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## **IMPACT OF MACROECONOMIC FACTORS ON THE LIFE INSURANCE MARKET IN THE VISEGRAD COUNTRIES**

Life insurances represent an important safety measure against financial results of various mishaps. They also supplement the public insurance system. Bearing in mind that the insurance market depends on the supply of risks by the policyholders, demand on these risks and readiness to accept them on the insurers' side as well as funds at the disposal of both parties, the economic standing of a given country plays an important role. The macroeconomic situation of the Visegrad countries (V4) has been shaped in the last decade by events on the global financial markets and processes taking place in the European Union. The resulting changes concern both the general state of the economy and its particular sectors, including the life insurance sector. The study has been carried out on the basis of selected macroeconomic data and data reflecting the development of the life insurance sector in the years 2007–2015. Apart from the comparative analysis, a linear correlation technique, which describes the force and direction of relations between the properties, has been used. The studies have confirmed the assumed research hypotheses. Strong relationships between the level of property insurance sector development and the macroeconomic situation in the Visegrad countries have been found, along with mutual similarities and the high level of financial stability.

**Keywords:** life insurance, insurance sector, macroeconomic factors, Visegrad Group.

### **1. INTRODUCTION**

Life insurances form an important element of funds at the disposal of households and the entire economy. Apart from ongoing coverage of the risk of death, life insurance products offered by insurance companies also contribute to increased savings, the long-term ones in particular. Relevance of life insurances gradually increases along with a shrinking scope and level of social security and healthcare system benefits. Through promoting financial stability and limiting uncertainty, insurances represent an alternative to governmental social security schemes, influence the mobilisation of savings, provide more efficient risk management, encourage harm reduction and favour a more efficient capital allocation<sup>2</sup>. They can also play a significant role in financing private pension contributions, which is particularly important in the face of the population ageing process and the increased life

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<sup>2</sup> H.D. Skipper Jr., *Foreign Insurers in Emerging Markets: Issues and Concerns*, Center for Risk Management and Insurance, Occasional Paper, Oxford, No. 97–2, United Kingdom 1997.

expectancy of persons in retirement age (*longevity risk*). Life insurances protect the standard of living and stabilise consumption of household members throughout their lives (CEA, 2006). They also play an important role in mobilising household savings. We need to stress that the demand on life insurances is closely correlated with the savings rate and disposable income per capita. The greater the inclination to save and the higher the household income, the higher the level of demand on and development of life insurances<sup>3</sup>. Life insurance products are also very important for the economy, since they:

- allow mobilising private savings and supporting or even substituting the public sector in the scope of social security,
- contribute to mitigating economic trends,
- represent an important GDP growth factor,
- enhance competitiveness of the economy through releasing reserves in stock and better risk management,
- insurance companies are important employers.

The insurance sector is a part of the financial sector<sup>4</sup>, whereas insurers, including those active in the life insurance sector, stimulate its development through, among others, enhancing financial market liquidity, reducing transaction costs and obtaining higher economies of scale from investments. This is critical in the face of governments withdrawing from direct provision of retirement benefits. Under such conditions, life insurance, due to its substitutive character and ability to complement social insurance, plays a major role in maintaining a specific standard of living of population in the retirement period<sup>5</sup>. However, it is worth noticing that taking account of information safety and information risk management mechanisms in projecting future, potential retirement schemes is advisable<sup>6</sup>.

This study has been devoted to these very issues. It aims at analysing impact of macroeconomic factors on the insurance market in the Visegrad Countries and their financial stability under volatile economic conditions. The following research hypotheses have been adopted for the purpose of conducted analyses:

1. The life insurance sector presents a similar development stage in individual V4 countries.
2. The development of the life insurance sector in V4 countries is tightly correlated with their macroeconomic situation.

The studies have been carried out on the basis of selected macroeconomic data and data reflecting the development of the life insurance sector in the years 2007–2015.

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<sup>3</sup> J. Carmichael, M. Pomerleano, *The development and Regulation of Non-Bank Financial Institutions*, World Bank, Washington 2002, p. 78–80.

<sup>4</sup> E. Grmanova, *Efficiency of National Life Insurance Markets in Europe*. European Financial Systems 2015. Proceeding of the 12-th International Scientific Conference, Masaryk University, Brno 2015.

<sup>5</sup> H.B. Bednarczyk, *Wpływ działalności sektora ubezpieczeniowego na wzrost gospodarczy*, Lublin 2012; S. Nečas, *Podnikání komerční pojišťovny, jeho rizika a regulace*. Trendy ekonomiky a managementu, Vysoké učení technické v Brně, Fakulta podnikatelská, 2014, VIII, č. 19, p. 34–44.

<sup>6</sup> M. Petrova, *Methods for management and analysis of the information risk*, St. Cyril and St. Methodius University of Veliko Turnovo and State University of Library Studies and information technologies [SULSIT], Sofia. 2012, No. 1–2, p. 39–45.

