



**An Roinn Airgeadais**  
Department of Finance

# **ANNUAL REPORT ON PUBLIC DEBT IN IRELAND 2022**

**February 2023**

Prepared by the Economics Division  
Department of Finance  
[finance.gov.ie](https://www.finance.gov.ie)



## SUMMARY AND KEY MESSAGES

### ***Public debt ratio is on a downward trajectory but the level of debt remains high***

- > Public debt stood at an estimated €226 billion at the end of last year. Immediately before the pandemic, outstanding public sector liabilities were €203 billion.
- > Last year's debt level amount equates to 86 per cent of GNI\*, 10 percentage points lower than pre-pandemic levels.
- > While Department of Finance forecasts envisage a continued decline in the debt ratio over the medium-term, the public finances are exposed to a shock to the economy, such as from an intensification of the war in Ukraine – and the associated energy price shock – as well as any fall-out from the ICT sector shock.
- > Long-term structural changes, such as the fiscal impact of shifting demographics and climate change, also pose challenges for the public finances.
- > The starting point is less-than-optimal: at just over €44,000 per person, Ireland has one of the highest per capita debt burdens in the world.

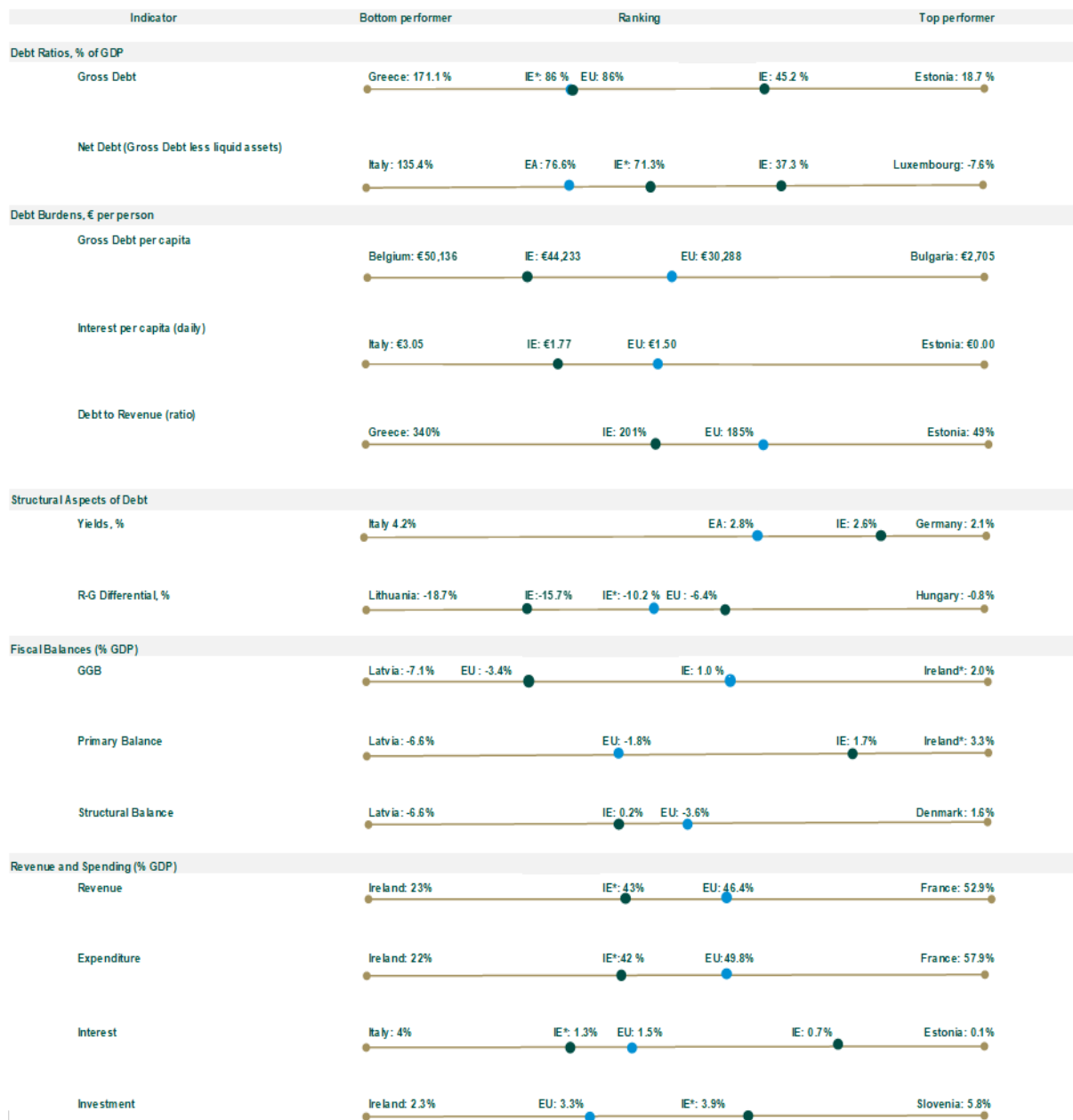
### ***Structural aspects of debt insulate the public finances in the short-term***

- > The structure of Irish public debt – with the vast majority of debt locked in at fixed rates, coupled with a relatively long maturity profile – insulates the public finances from the changing interest rate environment in the short-term.
- > The need to re-finance maturing debt over the medium-term will probably result in larger debt servicing costs; this is because newly issued debt will likely carry a higher coupon than that on maturing debt.
- > A decline in corporation tax revenue could trigger a return to public deficits, and the concomitant need to issue new debt at higher interest rates.

### ***With significant challenges on the horizon, debt must be carefully managed***

- > The underlying fiscal position is much less benign than the headline figures suggest.
- > The tax base is very narrow and a shock to corporation tax receipts – or the income taxes that are associated with the multinational sector activity that generates these corporate revenue streams – could result in a very large deficit.
- > Looking ahead, shifting demographics, along with the need to finance an ambitious infrastructural plan and the transition of economic activity to carbon-neutrality, will impose large costs on the public finances.
- > It is essential that the public finances are in a position to deal with these challenges.

# Debt Dashboard in 2022<sup>1</sup>



<sup>1</sup> Ratios are in terms of GDP unless otherwise indicated.

\* Indicates ratio to modified Gross National Income (GNI\*) for Ireland.

Note: IE figures based on Department's autumn 2022 forecasts. The better than expected end-of-year fiscal position is assumed to increase the State's financial assets and therefore reduce the net debt levels vs the Budget 2023 projections. Net Debt estimates for other countries based on IMF projections and excludes Slovakia and Greece.

Yields are based on average number of observations in period – November 2022, from ECB Statistical Data Warehouse.

Estimates of the output gap for Ireland are based on the Department of Finance preferred methodology for calculating the potential output using domestic gross value added (GVA), see Murphy *et al* (2018), available at:

<https://www.gov.ie/en/publication/65c119-estimating-irelands-output-gap/>

## Strengths

Maturity profile- long average life of debt

Low interest burden despite shift in interest rate environment – effective interest rate around 1.5%

Limited debt maturities in coming years

Vast bulk of debt at fixed rates

Strong credit rating

Overall growth outlook remains strong

## Weaknesses

Certain debt metrics remain elevated

Corporation tax concentration related risks

Risk of over-heating/constraints in some sectors

Age-related spending pressures to increase

Climate-related costs to increase

## Opportunities

Strong growth potential

Current favourable demographics

Windfall Corporation tax receipts present opportunity to rebuild fiscal buffers (including National Reserve Fund)

## Threats

Elevated levels of uncertainty

Permanent shift in interest rate environment

Prolonged periods of high inflation and increased borrowing costs

Tightening monetary policy and/or financial market correction raise market pressures on high-debt euro area member states

Requirement to provide humanitarian aid related to Ukrainian crisis over prolonged period

Future ageing and climate costs

Source: Department of Finance

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<sup>2</sup> The data and analysis set out in this document are compiled by Department of Finance staff. It does not necessarily reflect the views of the Minister for Finance or the Irish Government. Every effort is made to ensure accuracy and completeness. If errors are discovered, corrections and revisions are incorporated into the digital edition available on the Department’s website. Any substantive change is detailed in the online version.

<sup>3</sup> Data presented are as of start of January 2023. Baseline scenario refers to the medium-term projections set out by the Department in its autumn 2022 forecasts. The better than expected end-of-year fiscal position is assumed to increase the State’s financial assets and therefore reduce the net debt levels relative to the *Budget 2023* projections.

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## Section 1: Introduction

Ireland's recent economic history highlights the importance of monitoring and documenting trends in public indebtedness. Ireland's debt-income ratio went from amongst the lowest in the European Union to amongst the highest in the space of just half-a-decade, ultimately triggering a loss of access to private capital markets. Just over a decade later, the debt-income ratio is now on a par with European norms, although the stock of outstanding liabilities on a per capita basis remains high.

