table 2. Dynamic and changes in terms of real values of subscribed capital of insurance companies.

No.	Branch	Year		Dynamics [%]	Change [%]
		1991	2004		
1.	Life	566 230 763	2 160 916 120	382%	282%
2.	Non-Life	781 576 227	2 490 116 722	319%	219%
3.	Total	1 347 806 990	4 651 032 842	345%	245%

Source: Own calculations.

Also, in the period analysed, the share of foreign capital in subscribed capital grew rapidly to reach the level of 70.32% in the case of life insurance. Among the 36 life insurance companies operating in 2004, there were 30 with foreign capital and only six with a majority of domestic. The life insurance companies with foreign capital account for 76.13% in total life insurance gross written premiums. The chart below shows the changes in ownership structure during the period analysed.

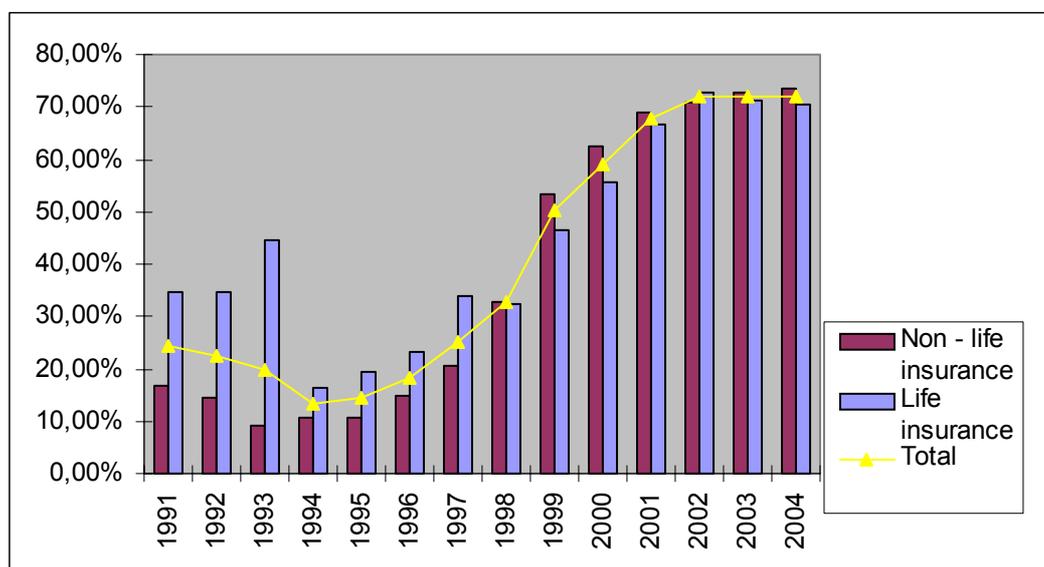


Chart 2. Changes in insurance industry ownership structures.

Source: Author.

The most dynamic period of growth in foreign investments was by the end of the 1990s. Probably due to the global economic decrease and national economic recession, the Polish life insurance market entered a period of growth stabilisation after 10 years of dynamic and fast development to 2002. Even in 2004, the level of foreign capital decreased. However, the decrease was not significant. It accounts for

3.9% of total value of foreign investments. Table 3 shows the dynamic of changes of a nominal value of foreign capital in the case of the life insurance market.

Table 3. Dynamic of changes of foreign capital in life insurance sector (nominal value).

Year	Capital value [PLZ]	Dynamic [%]	Change [%]
1991	11 375 000	100%	0.00%
1992	11 809 000	103.82%	3.82%
1993	17 959 240	152.08%	52.08%
1994	24 152 460	134.48%	34.48%
1995	40 844 660	169.11%	69.11%
1996	58 802 610	143.97%	43.97%
1997	126 032 790	214.33%	114.33%
1998	226 502 760	179.72%	79.72%
1999	520 104 000	229.62%	129.62%
2000	863 209 400	165.97%	65.97%
2001	1 239 371 910	143.58%	43.58%
2002	1 504 124 000	121.36%	21.36%
2003	1 581 205 400	105.12%	5.12%
2004	1 519 480 520	96.10%	-3.90%

Source: Author.