## 2. MACROECONOMIC SITUATION IN VISEGRAD GROUP

The Visegrad Group, comprising Czech Republic, Hungary, Poland and Slovakia, is far from being a homogenous economic structure, as it is joined more by political bonds. Beyond doubt, however, the Group's economic potential is considerable. Currently, the V4 countries are populated by 64.3 million people, which stands for 12.3% of the European Union population<sup>7</sup>. In 2015 the V4 countries jointly generated EUR 781.5 billion of GDP, i.e. 5.3% of GDP EU. Despite the fact that in the recent 25 years the economies of V4 countries have grown more rapidly than in the Western Europe, the distance to the EU-28 average has remained quite visible. The situation in the Czech Republic tends to be the best, as this country falls below the EU average by 15% in terms of wealth; Slovakia ranks second-best (23%), whereas Poland and Hungary are poorer by as much as 30%. Unfortunately, the relatively meagre GDP growth in recent years means that this gap will not be narrowed. In the analysed period (2007–2015) the particular Visegrad Countries differed from one another in terms of economic development. Just to take a look at the economic growth indicator (GDP), which remains at a similar level in all countries and behaves correspondingly during the global financial crisis, followed by economic slowdown. Compared to other discussed countries, Poland was the only one that observed economic growth at the peak of the crisis – chart 1.

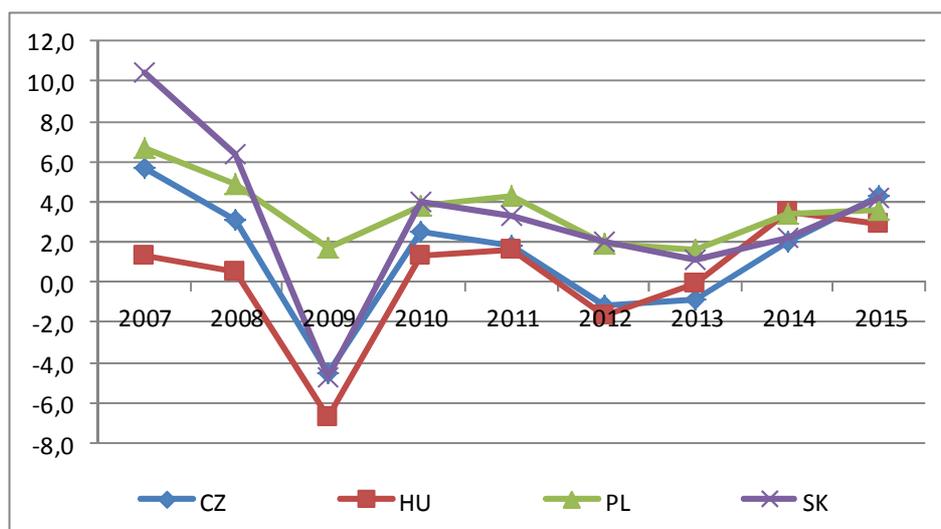


Chart 1. GDP growth dynamics (%) in V4 countries in the years 2007–2015

Source: own study based on the data of statistical offices of analysed countries.

The main reasons for the GDP growth in Poland in the analysed period included a relatively low dependency on export, moderate debt, strong banking sector and stable fiscal policy supported by EU structural funds.

<sup>7</sup> As at end 2015.

In order to depict the state of the economy in the V4 countries to a greater detail, it is worth analysing macroeconomic data concerning key factors that reflect its development. The Czech economy was coping rather badly during the crisis and the following economic slowdown - relevant data are presented in Table No. 1 below.

Table 1. Selected macroeconomic data of the Czech economy in the years 2007–2015

Indicator	2007	2008	2009	2010	2011	2012	2013	2014	2015
GDP growth rate (%)	5,7	3,1	-4,5	2,5	1,8	-1,2	-0,9	2,0	4,3
Unemployment (%)	6,6	5,4	8,0	9,0	8,9	8,5	7,7	6,1	5,9
Inflation (CPI, %)	2,8	6,3	1,0	1,5	1,9	3,3	1,4	0,4	0,3
Government debt (GOV)	-1,8	-0,5	-5,1	-4,1	-3,7	-2,6	-2,9	-2,8	-3,3
Foreign debt (CAB)	-4,3	-2,1	-2,4	-3,9	-2,7	-2,5	-1,8	-1,0	0,9
Investment growth (%)	6,1	-1,5	-9,2	-3,1	1,1	-3,1	-2,8	2,1	7,7
Increase in industrial production (%)	8,3	-1,5	-12,8	9,8	5,9	-0,8	-0,1	5,0	4,4

Source: data of the Český statistický úřad, [www.czso.cz](http://www.czso.cz), Česká národní banka, [www.cnb.cz](http://www.cnb.cz).