Looking ahead, shifting demographics, alongside the need to finance an ambitious infrastructural plan (including expanding housing output) as well as the transition of economic activity to carbon-neutrality, will impose large costs on the public finances; these are costs that can only be met if the fiscal starting position is healthy. Any significant decline in corporate tax revenue streams would also compromise the ability of the public sector to finance future initiatives.

This report is prepared against the backdrop of the highest rates of consumer price inflation in almost half a century. In Ireland, as elsewhere, inflation has proven to be higher, broader and more persistent than initially assumed, prompting an aggressive tightening of monetary policy and higher borrowing costs for households, firms and government. Somewhat unusually, the tightening of monetary policy arises in an environment of slowing economic activity in many (advanced) regions, with some concerns that 'stagflationary' pressures – a combination of weak growth and high inflation – may be rising.

The purpose of this document is to report on public debt developments in Ireland. In line with previous iterations, recent trends are reviewed and compared with those elsewhere in section 2. Section 3 then presents a thematic assessment of debt dynamics in an environment of higher-than-normal inflation and the associated increase in sovereign (and private sector) borrowing costs. Section 4 conducts a debt sustainability assessment: stress-testing the baseline scenario to assess how the debt trajectory might evolve under different 'shock' scenarios. Section 5 concludes.

## Section 2: Public debt developments

### 2.1: introduction

The key rationale for maintaining debt at prudent levels is to ensure that public resources are available to support overall demand when private sector economic activity slows – counter-cyclical budgetary policy. The experience during the pandemic was an extreme example: private sector activity fell sharply, most notably in contact-intensive sectors, necessitating large-scale interventionist budgetary policies to support incomes and limit permanent damage to the productive capacity of the economy ('scarring').

The cost of fiscal intervention was significant, with an upward shift in public indebtedness. That said, it is generally accepted that the cost of non-intervention would have been even higher – in the form of a permanent exit of workers and firms from the economy.

The lifting of the Covid-related restrictions in the first quarter of last year coincided with outbreak of war on European soil, and *inter alia* dispelled any notion that the pick-up in consumer price inflation was transitory in nature. The speed and scale of the energy price shock necessitated further fiscal intervention to support households and firms.

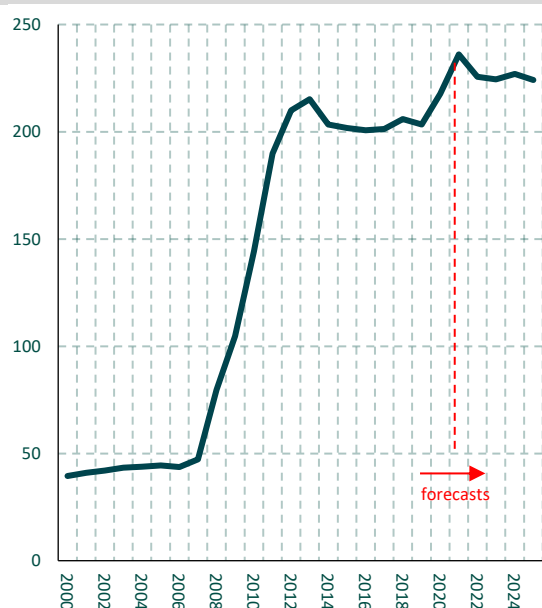
In light of this 'one-two punch' to the economy – a global pandemic followed by a significant energy price shock – this section briefly reviews recent debt developments in Ireland and contextualises the Irish position by putting it under the lens of developments elsewhere in the European Union.

### 2.2: public debt 2000-2025

The evolution of gross public debt over a quarter of a century is set out below (**figure 1a**). Immediately before the pandemic, gross financial liabilities of the general government sector amounted to €203 billion. The direct budgetary supports provided by Government during the two-year pandemic resulted in the stock of outstanding financial liabilities reaching €236 billion at end-2021, an increase of €33 billion. The stock of public debt subsequently fell to an estimated €226 billion at the end of last year; this is equivalent to €44,250 for every person in the country.

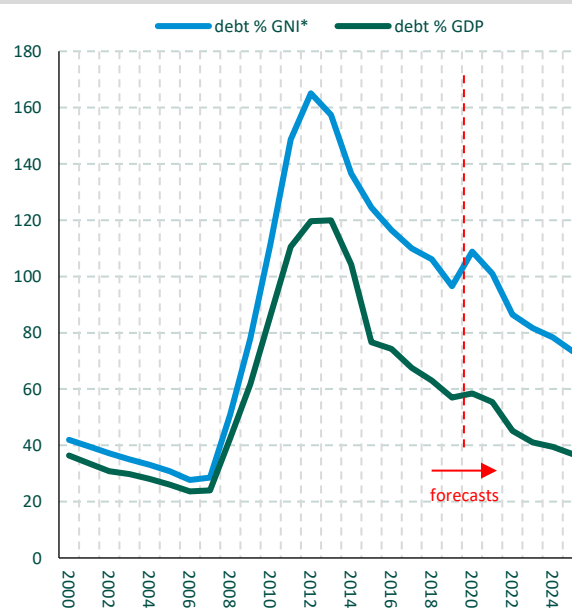
**Figure 1: Public debt over a quarter of a century**

A: gross public debt, € billions



Source: CSO and Department of Finance.

B: debt as share of national income



Source: CSO and Department of Finance.

As a share of modified gross national income, public debt increased from 97 per cent immediately before the pandemic to peak at 109 per cent in 2020 (**figure 1b**). This increase arose from both numerator (a large deficit) and denominator (a fall in GNI\*) effects. Notwithstanding the deficit recorded in 2021, the debt-income ratio actually fell that year; this reduction arose because of the larger increase in national income that year.

**Table 1: Public debt – key metrics 2020-2025 under baseline scenario**

	2020	2021	2022	2023	2024	2025
Gross nominal debt, € bn	217.7	236.1	225.6	224.4	227.0	224.1
Gross debt-to-GNI*, per cent	108.9	100.9	86.4	81.6	78.3	73.3
Per capita, € <sup>^</sup>	43,750	47,100	44,250	43,100	43,050	42,000
EDP assets, per cent GNI*	16.1	18.7	15.1	14.2	16.4	17.0
Net nominal debt, € bn	185.5	192.3	186.2	185.3	179.3	172.3
Net debt-to-GNI*, per cent	92.8	82.2	71.3	67.4	61.9	56.4

<sup>^</sup> rounded to closest €50.

Baseline scenario refers to the medium-term projections set out by the Department in its autumn 2022 forecasts. The better than expected end-of-year fiscal position is assumed to increase the State's financial assets and therefore reduce the net debt levels relative to the *Budget 2023* projections.

Source: CSO and Department of Finance.

The debt-income ratio is estimated at around 86 per cent last year and, under the baseline macro-economic scenario underpinning *Budget 2023*, is expected to decline further in the coming years, reaching 73 per cent of GNI\* by 2025. That said, risks to the baseline scenario remain firmly tilted to the downside<sup>4</sup>, most notably in the form of geopolitical tensions, persistently high core inflation and rapid monetary policy tightening.

### 2.2.1: public debt waves

A longer-term perspective is also useful in understanding today's position. Since 2000, five different waves of debt accumulation and de-cumulation can be identified (**figure 2a**), and to understand the dynamics at work, the standard approach is to decompose annual changes in the debt-to-income ratio ( $\Delta D$ ) into its constituent parts:

$$\Delta D = \frac{(r - g)}{(1 + g)} * D_{t-1} + PB_t + SFA_t$$

Under this framework, the annual change in the debt-income ratio is the sum of:

- > the interest-growth differential  $(r-g)$ ,<sup>5</sup> known as the 'snowball effect';<sup>6</sup>
- > the primary balance (PB) for the year in question; and,
- > the stock-flow adjustment (SFA)<sup>7</sup> that year.

<sup>4</sup> towards higher debt ratios.

<sup>5</sup>  $r$  refers to the effective interest rate, i.e. interest payments in the current year relative to the stock of public debt in the previous year.

<sup>6</sup> A negative snowball effect, i.e.  $g > r$ , is debt-reducing.

<sup>7</sup> A residual term that reflects a combination of 'below-the-line' operations that do not affect the general government balance, as well as standard debt management operations carried out by the National Treasury Management Agency (NTMA).

**wave 1: 2000-2007 – illusion of growth**

Very strong, export-led growth was recorded in the second half of the 1990s, with Irish income per capita converging to wider European norms. The bursting of the ‘dot-com’ bubble in 2001/2002, however, coincided with a shift in the sources of Irish growth, from the traded (manufacturing, traded services) sector that had driven living standard convergence to the non-traded (construction, consumer spending) sector. This period saw the public finances benefitting from what proved to be unsustainable increases in capital-related taxes<sup>8</sup> arising from the property bubble.

