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The impact of low interest rates on the insurance companies' portfolio composition in EU countries

Утицај ниске каматне стопе на структуру портфолија осигуравајућих компанија у земљама Европске уније

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Abstract: The paper deals with the impact of low interest rate environment on the insurance companies' portfolio composition in EU countries. The aim of the research is to show that continuously low interest rates could influence insurance companies to become more exposed to risky asset classes, but there is also possibility that insurance companies remain mainly exposed to fixed income assets. The secondary data analysis is carried out to further examine the potential portfolio dynamics in Q4 2017-Q4 2021 period. The results of the analysis show that in most EU countries insurance companies remain invested in fixed-income assets. However, in eight countries (mostly Nordic countries) insurance companies have become significantly more exposed to equity and equity mutual funds, which suggests that portfolio reshaping has taken place in these countries.
Keywords: insurance companies, portfolio composition, low interest rates, fixed-income assets, equity.
JEL classification: E43, G11, G22, O16

Сажетак: Рад се бави анализом утицаја амбијента ниских каматних стопа на структуру портфолија осигуравајућих компанија у земљама Европске уније. Циљ истраживања је да покаже да континуирано ниске каматне стопе могу утицати на то да осигуравајуће компаније постану изложеније ризичним класама финансијске активе, али постоји и могућност да осигуравајуће компаније остану углавном изложене финансијским инструментима са фиксним приносом. Анализа секундарних података је спроведена ради даљег испитивања потенцијалне динамике структуре портфолија у периоду Т4 2017-Т4 2021. године. Резултати анализе показују да су у већини земаља ЕУ осигуравајуће компаније задржале претежни део

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портфолија инвестиран у хартије од вредности са фиксним приносом. Међутим, у осам земаља (углавном скандинавске земље) осигуравајуће компаније су постале знатно изложеније акцијама и акцијским инвестиционим фондовима у посматраном периоду, што сугерише да је у овим земљама дошло до преобликовања структуре портфолија.

Кључне речи: осигуравајуће компаније, структура портфолија, ниске каматне стопе, дужничке хартије од вредности, акције.
ЈЕЛ класификација: E43, G11, G22, O16

Introduction

Insurance companies are one of the three most important types of institutional investors and play an important role in the global financial market. Given the fact that insurance companies invest primarily in long-term asset classes, they provide the largest part of long-term financing of the economy. The insurance sector has grown considerably in the previous decades and has become inextricably linked with banks and other financial intermediaries in the process of offering insurance products. Total gross premium in the global insurance sector has grown from 3.9 trillion dollars in 2010 to approximately 6 trillion dollars in 2021 at a compound annual growth rate of 4% (McKinsey & Company, 2022). Funds placed by insurance companies on the financial market in 2020 amounted to 35.1 trillion dollars, compared to the amount of 21.2 trillion dollars in 2007 (PwC, 2020). For the sake of comparison, the assets that open-end investment funds invest in the financial market in 2020 amounted to 43 billion dollars, and the assets of pension funds were around 55 billion dollars (IOSCO, 2022).

Traditionally, insurance companies are considered to be financial market stabilizers. As long-term investors, they conventionally hold assets until maturity and are indifferent to short-term price movements. Therefore, they are expected to react countercyclically to price changes, i.e., they buy those assets whose prices are falling and vice versa. The reason why insurance companies can act countercyclically in the financial market is the relative stability and predictability of their financial liabilities, which makes them more resistant to short-term movements of economic and financial indicators. In this way, insurance companies are able to absorb short-term losses (Timmer, 2018, 269).

Life insurance products usually include a savings component, which means that in addition to the insurance, the policyholder is also entitled to a certain return after the expiration of a defined period of time. Given that life insurers traditionally provide coverage solely against death, whose probability can be relatively precisely calculated by using mortality tables, life insurers are able to accurately estimate future financial obligations stemming from the life insurance contract payouts. On the other hand, non-life insurance products protect policyholders against many different events whose probability is much more difficult to predict, such as fire, flood, burglary or car theft. Therefore, from the perspective of unexpected losses occurrence, non-life insurance is riskier than life insurance (Grundl, Dong and Gal, 2016, 6).

Regarding implications concerning the investment process, life insurance companies should invest in long-term securities that bring stable financial inflows in defined time

intervals, due to the long-term nature and predictability of their future liabilities. In addition to harmonizing future financial outflows and inflows in a quantitative sense, it is also important for the insurance companies to match the duration of liabilities and the assets. By doing this, the insurers become capable of responding at any time to claims for servicing contractual obligations. However, this only applies in relatively stable economic conditions without significant external shocks.