Only in 2015 did the GDP indicator begin to grow considerably. We should perceive the stagnation of internal demand and the growing deficit in the public finance sector as the main driving force of this situation. Current foreign account balance, resulting from limited import, looks more promising against that background. Considerable inflow of foreign direct investments allows further gradual improvement of foreign account balance as well. The stable economic situation in the country also favours the strengthening of CZK against EUR and other Central European currencies. The Czech Republic depends only to a small extent on foreign funds and the fiscal situation is getting better still, therefore the country's financial situation looks relatively good.

We can observe a more complicated economic situation in Hungary, where a relatively low growth rate had been continually observed from the beginning of the financial crisis – see Table No. 2 – culminating in a negative GDP growth rate in the years 2012 and 2013. This state of affairs is a product of several elements, the most important of which include: poor internal demand, very low economic activity of the population, decreased production, high debt and low investment rate as well as deteriorating condition of the public finance sector.

However, Hungary observes relatively good export rates, which is reflected in a positive current foreign account balance. This result allows reducing a considerable internal debt. However, due to a large share of FX credits, the banking sector remains sensitive to any turbulences on financial markets and in consequence, the country is highly susceptible to internal and external shocks.

Poland has a floating exchange rate policy, which helps real economy cope with the results of the economic slowdown, which was visible in the period of crisis: a considerable inflation growth was not experienced despite the weakening of PLN – see Table No. 3 below.

Table 2. Selected macroeconomic data of the Hungarian economy in the years 2007–2015

Indicator	2007	2008	2009	2010	2011	2012	2013	2014	2015
GDP growth rate (%)	1,3	0,5	-6,7	1,3	1,6	-1,7	-0,1	3,5	2,9
Unemployment (%)	7,4	7,8	10,0	11,2	10,9	10,9	10,2	7,1	6,8
Inflation (CPI,%)	8,0	6,1	4,2	4,9	3,9	5,7	1,7	-0,2	-0,1
Government debt (GOV)	-5,5	-4,0	-3,6	-4,2	4,3	-2,0	-3,1	2,0	4,4
Foreign debt (CAB)	-7,2	-7,4	-0,1	1,1	1,8	3,4	2,7	-0,9	0,6
Investment growth (%)	0,7	0,4	-6,5	-5,6	-1,3	-3,4	7,3	11,2	1,9
Increase in industrial production (%)	8,3	0,1	-17,1	6,5	5,8	-1,3	1,4	7,3	7,2

Source: data of the Központi Statisztikai Hivatal, [www.ksh.hu](http://www.ksh.hu), Magyar Nemzeti Bank, [www.mnb.hu](http://www.mnb.hu).

Table 3. Selected macroeconomic data of the Polish economy in the years 2007–2015

Indicator	2007	2008	2009	2010	2011	2012	2013	2014	2015
GDP growth rate (%)	6,7	4,9	1,7	3,8	4,3	1,9	1,6	3,4	3,6
Unemployment (%)	11,2	9,5	12,1	12,4	12,5	13,3	13,4	11,4	9,8
Inflation (CPI,%)	2,5	4,2	3,5	2,6	4,3	3,7	0,9	0,0	-0,9
Government debt (GOV)	-6,2	-6,6	-3,9	-5,1	-4,9	-3,5	-3,9	-2,8	-3,7
Foreign debt (CAB)	-6,0	-7,2	-3,0	-3,9	-4,2	-2,6	-1,7	-3,3	0,4
Investment growth (%)	20,4	10,7	-0,8	0,2	8,8	-1,8	-1,1	10,0	5,8
Increase in industrial production (%)	10,7	3,6	-4,5	9,0	7,5	0,5	1,8	4,1	4,8

Source: data of the Central Statistical Office, [www.stat.gov.pl](http://www.stat.gov.pl).

During the economic slowdown the country's economy kept developing in a rather stable way as well. The situation in the public finance sector deteriorated during the crisis, since the Polish government actively used fiscal policy to stimulate the economy. Although the banking sector did not need public support, the deficit in the public finance sector increased. Significant unemployment growth also took place, with unemployment levels still relatively high, however getting noticeably lower in the last three years. Poland is increasing its foreign debt as well. However, this situation is not dangerous for the country, due to the high level of inflows from foreign direct investments and a sufficient level of FX reserves in stock. Although the country depends to a great degree on foreign funds and the fiscal situation requires continuous consolidation activities, the state of the Polish economy looks quite good.

During the crisis the Slovakian economy observed a decrease in GDP by 4.7%; however, the subsequent years saw a stable, though relatively low, growth – Table no. 4. Only in 2015 a surge to 4.2% was observed.