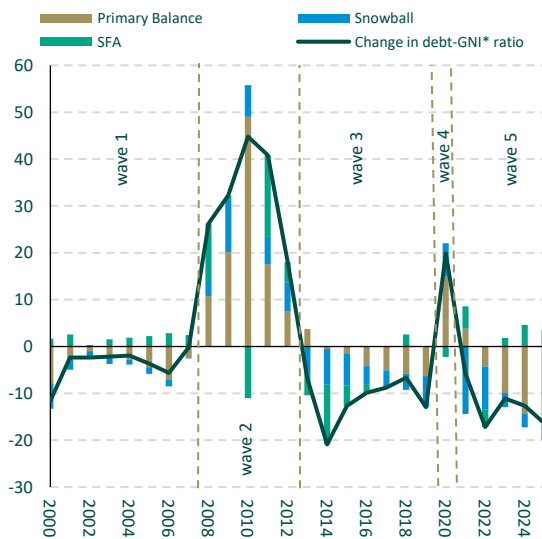
Strong primary surpluses and a negative ( $r < g$ , debt-reducing) snowball effect over this period resulted in very low debt levels, with a debt-to-income ratio below 30 per cent recorded in both 2006 and 2007. Strong growth at the time, however, proved illusory and was only possible because of the unsustainable expansion in private indebtedness.

**wave 2: 2008-2012 – Irish banking and sovereign debt crises**

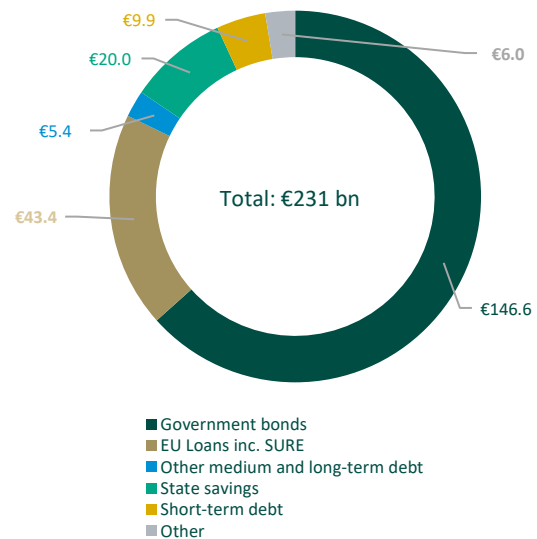
The onset of the global financial crisis (GFC) and the bursting of the property bubble triggered an unprecedented turnaround in the public finances. The shock was not limited to capital tax receipts: the influence of the property market on the wider economy contaminated other tax revenue streams. For instance, with one-in-eight employed in the construction sector at the time, income tax fell sharply, while VAT receipts were adversely impacted by the decline in consumer spending.

**Figure 2: Debt developments**

A: change in public debt ratio, per cent of GNI\*



B: composition of public debt, € billions



Data refer to end-December 2022. Chart above shows Gross National debt (as reported by the NTMA). The wider General government debt measure (as reported by the CSO) is the main focus of this report.

Source: NTMA.

Source: CSO and Department of Finance.

Heightened risk aversion, alongside a rise in the risk premium demanded by creditors to lend to the Irish government, resulted in a steep rise in sovereign borrowing costs. With a sharp fall in domestic economic activity and a general deflationary environment, nominal growth moved into negative territory. Accordingly, a strongly positive ( $r > g$ , debt increasing) snowball effect kicked-in. With a large mismatch between public revenue and expenditure, in part due to the State’s support for the

<sup>8</sup> Capital-related taxes are made up of Capital Gains Tax, Capital Acquisitions Tax and Stamp Duty.

domestic banking sector, resulting in large primary deficits, the stock of public debt increased by over €160 billion between 2008-2012. As a result, the debt-to-income ratio increased by nearly 140 percentage points between 2007 and 2012 to 165 per cent of GNI\*.

### **wave 3: 2013-2019 – post-crisis recovery**

The containment of sovereign borrowing costs at relatively low rates via concessional lending from the official sector, the introduction of quantitative easing by the ECB and, the resumption of export-led growth, helped generate negative snowball ( $r < g$ , debt-reducing) effects. This put the debt-income ratio on a downward trajectory from 2013 onwards.

The emergence of a modest primary surplus in 2015, followed by larger primary surpluses thereafter, also helped generate positive debt dynamics. Over the remainder of the decade, the debt-income ratio fell to just under 100 per cent by 2019, a decline of nearly 70 percentage points since its peak.

### **wave 4: 2020-2021 – the Covid-19 pandemic**

The fourth wave of debt accumulation was born out of the significant and sudden shock to the global economy associated with the Covid-19 pandemic. Following the onset of the pandemic in early-2020, restrictions on mobility were put in place by the Government in an attempt to halt person-to-person spread of the virus. In order to limit the economic impact of these restrictions, significant fiscal resources were made available, the *fiscal quid pro quo*.

The mobilisation of the State's balance sheet in response to the pandemic resulted in a deterioration in the fiscal position and a significant primary deficit emerged. Coupled with a positive interest-growth differential ( $r > g$ , debt increasing) as restrictions weighed on economic activity, the debt-income ratio increased by 12 percentage points in 2020. Importantly, in Ireland as in other advanced economies, the debt issued to support the economy during the pandemic was absorbed by the domestic Central Bank, at rates that were effectively zero at this time.

### **wave 5: 2022-2025 – post-pandemic economic rebound**

While the pandemic continued during 2021, the economy nonetheless rebounded strongly, generating a favourable interest-growth differential ( $r < g$ , debt reducing). Very strong corporate tax receipts in this period helped to narrow the primary deficit so that, notwithstanding continued lockdowns, the debt-income ratio fell by 8 percentage points.

By the end of last year, the Department estimates that the debt-income ratio was around 10 percentage points below its pre-pandemic level. Most of the heavy-lifting over this period can, once again, be attributed to the negative snowball effect ( $r < g$ , debt reducing), with strong real growth as well as inflation playing a part in raising the nominal growth rate. In addition, a primary surplus is in prospect, *inter alia* due to the strength of corporate tax receipts.

The Department's medium-term projections envisage a decline in the debt-income ratio to 73 per cent by 2025. The baseline projection is calibrated on the assumption of negative snowball effects ( $r < g$ , debt reducing) alongside annual primary surpluses. If this was to transpire, it would constitute an important wave of debt de-cumulation and, if used efficiently, could potentially help mitigate – though not eliminate – the fiscal costs associated with population ageing that will become much more severe in the second half of this decade.

## **2.3: structural aspects of debt**

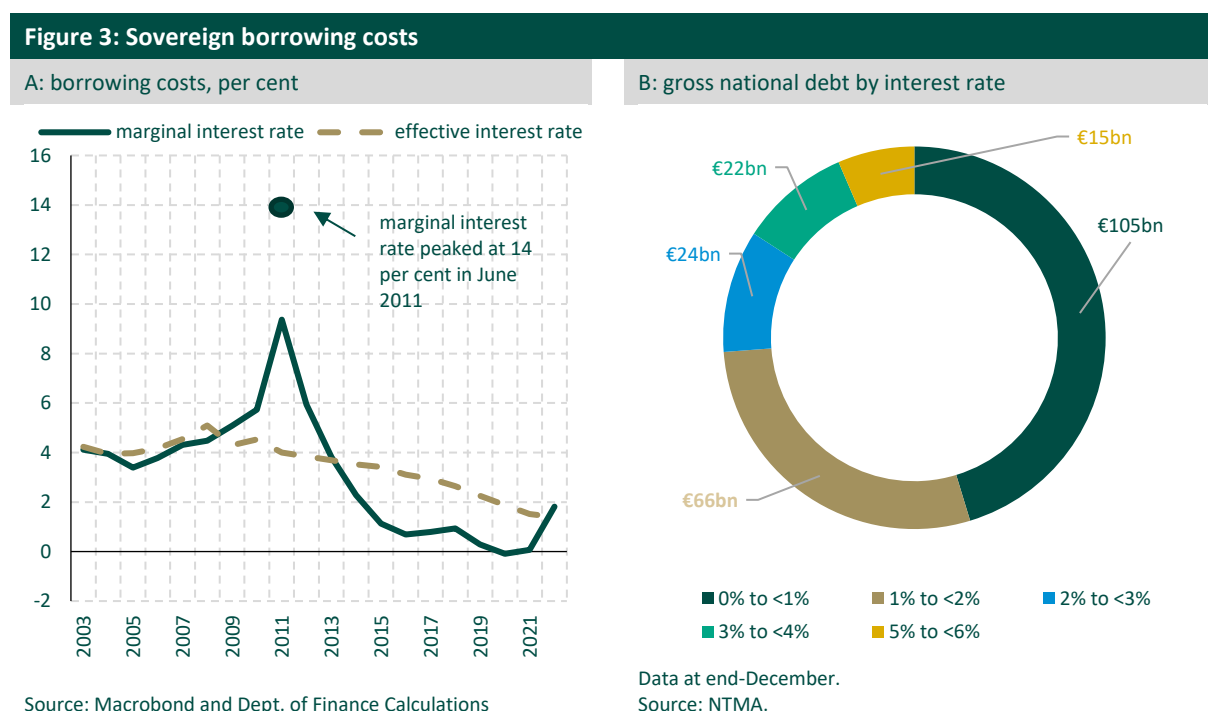
As well as assessing headline developments, it is also important to look below the surface – to examine the various structural dimensions – in order to understand the sustainability of the debt trajectory.

