

OPSG

# OCCUPATIONAL PENSIONS STAKEHOLDER GROUP

Own-initiative OPSG Advice

Low Interest rates & low expected returns

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## SUMMARY

This report examines the impact of steadily declining interest rates on European pension systems, followed by a surge in inflation and nominal rate increases. It discusses the drivers of these trends, including economic shifts and policy responses. The report also analyses their impact on the stability of retirement income. The document highlights the challenges posed by low returns and inflation on various retirement income sources, emphasizing the need for adaptive mechanisms in pension systems.

The **main sources of retirement income** for EU citizens include first pillar pay-as-you-go-systems (PAYG), second pillar pension benefits, personal pension products, and income from work, personal investments, real estate, and accumulated savings. Family support also plays a role. These components are universally impacted by financial market trends, making retirement income provision more costly and uncertain, particularly since early 2022 due to persistent inflation risks.

The report raises a number of questions for further discussion and analysis. The OPSG encourages EIOPA to take these questions into consideration when developing its work program.

**Policymakers** need to evaluate the balance between PAYG and funded pension systems amid aging trends, low returns, and inflation shocks. They should consider if public pension liabilities ought to be counted within public debt for a transparent financial overview. Regulation must adapt to a new financial environment, and pension providers should be guided to manage investment risks appropriately. Encouraging long-term investment strategies and considering mechanisms for dampening short-term volatility of pension benefits are vital.

**Pension funds and other pension providers** should transparently inform their present and future beneficiaries about several aspects of their pensions. They should clarify which part is guaranteed in nominal terms and which part depends on the uncertain developments of capital markets. Additionally, they should explain the potential risks involved and how inflation could erode the purchasing power of their nominal pension amount. This is usually done already in the Pension Benefit Statement (PBS), which contains projections for different scenarios. Events in 2022 show that savings and government bonds may not be as safe as previously assumed. How can pension providers contribute to an improvement of financial advice to retail savers and investors?

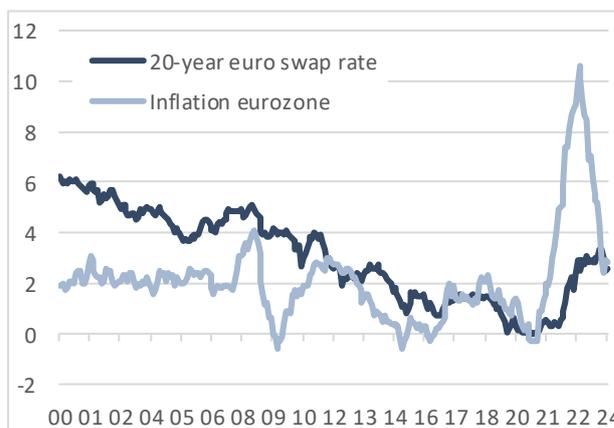
**Consumers** must realise the importance of achieving pension adequacy. The main risk of a pension product is the risk of not reaching the individual's retirement objective. It is crucial to ensure that consumers have access to good quality, independent advice that serves their best interest. Additionally, there must be efforts to raise awareness about the implications of low real interest rates, which may require consumers to save more or retire later to secure an adequate retirement income.

# LOW INTEREST RATES AND LOW EXPECTED RETURNS

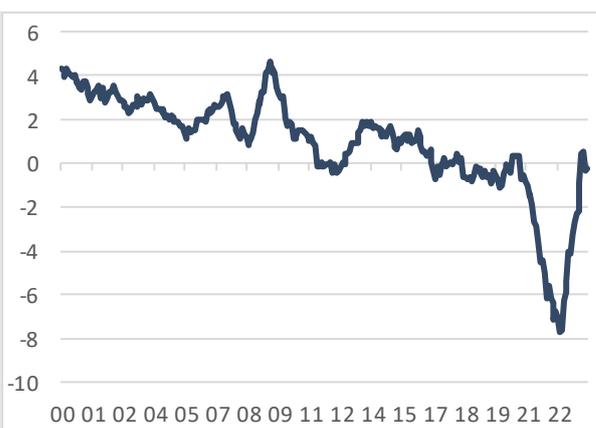
## 1. INTRODUCTION

After decades of decline in interest rates (see Figure 1 below), intensified by the Global Financial Crisis, COVID-19, and policy responses, the European Union has been and may continue to be in an environment of low interest rates. Persistent low interest rates affect the retirement income of European citizens in multiple ways. It has a direct impact on the valuation of liabilities and on expected investment returns. Meanwhile, the jump in inflation in 2022 led to an erosion of purchasing power of pensioners. Even if the inflation pressures are temporarily exacerbated by the pandemic and geopolitical crisis, as supply chains and manufacturing processes are disrupted, there is a risk that inflation will stabilize at a higher level than before. In a situation where nominal interest rates would continue to stay low, this would have a strong negative impact on pension provision and funded systems.

