



AAE  
DISCUSSION  
PAPER

# A PRIMER ON INFLATION RISK MANAGEMENT

NOVEMBER 2023

## SUMMARY

The current macroeconomic environment has reminded us that inflation is a very real risk. It has been over 40 years since we last saw high inflation and therefore most actuaries working today have not experienced such an environment.

With this paper, the AAE wants to aid the actuarial community in providing effective risk management in the current volatile and uncertain inflation environment. In order to do so, the paper covers the following topics:

- An Introduction to Inflation – This section covers a variety of inflation concepts to enable the reader to refresh their knowledge on inflation.
- Managing Inflation Risk – This section covers a number of risk management techniques for inflation risk.
- Inflation Risk – This section covers the direct impact of high inflation.
- Broader Macro-Economic Risks – This section covers the broader, secondary impacts of high inflation.

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# 1 AN INTRODUCTION TO INFLATION

## MACROECONOMICS AND INFLATION - CAUSE AND CONTROL

Inflation is the increase in the price of goods and services in an economy. There are three main forces that can cause inflation:

- **Increased Demand** – As demand for goods and services increase, prices will rise if supply cannot be expanded for the increased demand.
- **Reduced Supply** – As availability of inputs into the production of goods and services declines, the costs of those goods and services will rise.
- **Inflation Expectations** – Expectations about future inflation can create a feedback loop that impacts inflation. If the expectations are that future inflation may be high, demand for goods may increase as consumers accelerate purchases and stockpile goods. Similarly, if expectations for inflation are high, members of the labour force may expect higher wages.

Government policy can impact inflation. Expansionary fiscal policies<sup>1</sup> can increase inflation. Under an expansionary fiscal policy, governments will try to grow the economy by increasing the money supply in the economy. This can be done via increased government spending or reducing taxes. The resulting increased demand can cause inflation if supply doesn't grow to meet the demand.

Central Banks try to control inflation via monetary policy<sup>2</sup>. By increasing interest rates in inflationary times, they make borrowing more expensive, thereby reducing the monetary supply. This causes economies to contract and reduces inflation. Most Central Banks look to a 2% inflation target. Alternatively, in times of low inflation, central banks may reduce interest rates to stimulate the economy.

Low, stable inflation is seen as good for the economy as it allows businesses and consumers to better plan their savings, spending and investment resulting in an increase in business and consumer confidence.

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1 Fiscal policy – Government policy intended to impact the economy through the use of government spending and taxing.

2 Monetary policy – Central bank policy intended to impact the economy through the use of interest rates.

## SPECIAL TYPES OF INFLATION

There exist a wide variety of terms to describe different inflationary periods. The following are three of the more commonly referenced types of inflation:

- Deflation – The decrease in the price of goods and services in an economy. Deflation is usually seen as bad as it is often a signal of a downturn in the economy. It can also be the result of technological improvements or of a strong domestic currency.
- Hyperinflation – A rapid, excessive and out of control general price increase within an economy. A commonly quoted benchmark is a 50% increase in the price of goods in a month. It is caused when a government increases its money supply to a level that its GDP cannot support. Germany experienced hyperinflation following WWI due to the debt it had acquired during the war as well as the reparations imposed on it by the Treaty of Versailles. Some other countries have experienced hyperinflation more recently, e.g. Zimbabwe.
- Stagflation – Stagflation refers to a period of high inflation in a stagnating economy with the inflation often being caused by an external shock. The world experienced stagflation in the 70's.

These types of inflation have bigger negative impacts on the economies. In the years immediately prior to 2022, inflation levels in most regions had been relatively stable for an extended period with periodic spikes caused by external crises. However, there have been extended periods of high inflation and deflation throughout history.

- The Great Deflation – The global economy experienced a period of deflation from 1870-1890 due to the productivity gains from the Second Industrial Revolution.
- WWI and WWII – The war time spending and borrowing led to an increase in inflation.
- The Great Depression – This period of deflation was the result of the collapse of the financial sector and bank failures.
- The Great Inflation – The global economy experienced an extended period of high inflation from the mid 1960's through the early 1980's. This period of inflation included periods of stagflation. This extended period of inflation is often considered to be caused by a lack of understanding of the link between inflation and an expansionary fiscal policy. This led to expectations of increased inflation becoming embedded in multiple jurisdictions.