The most important structural dimensions relate to borrowing costs, the maturity profile for the various debt instruments, the level of general government financial assets (as opposed to liabilities), and repayment capacity (debt burden).

### 2.3.1: borrowing costs

A key determinant of the sustainability of public finances is the cost of sovereign borrowing. *Ceteris paribus*, a decline in interest rates allows a government to absorb increased levels of debt without threatening its repayment capacity. On the other hand, an increase in interest rates can put significant pressure on the public finances.

Borrowing costs fell significantly for the Irish sovereign over the last decade (figure 3a). This followed a significant increase in yields demanded by lenders during the financial crisis driven by fears surrounding the creditworthiness of the State.<sup>9</sup> Over the last decade, however, the National Treasury Management Agency (NTMA) was able to take advantage of the low interest rate environment by issuing debt with long maturities at low yields. As a result, despite increases in the marginal cost of borrowing last year, the average interest rate continued to fall: the effective interest rate<sup>10</sup> last year was 1.5 per cent, down from 4 per cent a decade earlier (and from a peak of 5 per cent in 2008). Approximately three quarters of gross national debt is currently at rates below 2 per cent (figure 3b); crucially, the vast majority of this debt has been issued at fixed rates.



### 2.3.2: debt maturity

The European Central Bank (ECB) launched the *Pandemic Emergency Purchase Programme* (PEPP) in March 2020 in response to the pandemic, supplementing the existing *Asset Purchasing Programme* (APP). These quantitative easing programmes helped the NTMA continue its medium- to long-term issuance in recent years, which has lengthened the maturity profile for public debt in Ireland. At the end of last year, the weighted average maturity of the medium- and long-term (MLT) debt portfolio stood at over 10 years. In terms, of medium- and long-term debt, the majority of debt is due to mature

<sup>9</sup> This resulted in the exclusion of the sovereign from private capital markets.

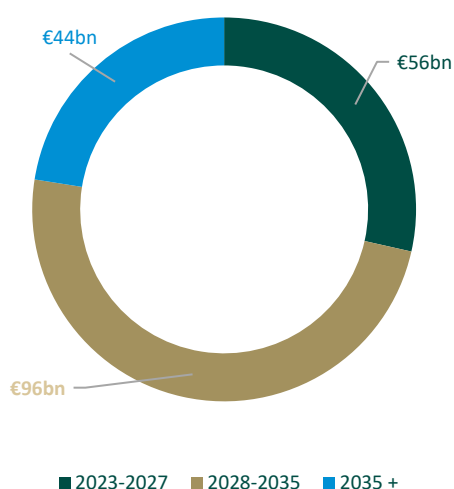
<sup>10</sup> The effective interest rate is the annual interest bill expressed as a share of the previous year's stock of debt.

from 2028 and beyond (71 per cent). Nevertheless, approximately €56 billion of government debt is due to mature by the end of 2027.

The combination of the vast majority of the outstanding stock of debt being locked in at low interest rates with a relatively long maturity profile insulates the public finances from a significant interest rate shock in the short-term. That being said, changes in the interest rate environment mean that *ceteris paribus* further accumulation of debt and any refinancing in the future will most likely be at higher interest rates, pushing up debt servicing costs. In this regard, some of the debt issued during the pandemic will need to be refinanced from the second half of this decade at likely higher rates, thus pushing up the effective rate (and the interest bill) in time.

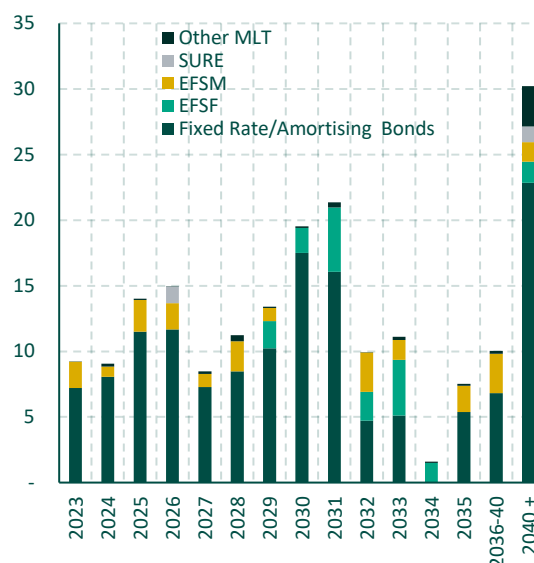
**Figure 4: Debt maturity**

A: maturity profile of medium and long-term debt



Data refer to end-December 2022.  
Source: NTMA and Dept. of Finance calculations.

B: maturity profile by type of debt 2023-



Data refer to end-December 2022.  
Source: NTMA and Dept. of Finance Calculations.

### 2.3.3: financial assets

As well as financial liabilities, the Government holds a wide range of financial assets. In 2021 (latest available full-year data), the market value of these assets was €108 billion (figure 5a).

Currency and deposits amounted to €40 billion in 2021; these mainly are cash balances held by the NTMA as part of the Government's normal liquidity management and pre-funding activities. The quantity of these liquid assets has risen significantly in recent years, due to the better than expected performance of the public finances and, as the Government – via the NTMA – has taken advantage of exceptionally low borrowing costs to increase its cash buffers.

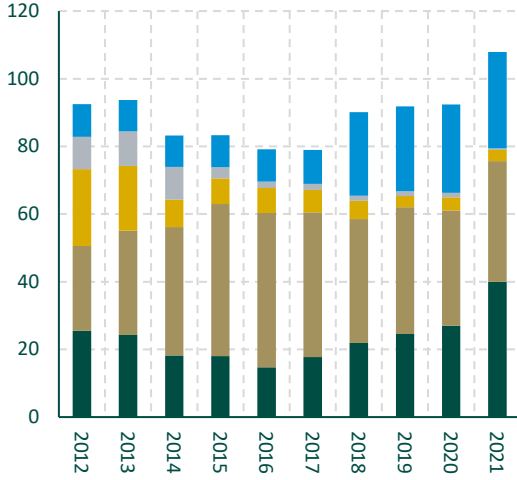
Equity investment amounted to €36 billion; this includes equities held by government in a range of banking and non-banking (semi-state enterprises) entities. The remainder of government financial assets mainly comprises loans and other assets.

From a balance sheet perspective, therefore, net financial liabilities amounted to in 2021, at €171 billion (figure 5b), the largest quantum on record (note that in 2007, the public sector had acquired net financial assets!).

**Figure 5: Balance sheet approach**

A: general government financial assets, € bn

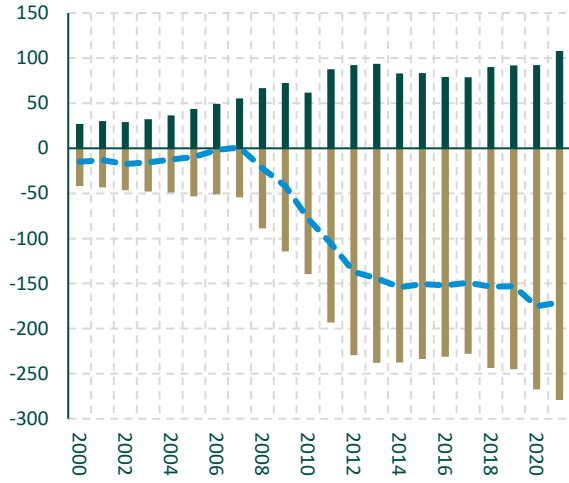
- currency & deposits
- equity/investment funds
- loans
- debt securities
- other



Source: Eurostat.

B: net debt, € bn

- financial assets
- financial liabilities
- - - net financial assets



Source: CSO.