The most significant change in foreign investments occurred in 1999 when the value of foreign capital increased by only 130%. After 1999 a downward trend began. What will happened next is interesting, especially in the face of EU integration. The question is that EU integration affects the level of foreign investments in the Polish life insurance industry. Poland joined the EU in May 2004. When we analyse the data on the level of foreign investments at the end of 2004, we cannot assess with certainty the influence of EU integration. What is known for sure is that there was no dynamic and significant increase in foreign investments after EU integration. Nevertheless, past trends are not enough to make an influence, especially as the world has faced economic regression. The regression has touched the financial sector in terms of terrorist attacks and huge catastrophic risks. It has caused a need for free capital to finance the effects of risk realizations. Capital requirements have also increased. Foreign investors have therefore deferred decisions on whether or not to invest.

On the other hand, the Polish life insurance market has grown significantly during the last 15 years and there is probably no room for further development, unless there is significant economic growth, which would cause further increase in the life insurance sector. Some experts in Poland believed that EU integration has triggered further dynamic growth in the market. However, we can State that almost two years after integration, there is no clear sight of it.

3. Factors of the life insurance industry development

Development of the life insurance industry is the subject of a number of publications and research. However, the majority of studies apply macroeconomic factors to determine the development of the life insurance industry. While the life insurance market has grown dynamically and the globalisation of the insurance market has become widespread around the industrialised countries, these sectors of financial service have not been researched in detail. Foreign investments, in particular, have not been studied. The majority of studies have taken into account macroeconomic factors and their influence on the overall development of the life insurance industry. For instance, Skipper (1987) researched the nature of barriers set up by governments to protect the national insurance industry. He classified the barriers and provided an analysis of protectionists' rationales. His classification of the barriers included three main categories: barriers related to the establishment within the host country, access to the domestic market and insurer operations. In the event, the governments of many developing countries prohibit the national insurance market from foreign investments in anything other than nationally-licensed or incorporated form. Sometimes even local regulations stipulate a requirement that majority ownership should be held by the State. The situation was similar in Poland when the communist government enabled foreign investors to invest in the market in 1984. However, the share of foreign investments could not exceed 49% in ownership structure. The situation changed in 1990 when the new insurance law was established. Then foreign investors could place an insurance business by incorporation or local license. The situation changed again in May 2004, when Poland joined the EU.

The relationship between life insurance demand and growth in developing countries were investigated by Outreville (1996). He provided empirical studies on the relationship between life insurance premium income and the level of financial development and the market structure of life insurance institutions in developing countries (Outreville, 1996). Among other factors he hypothesised that life insurance demand is a function of the competitive structure of the market. However, in his research the coefficient associated with a monopolistic market is negative and significant³. He also found out that the effect of the presence of foreign companies in

³ For more information about the influence of the market structure on life insurance demand in developing countries, see Outreville (1996)

the market is not significant. The developing markets could be characterised by a huge level of market concentration. Hence there are a large number of small insurers with rather small insurance capacity. The biggest companies are often old State-owned companies with a high share of the market, making the influence of foreign companies on market development less significant. Studies quoted by Outreville do not include Central European insurance markets.

The demand for life insurance was also researched by Fisher (1973), Pissardies (1980), Cambell (1980), Karni and Zilch (1985, 1986). All models provided by the authors mentioned took into account macroeconomic and social factors rather than indicators of the financial situation of life insurance companies.

As previously mentioned, there are few studies of the Central and Eastern European life insurance market. The life insurance market in the mentioned region underwent significant changes during the transition period. The changes concern ownership structure. In this paper the author looks at Polish life insurance sector development through indicators that could be used to describe the situation of life insurance companies from financial perspectives.

The set of 10 main ratios is applied to the regression model. The ratios represent four main group of indicators used to assess the financial development of insurance companies by the Polish Insurance Supervision Committee. The breakdown of indicators is reported below.

Area of insurance activity	Ratio used in a model
Solvency	1. Solvency ratio.
Profitability	1. Profitability ratio of technical activity, 2. Sales profitability ratio.
Activity efficiency	1. General ratio of investments level, 2. Change in gross written premiums, 3. Claims ratio - net of reinsurance, 4. Acquisition costs ratio, 5. Administrative expenses ratio.
Interdependence	1. Overall indebtedness ratio, 2. Premiums retention ratio.