## THE IMPACT OF INFLATION

Inflation erodes the real value of ‘fixed claim’ assets such as cash and most types of fixed income bonds.

Not all assets experience a deterioration of real value. To the extent that an asset’s future returns (for example, inflation linked bonds, common share equity or commodity investments) benefit from inflation (e.g. rising energy costs, rising production costs, etc), its real value may be protected and its nominal value *may* increase relative to other assets. When assessing the impacts of inflation, it is important to assess both real and nominal effects.

Inflation transfers real value from the ‘accumulated value of past savings’ to the ‘future productivity of real assets’. Simply put, goods cost more and your accumulated wealth will now buy you less of what you need in the future.

Inflation also transfers real value from asset owners to borrowers. Inflation reduces the real burden of existing (fixed) debt. By reducing the burden of debt, inflation also creates aggregate space in the economy for either more debt or more surplus both of which could mean more space for investment in the economy.

In response, central banks will look to reduce inflation by increasing interest rates. Rising nominal interest rates work to reduce inflation by (1) reducing aggregate demand across the economy by increasing the cost of the debt burden and (2) capturing the emergent excess economic surplus which is driving inflation by increasing the debt servicing costs.

## THE CURRENT SITUATION

Prior to the shocks of COVID 19, the macro-economic environment was characterised by low interest rates, low inflation, stable economic growth, and central bank support of financial markets via quantitative easing<sup>3</sup> (QE) programs. Given the numerous stress events of the past few years, there is now increased uncertainty regarding the macro-economic environment.

In the USA, the Federal Reserve and the government are aligned to bring the inflation rate to around 2% pa by raising interest rates in excess of 5% and reducing the deficit in order to reduce liquidity in the economy even if it leads to a recession. The bet is that the companies will be less likely to accept salary rises, and households spend less so the inflation rate will come back around the 2% target.

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 3 Quantitative easing is a monetary policy strategy used by central banks whereby the central bank purchases securities in an attempt to reduce interest rates, increase the supply of money and drive more lending to consumers and businesses.

In Europe, the situation is more difficult. While the ECB may have a mandate to target a 2% inflation rate, member countries have will different public spending and deficit policies that hamper ECB action. This is further challenged by the macro-economic environment. It will be difficult to battle against inflation, maintain households revenues, face the energy crisis, finance the transition to carbon neutrality and cope with financial markets volatility.

In Europe, major contributing factors are:

- The increase in the money supply due to QE and pandemic financing.
- Increased prices and reduced availability of energy and commodities, as a result of COVID-related supply chain effects and the war in Ukraine.

Recently, the US Federal Reserve and European Central Bank changed the nature of their inflation targeting from targeting 2% each year to targeting 2% average annual inflation over a longer (unspecified) time period. This change may mean that policy rates may not be pushed as high as the 1970s, as central banks allow higher inflation to achieve the long-term average run inflation at 2% pa. It is also a possibility that central banks may accept a newer higher, possibly interim, target that is higher than 2% pa to lessen the scale / impact of increased nominal interest rates on global economies.



## 2 DIFFERENT INFLATION MEASURES AND EXPOSURES

This primer has concentrated so far on ‘aggregate’ inflation, i.e. inflationary pressures across the economy as a whole. In practice, different parts of an economy may be subject to different inflationary pressures, resulting in the prices of different goods and services rising at different rates. In practice, institutions, firms and individuals are not exposed to inflation in a homogenous manner, so these differences can have important consequences in some circumstances.

Historically, wage growth has tended to outpace price growth as economies have become richer, so it is common in actuarial thought to differentiate between these two types of inflation. At an economy-wide level, it is also common to segment inflation in other ways. For example, some inflation indices may include mortgage and/or rental costs whilst others may not, because economic developments influencing these costs (such as central bank interest rate interventions) often operate differently to other factors impacting inflationary trends. Central bank interest rate policy may also focus on developments in ‘core’ inflation measures that deliberately exclude volatile external factors such as energy and food prices, even though these external factors are important contributors to inflation for most institutions, firms and individuals. Such ‘core’ inflation measures may more accurately reflect what central banks can practically control via interest rate interventions. Even within the same currency zone (e.g. the eurozone), different regions (e.g. different member states) may face different inflationary trends because of the different regional make-ups of their economies.