**Figure 1a Risk-free rate and inflation and real rate**



**Figure 1b Real rate (risk-free minus inflation)**



Source: Bloomberg

This report, which is an own-initiative OPSG advice, reflects on the following issues.

First, we look at the causes of low interest rates and we ask ourselves whether it is likely that low interest rates will continue. In this section we also reflect on the relation between interest rates and the expected returns on risky assets as well as the relationship with inflation. We reflect on the developments in 2022 and ask the question whether this changes our conclusions in any way.

Second, we discuss in which way persistently low nominal and real interest rates influence the retirement income of individuals in the European Union.

Third, we distinguish several key questions for policy makers, pension organizations and consumers, for future discussion and analysis.

## 2. INTEREST RATES, EXPECTED RETURNS, AND INFLATION

### 2.1 DRIVERS OF INTEREST RATES

There are several lines of thought for understanding the driving forces of long run equilibrium interest rates. The first line of thought focuses on the connection between economic growth and interest rates. Such arguments are usually used by economists supporting the so called “quantity theory”, which has as a consequence, that in a market equilibrium the long-term nominal average interest rate should coincide with the sum of long-term average inflation and long term real economic growth. The second looks at how shifts in saving and investment preferences affect interest rates. The third focuses on the interventions by monetary authorities. These lines of thought are not independent of each other, but we will discuss them separately.<sup>1</sup>

#### **Line of thought 1: Economic growth**

Productivity growth and labour force growth - the two major components of long-run economic growth - can both affect interest rates. In addition, ageing trends play a role in growth prospects (European Commission, 2021). Slowing productivity growth can put downward pressure on interest rates. Facing lower expected future income, households may reduce current consumption and increase savings, smoothing their consumption between working years and retirement years. These additional savings put downward pressure on interest rates. As explained below, this trend is reinforced by the fact that slower productivity growth is also associated with fewer profitable investment opportunities for firms, which decreases the demand for investment.

As Bauer et al. (2020) observe, the EU has experienced a significant slowdown in both labour productivity and total factor productivity trend growth over the past 20 years. Aggregate labour productivity growth was already quite low before the 2008-2009 crisis and has further declined since 2011-2012. In the most recent years, productivity growth has been around 1% per year. Economists differ on the outlook for productivity growth, with pessimistic and optimistic views. On the one hand, long-term structural factors, will likely keep future productivity growth low (Gordon, 2014). On the other hand, productivity growth may get a boost as a result of digital technologies (Brynjolfsson and McAfee, 2014). It may, however, also lead to unemployment due to automation as the people losing jobs are not necessarily the ones needed for the newly created jobs.

With the ageing trend continuing, labour force growth is expected to slow further, putting additional downward pressure on economic growth. This is a major challenge for Europe.

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<sup>1</sup> For an excellent overview of recent literature on the topic of low interest rates and retirement security in the US, please refer to Yin et al. (2021).

Line 1: Economic growth will likely remain low and will continue to put downward pressure on interest rates.

### Line of thought 2: Saving and investment

The equilibrium long-run real interest rate brings savings and investments together. Aggregate global savings and investment as a share of GDP have been relatively stable over the past decades as interest rates declined. This suggests that the decline in real interest rates has been driven by a parallel shift in the global desired saving and investment schedules. The increase in the supply of saving could be explained by demographic forces, higher inequality and to a lesser extent the emerging market savings glut, whereas the fall in desired levels of investment could have been driven by the falling relative price of capital, declines in public investment, and an increase in spreads between risk-free and actual interest rates (Rachel & Smith, 2015).

In this context, public organisations, pension funds, and investment banks expect that the environment of low interest rates is likely to persist for some time to come. Projections of long-run equilibrium interest rates vary across studies. Although we have seen long-term nominal interest rates approaching the 3% level, we see a gradual return to lower rates again, as inflation came down and only gloomy growth materializes. The impact of inflation is considered difficult to assess and generally, as these longer-term forecasts are subject to great uncertainty. Market expectations remain low as well, as reflected in the forward rates.<sup>2</sup>

While *falling* interest rates pushed up actual investment returns over the years, stable rates at low levels imply low expected investment returns across asset classes, assuming expected risk premia are stable as well.

Line 2: Projections of savings, investments and inflation are difficult, but supportive of lower real interest rates.

### Line of thought 3: Central banks

The impact of central bank interventions on interest rates cannot be underestimated. Quantitative easing has been a massive force in financial markets, pushing down rates of sovereign debt and credit spreads alike. Many stakeholders used to speak of “financial repression”, referring to an environment with deliberately low interest rates even when inflation was increasing. This repression would help governments to decrease the real value of public debts in the long run. Many member states would have difficulty coping with higher rates to service their public debt. This line of thought suggests that not only economic but also political factors can validate the expectation that the “low for long” nominal interest rate phase may continue for some time. However, central banks were

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<sup>2</sup> <https://www.chathamfinancial.com/technology/european-forward-curves>

forced to move to a less accommodative monetary stance and increased their policy interest rates in order to push inflation rates back to their targets.