## Box 1: Maturity profile – mean vs median maturity

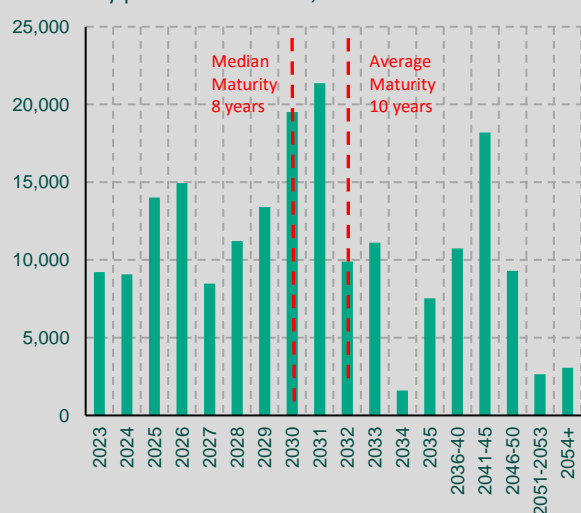
Inflationary pressures rose sharply over the course of last year, a reaction to the re-opening of the economy compounded by the Russian invasion of Ukraine. In advanced economies, this has given rise to a sudden and rapid tightening of monetary policy, with Central Banks raising interest rates and withdrawing quantitative easing measures in a bid to reign in price growth. Financing conditions have become significantly less favourable, with the cost of borrowing rising sharply. For many countries, this will cause a new strain on the budget balance as interest payments rise.

In Ireland, however, the maturity profile of Government debt is relatively favourable in the context of increasing interest rates, as *ceteris paribus* longer maturity profiles reduce the impact of interest rate increases in the short-term. In layman's terms, because a significant portion of Ireland's debt will not come due for several years, there will be less need (in the short-term) to take on new debt at these higher rates.

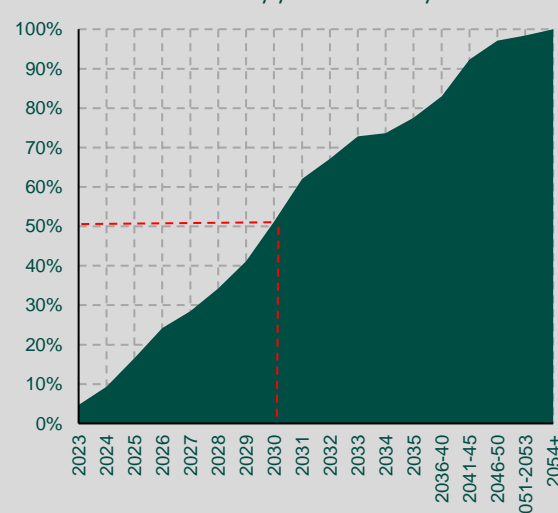
Over the short-term the value of maturing MLT debt is relatively low with just over €9 billion maturing this year. The years 2030 and 2031 will see the highest levels of debt maturing; €19.5 billion and €21.4 billion respectively currently. This is due to the large volume of 10-year Government debt issued following the Government's response to the Covid-19 pandemic, aided by the ECB's *Pandemic Emergency Purchase Programme (PEPP)* as well as almost €7 billion of European Financial Stability Facility (EFSF) loans maturing.

**Figure 6: maturity profile of medium-and long-term (MLT) debt, end December 2022**

**A: maturity profile of MLT debt, € millions**



**B: cumulative MLT debt by year of maturity**



Source: Department of Finance calculations using NTMA data

Source: Department calculations using NTMA data

There are several more systemic measures to assess the maturity profile of Irish debt. A common metric used to provide insight into the time horizon of debt maturity is the weighted average maturity, which for Ireland's debt was over 10 years at end-2022. Under this approach, the average referred to is a **mean**, with the maturity of different outstanding sovereign borrowings being weighted by the amounts of the loans in those maturity categories.

However, the *Office for Budget Responsibility* in the UK has argued that the weighted **median** can be more useful as it is even less influenced by the presence of debt with long maturity but of low value. ^ The estimated weighted median maturity of Irish debt is approximately 8 years, meaning that half of the current stock of MLT debt is due to mature within the next 8 years (**figure 6b**). The fact that the median is lower than the mean demonstrates that there is some front-loading of the distribution of the maturity. Nevertheless, at 8 years, the weighted median is still relatively elongated. Furthermore, according to ESDM risk metrics, Ireland has 36 per cent of its debt maturing in the next five years, while the euro area average is 45 per cent. ^^

This suggests that while the maturity profile of Ireland's MLT debt reduces the impact of a higher interest rate environment on debt servicing costs in the short-term, should such an environment persist into the medium-term, debt servicing costs will increase when significant proportions of the outstanding stock of debt needs to be refinanced.

^ See *Debt maturity, quantitative easing and interest rate sensitivity* - Office for Budget Responsibility, available at: <https://obr.uk/box/debt-maturity-quantitative-easing-and-interest-rate-sensitivity/>

^^ Economic and Fiscal Committee (EFC) Sub Committee on EU Sovereign Debt Markets Risk Metrics. [https://economic-financial-committee.europa.eu/efc-sub-committee-eu-sovereign-debt-markets/risk-metrics\\_en](https://economic-financial-committee.europa.eu/efc-sub-committee-eu-sovereign-debt-markets/risk-metrics_en)

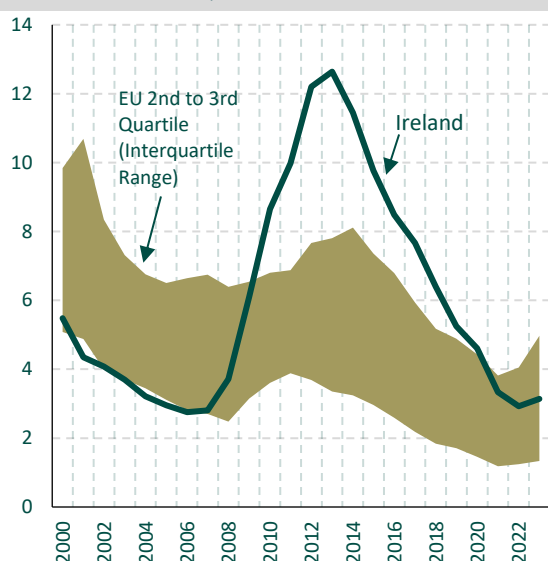
### 2.3.4: debt burden

The secular decline in interest rates has been one of the defining features of the global economy in recent decades. A combination of increased supply of loanable funds (savings) and lower demand for loanable funds (investment) has resulted in a fall in the ‘neutral’ rate of interest, which is the rate that balances aggregate demand and supply while preserving price stability.

This structural shift has prompted some re-evaluation (see Blanchard, OBR) of how public debt sustainability is assessed with, at least in theory, lower financing costs allowing sovereigns to carry a higher stock of debt without jeopardising sustainability.<sup>11</sup> In particular, there is now a greater focus on the debt burden, broadly defined as the annual cost of servicing public debt.

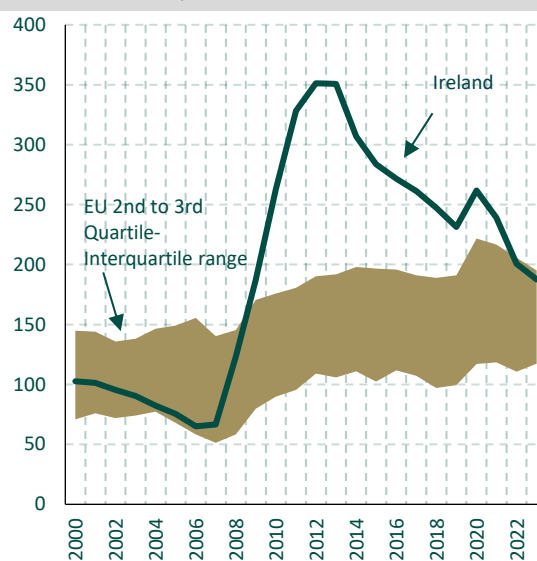
**Figure 7: Debt burden**

**A: interest-to-revenue, EU v IE**



Note: shaded area shows the second and third quartiles.  
Source: CSO, AMECO and Dept. of Finance calculations.

**B: debt-to-revenue, relative to EU norms**



Note: shaded area shows the second and third quartiles.  
Source: CSO, AMECO and Dept. of Finance calculations.

In Ireland, interest costs absorbed just over 3 per cent of government revenue in 2022, 9 percentage points lower than 10 years ago and now in line with the EU average (**figure 7a**). Nevertheless, the stock of public debt as a share of government revenue, remains elevated by euro area norms. Indeed, at 200 per cent of government revenue last year, Ireland is near the top of the range for euro area countries (**figure 7b**).

A range of additional metrics supplementary to these two is set out in the annex.

### 2.4: debt developments in a European context

Ireland is not alone in accumulating debt during the pandemic. With no exceptions, all EU Member States experienced a ratcheting-up of debt arising from budgetary supports implemented to keep economies afloat. More recently, the outbreak of war on European soil has prompted EU governments to share the burden of higher energy prices with the private sector, with most taking on additional liabilities to finance this burden-sharing.

<sup>11</sup> In practice, the debt-income ratio may still be regarded as a good ‘signal’, and remains a focus for creditors in their pricing

## Box 2: underlying debt ratio

Analysis published by the Department<sup>^</sup> last year highlighted the fiscal vulnerabilities stemming from the upward shift in corporate tax receipts in recent years. In particular, the data show that the share of overall tax revenue accounted for by corporation tax (CT) receipts is now at historically high levels: €1 in every €4 of all tax collected is now sourced from CT payments alone.