Solvency ratio is calculated as own funds over written premiums - net of reinsurance. The indicator informs us of the ability of the insurance company to pay off all debts. The higher the value of the indicator, the better the financial situation of a company. The relation between solvency ratio and changes in foreign investments is unknown. However, if we take into account over-investments of foreign insurers we can assume that there will be a positive correlation.

Two indicators represent profitability of the life insurance sector: *profitability ratio of technical activity*, *sales profitability ratio*. The former tells how much technical result is generated by earned premium – net of reinsurance. The latter derives from similar information. However, it concerns gross written premiums and net financial result. The higher the value of the indicators, the better the development.

On the other hand, market profitability could be seen as an incentive for foreign investments. Therefore, we should expect a strong, positive correlation between changes in foreign investments and the value of the profitability indicators.

General ratio of investments level is also applied. The ratio represents the share of balance sheet investments to capital plus insurance fund. The level of technical insurance reserves represents the insurance fund. The higher the value of the ratio, the better the financial stability of the life insurance company. The value should be closer to 100%. It means that an insurer covers insurance risk derived from issued policies by investments.

It is common knowledge that the level of equity capital determines insurance capacity. In a number of cases foreign investors or insurers over- invested in Poland to create higher insurance capacity. The capital over minimum requirements was subscribed in connection with future dynamic progress expectations. Therefore, the relation between the ratio and changes in the level of foreign capital should be strong and positive. The same situation probably determines the sign of regression coefficient in the above mentioned solvency ratio. Table 5 shows the level of activity monitoring ratio⁴ in the case of foreign and domestic capital.

Table 5. Activity monitoring ratio.

Year	Origin of capital		Total for life insurers
	Majority of domestic	Majority of foreign	
2000	143,47%	246,79%	183,55%
2001	128,53%	264,14%	175,09%
2002	150,80%	302,80%	206,18%
2003	187,01%	316,87%	235,73%
2004	246,46%	324,02%	308,40%

Source: Data of Insurance Supervision Committee

Other ratios in the group describe efficiency of operational activity of insurance companies. In the case of *change of gross written premiums* the higher the value of the ratio, the better. We could assume that the growing number of companies, results

⁴ Activity monitoring ratio is calculated as own funds over max (solvency margin, minimum guarantee fund). The insurance companies are obliged to have own funds at the minimum level of maximum of solvency margin and minimum guarantee fund. Minimum guarantee fund results from national insurance law. Solvency margin is calculated according to a special formula provided by Minister of Finance. The formula takes into account level of gross written premiums and claims paid by insurer.

in a higher value of gross written premiums. However, the relation is unknown. Outreville (1996) stated that market structure determines life insurance development. Gross written premiums can be used as an ultimate measure of market development. Therefore, hypothetically positive relation is assumed.

Claims ratio net of reinsurance describes share of claims incurred in earned premium. The lower the value of the ratio, the better the overall financial result. The level of the claim incurred determines the financial result of technical activity. During the transition period the level of claim ratio net of reinsurance decreased significantly. The value diminished from 96% in 1991 to 49% in 2004. We cannot be sure that the changes are caused by foreign investments. Growing insurance awareness could influence the level of claim ratio as well. However, the negative relation is assumed.

Administrative and acquisition costs ratios represent the share of adequate costs in gross written premiums. The lower the value of the ratios, the better efficiency of insurance companies. Intuitively we could state that if foreign companies are more effective, the value of the ratios should be lower. It would cause negative relation. However, the relation between costs ratios and change of foreign investments is unknown.

Overall indebtedness ratio represents the level of the share of insurance fund plus other liabilities in total value of assets. One of the factors, which determines the level of the indicator, is the value of insurance funds. The insurance fund is represented by the total value of technical insurance reserves. The higher the level of the ratio, the better the development of the insurance sector.

Premiums retention ratio shows the level of reinsurance in terms of gross written premiums. The higher the value of the indicator means the lower the level of reinsurance. The relationship between the indicator and the level of foreign investments is unknown. Therefore, the hypothesised sign of regression coefficient is set up as an uncertain.

After the explanation provided above and an analysis of previous studies, especially that connected with life insurance market development and ownership structure, the main hypothesised sign of regression coefficients are set up. Table 6 summarises model assumptions.