## 2.2 INTEREST RATES, EXPECTED RETURNS AND INFLATION

### **Line of thought 1: macroeconomic trends and investor behaviour**

The interest rate on German government bonds currently represents the expected return at maturity on an asset that is generally regarded as being risk-free. The expected return on risky assets needs to be higher than this, as investors require compensation for exposure to risk. This has led many investors to search for yield by buying increasingly risky assets, thereby pushing up prices of higher-risk assets, possibly creating bubbles in the process. When interest rates were trending down, returns have been high for fixed income securities. This development has also led to a rise in equity and real estate markets, as future dividends and rents could be discounted at lower rates, thereby pushing asset values to historic highs again and again. The search for yield also contributed to these dynamics.

However, this situation is likely to change if interest rates stay at low levels. As in general capital market theory equity returns should be equal to the risk-free rate plus a risk premium, assuming the equity risk premium to be independent of the interest rate levels, it would follow from general theory that when the interest rate stays low, expected equity returns will also be low (although there always might be deviations between theory and practice). Dimson et al. (2021) confirmed this by stressing that investors should assume that expected returns on equities will be lower in the coming years. In other words, expected returns are unlikely to match the average returns realised over the past decades.

An important issue is the link between interest rates, current inflation and inflation expectations. Prolonged low interest rates and expansionary monetary policy by central banks, may have caused inflation to increase. However, this was not the main reason that inflation went up significantly in 2022. Reis (2022) attributes the sudden rise in inflation to a combination of factors, including supply chain disruptions caused by the COVID-19 pandemic and rising energy prices caused by geopolitical crisis, especially the outbreak of the war in Ukraine, increased fiscal stimulus measures, and pent-up demand from consumers as economies reopened. He emphasizes the transitory nature of these factors, arguing that the spike in inflation was temporary and not indicative of long-term trends. However, Reis also cautions against complacency, stressing the importance of central banks and policymakers closely monitoring and managing inflation expectations to maintain price stability. Policy makers continued to argue that the inflationary pressures were transitory<sup>3</sup>, which probably

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<sup>3</sup>[https://www.ecb.europa.eu/pub/projections/html/projections202112\\_eurosystemstaff/ecb.projections202112\\_eurosystemstaff.en\\_img6.png?b985be6d827660ffebf2ed2f2d274f24](https://www.ecb.europa.eu/pub/projections/html/projections202112_eurosystemstaff/ecb.projections202112_eurosystemstaff.en_img6.png?b985be6d827660ffebf2ed2f2d274f24)

let monetary authorities delay their decision to increase policy rates. One may wonder whether this delay may raise the chances for a wage-price spiral.

The 2022 inflation shock put the topic of inflation risk firmly on the table again. Higher inflation obviously has important implications for the purchasing power of the retirees, as rising inflation hollows out pension benefits. This is the case in capital-based defined-benefit (DB) systems, where pension funds have not always been able to provide indexation over the past decade<sup>4</sup>. This is a structural problem if nominal rates stay too low in the face of continuous high inflation (i.e., low real rates, “financial repression”). First-pillar PAYG systems may be linked to price inflation (or wage inflation), but in an inflationary environment, the financing of public pensions may become even more challenging than they already are. In all systems, younger generations may use their human capital as a hedge.

### Line of thought 2: Regulation

Regulatory regimes also play a role in the impact of low interest rates on the returns that can be achieved by pension funds and pension products in general. By way of illustration, a regime like the pillar one of Solvency II limits the possibility of life insurers to invest in risky assets. In this way, Solvency II led many investors to increase risk-free assets and especially high-duration risk-free assets within their asset allocation, which led to lower expected returns. If funding requirements are too rigid, e.g., do not sufficiently acknowledge the long term, they may play a counterproductive role, leading to pro-cyclical investment behaviour. However, if supervisory authorities do recognize the long-term nature of the investments of pension providers and insurers, these sectors can play their role as an economic stabilizer.

New accounting rules, esp. the IFRS, probably led to a move towards more defensive investment strategies by pension funds as well. As the balance sheet of corporate pension funds had to be consolidated with that of the sponsor, fluctuations in the funding ratios directly influenced the P&L of the company. For many companies, this has been an important reason to move to DC.

**Economic environment:** The low interest rate environment (partly due to expansionary policies) led to strong rerating and lower expected returns. It has contributed to the 2022 inflation shock.