Differences in different inflation measures can also be important for financial organisations. Often a substantial proportion of their (operating) expense base arises from labour costs, which might be expected to rise roughly in line with general wage inflation but with sector specific elements depending on competition between these organisations and the more general labour market. Also, claim payments made by non-life (property & casualty) insurers often rise in line with (price) inflation, because the insurance policies they have written may require them to replace or repair goods at their current value not the value when the policy was first taken out. Superimposed on such general claims inflationary pressures may be ones specific to particular classes of insurance business. For example, claim payments for liability classes such as medical malpractice have tended to outpace general price inflationary trends and even general wage inflationary trends because of changes over time in the underlying judicial or regulatory environment. The regular payments arising from annuity contracts may include explicit linkage to (specific) cost of living measures (but potentially with upper or lower limits). Such a linkage also often applies with pensions payable by defined benefit pension schemes.

### 3 MANAGING INFLATION RISK

Inflation is very relevant for both life and non-life insurance companies. Inflation will increase claim costs for many types of insurance. Even if your claims costs are not exposed to inflation risk, policyholders will be experiencing the impacts of inflation in their lives. We should use our knowledge to ensure good product management and to ensure stability and protection for the greater public good. Here we propose some of the most important tools for good inflation risk management.

#### PRODUCT DESIGN

Inflation risk management begins at the product design stage. Make sure your business case templates, product design committees and product governance in general considers how your products should or could adapt and react in volatile inflation environments in order to protect both company and customers.

#### FUTURE MANAGEMENT ACTION PLANS

The Solvency II framework for risk management encourages management approved future management action plans to deal with risks like inflation. These are great tools to ensure timeliness and good risk management in uncertain and volatile environments.

Management should consider the impact inflation could have on its business and prepare future management actions plans related to inflation, if the risk is material. This will allow management to react quickly and effectively in the event of the materialisation of the risk.

#### INFLATION HEDGING

Pension and insurance providers can be exposed to inflation risk through their pension/ insurance obligations. Direct inflation risk comes from benefits that are directly linked to some kind of price index. Indirect inflation risk comes from benefits (for example medical benefits) where customers have a justified expectation that their benefit levels will follow general price levels in society within a relatively short time period. In both cases, it is relevant to consider if the investment strategy should contain a full or partial inflation hedge strategy. A hedging strategy can be especially important for payments with short maturity where you cannot expect other asset classes to outperform quick changes in inflation.

The most common inflation hedge strategies are inflation linked bonds and inflation swaps. Inflation hedge strategies are typically not as simple as other hedge-strategies as they often contain increased risk in the following areas:

- Increased interest rate risk from the discounting effects on your hedge.
- Increased liquidity risk from collateral.
- The market for inflation swaps and inflation linked bonds is not as large and liquid as other markets. This may mean that the necessary derivatives and bonds may be more expensive than expected.
- Basis risk exists when hedging sector specific risks such as medical inflation as inflation linked bonds and inflations swaps will be based on broad indices.

Inflation hedge strategies are a strong tool to ensure good risk management of both your capital and your customers, but management must consider the new risks that are introduced by the strategy.

## SCENARIO TESTING

Scenario testing is a great tool to test how your obligations towards both beneficiaries and shareholders are affected by adverse scenarios and if your governance and risk management setup is ready for these scenarios. Management should look at the impact of multiple inflations on their companies. Here are some examples that could be relevant to test in the current volatile inflation environment we are in:

**Scenario 1:** There will be a strong recession that will lower inflation to target levels without the Central Banks obliged to strongly raise their rates.

**Scenario 2:** Central banks will be obliged to raise the interest rates beyond what financial markets expect to successfully lower inflation to target levels.

**Scenario 3:** Central banks do not raise rates as sharply as otherwise expected in order to address the other challenges they face resulting in a new, higher, target inflation rate such as 3.0-3.5% pa.

**Scenario 4:** Despite the central banks attempts at lowering inflation, inflation expectations become embedded within consumer's minds resulting in increases in wages to compensate and an extended period of high inflations and interest rates.

Appendix A contains a list of papers that illustrate historical inflation rates for the UK and USA. These papers may be helpful in designing scenarios to test the impact of future inflationary pressures on a company.