Table 4. Selected macroeconomic data of the Slovakian economy in the years 2007–2015

Indicator	2007	2008	2009	2010	2011	2012	2013	2014	2015
GDP growth rate (%)	10,4	6,4	-4,7	4,0	3,3	2,0	1,1	2,2	4,2
Unemployment (%)	11,2	9,6	12,7	12,5	13,6	14,0	14,2	13,2	11,5
Inflation (CPI,%)	2,8	4,6	1,6	1,0	3,9	3,6	1,4	-0,1	-0,3
Government debt (GOV)	-1,3	-1,0	-8,0	-7,7	-5,1	-4,4	-3,0	-1,2	-1,3
Foreign debt (CAB)	-5,1	-6,8	-3,2	-3,8	0,1	-0,3	-0,7	-0,7	3,1
Investment growth (%)	8,2	1,8	-10,5	3,6	12,7	-9,2	-1,1	3,5	14,0
Increase in industrial production (%)	13,1	3,3	-6,5	-5,5	5,8	8,0	3,8	8,6	6,9

Source: data of the Štatistický úrad Slovenskej republiky, <https://slovak.statistics.sk>.

Economic revival took place mainly owing to export and in 2011 Slovakia even experienced a slight current account surplus. An issue that raises concerns is high unemployment, which only in 2015 began to indicate a significant downward trend. We have to point out that since 1 January 2009 Slovakia has been a member of the Euro zone, which eliminates a number of risks related to foreign trade. Combined with the improved external balance, stable fiscal policy and strong banking system reflect the country's immunity to potential problems.

Disproportions in the remuneration levels stem from the difference in economic development between the V4 countries and the "old" EU countries. As indicated by data presented in the Chart No. 2 below, the difference between the V4 countries and the EU-28 average is notable. At the same time, we need to emphasize, though, that the average remuneration levels within the Visegrad Group are comparable to one another. Only in Hungary is average remuneration lower than in other analysed countries.

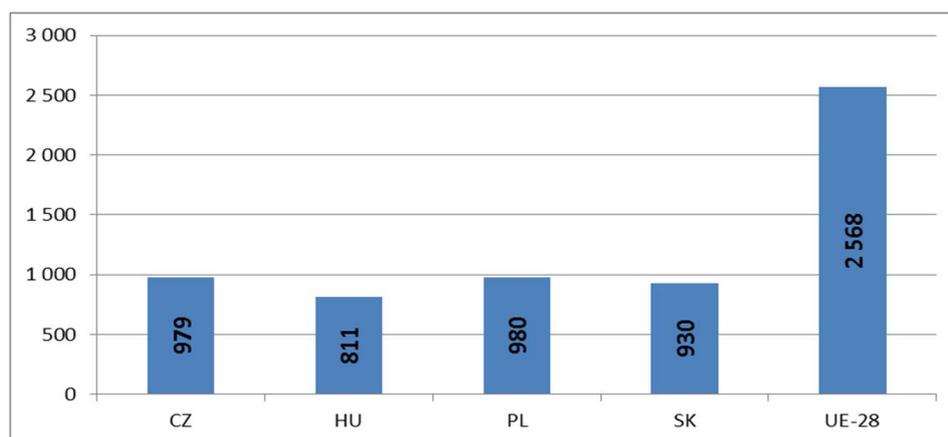


Chart 2. Average remuneration in V4 countries as at end 2015 (EUR)

Source: own study based on the data of statistical offices of analysed countries.

We have to stress that along with the increase in financial resources (household wealth) motives behind saving reported by households tend to change<sup>8</sup>. In this context it is worth mentioning that income constitutes a factor that substantially determines saving behaviours of households, reflected in the capacity to conclude life insurance agreements. The income level determines having any savings, thus influencing the inclination to save. Increased income leads to a lower inclination to consume in favour of a higher inclination to save<sup>9</sup>, which certainly stimulates the capacity to conclude life insurance agreements, particularly including investment components.

### 3. THE LIFE INSURANCE SECTOR IN PARTICULAR VISEGRAD COUNTRIES

The insurance market of the Visegrad Group is a part of the Single Insurance Market of the European Union, the establishment of which has contributed to the harmonization of insurance markets of all EU Member States and imposed new requirements on insurers in the field of financial liquidity. Changes related, among others, with the development of financial markets, concentration of business around international capital groups, unification tendencies or development of risk management techniques compel the adjustment of regulations to changing conditions around. We need to emphasize that insurance markets of V4 countries have developed dynamically after their accession to the European Union, which has manifested itself in, among others, a significant increase of the insurance benefit as well as a growing number and scope of products offered by insurance companies. It is worth stressing that along with the observed benefit growth, the importance of insurances in domestic economy has grown. Gross premium written is one of the basic measures for the evaluation of insurance market development. The role and meaning of insurance is usually defined by referring the premium to the volume of Gross Domestic Product (GDP). Analysing the meaning of insurance to domestic economy, we can use Market Penetration Index, which defines the percentage share of insurance in the country's GDP. Relevant data have been presented in Chart No. 3 below