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<sup>4</sup> In particular in the case of Dutch pension funds which provide indexation conditional on their financial position, which was under pressure due to the market valuation of liabilities.

### 3. IMPACT ON RETIREMENT INCOME

This chapter discusses the impact of low interest rates and low return expectations on retirement income of individuals. First, we present a list of potential sources of retirement income. Next, we discuss a number of important considerations when evaluating the impact, e.g. regarding different groups in society. Also, we discuss the impact of lower interest rates.<sup>5</sup> Finally, we discuss the impact of higher inflation and inflation risk on each of the income sources.

#### 3.1 SOURCES OF RETIREMENT INCOME

Sources of retirement income differ from country to country and between groups of individuals within a country. An important start of the discussion is to determine where retirement income comes from.<sup>6</sup> The main sources of income and resources for citizens in the EU in retirement are first pillar PAYG pensions, second pillar pension benefits, personal pension products, income from work in retirement, returns from financial assets and real estate, and drawdowns from accumulated assets. Children or extended family may also play a role in supporting the elderly. Reliable data on these sources is limited to the first and second pillar.<sup>7</sup>

##### Considerations

The extent to which older individuals rely on the income sources mentioned above varies greatly by income range. There often is a stark difference between the haves and the have-nots. Large segments of the population only have the first pillar benefits as a source of income. On the other side of the spectrum, there are high income earners who may also be home owners, have a savings portfolio and second and third pillar pension arrangements. Limiting the analysis to general pension income and EU averages (see figure 2 below), we cannot substantiate this statement as we would need more refined information. The adequacy of retirement income also needs to be evaluated by looking at their net value after taxes and their adequacy in view of free or subsidised public services that pensioners enjoy in the different member states, and possibly at differences between elderly people's needs (European Commission, 2018). One direct measurement of whether the total package is sufficient for everybody is the poverty rate among pensioners, about which some data is available. Health care costs are highest during the final phase of someone's life. The way these costs are financed should be incorporated in any analysis of what is an adequate income in retirement.

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<sup>5</sup> For an excellent review of literature on this subject in the United States, see Yin et al. (2021).

<sup>6</sup> The World Bank (2008) developed a 5-pillar system, aiming to provide a structure all sources of retirement income.

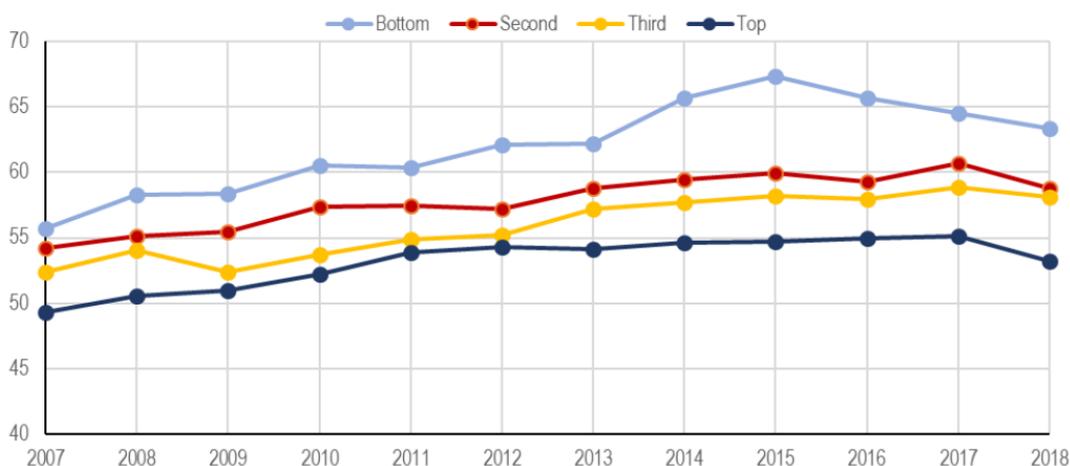
<sup>7</sup> This is another reason why a Pension Dashboard will prove to be a useful tool.

Cf. EIOPA submits its advice on pensions tools to the European Commission, December 2021:

[https://www.eiopa.europa.eu/eiopa-submits-its-advice-pensions-tools-european-commission-2021-12-01\\_en](https://www.eiopa.europa.eu/eiopa-submits-its-advice-pensions-tools-european-commission-2021-12-01_en)

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**Figure 2. Aggregate replacement ratios by income quartile**



Source: EU Pension Adequacy Report 2021, Eurostat, EU-SILC microdata and ESPN calculations.