In addition, the concentration of these receipts within a small subset of firms, in an even smaller number of sectors, adds to the concentration risk: over half of corporate tax receipts in 2021 were paid by just ten large payers, primarily in the manufacturing (including the pharmaceutical sector), the ICT and the financial sectors.

To put it another way, this means that €1 in every €8 of all tax collected by the State directly sourced from these ten large corporations.

In pure money terms, CT receipts reached €22.6 billion last year, an increase of approximately €16 billion (229 per cent) relative to 2015 and nearly double the 2020 figure.

While it is not possible to be definitive regarding the sustainability of these receipts, the Department set out a number of different approaches to estimating 'windfall' CT receipts.

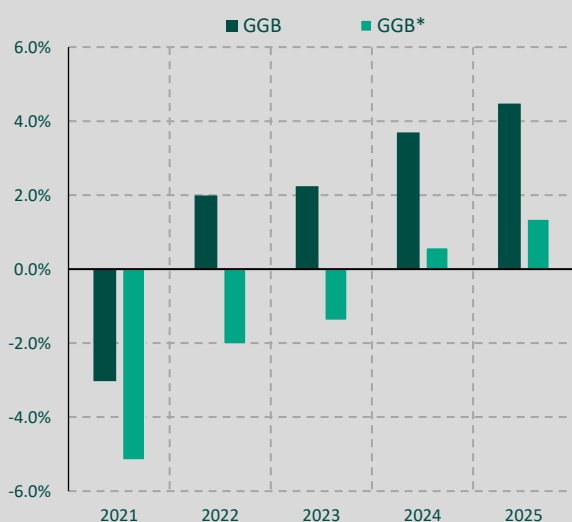
Using a range of methodologies, this analysis suggests the quantum of 2021's CT receipts that are potentially at risk could be in the region of €4 to €6 billion. CT receipts overshot expectations once again in 2022, and extrapolating from the 2021 estimate, the Department has suggested that around €10½ billion could be 'windfall' in nature.

Building on this work, a new indicator was published in *Budget 2023*. This indicator, the underlying general government balance (or GGB\*), is a better barometer of the underlying fiscal position, as it removes the estimated windfall CT receipts from the headline balance. Accordingly, it is judged to be a better metric upon which to base policy decisions.

While a headline balance of €5 billion is estimated last year, when CT windfall receipts are excluded, an underlying deficit of approximately €5 billion is estimated (**figure 8a**). Indeed, using this approach, an underlying surplus is not expected until 2024.

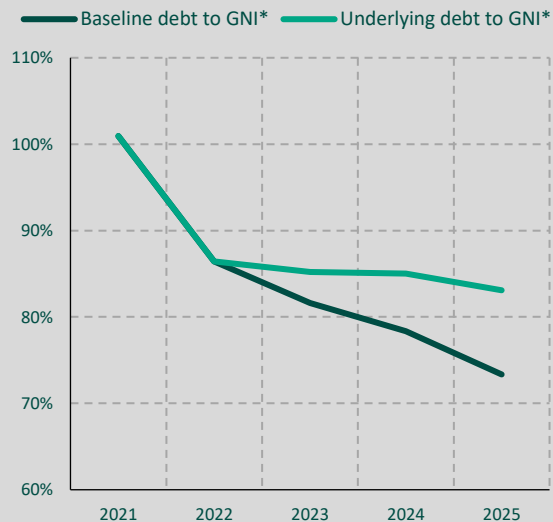
**Figure 8: underlying fiscal position**

**A: general government balance, per cent of GNI\***



Source: Department of Finance calculations.

**B: hypothetical gross debt ratio, per cent of GNI\***



Source: Department of Finance calculations.

For illustrative purposes, estimated CT windfalls can also be excluded from the debt ratio. If windfall CT receipts were to disappear from this year, this would see the expected decline in the debt ratio begin to plateau. In fact, under this hypothetical scenario, the debt ratio could be expected to be 10 percentage points higher than suggested by the baseline forecasts by 2025 (**figure 8b**).

This highlights the impact that a change in the trend of corporation tax revenues, largely beyond the control of the State, could have on the public finances. Furthermore, this analysis only considers the loss of windfall revenues, i.e. receipts deemed as unsustainable. As highlighted in last year's assessment,<sup>^^</sup> a shock to the Irish economy that impacted both underlying growth in the economy and saw a reversal in CT trends could be expected to have a significant impact on the public finances and require policy intervention to stabilise the debt path.

<sup>^</sup> See *De-risking the Public Finances – Assessing Corporation Tax Receipts*, Department of Finance (2022), available at: <https://assets.gov.ie/233651/286a71b0-6762-4d43-a101-12b5d63fd335.pdf>

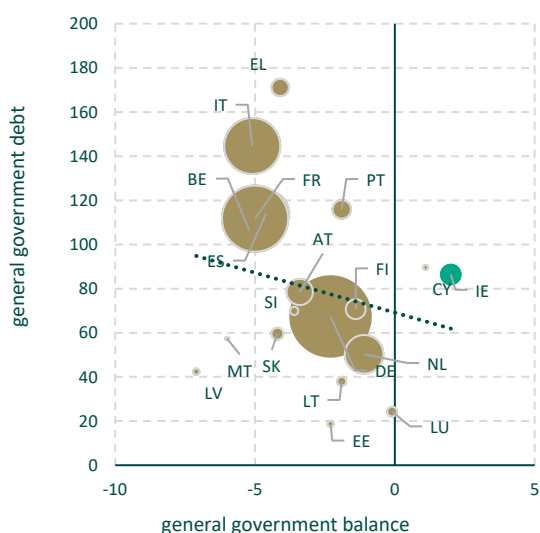
<sup>^^</sup> See *Annual Report on Public Debt in Ireland 2021*, Department of Finance (2021), available at: <https://www.gov.ie/en/publication/c9954-annual-report-on-public-debt-in-ireland-2021/>

Notwithstanding the increase in public debt, the debt-to-GDP ratio in the EU as a whole decreased slightly from 92 per cent at the end of 2020 to 89 per cent at the end of 2021 as economies rebounded strongly from the pandemic, though the speed of this recovery has been uneven among Member States. The debt-ratio in the EU is estimated to have fallen further to 86 per cent of GDP in 2022 and 94 per cent in the euro area (**figure 9a**). The impact of the war in Ukraine and the associated energy price shock are expected to continue to weigh heavily on the public finances in 2023: with the European Commission projects the debt-to-GDP at just under 85 per cent, still above the pre-pandemic level of just over 79 per cent.

In terms of legal requirements, the European Commission activated the General Escape Clause (GEC) of the *Stability and Growth Pact* (the ‘Pact’) in March 2020.<sup>12</sup> The GEC suspended the regular fiscal requirements of the Pact and allowed Member States to take the necessary fiscal measures to effectively mitigate the pandemic-induced disruption without formal or legal impediments. In June 2021, the activation of the GEC was extended to 2022 and then again to 2023 in May of last year, with deactivation of the GEC now expected in 2024.

**Figure 9: euro area comparisons**

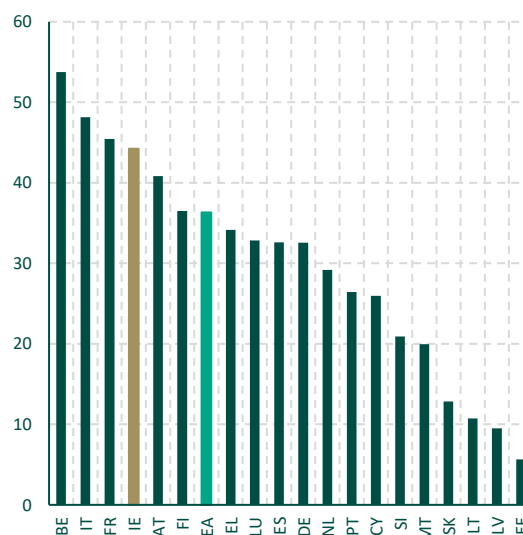
**A: deficit and debt in euro area in 2022, per cent of GDP**



Note: size of bubble indicates relative size of GDP. IE figures scaled by GNI\*.

Source: AMECO and Dept. of Finance calculations.

**B: debt per capita in the euro area (2022), €**



Source: AMECO and Dept. of Finance calculations.

While Ireland’s debt-to-GDP ratio compares favourably to other European countries, the situation is much less favourable when weighted in terms of the population. At €44,250 debt per capita in Ireland is on the higher end of the scale (**figure 9b**). This means the burden of public debt for each person in Ireland was around €8,000 higher than the euro area average in 2022.

<sup>12</sup> See EU Commission communication, available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020DC0123>

## 2.5: summary

The Irish public finances have gone through a number of distinct phases over the last two decades, with the trajectory of the debt-income ratio somewhat of a roller-coaster ride. These phases have been driven by two significant shocks to the economy: one endogenous or self-inflicted followed a decade later by an exogenous or external shock.