All discussed countries observed a decreased share of life insurance premium caused by the financial crisis and the ensuing economic slowdown. In this context we need to emphasize that each insurance market depends on the supply of risks by the insured, demand on these risks on the insurers' part<sup>10</sup> or readiness to accept them as well as funds at the disposal of both sides, since it is the funds that condition the marketing of risk as commodity. Therefore, we need to look at the developmental status of insurance markets of the Visegrad Group, bearing in mind a number of factors which have triggered the reduced interest in insurance services among consumers. The most important ones are:

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<sup>8</sup> J.J. Xiao, F.E. Noring, *Perceived saving motives and hierarchical financial needs*, "Financial Counseling and Planning" 1994, Vol. 5; P.J. Fisher, C.P. Montalto, *Effect on saving motives and horizon on saving behaviors*, "Journal of Economic Psychology" 2010, Vol. 31.

<sup>9</sup> K. Schmidt-Hebbel, *Household Saving in Developing Countries: First Cross-Country Evidence*, "World Bank Economic Review" 1992, Vol. 6, issue 3, p. 529–47; E. Wójcik, *Polskie gospodarstwa domowe na rynku oszczędności*, „Bank i Kredyt” 2007, nr 7.

<sup>10</sup> E. Sira, *Perception of competitiveness of insurance companies in the Slovak Republic based on settlement and comparison of competitiveness indexes*, Scientific Annals of the „Alexandru Ioan Cuza” University of Iași Economic Sciences, Bucharest 2012.

- reduced economic growth rate, as a consequence of a decline in industrial production, decline in exports and investments, particularly foreign ones,
- limited access of enterprises to credits, caused by problems occurring in the banking sector and stricter credit risk evaluations,
- unemployment growth with society's limited expenditure on consumption,
- substantial dependency on the economies of Eurozone Member States, who by making decisions protecting their own markets limited external access to them,
- impact of global recession phenomena as part of the "contagion" effect, which had adverse impact on most countries' economies due to links related to the operation of international financial markets and single currency systems.

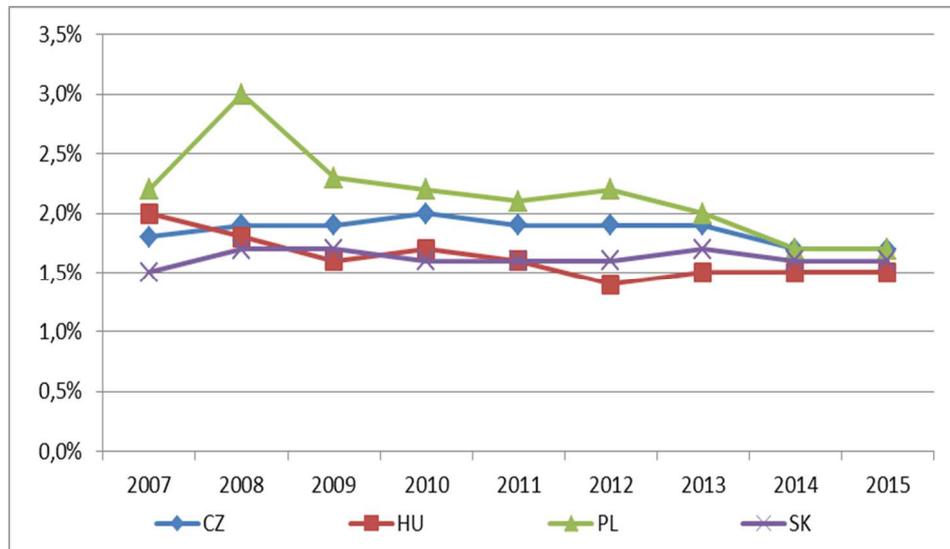


Chart 3. Share of life insurance in V4 GDP in the years 2007–2015

Source: own study based on the data of statistical offices of analysed countries.

The data indicating the development of the life insurance sector in the V4 countries in the years 2007–2015 are presented in the Table No. 5 below.

As we can see from presented data, the financial crisis has weakened the interest in insurance. It is a consequence of the economic downturn, unemployment growth, reduced consumption and investment level, including limited number of mortgages, limited purchasing of fixed assets as part of loan contracts etc., which causes a decline in demand on insurance services and reduced receipts of this sector. Another reason for the limited demand on insurance services and reduced income of the insurance sector can be a decline in social trust in financial institutions, brought on by their weakness triggered by the crisis.