Bonds are securities that meet the above-mentioned requirements of insurance companies in most satisfying manner. In 2021, in 23 out of 40 OECD member countries, bonds made up 50% of the total portfolio of insurance companies, and in two countries their share was more than 90% (OECD, 2021, 17). Given the relatively straightforward predictability of financial outflows, the liquidity needs of life insurers are not large, so the share of money market in portfolio is relatively low (around 5% in most countries). On the other hand, the liquidity needs of non-life insurance companies are larger compared to life insurance, due to the greater uncertainty in predicting financial outflows. Hence, the money market instruments account for a greater share of non-life insurers' portfolio.

In the last decade the global financial market and, especially, Eurozone have been characterized by the presence of low interest rates. Although low interest rates increase investment spending by making it cheaper, from the perspective of long-term investors, such as insurance companies, this trend carries some specific implications. How do low interest rates affect the financial position of insurance companies? Due to the high exposure of the insurance sector to fixed-income securities, their investment returns decrease with lowering market interest rate, since the net cash flow stemming from premiums collected and maturing bonds has to be reinvested at lower interest rates (European Central Bank, 2015, 134). Also, it is important to point out that many life insurance products include a guaranteed minimum rate of return. If in the past this rate of return was set at a relatively high level, in the presence of long-term low interest rates insurers may face problems in servicing guaranteed contractual obligations. Low interest rates affect not only the value of fixed-income securities, but also the value of the anticipated future liabilities. The valuation of assets and liabilities, in accordance with the fair (market) value principles, implies that when market interest rates go down this leads to the reduction in the discount rate used to calculate the present value of liabilities, and, consequently, the increase in the value of financial liabilities occurs.

With respect to the previously highlighted features that reflect the European financial market position in the past ten years, the subject of the paper is the impact of low interest rates on the investment position of insurance companies. The aim of the paper refers to the analysis of dynamics of the life insurers' portfolios in EU countries triggerred by the low return rates of fixed-income securities. Consequently, two research hypotheses are defined in the paper:

H1: Insurance companies in EU countries remain primarily invested in debt securities in conditions of low interest rates.

H2: An upward trend in equity and equity funds exposure of insurance companies in EU countries is present in Q4-2017 - Q4-2021 period.

In order to prove/reject the defined hypotheses, the analysis of secondary data obtained from publicly available databases is conducted. The database of the European Insurance and Occupational Pensions Authority (EIOPA) is primarily used, which refers to the portfolio composition of insurance companies in 22 countries of the European Union. The data was collected for the Q4-2017 - Q4-2021 period, with a quarterly frequency. The insurance sectors in the remaining member countries were not taken into account, considering the negligible share in total assets of the EU insurance sector.

In addition to the introduction and conclusion, the paper consists of three logically connected parts. In the first part of the paper, an overview of trends in EU insurance sector in the period immediately before, during, and after the COVID-19 pandemic is given. The second part deals with analysis of key features of insurance companies investing in conditions of low interest rates. In the third part of the paper, the movements in the insurers' portfolio composition are examined for each of the observed countries and at the level of the entire sample of countries. The last part of the paper refers to drawing appropriate conclusions.

1. The overview of European insurance market

The European Commission forecasted that by the end of 2022 and in 2023, a significant expansion of economic activity in EU countries of the European Union could be expected, with an annual GDP growth rate of 4% and 2.8%, respectively. In the third quarter of 2021, the EU GDP reached the level recorded immediately before the COVID-19 pandemic onset, and by the end of 2022 this result is expected for all individual member countries (European Commission, 2022). Economic growth is still shaped by the adverse pandemic effects, but also by new challenges stemming from the Russian-Ukrainian conflict, the energy crisis and rising food prices, coupled with protracted increase in public expenditures and budget deficits in almost all EU economies (Vladušić, Živković and Pantić, 2020, 66).