Appendix B contains further information on considerations for scenario generation based on the scenarios developed by the European Systemic Risk Board (ESRB).

## 4 INFLATION RISKS

Effective risk management of inflation risk involves uncertainty management. The degree of uncertainty will differ from one country to another according to the rate of growth in the economy, and how governments prioritize

- maintaining households revenue,
- addressing the current energy crisis,
- financing the transition to carbon neutrality, and
- the public deficit.

A country like Germany with a low deficit will have more room to maneuver than other countries with high public deficits. Moreover the actions of the US Federal Reserve will influence the European Central Bank's actions. Last the evolution of the war between Ukraine and Russia will also influence Central Bank actions.

This uncertainty management will differ due to the nature and complexity of a company's liabilities and by the nature and sophistication of its investment strategy.

Every undertaking will be concerned with the impact inflation has on its expense base<sup>4</sup>. Insurers and pension funds will also be concerned by the long term impact on their assets and liabilities. Expected future benefit payments, expected to be funded at historical inflation rates, may grow unexpectedly and become underfunded.

Inflation can also impact claims on indemnity covers disproportionately. If an insurance policy has a fixed deductible, the net average claim will grow at a rate greater than the rate of inflation as the claim cost grows based on the total claim cost. Similarly, policy maximums and maximum retention limits reduce the impact of inflation as claims are capped.

In addition to funding issues, there exist many broader macro-economic risks. The stresses on the economy due to high inflation and rising interest rates may result in increased defaults or policy lapsation. Companies may be exposed to liquidity issues that occur when markets are stressed. The level of risk will differ depending on the level of leverage and the level of use and type of derivatives. Management should review its derivative portfolio and understand the impacts on the undertaking under a variety of adverse scenarios. These risks are covered in more detail in the following section.

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4 Examples include salaries, rent, utility costs.

## 5 BROADER MACRO-ECONOMIC RISKS

In addition to the specific risks mentioned in the previous section, there exist several additional, broader macro-economic risks that should be considered and risk mitigant plans developed if appropriate. Some financial market risks that should be more closely monitored and be prepared for in a volatile and uncertain inflationary market include:

- A. Impact on lending and credit.
- B. Securitization of investments.
- C. Insurance lapses and coverage reductions.
- D. Bank runs.
- E. Losses of asset managers on illiquid assets coupled with high debt leverage.
- F. Financial crisis across emerging countries which owe significant amounts of debt denominated in foreign currencies.

**A – Impact on lending and credit:** The higher interest rates as a result of inflation will drive up the cost of borrowing impacting bank lending. This could result in less borrowing through banks or the bond markets and a possible increase in credit defaults.

**B – Securitization of investments:** These securitizations, in particular the lower tranches and those with high levels of leverage, can be volatile in times of financial market volatility.

**C – Insurance Lapses and Coverage Reductions:** Should interest rates rise significantly, an increase in lapse rates could occur. Policyholders may lapse policies to access account values within the policy or to take advantage of higher, alternative returns on investments due to the higher interest rates. This may force life insurance companies to have to liquidate their bond portfolios at a loss. For insurance coverages without surrender values, policies not seen as essential may be lapsed to pay other bills. For essential insurance coverages, policyholders may reduce coverage or look to other providers for lower premiums as a means of dealing with rising costs elsewhere.

**D – Bank Runs:** Lack of consumer confidence in the banking sector or particular financial institutions can lead to increased withdrawals from banks. If withdrawals are sufficiently large and rapid, banks may face a liquidity crisis resulting in either bank failures or government enforced withdrawal freezes.

**E – Losses of asset managers & funds invested in illiquid assets:** In order to increase returns in the former low interest rate environment, some asset managers and funds have invested in high yield corporate debt and/or illiquid assets utilizing high leverage and short-term borrowing to enhance returns. A rise in of interest rates can raise the cost of leverage, potentially causing the value of high yield or illiquid assets to drop. As a result, these asset managers and funds may be obliged to sell at a loss part of their assets. This could trigger a confidence crisis in wider financial markets.

**F – Financial crisis amongst some emerging markets:** Emerging market countries impacted by an increase in inflation could default on their debts.

## 6 CONCLUSION

The world is experiencing an extended period of high inflation after decades of stable low inflation. This has introduced new risks to companies and pension funds.