Table 6. Hypothesised regression coefficients sign.

Life insurance	Regression coefficient sign
Variable	
General ratio of investments level	Positive
Overall indebtedness ratio	Positive
Solvency ratio	Uncertain
Change in gross written premiums	Positive
Claims ratio - net of reinsurance	Negative
Acquisition costs ratio	Uncertain
Administrative expenses ratio	Uncertain
Premiums retention ratio	Uncertain
Profitability ratio of technical activity	Positive
Sales profitability ratio	Positive

4. Research methodology and data

To reveal the kind of relationship between the major indicators of the life insurance industry, the simple line regression model was used. The regression model was estimated separately for each indicator. The indicators were established as a dependent variable (X_i). Independent variable is represented by a share of foreign capital in total subscribed to life insurance industry capital. This leads to the conclusion related to the influence of changes in foreign investments in the time period analysed on the development of major insurance indicators. The linear correlation between changes in foreign investments and all of the indicators was checked before regression analysis. The Pearson correlation coefficient shows the linear correlation between changes in foreign investments and the particular indicator. The results of the correlation analysis are shown in table 7.

Table 7. Linear correlation coefficients.

Life insurance	Kind of capital	
	Foreign	Subscribed capital
General ratio of investments level	0,347	0,526
Overall indebtedness ratio	0,843	0,955
Solvency ratio	0,793	0,961
Change in gross written premiums	-0,099	-0,138
Claims ratio - net of reinsurance	-0,671	-0,840
Acquisition costs ratio	0,568	0,738
Administrative expenses ratio	0,166	0,324
Premiums retention ratio	0,893	0,971
Profitability ratio of technical activity	0,768	0,865
Sales profitability ratio	0,622	0,740

Source: Author.

After a quick look at the results provided above we could conclude that there is a strong linear relation between the majorities of indicators. Surprisingly, there is no linear relation between the change in gross written premiums and foreign investments.

The level of gross written premiums is a major factor used to assess the development of the insurance industry. The higher the level of premiums, the better the development. Therefore, we could state more intuitively that the correlation should be strong and positive. Previous studies suggest that there is a significant correlation between foreign companies in the market and market development (J.Outreville, 1996). In his study Outreville also presented a strong negative relation between the kind of market and development. He stated that: "... *monopolistic markets are significantly less developed than competitive markets*"⁵. The above calculation in the case of Poland does not support the previous study. Pearson's correlation coefficient informs us that there is no linear relation between the change of gross written premiums and foreign investments. However, there could be another type of relation (not linear). It is not the aim of this paper to check it. The relation between the level and the changes of gross written premiums, as an ultimate indicator of the development of the life insurance industry and the level of the different type of capital, could be the subject for future studies.

There is also a weak linear relation in the case of the general ratio of investments level. However, the strong linear relation in the case of other factors allows us to apply the simple linear regression model to appraise the influence of the changes in foreign investments on the development of the life insurance industry.

The model used data from 1991 national statistics published by the Polish Insurance Supervision Committee. To build the regression model, foreign investments are converted into share in total subscribed to life insurance industry capital. The share of foreign investments is calculated in nominal price. Table 8 shows descriptive statistics for variable included in the regression model.

⁵ J.F. Outreville, *Life insurance market in developing countries*, The Journal of Risk and Insurance, 1996, Vol.63, No. 2, 263-278

Table 8. Variable descriptive statistics.

Variable	Mean	St. deviation	Max	Min	Range
Foreign investments	0.44	0.20	0.73	0.16	0.56
General ratio of investments level	91.54	9.08	101.41	68.82	32.59
Overall indebtedness ratio	34.31	39.70	86.32	-11.13	97.45
Solvency ratio	20.51	20.16	52.73	-8.97	61.70
Change in gross written premiums	35.20	24.09	102.78	6.97	95.82
Claims ratio - net of reinsurance	61.37	18.29	96.94	32.44	64.50
Acquisition costs ratio	10.50	1.10	12.11	7.67	4.44
Administrative expenses ratio	12.82	3.84	20.20	7.99	12.21
Premiums retention ratio	83.53	11.54	98.25	72.34	25.91
Profitability ratio of technical activity	-1.48	8.13	11.70	-14.20	25.90
Sales profitability ratio	2.57	4.55	11.04	-4.50	15.55

Source: Author.