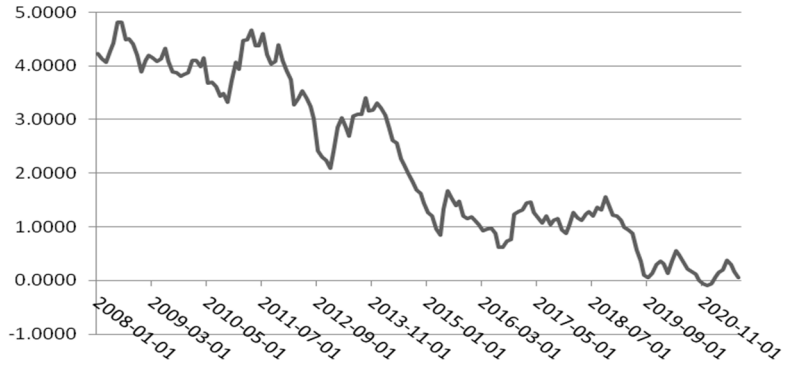
The insurance sector in EU countries entered 2020 with good indicators in all aspects of business activities. In 2019, life and non-life insurance gross premiums increased by 6% and 12%, respectively, the average return on the excess of assets over liabilities reached 9%, and the sector was well capitalized with an average value of SCR (solvency capital requirement) of 213% (EIOPA, 2021a, 23). However, the unexpected COVID-19 outbreak in Q1-2020 led to European countries closing their borders to contain the pandemic. Financial markets suffered huge short-term losses, and institutional investors reoriented themselves to invest in safe asset classes.

This situation represents a serious challenge for the insurance sector, and especially for the life insurance business, which previously faced difficulties due to the prolonged period of low interest rates. During 2020, the life insurance sector suffered a decline in gross premiums of around 7%. On the other hand, non-life insurance sector recorded an increase of approximately 8%. Most countries reported a decline in gross insurance premiums, and in some countries, such as France, Finland and Portugal, the annual percentage decrease was in

double digits (EIOPA, 2021b, 8). However, already in 2021 the life insurance premium has increased by as much as 14% compared to the end of 2020, while an increase of 8% was reported for non-life insurance. Considering the relatively quick recovery, it can be pointed out that the EU insurance sector has shown significant resistance to the adverse pandemic effects, so projections show that as of the mid-2022 total insurance premium will reach the level of 7 trillion dollars globally for the first time (SwissRe Institute, 2021, 23).

Investment profitability of insurers in 2020 deteriorated mainly due to unfavorable financial market movements in the first half of 2020, with insurance profitability improving considerably in the second half of 2020. Average return on assets (ROA) decreased from 0.59% in 2019 to 0.38% in 2020, while return on excess assets above liabilities decreased from 7.9% in 2019 to 5.5% in 2020 (EIOPA, 2021a, 29). The negative impact on the insurers' assets was caused by the sharp decline in stock market indices in March 2020, but was partially offset by the stock market recovery in the second half of 2020. On the other hand, the reduction of the risk-free interest rate, which is used as a discount rate when calculating the present value of the insurers' liabilities, affected the liabilities side adversely in 2020.

Figure 1: Trends in the rate of return on long-term government bonds in the Eurozone, 2008-2021



Source: FRED Database (2022). Long-Term Government Bond Yields: 10-year: Main (Including Benchmark) for the Euro Area Federal Reserves Economic Data, St. Louis FED.

The non-life insurance solvency position remained relatively stable in the wake of the COVID-19 pandemic, while the life insurance solvency deteriorated in the first half of 2020, and then recovered slightly in the second half. Already in the first half of 2021, the median solvency ratio (SCR) increased to 236%, which is higher than 229% recorded at the end of 2020 (EIOPA, 2022, 48). Also, in most EU countries, there was no significant decrease in solvency during 2021.

The most significant characteristic of the European financial market in the previous decade is the perennial presence of low interest rates. As shown in Figure 1, the period from 2008 to 2021 was marked by a significant decline in the long-term government bonds yield in the Eurozone, from 4.5% in 2008 to a level approximately equal to zero in 2021. However, starting from January 2022, government bond yield entered an upward trend for the first time

since 2018. In October 2018 the yield on government bonds in the Eurozone was at the highest level since the middle of 2015. This was followed by a prolonged period of decline, so that the end of 2020 and the beginning of 2021 were marked by the presence of negative nominal rates of return. In 2021, the yield on government bonds became stagnant, and starting from January 2022, the already mentioned growth has occured. The rising trend of the yield on government bonds in the Eurozone in the first half of 2022 can be attributed to the rise of the expected medium-term inflation rate, but also to the rise of the investors' exposure to stocks.

Also, the rate of return on corporate bonds increased in 2022, which can be explained by positive expectations regarding economic recovery prompted by a significant coverage of the European population with vaccines (EIOPA, 2021a, 14). The corporate bond yields reached the highest level in the previous 5 years in April 2022, and the highest level in the previous ten years of approximately 2.7% in June 2022. The yield on corporate bonds in the Eurozone rose starting from the end of 2021, with a significant upward trend in 2022. In June 2022, the rate of return was already at a significantly higher level compared to March 2020, when the COVID-19 impact on the EU financial market became alarming. This growth comes after a multi-year period of low interest rates that culminated in 2020 and 2021, and can be attributed to a gradual tightening of monetary policy in Eurozone.