While opportunities exist to hedge this risk, the derivative market for inflation hedges is shallow. These strategies are more complex than other hedging strategies and expose the company/pension fund to new risks.

The best means of inflation risk management is through thoughtful product design and effective risk management. By understanding the risks and having predetermined risk mitigant strategies in place, inflation risk can be managed.



## APPENDIX A: SOME SELECTED PAPERS ON INFLATION TOPICS

Martellini, L. (2022). How to hedge long-term inflation-linked liabilities without inflation-linked instruments. <https://www.top1000funds.com/2014/11/how-to-hedg-long-term-inflation-linked-liabilities-without-inflation-linked-instruments/>

Credit Suisse Insurance and Pensions Solutions (2012). Inflation, real returns and inflation Hedging. <https://www.actuaries.org.uk/system/files/documents/pdf/d3-inflation-real-returns-and-inflation-hedging.pdf>

Geneva Association (2023). THE RETURN OF INFLATION: What it means for insurance. [https://www.genevaassociation.org/sites/default/files/2023-01/inflation\\_report.pdf](https://www.genevaassociation.org/sites/default/files/2023-01/inflation_report.pdf)

Pettinger, T. (2022). History of Inflation in UK. <https://www.economicshelp.org/blog/2647/economics/history-of-inflation-in-uk/>

Rouse, C., Zhang, J., and Tedeschi, E. (2021). Historical Parallels to Today's Inflationary Episode. <https://www.whitehouse.gov/cea/written-materials/2021/07/06/historical-parallels-to-todays-inflationary-episode>

ECB (2023). ECB Economic Bulletin, Issue 1, 2023. <https://www.ecb.europa.eu/pub/economic-bulletin/html/eb202301.en.html>

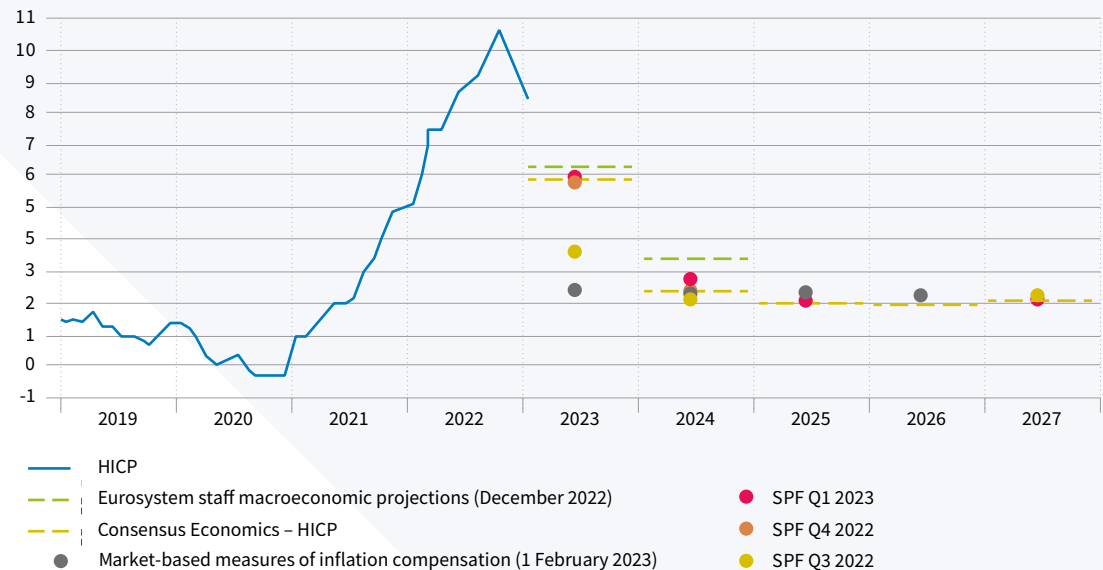
ESRB (2022). ESRB Risk Dashboard, November 2022 (Issue 42). [https://www.esrb.europa.eu/pub/pdf/dashboard/20221208\\_rdb\\_external~c51615728e..pdf](https://www.esrb.europa.eu/pub/pdf/dashboard/20221208_rdb_external~c51615728e..pdf) (November 2022 issue) or <https://www.esrb.europa.eu/pub/rd/html/index.en.html> (risk dashboard site)

## APPENDIX B: BUILDING AND UNDERSTANDING HIGH-LEVEL MACRO SCENARIOS FOR INFLATION

The ‘economic & policy reference frame’ consists of interest rates, growth, employment, inflation, borrowing costs, etc. One might call it the ‘macro-economic and policy outlook’. Currently, the reference frame is more dynamic than we are accustomed to, as a balance is being re-established among growth, inflation, and interest rates.