## 3.2 IMPACT OF LOW REAL INTEREST RATES ON RETIREMENT INCOME

### PAYG First pillar

The sustainability of first pillar pensions depends very much on the demographic development of a society (especially on the ratio between active workers and pensioners) and on the overall financial health of public finances. The low interest rates obviously made it easier for governments to finance deficits. However, even with low interest rates, significant demographic challenges make reforms likely or even inevitable for many European countries, even though it is a politically highly sensitive subject, as the pension reform in France has demonstrated. This problem will be exacerbated if interest rates remain high for some time. In addition, as some PAYG-arrangements are indexed to price or wage inflation, a sustained rise in inflation poses additional challenges to the sustainability of public pensions. One potential upside is that in a tight labour market (which is not uncommon in an ageing society) wages increase faster than prices. This would be beneficial for PAYG-system, which are financed by contributions based on wages.

### Defined-benefit pension benefits

In most countries, the value of liabilities in a DB-like system is calculated using a discount rate that is linked to a market interest rate. Falling interest rates have pushed down the liability discount rates, thereby pushing up the current value of liabilities. Some countries allow pension funds to use expected long-term returns to value liabilities and these pension funds obviously appear to be in better shape: with duration of liabilities of around 20 years, a discount rate which is 1%-point higher, implies a funding ratio which is around 20% higher.

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The impact of falling rates and Quantitative Easing on the asset side has also been significant: realized investment returns have been impressive across asset classes. However, the sharp rise in inflation and interest rates have started to have the opposite effect: the price of assets fell, whereas the value of liabilities fell even more, thereby reducing pressure on funding ratios (Dimson et al., 2021). If pension promises come with specific guarantees, funded systems may contain PAYG-elements that have to be financed, either directly from the budget (public, corporate) or indirectly from younger generations.

### Defined Contribution arrangements

Falling rates in combination with expansionary monetary and fiscal policies have led to a search for yield, which resulted in buoyant stock markets, subsequently leading to a significant increase in the value of DC portfolios in recent years. Reports of the EIOPA Stress Test showed a decrease of fixed income investments from 63% in 2015 to 57% in 2019, while there has been an increase in the relative share of other investments, such as loans and mortgages, derivatives, deposits other than cash equivalent, residual investments, which may point to an increasing investment in non-traditional investments and derivatives.<sup>8</sup> The value of guarantees incorporated in some DC-products also increased substantially due to falling rates.<sup>9</sup> And should this capital be transformed in an annuity on retirement, the downside of falling rates becomes apparent: like DB-benefits, annuities have become very expensive. Regarding financial planning, using past returns to estimate future expected benefits, is likely to lead to disappointments (Horneff et al., 2018).

In most DC systems, it is common to have a lifecycle approach to investment, where more risk is taken when a member is younger and as they approach retirement there is an automated switching to less risky assets (generally bonds). This approach is often encouraged or required by regulators. This prevents major falls in asset values when a member is close to retirement. However, when interest rates rose quickly in 2022 that meant the value of funds with a high bond content fell significantly. Where the individual was planning to purchase an annuity at retirement it probably didn't matter as much as annuity rates also improved. But where individuals were planning to continue to invest post-retirement, it had a very negative impact for them.

### Home ownership

Falling interest rates have pushed up housing prices all over the world as mortgage rates declined. There are different ways to incorporate home ownership in retirement income and the impact of housing on retirement income is more difficult to assess, but it may be limited. If you do not own a house, the impact of falling rates may have indirectly led to higher rents, as the higher value of the house may be incorporated by the owner into the rent. On average, housing costs have become a

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<sup>8</sup> EIOPA, December 2019, Institutions for Occupational Retirement Provision (IORPs) Stress Test Report (EIOPA-19/673), Frankfurt: EIOPA. For 2015 please refer to p.111, fig. 133 and for 2019 please refer to p.44 fig. 2.45.

<sup>9</sup> Some types of Italian DC IORPs, for example, must guarantee a certain return. The portfolio underlying these guarantees was a most fully invested in bonds, especially sovereign bonds. Alongside falling interest rates, a substantial shift in the risk profile of these investment products took place to match the returns implied by the guarantees. Meanwhile, the fees requested by those in charge of the guarantee rose significantly as well.

larger part of overall household expenses. In many countries, home ownership also serves as a kind of private pension. Lower interest rates may lead to an increase in inflation for people who do not own a house.

It should be taken into consideration, however, that this conclusion may not be valid for all EU member states in the same way. In Germany, for example, the Federal Government tried to implement a massive public financial program for the construction of private flats and houses, but due to budget restrictions and rising interest rates it largely failed. Additionally, the Bundesbank in its Financial Stability Report of November 2021 warned against the possibility of regional price bubbles of real estate, which may still be valid even though housing prices already dropped strongly. In other countries it also became more difficult for people to buy a house as a result of rising prices and low availability of housing, particularly in cities. If more people are unable to buy and have to rent in retirement, this further highlights the need for income in retirement as, traditionally, most house owners will have paid their mortgage by the time they retire.