Table 5. Selected data indicating the development of the life insurance sector in the V4 countries in the years 2007–2015

<b>CZ</b>									
<b>Indicator</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
Penetration_CZ (%)	1,8%	1,9%	1,9%	2,0%	1,9%	1,9%	1,9%	1,7%	1,7%
Premium_CZ (EUR mil)	4 953	5 023	5 122	5 099	5 309	5 195	5 272	5 350	5 101
Premium_life_CZ (EUR mil)	2 456	2 456	2 567	2 434	2 443	2 451	2 449	2 445	2 060
Per_capita (EUR)	274	301	284	308	306	304	303	280	295
Claims_life_CZ (EUR mil)	1 435	1 481	1 622	1 456	1 633	1 845	1 811	1 785	1 469
Loss_ratio_life_CZ (%)	58,4%	60,3%	63,2%	59,8%	66,8%	75,3%	74,1%	73,0%	71,3%
Reserve_CZ (EUR mil)	7 462	7 716	8 442	10 599	10 540	10 939	10 031	10 072	9 789
<b>HU</b>									
<b>Indicator</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
Penetration_HU (%)	2,0%	1,8%	1,6%	1,7%	1,6%	1,4%	1,5%	1,5%	1,5%
Premium_HU (EUR mil)	3 666	3 310	3 071	3 036	2 610	2 627	2 728	2 675	2 647
Premium_life_HU (EUR mil)	2 005	1 715	1 530	1 593	1 398	1 364	1 457	1 432	1 412
Per_capita (EUR)	200	171	152	160	140	135	147	150	158
Claims_life_HU (EUR mil)	1 195	1 026	946	925	914	907	971	941	879
Loss_ratio_life_HU (%)	59,6%	59,8%	61,8%	58,1%	65,4%	66,5%	66,6%	65,7%	62,2%
Reserve_HU (EUR mil)	2 924	3 002	3 038	2 888	2 595	2 793	2 633	2 621	2 638
<b>PL</b>									
<b>Indicator</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
Penetration_PL (%)	2,2%	3,0%	2,3%	2,2%	2,1%	2,2%	2,0%	1,7%	1,7%
Premium_PL (EUR mil)	11 564	16 661	11 865	13 559	13 872	15 322	13 761	12 887	12 860
Premium_life_PL (EUR mil)	6 744	11 086	6 998	7 866	7 731	8 899	7 520	6 726	6 459
Per_capita (EUR)	177	291	188	206	202	232	207	173	168
Claims_life_PL (EUR mil)	2 758	5 505	6 405	5 658	6 328	6 337	5 460	4 777	4 542
Loss_ratio_life_PL (%)	40,9%	49,7%	91,5%	71,9%	81,9%	71,2%	72,6%	71,0%	70,3%
Reserve_PL (EUR mil)	21 256	19 470	20 418	22 558	19 020	23 175	22 935	20 309	20 310
<b>SK</b>									
<b>Indicator</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
Penetration_SK (%)	1,5%	1,7%	1,7%	1,6%	1,6%	1,6%	1,7%	1,6%	1,6%
Premium_SK (EUR mil)	1 915	2 108	2 027	2 067	2 109	2 040	2 171	2 181	2 211
Premium_life_SK (EUR mil)	956	1 106	1 062	1 126	1 145	1 110	1 234	1 216	1 209
Per_capita (EUR)	178	185	179	174	179	205	228	220	226
Claims_life_SK (EUR mil)	353	445	549	609	660	678	738	742	723
Loss_ratio_life_SK (%)	36,9%	40,2%	51,7%	54,1%	57,6%	61,1%	59,8%	61,0%	59,8%
Reserve_PL (EUR mil)	2 810	3 041	3 330	3 582	3 630	3 888	3 972	4 053	4 193

Source: the data of the institutions supervising the insurance sector in the analyzed countries.

When it comes to benefit per one resident relatively large differences between particular countries are also observable. On the one hand, they derive from the level of economic development and consequently, from living standards of residents, but on the other hand, from the role performed by insurances in these countries' economy and awareness of the insured. We need to emphasize here that in all V4 countries insurance gradually becomes more important as an element that supplements the public social security system. Undoubtedly, it is a result of demographic changes, mainly ageing of the society and extended life span and consequently, of cumulating problems experienced by pension and health care systems as far as providing comprehensive protection to the insured is concerned. In this context we need to perceive it as a deepening process and the role of insurance, particularly life and health insurance, will be growing. It will also be a consequence of the increase in wages and decline in unemployment within the following 2–3 years as a result of growing post-crisis economic activity, which will definitely contribute to increased savings among residents and in consequence, to increased demand on insurance products.

In all V4 countries life insurances is a dominating group. It inscribes itself into the general insurance market structure characteristic for the European Union, where life insurance supplements social security systems in force in particular Member States and additional health care. We can observe a distinctive situation in Poland, where apart from social interest, their dynamic development has been fuelled by the legal structure of life insurance, which is very capacious in the Polish legal environment and covers contracts with diverse characteristics and economic functions. In the recent years investment or saving products have played a particularly vital role. They are offered mainly by insurance companies, in cooperation with other financial market sectors' entities. Economic content of these contracts is similar to typical capital market instruments (e.g. investment funds' share units) or a banking sector (deposits). Security function is limited here, and in consequence, exposure of insurance companies to insurance risk does not play any significant role. At the same time, the structure of these products makes deposit (investment) risk related to assets acquired by an insurance company, as well as the selection of assets, falls mainly on the insurer's side.