The previous reference frame was characterised by low interest rates, low inflation, stable economic growth, and central bank support of financial markets via QE programs. Currently, there is heightened uncertainty regarding the future reference frame and the path towards it. Economic prognoses and from central banks and governments provide essential information to enable us to develop a handful of plausible future scenarios for the macro picture. Central banks and financial markets provide central expectations of future inflation and interest rates. Using this as a starting point, we can hypothesise a handful of related scenarios, some more mild, some more severe, see the following figure.

**SURVEY-BASED INDICATORS OF INFLATION EXPECTATIONS AND MARKET-BASED MEASURES OF INFLATION COMPENSATION (ANNUAL PERCENTAGE CHANGES)**



Source: ECB Economic Bulletin Issue 1 2023 and own stressed scenarios.

Along each of these main scenarios, there are implications for economic activity, borrowing and bank health, the affordability of sovereign, corporate and household debts, for financial markets and market prices, etc. By combining the ECB’s latest economic prognosis<sup>5</sup> with the ESRB’s macro risk picture<sup>6</sup>, we gain insight into potential

5 ECB Economic Bulletin, Issue 1, 2023

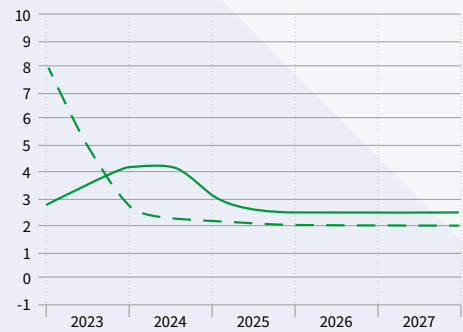
6 ESRB Risk Dashboard, November 2022 (Issue 42), see [ESRB Risk Dashboard site](#)

problems that might arise given the current macro and financial background. This information is valuable in a time of such change and uncertainty.

Before digging into the ESRB’s macro risk picture, let’s explore the above macro scenarios based on the development and management of inflation. The four narratives are given in the boxes below.

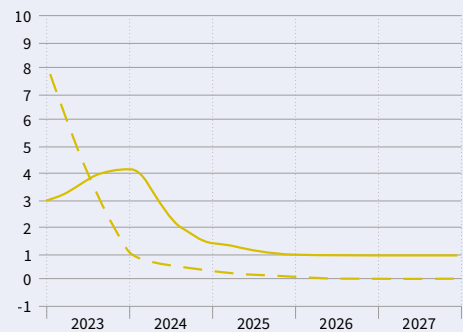
**Scenario #1: inflation develops as forecasted**

Central bank rates and monetary policy managed to reduce aggregated demand sufficiently to reduce inflation. R-star, the neutral or natural rate of interest is structurally higher due higher energy prices and increased debt levels. Risk-free rates (solid) and inflation (dashed) are stable around 2% per annum.



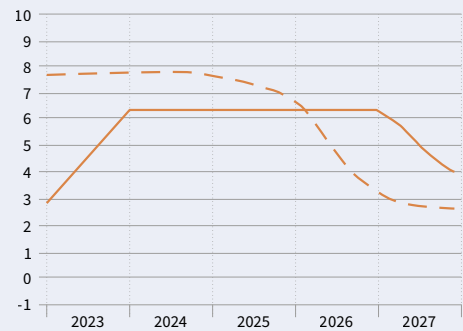
**Scenario #2: inflation is managed back to 2020 levels**

Central bank policy brings inflation back down to pre-2020 levels with risk-free rates returning in parallel. Inflation has turned out to be transitory and lasting effects are not visible in fiscal deficits nor financial markets. Risk-free rates and inflation return to pre-2020 levels from 2024.