### **Private savings**

Many Europeans accumulated private savings, without an explicit purpose. These savings can therefore obviously be used to supplement retirement income, and should be taken into consideration in this analysis, if at all possible. It should also be noted that traditional pension products are in competition with investment products, which primarily aim at higher returns. The pandemic has caused a strong push to an increased participation of retail investors in stock markets. Professional financial advisors have therefore an enhanced duty of impartial and comprehensive advice regarding the saving objectives of their customers on two levels:

1. Contribution phase: differentiation between necessary liquid means, long-term savings for retirement and risk-reward trade-off in asset allocation.
2. Pay-out phase: differentiation between basic coverage of longevity risk and drawdown plans for consumption to ensure an adequate living standard.

### **Other sources of income**

Over the past decades, it has been more common in countries around the world to work beyond official retirement dates, possibly part-time. Information on the percentage of people receiving income from labour after the legal retirement age is difficult to find. It is encouraging to see that the effective retirement age has risen quickly over the past years towards the legal retirement age. Also, many member states were able to raise the legal retirement age, in spite of significant public pressure against it.

## **3.3 IMPACT OF INFLATION ON RETIREMENT INCOME**

Developments since early 2022 showed us that inflation risk has not disappeared. Inflation has a different impact on different sources of retirement income, depending on how they are organized.

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The OECD (2022) emphasizes the importance of adjusting pension systems to account for inflation, such as indexing benefits to inflation rates, incorporating inflation-linked assets in pension funds' investment portfolios, and increasing financial education and awareness to help individuals better understand the implications of inflation on their retirement income.

### **PAYG First pillar**

The impact of inflation on pay-as-you-go (PAYG) pension systems is a subject of concern for economists, policymakers, and retirees alike, as inflation has the potential to undermine the stability and effectiveness of these social security schemes. When inflation rises, the purchasing power of pension benefits decreases, leaving retirees with diminished financial resources to cover their living expenses. At the same time, the real value of contributions made by current workers is also eroded, which threatens the long-term sustainability of PAYG pension systems (Barr & Diamond, 2009). To address the inflationary pressures, governments may attempt to index pension benefits, adjust contribution rates, or modify the retirement age (OECD, 2021). However, these policy measures can be politically contentious and may not fully offset the adverse effects of inflation on PAYG pensions.

### **Defined-benefit pension benefits**

The potential impact of inflation on defined benefit (DB) pension funds is a critical question for plan sponsors, pension fund managers, and beneficiaries. Inflation has the potential to erode the real value of pension fund assets, leading to funding shortfalls and threatening the ability of DB plans to meet their long-term obligations. Moreover, higher inflation can increase pension liabilities by raising the present value of future pension payments, particularly when benefits are indexed to inflation. However, high inflation when coupled with high interest rates, can also lead to a fall in the present value of future pension payments and will depend on the assets and the extent to which liabilities are inflation-linked. Such valuation changes can be long-term or temporary. Consequently, DB pension funds need to manage their investment strategies effectively, considering the risk of inflation, the long and short-term impacts on the particular defined benefit business. This may include seeking to preserve the purchasing power of their assets through inflation-hedging instruments like inflation-linked bonds, real estate, or commodities (Ambachtsheer, 2007). However, these approaches may expose the pension funds to other types of risks, such as liquidity and market risks, which can further complicate their ability to maintain adequate funding levels (Andonov et al., 2017). In assessing funding adequacy or shortfalls, it is important that IORPs include “real world” assessments based on projected best estimate pay-outs to scheme members coupled with best estimate investment returns projections, and sensitivities around these liability and asset best estimates assumptions. They should not only rely on market consistent valuation methodologies in deciding the best investment strategies or if benefits can be increased or need to be decreased. While market consistent methodologies can provide useful information (for example to provide the theoretical market transfer value of the IORP liabilities), they can be overly conservative and volatile, especially if a risk free discount rate without a Solvency II type matching or volatility adjustment.

### **Defined contribution arrangements**

The impact of inflation on defined contribution (DC) pension arrangements remains a critical concern for both the accumulation and decumulation phases of retirement savings. During the accumulation phase, inflation can erode the real value of investment returns, thereby affecting the ultimate size of retirement savings. To mitigate the impact of inflation, individuals may need to invest in assets offering some degree of inflation protection, such as inflation-linked bonds, real estate, or equities. However, these investments may expose individuals to additional risks, such as market volatility, which could negatively affect their retirement savings. In the decumulation phase, retirees face the risk of inflation eroding their purchasing power, particularly if they choose to draw down their pension in fixed amounts or purchase a fixed annuity (Cocco et al., 2018). To address this risk, retirees may opt for inflation-adjusted annuities or employ a dynamic withdrawal strategy, although these approaches may come with trade-offs, such as lower initial payments or increased complexity in managing retirement income (Pfau, 2019).