A third shock – the energy price shock associated with war on European soil – has not in itself resulted in increased public debt,<sup>13</sup> but has been associated with an aggressive shift in the interest rate environment.

The frequency of these severe shocks alone provides strong motivation for safeguarding the public finances and for building-up fiscal buffers in ‘good’ times when possible. While the structure of Irish public debt (with the majority of debt locked in at fixed rates and relatively long maturities) insulates the public finances in the short-term, the issuing of new debt and re-financing of debt over the longer-term will lead to increased debt servicing costs, the first call on the public finances.

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<sup>13</sup> To be more precise, while the outstanding volume of debt will fall because of the headline surplus recorded in 2022, the fall would have been even larger but for the necessary fiscal supports introduced by Government.

## Section 3: Debt dynamics in a high inflation environment

### 3.1: introduction

Even before the war in Ukraine, inflation in most regions had begun to pick up, with mismatches between demand (rapid recovery post-pandemic in advanced economies) and supply (continued lockdown in key manufacturing centres) increasingly evident. Changing patterns of demand – expenditure-switching from goods to contact-intensive services – complicated the imbalance, triggering a debate among economists, at the time, as to whether the pick-up in inflation was a temporary or permanent phenomenon.

The energy (and other commodities) price shock resulting from the Russian invasion of Ukraine has resulted in the highest rates of advanced-economy inflation in almost half a century, and dispelled any notion that inflation was transitory. While the origin of the inflation cycle differs across regions – mainly a supply-side shock in the euro area, demand-side shock in the US – central banks in all advanced economies have responded aggressively with, in the euro area, the policy rate being increased by 300 basis points since last July.<sup>14</sup>

High inflation, and the associated shift in the interest rate environment, have implications for public debt. The purpose of this section is to document the impact of higher inflation on debt dynamics in the near-term.

### 3.2: inflation and debt

Inflation has both positive and negative impacts on the pathway for public debt; the overall impact on debt dynamics depends on the channels of transmission and time horizon.

#### 3.2.1: positive fiscal effects from higher inflation

Turning first to the positive impacts, an increase in the price level reduces the real value of public debt as the principal is denoted in nominal terms and does not increase in line with inflation (Ireland does have a small amount of inflation-linked bonds).<sup>15</sup> In addition, *ceteris paribus* higher nominal GNI\* mechanically reduces the debt-to-GNI\* ratio, even if the debt level itself remains unchanged. This is known as the *denominator effect*.

There is also the *numerator effect* – in the short-term, inflation can have a positive impact on the public finances via the higher prices of consumer goods and services and wage inflation<sup>16</sup> on tax revenues. As prices and nominal wages rise in the economy, so too do revenues deriving from these sources. For instance, receipts from *ad valorem* taxes, such as value added tax, are positively impacted by price inflation, as revenues are based on a fixed proportion of the price of a good or service. Additionally, income tax receipts may also increase with wage inflation as, unless a decision is taken to index tax bands in line with wages or inflation, income tax thresholds and credits tend to be fixed in nominal terms (so-called ‘band-creep’ or ‘fiscal drag’). Capital taxes – capital acquisition tax and capital gains tax – also have fixed thresholds, so any spill-over from consumer price inflation to asset prices will *ceteris paribus* generate higher revenue streams.

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<sup>14</sup> The ECB raised its key interest rates on four occasions over the course of 2022: by 50 basis points (bps) in July, 75 bps in September, 75 bps in October and 50 bps in December. A further 50 bps increases was announced in February 2023.

<sup>15</sup> The level of public debt and public debt ratios are conventionally presented in nominal terms (i.e. do not take into account the price levels). Presenting data in nominal terms does not capture the erosion of purchasing power as a result of price increases.

<sup>16</sup> Assuming wages respond to higher prices.

The cost of servicing public debt can also be eroded depending on the conditions attached to the interest rate. If outstanding debt attracts a fixed rate, the real value of the costs of servicing this debt reduces with (unanticipated) inflation.<sup>17</sup> As highlighted previously, the vast majority of the current stock of Irish public debt is locked in at fixed rates (at end-2021, under 3 per cent of Irish debt attracting either inflation-linked or floating interest rates<sup>18</sup>) and the weighted average maturity on the stock of debt is relatively elongated (box 1).

**Figure 10: impact of inflation on the public finances**



Source: Department of Finance illustration.

### 3.2.2: negative fiscal effects from higher inflation

More than offsetting these positive debt dynamics are the negative implications for the public finances of higher inflation. The most important channel is through the operation of monetary policy, which raises public expenditure through a higher cost of sovereign borrowing and which weighs on receipts by slowing economic growth.

Persistent inflation not replicated elsewhere can lead to a real appreciation (wages and prices rising more rapidly than in main export markets), and a consequent loss in competitiveness. This will raise the level of unemployment, requiring increased social transfer outlays.

More broadly, if such dynamics persist, the public finances will face expenditure pressures through a number of additional channels. While the Irish labour market remains strong at present, if high levels of inflation persist and become engrained in the economy, the adverse impact on domestic demand and the labour market will result in increases in social welfare payments through the operation of automatic stabilisers. Likewise, if inflation is expected to persist, workers may see higher wages to protect real incomes. Such dynamics impact the public finances through increased public sector pay

<sup>17</sup> On the other hand, anticipated increases in inflation is likely to lead to a risk premium built into the cost of new borrowing.

<sup>18</sup> <https://www.ntma.ie/business-areas/funding-and-debt-management/statistics>

demands and also through the pressure to maintain the real value of non-employment related social welfare payments (e.g. pensions, fuel and children allowances).

Finally, more generally, higher material and labour prices will negatively impact the public finances by increasing the costs of government-funded capital projects.

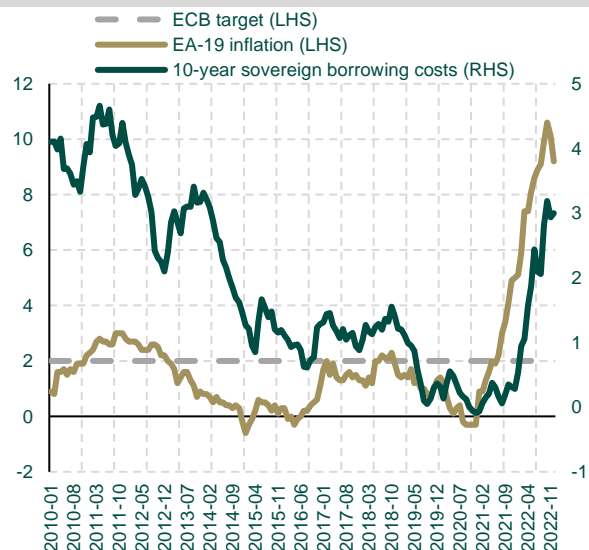
While the above examples focus purely on the first round effects, if inflation becomes entrenched over the medium-term, a key channel through which the public finances are impacted may be through the negative effect on economic growth. Sustained periods of inflation can have a significant adverse impact on domestic demand as the real incomes of consumers are reduced. Likewise, the uncertainty caused by a high inflation environment can delay the investment decisions of firms as operational and borrowing costs increase. In addition, the longer periods of high inflation persist, the more likely it is that higher inflation becomes self-sustaining as a result of higher price and wage expectations. The advent of such scenarios will increase pressures on central banks to further tighten monetary policy, further dampening consumer demand and negatively impacting economic growth.

### 3.3: a changed monetary policy landscape

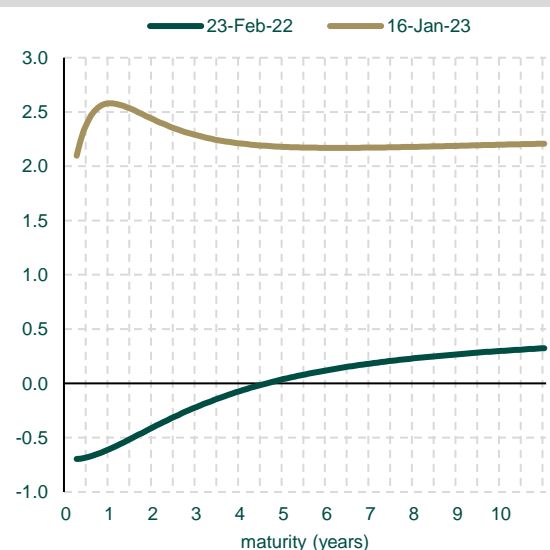
Persistent high rates of inflation have a direct read-across to monetary policy. In the euro area, annual inflation has been above the European Central Bank’s 2 per cent inflation target every month for the past year, a situation replicated in other advanced economies. The key policy rates have been increased by 300 basis points since July<sup>19</sup>, in turn raising sovereign borrowing costs (figure 11a), which are now at their highest levels since 2014. Market participants are pricing in a persistence of higher sovereign borrowing costs (figure 11b).