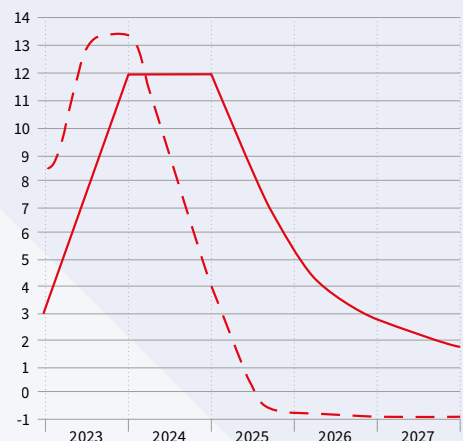
**Scenario #3: high inflation persists through 2025**

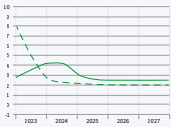
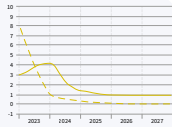
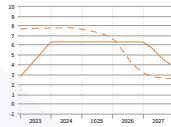
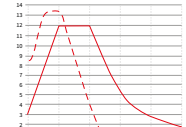
Central banks manage inflation with only moderate interest rate increases over a longer time span, thus protecting economic activity, and achieving the new long-run inflation targets of 2% per annum on average. Rates and inflation are structurally higher from 2027 onwards.

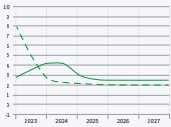
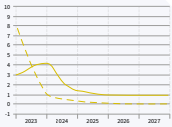
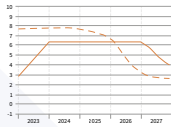
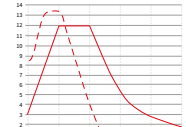


**Scenario #4: inflation escapes control temporarily**

Inflation escapes control and becomes a threat to price and economic stability. Central banks react by raising interest rates severely. Economic activity decreases sharply, increasing the likelihood of economic recession or depression for advanced and emerging economies.



Risk Developments in Scenario...				
Current State of <b>Core Risks</b> relevant to Insurance & Pensions				
	#1: as forecasted	#2: return to 2020	#3: high inflation persists	#4: inflation escapes
MACRO & FINANCIAL RISKS FROM THE ESRB RISK DASHBOARD				
<b>Real GDP growth</b> is forecasted to be strong for 2022, but low across the EU in 2023 (ESRB Risk Dashboard, Table 2.1).	Low.	Low.	Lower for longer, risk of recession.	Severe, heightened risks of recession or depression.
<b>Unemployment rates</b> across the EU have been low, but may increase marginally in 2023 (2.4).	Slightly higher than recent average.	Slightly higher than recent average.	Slightly higher unemployment for a longer period.	Recession or depression leading to higher unemployment.
The <b>government debt-to-GDP ratio</b> is forecasted stable, but at already high levels for some EU countries (2.6). The <b>government deficit-to-GDP ratio</b> is forecasted stable (2.7).	Stable.	Stable.	Stable, but: debt-to-GDP improving in real terms, deficit-to-GDP worsening due to real liabilities.	Government deficits may need to rise to support economies in depression.
<b>Bank lending to households</b> is stable but higher than average (3.1). <b>Borrowing rates</b> are increasing (3.3).	Stable.	Stable.	Household borrowing may need to increase, making households less robust to future financial shocks.	Household borrowing may increase, following by recession or depression, increased unemployment and thus debt-servicing problems. This could impact banks.
<b>Bank lending to NFCs</b> is higher across the EU, and significantly higher than recent averages (3.2). <b>Borrowing rates</b> are increasing (3.4). <b>Expected default rates</b> for NFCs are on the rise (3.10).	Stable borrowing, but increasing default risk.	Stable borrowing, but increasing default risk.	Facing inflationary pressures, NFCs may need to borrow more or to reduce staff costs.	Recession or depression may make NFCs unable to service their debts, with impacts on banks.
<b>Residential property</b> is overvalued in many countries (3.12) with high growth over the last 3 years (3.13). Some countries have seen property prices grow by more than 50% in the last 3 years (3.13).	Risk of price correction, but mitigated by return to stable interest rates.	Risk of price correction, but mitigated by return to stable interest rates.	High inflation may allow the real prices of property to adjust downward naturally.	Heightened risks of property price corrections with economic slowdown and unemployment.
<b>Funding and liquidity</b> for banks and financial markets remain stable (\$4)	Stable.	Stable.	Funding rates remain higher for longer, but may be stable.	Market funding and liquidity may be disrupted by severe policy rate reactions.
<b>Market risks</b> are stable, with the exception of higher volatility in FX rates in 2022 due to rising policy rates (5.3)	Current level of higher volatility will continue until inflation and rates are stabilized globally.	Current level of higher volatility will continue until inflation and rates are stabilized globally.	Current level of higher volatility will continue until inflation and rates are stabilized globally.	Market may be disrupted by severe policy rate reactions. Market risks may be heightened.
Banks' and insurers' <b>solvency and profitability</b> is stable (data through 2022 Q2, \$6)	Stable.	Stable.	High inflation may put pressure on borrowers' costs and debt service. Non-Performing Loans might increase.	High interest rates may make debt roll-over unaffordable, causing bankruptcies.