When it comes to stock market movements, the European stock market responded very quickly to the negative effects of the pandemic in 2020. After the drastic fall that occurred in the first half of March 2020, the slight recovery of the stock market indices began already in April of the same year, since the benchmark indices of the European stock market, Stoxx 600 and Euronext 500, reached the pre-pandemic levels already in April 2021 (Euronext, 2022). In January 2022, both indices reached historical highs, and then in the rest of 2022, the value of both indices fell, due to fluctuations in global energy market, the Russian-Ukrainian conflict and the rise in food prices.

2. Investment activity of insurance companies in the low interest rate environment

Given that the primary insurers' objective is to increase their own market value, they will tend to create a portfolio composition that generates the highest return for the chosen measure of risk (Gatzert & Kosub, 2014, 352). In this regard, the insurance companies' investments must meet two contradictory goals: providing a high level of protection against the risks assumed and obtaining a high return on the invested funds (Kočović, Paunović and Jovović, 2015, 387). The overall insurers' investment policy is based on the principles of safety, profitability and liquidity. Due to its basic function of providing insurance, every insurer must primarily take into account the security when making investment decisions. Accordingly, the primary direction of investing the insurer's assets should be less risky asset classes. Additionaly, the principle of security is realized through diversification of investments, as well as maintaining the solvency margin at the prescribed level when investing funds (Kočović & Jovović, 2013, 13).

Various asset classes assume different risk-return profiles (Wilcox & Fabozzi, 2013, 275). The access to the entire range of asset classes is purely theoretical, since, in practice, regulatory restrictions are imposed concerning exposure to some of the asset classes, usually risky ones. Also, insurers may not have sufficient expertise in some asset classes or a required security is not available at a certain time, as is often the case with indexed government bonds (InsuranceEurope and Oliver Wyman, 2013, 15).

Bearing in mind that the current market environment is marked by low rates of return on fixed-income asset classes and fluctuations in the prices of other asset classes, the security principle may become difficult to follow, due to the uncertainty in estimating future return rates (Horing, 2013, 254). This problem becomes particularly important when fixed-income asset classes do not bring sufficient rates of return, which has been the case for many years in EU countries. Insurance companies account for the largest share of the European long-term bond market, especially for bonds with a maturity of more than 10 years. In the total turnover of bonds with these maturities, insurance companies participate with approximately 40% (Rousova & Giuzio, 2019, 4). Consequently, the presence of low interest and coupon rates and reinvestment risk significantly burden the process of investing insurers' assets.

In the past decades, the global economy was affected by numerous financial crises with detrimental economic ramifications (Kostin, Runge and Adams, 2021, 34). Hence, after the Global financial crisis, new regulatory frameworks were put in place to prevent insurance companies from excessive risks taking. The harmonized regulatory framework for the insurance sector, established in EU with the introduction of the Solvency II directive at the beginning of 2016, does not favor or hinder long-term investments of insurers, but rather emphasize responsible financial assets and liabilities management by introducing mechanisms that allow determining the objective risk exposure of each insurer.

The investment risk is reflected, in the first instance, in prescribing the required level of capital. The Solvency Capital Requirement (SCR) is set so that the insurer can meet its liabilities in the next 12 months with a probability of at least 99.5%, i.e. in 199 out of 200 possible cases (Kouwenberg, 2018, 447). In this way, Solvency II links the marginal contribution of each investment to the required solvency capital, in order to provide insight into risk allocation and the relationship between expected return and additional investment risk. Based on the defined SCR criteria, the insurers are expected to design an optimal strategic asset allocation that maximizes the expected return on assets, up to the limit of the SCR for market risk determined by the standard formula.

In response to the global financial crisis and recession starting in 2007, central banks of the most developed economies, namely the United States, the United Kingdom, the Eurozone and Japan, lowered short-term interest rates through quantitative easing programs to stimulate investment activity. The expansionary monetary policy led to the movements of interest rates similar to the Japan scenario starting in the 90s, with entering the negative real interest rates zone. Monetary policy aimed to stabilize the financial system and accelerate economic recovery, but on the other hand, an environment of long-term low interest rates was created. A downvard trend in interest rates affected both the insurer's assets and liabilities

side and caused the insurer's financial position to deteriorate in the short term as well as in the long term (Grundl, Dong and Gal, 2016, 28).