#### **4. IMPACT OF MACROECONOMIC FACTORS ON THE LIFE INSURANCE MARKET IN THE LIGHT OF OWN RESEARCH**

I have adopted the linear correlation technique, which describes force and direction of relations between features, to carry out the analysis of the dependence of the insurance market development on the macroeconomic situation in the country. I have used Pearson's linear correlation coefficient to measure the force of correlations between the analysed features. Calculation results are presented in Table No. 6 below.

When analysing the results of conducted studies, we need to stress that macroeconomic variables most correlated with insurance data include the unemployment level, inflation and foreign debt rate, measured as a ratio of current account balance to the Gross Domestic Product. The abovementioned relations are highly exposed in the Czech Republic, Slovakia and Poland and to a smaller extent in Hungary, where the life insurance market has indicated an evidently stagnant trend for several years now.

Table 6. Correlation coefficient for the life insurance market and selected macroeconomic indicators of V4 countries in the analysed period

Correlation coefficients are significant with $p < 0,05000$ N = 9 (Data deficiencies were removed case by case).							
CZ							
Variable	GDP	UNE	INF	GOV_D	FOR_D	INV	INC
Penetration	-0,257378	0,699832	0,377014	-0,186810	-0,657792	-0,713091	-0,166097
Premium	-0,587659	0,311477	-0,465009	-0,329766	0,327562	-0,151192	-0,008408
Premium life	-0,004647	0,386596	0,298815	-0,052634	-0,708667	-0,706734	-0,367077
Per capita	-0,588064	0,489562	0,231540	-0,057824	0,011674	-0,280371	0,097382
Claims life	-0,287681	0,143853	-0,056751	0,207791	0,189076	0,024270	0,153861
Loss ratio life	-0,486834	0,042840	-0,386142	-0,099434	0,623733	0,052204	-0,112566
Reserve	-0,571193	0,593352	-0,452086	-0,432393	0,205767	-0,088633	0,266668
HU							
Variable	GDP	UNE	INF	GOV_D	FOR_D	INV	INC
Penetration	0,089140	-0,286820	0,685889	-0,543971	-0,851138	-0,193904	0,190421
Premium	-0,149925	-0,291263	0,727939	-0,742767	-0,855338	-0,248984	-0,051583
Premium life	0,030571	-0,358988	0,684485	-0,663752	-0,859798	-0,117746	0,144606
Per capita	0,190882	-0,560958	0,493880	-0,497214	-0,866021	-0,001339	0,271284
Claims life	0,035559	-0,370435	0,632742	-0,616400	-0,803660	0,090402	0,153903
Loss ratio life	0,008602	0,201146	-0,485213	0,485895	0,622411	0,476475	-0,042450
Reserve	-0,605619	0,036435	0,715526	-0,783608	-0,558938	-0,623208	-0,551196
PL							
Variable	GDP	UNE	INF	GOV_D	FOR_D	INV	INC
Penetration	0,244732	-0,239681	0,769108	-0,751635	-0,671452	0,097759	-0,102607
Premium	-0,091400	-0,087752	0,413451	-0,248260	-0,219647	-0,202831	-0,107506
Premium life	0,071431	-0,177912	0,622204	-0,510756	-0,485277	-0,064031	-0,109118
Per capita	0,023261	-0,134703	0,622332	-0,509479	-0,434641	-0,107128	-0,151831
Claims life	-0,699584	0,451485	0,466560	0,299366	0,151985	-0,770491	-0,596232
Loss ratio life	-0,767216	0,496042	0,002855	0,663937	0,493846	-0,729314	-0,576203
Reserve	-0,421461	0,636481	-0,126820	0,250834	0,426283	-0,522590	-0,078555
SK							
Variable	GDP	UNE	INF	GOV_D	FOR_D	INV	INC
Penetration	-0,644845	0,437017	0,073418	-0,225879	-0,106874	-0,504464	-0,606003
Premium	-0,267020	0,321576	-0,469375	0,278922	0,610789	0,277077	-0,029663
Premium life	-0,350744	0,451798	-0,488524	0,152471	0,657231	0,152531	-0,058548
Per capita	-0,173142	0,529878	-0,527563	0,511096	0,665938	0,027713	0,366523
Claims life	-0,505240	0,349402	-0,527872	-0,072687	0,838044	0,013488	-0,042822
Loss ratio life	-0,572910	0,257865	-0,481544	-0,211810	0,846537	-0,081516	-0,083677
Reserve	-0,411371	0,287922	-0,599002	0,037554	0,880953	0,069036	0,046227

Source: own calculations.