### **Home ownership**

The impact of inflation on home ownership, when considered as a source of retirement income, can be both positive and negative. On one hand, inflation can lead to an appreciation in the value of real estate, thereby increasing the homeowner's wealth and providing a potential source of retirement income through downsizing, home equity release, or reverse mortgage (Nakajima & Telyukova, 2017). This appreciation can help protect the homeowner's purchasing power during retirement, serving as a natural hedge against inflation (Sinai & Souleles, 2005). On the other hand, inflation can also lead to higher costs of home ownership, including increased property taxes, maintenance expenses, and insurance premiums. These increased costs can strain the household budget, especially for retirees on a fixed income, and may offset some of the benefits of home value appreciation as a source of retirement income. Therefore, it is important for homeowners to factor in the potential impact of inflation on both the value of their home and the associated costs of home ownership when considering their home as a source of retirement income.

## 4. CONCLUSIONS

In the end, it should not really matter what the source of retirement income is for the individual retiree. Different countries have developed different views and different institutions to service their citizens in old age. Still, low nominal and real interest rates have raised questions regarding the optimal mix of systems within a country and the extent to which certain systems need adjustments. The OPSG hopes that the questions listed below will be taken into consideration by EIOPA in developing its work program.

### Policy makers

- ▶ What is the **optimal split between PAYG and funded systems** in an economy? While noting that this split is country-specific given the differences between pension systems across Europe, it is obvious that in a number of countries, complementing PAYG systems with stronger occupational and personal pension system will help address pension inadequacy risks.
- ▶ Should we make the **implicit pension debt** in PAYG-systems explicit or integrate it in overall public debt figures? For corporate pension schemes, this is already the case due to accounting standards. Can or should these rules be applied to public schemes as well? Of course, we should realize that PAYG-systems include additional claims stemming from general social policy objectives which are not part of “funded” pensions. Note that we could take the legal perspective as well: defaulting on bonds or on PAYG-financed pension expectations has very different consequences and will be regarded very differently by any government. This is, by the way, a strength of funded pensions even if they only invest in their own government bonds.
- ▶ How should **pension regulation** take into account the fact that real interest rates are likely to remain low for a long time? What should the role of the risk-free rate be? How should inflation risk be incorporated? How can pension providers be encouraged to avoid taking too much or too little investment risk? How can long-term investing strategies best be accommodated and encouraged? Would there be room for the introduction of smoothing mechanisms, recognising the long-term nature of pensions both on the asset and the liability side? Moving away from the short term could help pension funds to take adequate long-term decisions in the best interest of their members and beneficiaries and contribute to investments in infrastructure and the energy transition, thereby boosting the CMU and the EU’s economic growth.

## Pension funds

- ▶ How realistic are **projected pension benefits**, both in nominal terms as in terms of purchasing power?
- ▶ How can we prevent pension funds and individuals to take **too much or too little investment risk**? The obvious question is whether there is a way to determine what is “too much” or “too little” investment risk. The best we can probably do is to check whether promised returns stack up against actual investment policy.
- ▶ How can pension providers contribute to an **improvement of financial advice** for retail savers and investors? Retirement provision must be part of any financial planning, making the fundamental differentiation between necessary short-term liquidity reserves (for daily consumption), long-term saving for retirement provision (for coverage of longevity risk) and additional asset allocation based on individual risk awareness (for individual living standard).

## Consumers

- ▶ In the current financial environment and light of higher life expectancy, one should **save more during active life** (and/or retire later). How can we raise awareness that the lower real interest rates and lower expected returns imply that pensions have become more expensive and that consumers will have to save more or longer to realize the retirement benefit they need? How can disclosures, financial literacy initiatives, access to good quality independent advice and other tools (such as pensions tracking systems, dashboards, comparison tools etc.) be used to address these concerns?