The question arises which effect is more pronounced, an increase in the value of assets or an increase in the value of liabilities. In general, it can be pointed out that the financial liabilities increase is greater than the financial assets increase, due to the fact that fixed-income assests make up only one part in the portfolio composition. Also, an important factor is the question of the sensitivity of portfolio value and the liabilities value to interest rate changes. As a measure of this sensitivity, bond duration is used, which represents the number of years required for the bond to repay the amount that the investor paid for its purchase. The practical application of duration refers to measuring the change in the bond price if interest rate went up or down by one percent. The longer the duration, the more sensitive the bond price or the entire portfolio value to interest rate changes is. The duration can also be calculated for the liabilities side, and in the case of life insurance it is common that the liabilities duration is greater than the assets duration, since duration is greater when the maturity period is longer, which is specific for life insurance policies concluded in multi-year and even multi-decade time periods. By doing so, the so-called negative duration gap occurs, where duration, that is, the sensitivity to interest rate changes, is greater on the liabilities side compared to the assets side. In the falling interest rates scenario, the liabilities increase is greater than the assets increase in the presence of the negative duration gap (Mohlmann, 2021, 587).

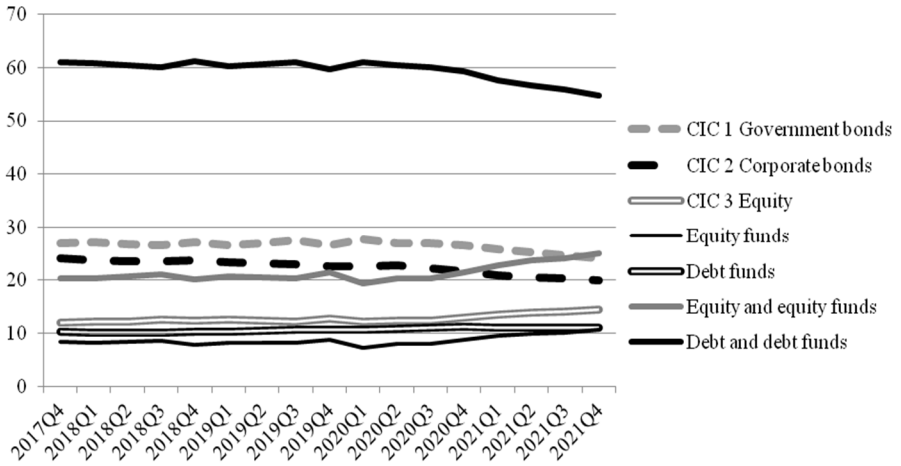
In practice, matching the cash flows of financial assets and financial liabilities is much more demanding than simply subtracting the expected outflows stemming from payouts to policyholders from the expected cash inflows of the financial assets (Babbel, 2001, 10). Even if all cash flows are perfectly matched, insurers may still face unexpectedly high payout claims (for example, events such as 9/11, Hurricane Katrina, etc.). On the other hand, the duration mismatch can be an intentional choice of insurance company managers because they prioritize the high returns seeking rather than maturity matching. Also, insurance policies are usually of a very long-term nature and precise maturity adjustment over such a long period could be practically impossible.

As a reaction to the downward trend in interest rates, insurers' investments had become more diversified during the second decade of the 21st century. In search of higher returns, some insurance company managers have opted for alternative assets, primarily long-term, illiquid forms of investments, or emerging markets investments. Others have chosen a strategy of de-risking by increasing exposure to short-term assets and more frequent reinvestment to cope with changing regulations and unfavorable financial market trends. However, given that fixed-income asset classes account for major share in the insurers' portfolios, low interest rates have led to lower investment returns that may become insufficient to cover the investment guarantees that are often an important feature of life insurance contracts, especially in European countries.

3. Analysis of changes in portfolio composition of insurance companies in EU countries

In this part of the paper, a detailed analysis of insurance companies portfolio composition movements in 22 EU countries is given. The data used in the analysis cover a four year period, i.e., from the last quarter of 2017 to the last quarter of 2021. Although it is a relatively short period, the reason why data taken from the EIOPA agency database were used is the straightforward positioning of the asset classes that are included when looking at the insurers'portfolio composition in the observed countries, which is not the case with other publicly available databases of various international organizations. The portfolio composition is clearly defined by prescribing nine asset classes, the so-called CIC (complementary identification code) codes, of which CIC 1 class - government bonds, CIC 2 - corporate bonds, CIC 3 - shares and CIC 4 - investments in investment units and shares of investment funds, are used. Investments in other classes were not analyzed in detail. Given that investments in CIC 4 class are further classified into investments in equity funds, debt funds (fixed-income funds) and alternative funds, the analysis includes data on investments in equity funds and debt funds as an indirect way of investing funds in stocks and fixed-income asset classes.