Dependence of the life insurance market on the development of the economy, showing downward tendencies in the analysed period, is reflected in reduced insurance premiums and increased claims ratio as a result of, among others, the processes where:

- the insured, natural persons, in the case of losing a job or facing reduced income, limit their expenditure on insurance products, including life insurance products, as they do not consider them as basic commodities,
- in order for entities operating under economic instability to survive in the best financial shape possible, they undertake activities aimed at reducing operational costs and limiting production, which contributes to the reduced expenditure on insurance, including life insurance products,
- a decrease in demand has an adverse impact on the supply, which contributes to a reduced amount of cash in circulation and, in consequence, the clients' purchasing power as regards insurance services decreases as well.

When it comes to life insurances, the first products that suffer reductions are investment products, followed by protective ones.

As we can see, the development of the life insurance sector in the V4 countries and processes taking place therein derive from macroeconomic changes occurring in the analysed countries' economies.

## 5. CONCLUSIONS

Economic slowdown that arose out of the global financial crisis was experienced almost everywhere, including the Visegrad Countries. It resulted in, among others:

- limited social trust in financial institutions,
- decreased demand in insurance products,
- reduced income of the insurance sector,
- lowered prices of assets on financial markets, leading to a reduced value of investment portfolios of insurance companies.

All these factors have also adversely influenced the life insurance sector of the V4 countries, having repercussions on its financial results and leading to a decrease in the life insurances segment, in particular:

- the share in GDP of the analysed countries,
- premium per capita,
- gross premium written,
- increased claims ratio.

We have to emphasize that institutions that supervise the life insurance market in V4 countries have not traced the existence of notable and direct effects of the crisis in the monitored entities that would pose a threat to consumers' interests. Beyond doubt, it attests to the stability of the insurance market in the analysed countries' economies, high capitalisation of entities operating on the market and safe operational and financial risk management policy.

The conducted studies have confirmed the research hypotheses. As a result of conducted analyses, strong relations between the development of the life insurance market and the macroeconomic situation in the Visegrad Countries have been found. Moreover, similarities

have also been proven. The research results allow us to cast an optimistic look at the development of the life insurance sector in the future and to assume that its significance for the Czech, Hungarian, Polish and Slovakian economies in the years to come will make the safe existence of the sector possible under unstable economic conditions.

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### ODDZIAŁYWANIE CZYNNIKÓW MAKROEKONOMICZNYCH NA RYNEK UBEZPIECZEŃ ŻYCIOWYCH KRAJÓW GRUPY WYSZEHRADZKIEJ

Ubezpieczenia na życie stanowią ważny czynnik bezpieczeństwa przed finansowymi skutkami nieszczęśliwych zdarzeń. Pełnią także istotną funkcję uzupełniającą w stosunku do publicznego systemu zabezpieczenia społecznego. Biorąc pod uwagę, iż rynek ubezpieczeniowy, zależy od podaży ryzyk przez ubezpieczających się, popytu na te ryzyka ze strony ubezpieczycieli, względnie gotowości do ich przyjmowania oraz środków finansowych, jakimi dysponują jedni i drudzy, bardzo duże znaczenie odgrywa więc w tym procesie sytuacja gospodarki kraju i kondycji w jakiej się ona znajduje. Sytuacja makroekonomiczna krajów Grupy Wyszehradzkiej w ostatniej dekadzie determinowana jest wydarzeniami na światowych rynkach finansowych oraz procesami zachodzącymi w Unii Europejskiej. Zmiany te dotyczą zarówno ogólnego stanu gospodarki, jak i poszczególnych jej sektorów, w tym sektora ubezpieczeń życiowych. Celem badań jest dokonanie analizy wpływu czynników makroekonomicznych na rynek ubezpieczeń życiowych w krajach V4 oraz ich poziom stabilności finansowej w zmieniających się uwarunkowaniach ekonomicznych. Badania zostały przeprowadzone w oparciu o wybrane dane makroekonomiczne oraz dane obrazujące stan rozwoju rynku ubezpieczeń życiowych za lata 2007–2015. Oprócz analizy komparatywnej wykorzystano także technikę korelacji liniowej, która opisuje siłę i kierunek związku między badanymi cechami. Badania potwierdziły przyjęte hipotezy badawcze. Stwierdzono relatywnie silne zależności stopnia rozwoju rynku ubezpieczeń życiowych od sytuacji makroekonomicznej w krajach V4, a także wykazano ich podobieństwa i wysoki poziom stabilności finansowej.

**Słowa kluczowe:** ubezpieczenia na życie, sektor ubezpieczeniowy, czynniki makroekonomiczne, Grupa Wyszehradzka.

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