5. Empirical findings

Table 9 shows the estimated parameters of the regression analysis for each of the indicator and corresponding t -statistics. The relationship is assessed by interpretation of R^2 and absolute value of Student's t -statistics with $n-2$ degree of freedom. R^2 is interpreted as a percentage of explain variability. The higher value of R^2 the better regression. Relationship is confirmed when absolute value of t -statistics is greater than 2.

Table 9. Results of regression analysis.

No.	INDICATORS	Life insurance		
		N=14		
		Parameter X	t-Stat	Rsqr
1.	General ratio of investments level	11,44	1,27	0,13
2.	Overall indebtedness ratio	162,69	5,39	0,73
3.	Solvency ratio	80,63	4,51	0,63
4.	Change in gross written premiums	-12,06	-0,35	0,01
5.	Claims ratio - net of reinsurance	-61,91	-3,14	0,45
6.	Acquisition costs ratio	3,15	2,39	0,32
7.	Administrative expenses ratio	3,22	0,58	0,03
8.	Premiums retention ratio	52,03	6,89	0,80
9.	Profitability ratio of technical activity	31,50	4,16	0,59
10.	Sales profitability ratio	14,27	2,75	0,39

Source: Author.

The study confirms that there is a positive relationship between the general ratio of investments level and the share of foreign investments. However we can state that the relationship is not strong. Only 13% of variability of the ratio is explained by the changes in foreign investments.

The change in foreign investments is a statistically significant variable and positively related to the overall indebtedness ratio. The ratio's changes during the analysed period were shown as 73% of the changes in foreign investments.

A strong and positive relationship occurred in the case of the solvency ratio. The changes in foreign investments influence the solvency ratio in 63%. That relationship should be seen as very positive for overall life insurance market development and companies' financial standing.

Surprisingly, the relation between foreign investments and the change in gross written premiums is not significant and negative. The result does not support prior studies provided by Outreville (1996).

As was expected, the claim ratio net of reinsurance is negatively and strongly related to changes in foreign investments. The changes of the ratio are shown as 45% in the changes in foreign investments.

The costs ratios are positively related to foreign investments changes. However, the acquisition cost ratio is strongly related to foreign investments. It is probably the result of a wide promotion campaign organised by foreign companies when they began operating in Poland.

The strongest and positive relation occurred in the case of the premium retention ratio. The changes of the ratio are shown as 80% in changes in foreign investments. During the transition period the value of the ratio increased from the level of 72% in 1991 to 98% in 2004. This means that life insurance companies have a diminished share of reinsurance companies in gross written premiums. It can be stated that foreign investments have had a dampening effect on reinsurance "deepness" of the life insurance industry in Poland.

The study also shows a strong and positive relation between profitability ratios and foreign investments. The relation is stronger in the case of profitability on technical activity. Where the changes of the ratio are shown as 59% in changes in foreign investments. Whereas the changes of sales ratio are shown as 39%.

Conclusion

The Polish life insurance industry has grown rapidly during the transition period from 1991 to 2004. The changes concern almost all life insurance aspects, especially the level of foreign capital, which has increased significantly. The findings of this study, that the solvency ratio, overall indebtedness ratio, premiums retention ratio and profitability ratio on technical activity and sales are positively related with the changes in the share of foreign capital and especially that the claims ratio is negatively related, suggest that foreign investments have greatly influenced the development of the life insurance industry in Poland.

Future research should be extended into different areas. First, the analysis of the influence of both the kind of capital (domestic capital and foreign) would be valuable. Although the current study focused only on development of life insurance companies in terms of foreign capital invested, there are a number of different factors that could affect the overall development of the life insurance sector. One is a demand for life insurance in particular economies. That factor should be included in the next research. A number of studies were done in connection with life insurance demand and market development. For example, Outreville (1996) studied factors, which determined the life insurance market and life insurance demand in developing countries. However, there are no studies or research on the Central and Eastern European insurance industry.

The study should also be carried out over a greater time period as more data becomes available. This could potentially lead to a greater knowledge of the role of foreign capital in the transition of the Polish life insurance market.

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