Figure 2: Portfolio composition in the sample of EU countries, 2017Q4-2021Q4, in percentage



Source: the authors'calculation based on EIOPA, (2022), Insurance Statistics – Asset Exposures.

The countries included in the sample account for 92% of the total assets of EU insurers, which makes this sample representative in looking at developments at the level of the entire European Union. As can be seen in Figure 2, portfolio composition for the entire sample was relatively stable in the observed period, with some minor changes. In the insurers' portfolio composition debt securities prevail, with a share of approximately 60%, although there is a trend of decreasing a share recorded in 2020 and 2021. The share of equity and equity funds was around 20% at the beginning of the period with a slight rising tendency,

starting from the first quarter of 2020. In the same period, the share of government bonds gradually decreased (from 27% at the beginning of the period to 24% at the end of the period).

Although, based on Figure 2, it could be concluded that there were no significant changes in portfolio composition in the observed period, Table 1 provides more specific information.

Table 1: Changes in insurers'portfolio composition in sample countries, in 2017Q4-2021Q4 (in %)

		Gov. bonds	Corp. bonds	Equity	Mutual funds	Equity funds	Debt funds	Equity and equity funds	Debt and debt funds
1	Austria	-1.27	-4.54	2.24	2.49	0.79	-0.36	3.02	-6.17
2	Belgium	-5.84	-2.91	2.03	5.59	1.52	2.11	3.55	-6.64
3	Bulgaria	-6.15	-2.03	1.81	7.50	3.07	1.36	4.88	-6.81
4	Czech Republic	0.94	-2.06	0.44	6.36	1.65	1.29	2.09	0.17
5	Denmark	-0.27	-3.03	3.24	-0.11	1.74	-1.31	4.97	-4.61
6	Finland	-1.24	-4.21	-0.44	5.73	3.42	0.64	2.98	-4.82
7	France	-2.32	-3.94	1.75	3.95	1.52	0.71	3.27	-5.55
8	Greece	-5.43	0.13	0.78	3.84	1.79	1.63	2.57	-3.68
9	The Netherlands	-4.92	2.62	2.21	2.89	-1.36	0.13	0.85	-2.17
10	Croatia	-7.80	3.07	3.12	1.87	0.66	0.98	3.78	-3.75
11	Ireland	-3.09	-0.28	4.15	1.16	2.82	0.33	6.98	-3.05
12	Italy	-3.02	-0.90	-0.32	5.72	3.25	1.62	2.93	-2.30
13	Hungary	-3.89	-0.77	0.69	5.09	8.54	-2.19	9.23	-6.85
14	Germany	-0.44	-6.76	3.32	4.03	1.18	0.72	4.50	-6.48
15	Norway	-3.82	-3.22	1.64	5.67	5.79	-2.50	7.43	-9.54
16	Poland	4.63	3.09	-1.78	-3.75	-1.44	-2.09	-3.22	5.63
17	Portugal	-6.94	-1.58	0.65	10.07	3.12	6.12	3.77	-2.39
18	Romania	0.87	0.11	-0.79	3.13	2.26	-1.10	1.47	-0.12
19	Slovakia	-3.26	2.13	-0.04	1.61	3.26	-0.02	3.23	-1.14
20	Slovenia	2.14	-6.27	1.97	4.64	2.87	0.53	4.84	-3.59
21	Spain	-1.81	-1.66	1.50	4.69	2.62	0.71	4.11	-2.75
22	Sveden	-1.68	-6.05	4.14	4.65	7.55	0.24	11.69	-7.49

Source: the authors' calculations, based on EIOPA, (2022), Insurance statistics – Asset Exposures.

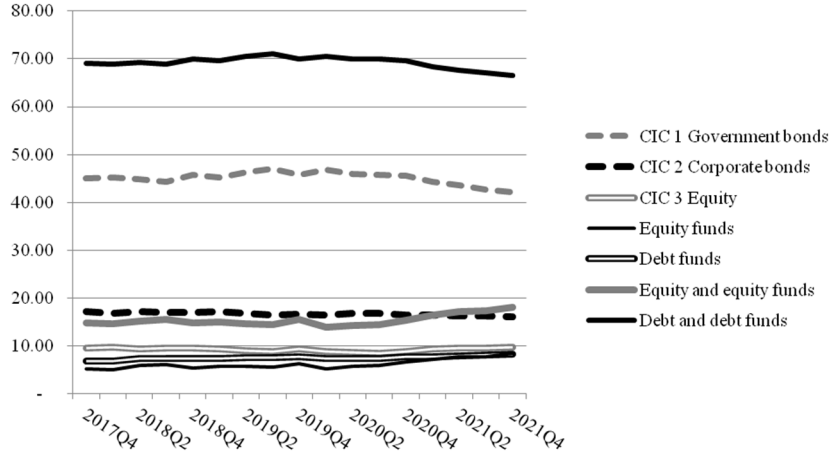
Namely, in most countries, some level of decrease in the share of government bonds occurred. Namely, in as many as 18 countries a decrease in the share of government bonds is reported. Also, in 16 countries the share of corporate bonds decreased. On the other hand, in 17 countries there was an increase in the equity share, and in 20 countries there was an increase in the share of equity funds. It is also important to point out that the share of investment funds increased in 20 countries, the only exceptions being Poland and Denmark. Increases/decreases are usually not large, but there are exceptions. For example, the share of government bonds in Croatia decreased by approximately 8%, and the share of corporate