## REFERENCES

- Ambachtsheer, K. (2007). *Pension Revolution: A Solution to the Pensions Crisis*. John Wiley & Sons.
- Andonov, A., Bauer, R., & Cremers, K. M. (2017). Pension Fund Asset Allocation and Liability Discount Rates. *The Review of Financial Studies*, 30(8), 2555-2595.
- Barr, N., & Diamond, P. (2009). *Pension Reform: A Short Guide*. Oxford University Press.
- Bauer, P., Fedotenkov, I., Genty, A., Hallak, I., Harasztosi, P., Martínez-Turégano D., Nguyen D., Preziosi, N., Rincon-Aznar, A., Sanchez-Martinez, M. (2020). *Productivity in Europe – Trends and drivers in a service-based economy*. EUR 30076 EN, Publications Office of the European Union, Luxembourg. ISBN 978-92-76-10610-4, doi:10.2760/469079, JRC119785.
- Brynjolfsson, E., & McAfee, A. (2014). *The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies*. New York, NY, US: W. W. Norton & Company.
- Coile, C., & Milligan, K. (2018). How Household Portfolios Evolve After Retirement: The Effect of Aging and Health Shocks. *The Review of Income and Wealth*, 64(2), 332-358.
- Cocco, J. F., Gomes, F. J., & Lopes, P. (2018). Longevity Risk, Retirement Savings, and Financial Innovation. *Journal of Financial Economics*, 130(3), 472-492.
- Dimson, E., Marsh, P., & Staunton, M. (2021). Summary Edition Credit Suisse Global Investment Returns Yearbook 2021. London: Credit Suisse. Retrieved from [www.credit-suisse.com/media/assets/corporate/docs/about-us/research/publications/credit-suisse-global-investment-returns-yearbook-2021-summary-edition.pdf](http://www.credit-suisse.com/media/assets/corporate/docs/about-us/research/publications/credit-suisse-global-investment-returns-yearbook-2021-summary-edition.pdf).
- ECB (2021). *Eurosystem Staff Projections*. Retrieved from [https://www.ecb.europa.eu/pub/projections/html/projections202112\\_eurosystemstaff/ecb.projections202112\\_eurosystemstaff.en\\_img6.png?b985be6d827660ffebf2ed2f2d274f24](https://www.ecb.europa.eu/pub/projections/html/projections202112_eurosystemstaff/ecb.projections202112_eurosystemstaff.en_img6.png?b985be6d827660ffebf2ed2f2d274f24).
- EIOPA (2019). *Institutions for Occupational Retirement Provision (IORPs) Stress Test Report*. EIOPA-19/673. Frankfurt: EIOPA.
- European Commission Directorate-General for Employment, Social Affairs and Inclusion (2018). *Current and future income adequacy in old age in the EU*, Volume I and II. Retrieved from <https://ec.europa.eu/social/main.jsp?catId=738&langId=en&pubId=8084&furtherPubs=yes>.
- European Commission (2021). *The 2021 Ageing Report: Economic & Budgetary Projections for the EU Member States (2019-2070)*. Institutional Paper, Nr. 148. Brussels: EC. Retrieved from [https://ec.europa.eu/info/publications/2021-ageing-report-economic-and-budgetary-projections-eu-member-states-2019-2070\\_en](https://ec.europa.eu/info/publications/2021-ageing-report-economic-and-budgetary-projections-eu-member-states-2019-2070_en).
- Gordon, R. J. (2014). The Demise of U.S. Economic Growth: Restatement, Rebuttal, and Reflections. *NBER Working Paper*, No. 19895. <https://doi.org/10.3386/w19895>.

OPSG-24-06  
PUBLIC

Horneff, W., Maurer, R., Mitchell, O. S., & Rogalla, R. (2018). How Persistent Low Expected Returns Alter Optimal Life Cycle Saving, Investment, and Retirement Behavior. *NBER Working Paper*, No. 24311.

IMF (2021). *World Economic Outlook - Managing Divergent Recoveries*. Washington DC: IMF.

Nakajima, M., & Telyukova, I. A. (2017). Home Equity in Retirement. *Annual Review of Financial Economics*, 9, 311-330.

OECD (2021). *Pensions at a Glance 2021: OECD and G20 Indicators*. OECD Publishing.

OECD (2022). *How inflation challenges pensions*. OECD Policy Brief. Retrieved from <https://www.oecd.org/pensions/How-inflation-challenges-pensions.pdf>.

Rachel, L., & Smith, T. (2015). Secular Drivers of the Global Real Interest Rate. *Bank of England Staff Working Paper*. 571. Retrieved from <https://www.bankofengland.co.uk/working-paper/2015/secular-drivers-of-the-global-real-interest-rate>.

Pfau, W. D. (2019). Retirement Income Sustainability: Annuities, TIPS, or Whole Life Insurance? *The Journal of Financial Service Professionals*, 73(6), 52-62.

Reis, R. (2022). The Burst of High Inflation in 2021–22: How and Why Did We Get Here? *Working Paper*, London School of Economics, pp. 25.

Sinai, T., & Souleles, N. S. (2005). Owner-Occupied Housing as a Hedge Against Rent Risk. *The Quarterly Journal of Economics*, 120(2), 763-789.

World Bank, 2008, *The World Bank Pension Conceptual Framework, World Bank Pension Reform Primer Series*, Washington, DC: World Bank. <http://hdl.handle.net/10986/11139>

Yin, Y., Boyd, D., & Sun, H. (2021). Understanding the Impact of the Low Interest Rate Environment on Retirement Security in the United States: A Review of Academic and Practitioner Research. *Research Report, Society of Actuaries*, pp. 55+ appendix. Retrieved from <https://www.soa.org/resources/research-reports/2021/low-interest-rate-retirement>.