Risk Developments in Scenario...				
Current State of <b>Core Risks</b> relevant to Insurance & Pensions				
	#1: as forecasted	#2: return to 2020	#3: high inflation persists	#4: inflation escapes
MATERIAL RISKS FOR INSURANCE, PENSIONS & CUSTOMERS				
<b>Volatile markets and volatile asset values</b> , need for liquidity for margins on derivatives, increased need for hedging and cost of hedging.	Stability of markets and investment assets should follow inflation returning to target and interest rates stabilising.	Stability of markets and investment assets should follow inflation returning to target and interest rates stabilising.	High inflation creates uncertainty around monetary policy and QE/QT. Markets may be volatile for longer.	Runaway inflation may require severe rate reactions by central banks, causing large market movements.
<b>Increasing credit risks</b> for on credit-risky assets, such as bonds, loans, private credit, mortgages, CLOs, and other structured credit investments or derivatives.	Marginally deteriorating.	Marginally deteriorating.	Differential impacts on bank securitisations (CLOs, CDOs) depending on the interplay of inflation and borrowing rates on the underlying assets.	High interest rates may make debt roll-over unbearable, causing some underlying companies to go bankrupt.
<b>Potential for P&amp;L losses over multiple years</b> , strain on capital resources, leading to <b>potential solvency problems</b> .	Stable.	Stable.	Increased claim costs driving higher premiums.	Greater uncertainty of claims costs, increased risk of credit defaults, reduced market values for capital assets.
Potential for <b>rising unemployment</b> , leading to increased non-life claims, increased surrenders, falling affordability of insurance for customers, etc.	Slightly higher unemployment rates unlikely to have material impact.	Slightly higher unemployment rates unlikely to have material impact.	Slightly higher unemployment rates for longer unlikely to have material impact.	Increased likelihood of recession leading to higher unemployment and reductions of coverage/surrender of policies due to affordability issues.
Economic slowdown, recession or depression, resulting in <b>falling asset values</b> .	Controlled inflation and interest rates returning downwards should both increase asset values.	Controlled inflation and interest rates returning downwards should both increase asset values.	Falling asset values, economic slowdown causes decrease in equity values (lower future profits) and increases in credit default risks (higher debt burden). Future values may recover if companies in the real economy survive the recession.	Falling asset values, bankruptcies, realized losses on investments; potential for financial crisis due to economic depression or unaffordable debt service; potential impact on banking system and financial system.

## THE ACTUARIAL ASSOCIATION OF EUROPE

The Actuarial Association of Europe (AAE), founded in 1978 under the name of Groupe Consultatif Actuariel Européen, is the Brussels-based umbrella organisation, which brings together the 37 professional associations of actuaries in 36 countries of the EU, together with the countries of the European Economic Area and Switzerland and some EU candidate countries.

The AAE has established and keeps up-to-date a core syllabus of education requirements, a code of conduct and discipline scheme requirements, for all its full member associations. It is also developing model actuarial standards of practice for its members to use and it oversees a mutual recognition agreement, which facilitates actuaries being able to exercise their profession in any of the countries concerned.

The AAE also serves the public interest by providing advice and opinions, independent of industry interests, to the various institutions of the European Union - the Commission, The Council of Ministers, the European Parliament, ECB, EIOPA and their various committees - on actuarial issues in European legislation and regulation.



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