bonds in Germany decreased by almost 7% in the observed four years. The share of equity funds increased by 7.5% in Sweden, and the share of debt funds increased by 6% in Portugal. Given the short period of time, these are significant changes in the insurer's portfolio composition.

Given that the Table 1 reveals significant movements in the portfolio composition in many sample countries, the question arises whether certain conclusions can be drawn concerning certain subgroups of countries within the observed sample. Based on the analysis of the available data, two subgroups of countries were singled out, which are located at the end points of the spectrum of possible portfolio compositions. Namely, in the environment of the multi-year presence of low interest rates in the European financial market, it is logical to assume that insurance companies would sooner or later reduce the share of fixed-income asset classes and shift to other high-yielding asset classes, such as stocks or alternatives. Considering that alternatives are not included in the analysis, due to large variability of their share in portfolio composition from country to country, only stocks and stock funds are included in the analysis.

The second course of action refers to the possibility for insurers to maintain a high share of government and/or corporate bonds in the portfolio composition, due to regulatory restrictions imposed on alternative asset classes, or managers' perseverance in pursuing a conservative investment policy regardless of current trends. Figure 3 shows the dynamics of the portfolio composition in 8 EU countries (Spain, Italy, Bulgaria, Romania, Croatia, Greece, the Czech Republic and Slovakia) with the most conservative portfolio compositions. As can be seen, the share of debt securities is at an extremely high level of approximately 70%, and the share of government bonds is approximately 45%. On the other hand, the share of equity is very low, approximately 10%.

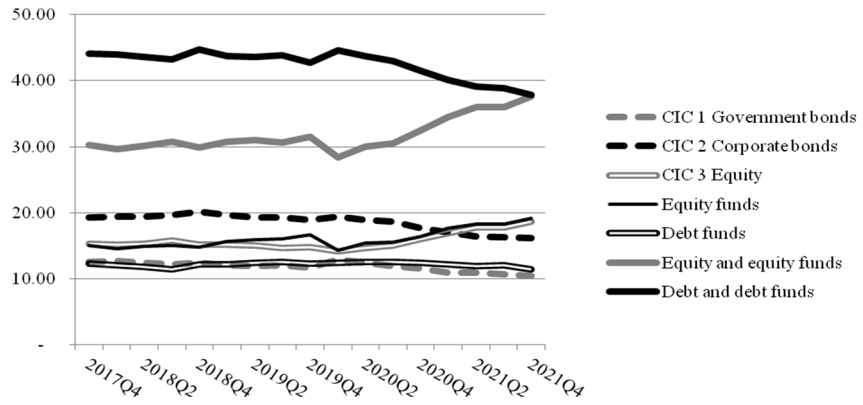
Figure 3: Portfolio composition in eight EU countries with the most conservative portfolio of insurance companies, period 2017Q4 - 2021Q4



Source: the authors' calculations, based on EIOPA (2022), Insurance Statistics – Asset Exposures.

On the other hand, there are also countries where insurers have implemented the reorientation in the investment process. In these countries a trend of rising exposure to stocks and stock funds is reported. Figure 4 shows the dynamics of the portfolio composition in the observed time period in 8 EU countries (Sweden, Poland, Denmark, Hungary, Slovenia, Norway, Austria and Ireland), with the most aggressive portfolio composition. As can be seen, in this sub-sample of countries, a significant increase in the share of equity and equity funds classes occurred, from 30% to 38%. Equity and equity funds had an approximately similar trajectory of increase in the observed period. In the same period, there was a decrease in the share of debt securities and debt funds, from 44% to 38%. At the end of 2021, the share of equity and equity funds was approximately the same as the share of debt and debt funds.

Figure 4: The portfolio composition of insurance companies in 8 EU countries with a rising trend in exposure to equity and equity funds



Source: the authors' calculations, based on EIOPA (2022), Insurance Statistics – Asset Exposures.

Based on the conducted analysis, it can be concluded that the national insurance markets in EU countries differ greatly in terms of the insurer's portfolio composition. In general, at the level of the entire insurance market in the observed 22 EU countries, it can be concluded that in Q4-2017 - Q4-2021 period, debt securities and debt funds were the prevailing asset classes, with a total share of 61% at the end of 2017, but which gradually decreased to the level of 55% at the end of 2021. In this way, it can be claimed that Hypothesis 1 is proven.

On the other hand, it is important to point out that this situation is not present in all countries, considering that there is a group of eight countries in which the share of debt securities has been continuously decreasing in the observed four years, while simultaneously the share of equity and equity funds has been rising. In these countries, the share of debt securities was 14% higher than the share of equity and equity funds at the end of 2017 (44% versus 30%), but by the end of 2021, their shares became practically equal at approximately 38%. With regard to a short period of time, these are significant adjustments in the insurers'

portfolio composition. Therefore, in these countries, in the low interest rates environment, insurers reoriented their investment policy towards equity in search of higher yield rates. In this way, the second research hypothesis was partially confirmed.

Conclusion

In this paper, an analysis of trends in the insurers' portfolio composition in EU countries was carried out by using data that covered the Q4-2017 - Q4-2021 period. This period was marked by the presence of low interest rates, which affected the financial position of insurance companies. Given that debt securities represent the dominant asset class in the European insurance sector portfolio composition, the prolonged period of low interest rates impacted the investment performances of insurance companies. The analysis was conducted with the aim of determining whether EU insurance companies responded to the perennial presence of low interest rates by adjusting the portfolio composition or whether they kept the portfolio composition unchanged, in accordance with the previously defined strategic asset allocation. By looking at the data available at the level of the entire sample of 22 EU countries (countries with a very small insurance market were excluded from the analysis, that is, Malta, Estonia, Lithuania, Latvia and Cyprus), it can be concluded that debt securities remain the dominant asset class in EU insurers'portfolio composition, with a share of approximately 55% in 2021 (government bonds 24%, corporate bonds 20% and debt funds 11%). This portfolio composition remained relatively unchanged in the observed period. In this way, it can be argued that European insurers in conditions of low interest rates tend to keep conservative portfolio compositions. Moreover, a subgroup of eight countries was singled out in the analysis, which are predominantly Mediterranean countries (Italy, Spain, Croatia, Greece, Bulgaria, Romania, the Czech Republic, Slovakia) in which the insurers' portfolio is extremely conservative, with the share of debt securities of 66.5% at the end of 2021 (government bonds 42%, corporate bonds 16% and debt funds 8%).

However, a more comprehensive analysis of individual countries data shows that this conclusion cannot be applied to the entire insurance market, but that there is a subgroup of countries in which the portfolio composition dynamics are different. Namely, in the Scandinavian countries (Denmark, Sweden, Norway), but also in five other countries (Poland, Hungary, Ireland, Slovenia and Austria), the trend of a gradual decrease in the share of debt securities and simultenous increase in the share of equity and equity funds is noticeable. In these countries, the share of debt securities decreased from 44% to 38% in the observed period, while the share of equity and equity funds increased from 30% to 38%. The share of equity increased from 15% to 19% in the same period, while the share of equity funds increased from 15% to 19%. Therefore, at the end of 2021, the share of equity and equity funds was approximately equal to the share of debt securities in this subgroup of countries.

As a final conclusion, it could be stated that the insurers' portfolio composition in the European Union varies significantly from country to country and that there are no general conclusions that can be applied to all observed countries. However, it can be pointed out that EU insurers are still primarily exposed to fixed income securities, while the share of equity

is much smaller. Also, Mediterranean countries have extremely conservative portfolio compositions, while, on the other hand, the insurers' portfolio composition in Scandinavian countries is much more aggressive.

The main limitation of the analysis lies in the very short time period for which the data were collected. By considering a longer period for which the data would be collected in a consistent manner, conclusions with a significantly higher level of theoretical applicability could be drawn. Also, in the analysis of the insurers' portfolio composition, only debt securities and equity were considered as traditional asset classes, while alternatives were ignored. Given that the rise of the importance of the alternatives represents one of the directions in which insurers have been reorienting their strategic asset allocation in the past few years, the inclusion of alternative classes in portfolio composition would increase the quality of the conducted analysis and the practical applicability of the obtained results.

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