**Figure 11: euro area inflation and bond yields**

**A: euro area inflation, sovereign borrowing cost, per cent**



**B: euro area yield curves, per cent**



Note: 10-year sovereign borrowing costs based on euro area 10-year Government Benchmark bond yield. Croatia joined the euro at the beginning of 2023 but is not included in the data as these extend to end-2022.

Source: Eurostat; ECB statistical data warehouse.

Source: ECB statistical data warehouse.

<sup>19</sup> Latest increase announced in February 2023.



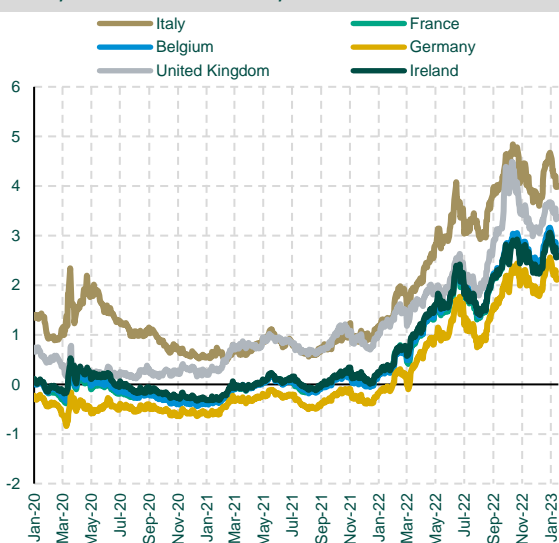
### 3.4: developments in the bond market

Yields on Irish government debt have been on a declining trajectory in recent years. However, the changing stance of monetary policy – higher policy rates and a discontinuation of quantitative easing – means that sovereign borrowing costs have bottomed out and are on a rising trajectory (figure 12a).

The yield on Irish 10-year bonds reached 3 per cent at the beginning of this year, up from around 0.25 per cent at the same time last year. Nevertheless, this remains significantly below the peak of 14 per cent during the euro sovereign debt crisis.<sup>20</sup> The yield on Irish 10-year government bonds is currently just below those of France and Belgium, traditionally identified as ‘semi-core’ euro area Member States. Yields on Irish 10-year bonds have also been below those in the UK and US, as well as synthetic measures for the EU and euro area as a whole (figure 12b).

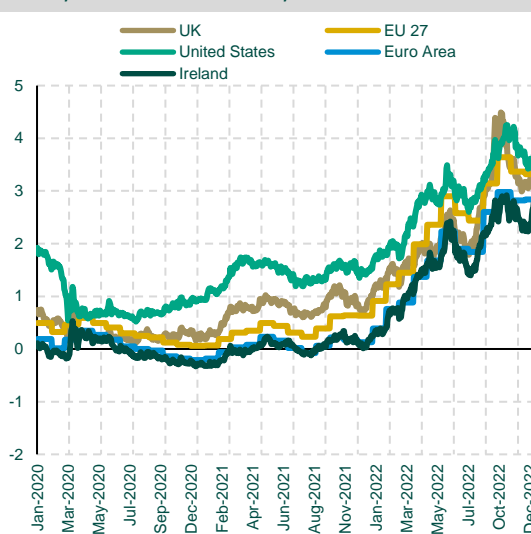
Figure 12: 10-year benchmark bond yields comparison with other countries, end-2022

A: 10-year benchmark bond yields



Source: Macrobond

B: 10-year benchmark bond yields



Source: Macrobond

### 3.5: summary

While the *immediate* impact of inflation may be favourable from a debt dynamics perspective, this is likely to be short-lived. Households and firms respond to high levels of inflation in ways that tend to be ultimately damaging to real growth and the fiscal position. Similarly, inflation-induced policy responses have implications for the path of the debt ratio. Fiscal policy responses to the cost of living increases and higher government expenditure demands can negate any positive impact from tax revenues. Crucially, the biggest impact on the public finances could be through the negative impact of inflation on domestic demand.

That said, it is clear that the shift in the interest rate environment will have tangible implications on the public finances into the future. While the current maturity profile on the stock of debt remains healthy, at an average maturity of just over 10 years, the State will face higher servicing costs as the current stock of debt reaches maturity. Central banks have signalled their intent to continue to use monetary policy to curb inflation. This is leading to a shift away from the low interest rate environment experienced over the last decade and higher servicing costs going forward.

<sup>20</sup> The 10-year yield has fallen over the first half of January to around 2.6 per cent.

## Section 4: Debt sustainability analysis

### 4.1: introduction

Fiscal ‘stress tests’ – assessing the sensitivity of baseline projections to different scenarios – are a key part of the fiscal risk management toolkit. This is particularly the case in Ireland, where economic activity is more volatile than elsewhere.<sup>21</sup> The current highly uncertain external environment further underscores the need for such analysis.

The standard approach involves applying a ‘shock’ that feeds into the calibration of the baseline calculations and assesses the trajectory of the debt ratio in these alternative scenarios. Debt is considered sustainable once the debt-income ratio is stabilised and put on a downward trajectory following the shock. Alternatively, debt is said to be unsustainable if, following a shock, the debt-income ratio moves onto an increasing path. Such an outcome could then require fiscal intervention in order to stabilise the debt-income ratio.

Two broad approaches are taken, namely a partial equilibrium approach – simulations involving the standard ‘debt equation of motion’ which focus solely on the variables included – and a general equilibrium approach – simulations involving a general equilibrium model of the economy.

In addition to assessing the impact of rising interest rates, a number of relevant shocks that take into account the wider risks associated with the current economic environment are considered below. All shocks involve assumptions and are not, in any way, the Department’s baseline expectations. The results, as always with economic modelling, are for broad, illustrative purposes.

### 4.2: impact of shock to interest rates, CT receipts and output in the short-term

The first shock assesses the impact of a further upward increase in the cost of borrowing. To calibrate this shock, incremental increases in policy rates are assumed so that the effective interest rate (EIR) is 100 basis points higher by 2025 relative to the baseline scenario. As a result of the favourable structural aspects of the current stock of Irish public debt highlighted earlier (maturity profile, fixed rates), an increase in the EIR of 100 basis points would require a very large increase in marginal borrowing costs as well as a much greater quantity of debt issuance, and could reasonably be envisaged as being in the far right-tail of the probability distribution.

Given the structural features of public debt, the impact of an interest rate shock has little impact on the debt-income trajectory in the short-term. Deterministic simulations suggest this very significant interest rate increase would only lead to an increase in the debt-income ratio of 1-2 percentage points relative to the baseline by 2025 (**figure 13a**).

More important is the vulnerability associated with a fall in ‘windfall’ corporation tax receipts (**box 2**). To calibrate the impact of a shock to these revenue streams, a scenario involving a reduction by half of windfall CT receipts from next year is set out (**figure 13b**); the overall impact is to increase the debt-income ratio by approximately 5 percentage points higher than baseline by 2025. Similarly, a scenario where all of the estimated CT windfall was eliminated is projected to see a debt-income trajectory 10 percentage points higher than the baseline by 2025.

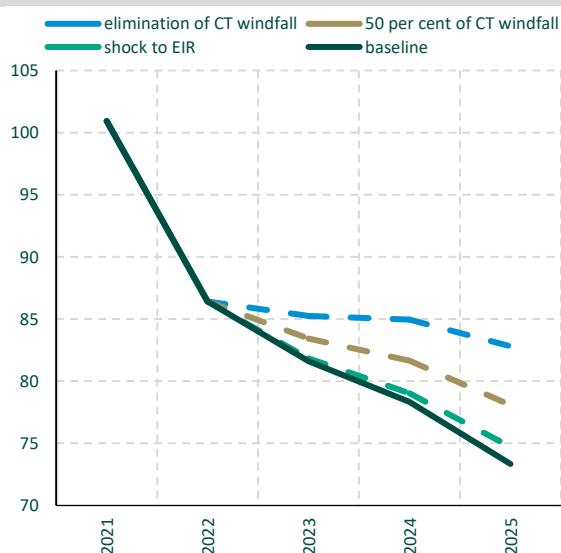
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<sup>21</sup> Standard deviation shows the volatility of a data series by representing the distance of each data point from the mean. Over the past two decades, the standard deviation of nominal and real GNI\* growth is 7.1 and 5.4 per cent, respectively; for real GDP, the UK equivalent is 3.5 per cent while the euro area aggregate is 2.5 per cent.

This purely mechanical approach, however, is overly simplistic – it does not take into account the origins of the loss in corporation tax receipts. A more complete assessment takes into account the fact that output would also fall (relative to baseline) – lower corporate tax receipts would arise from lower profitability, with the latter a key component of output. In other words, the fall in corporate tax receipts would occur in tandem with a fall in economic activity. To illustrate such a shock, a scenario where the elimination of CT windfall receipts combined with a shock to output is considered.

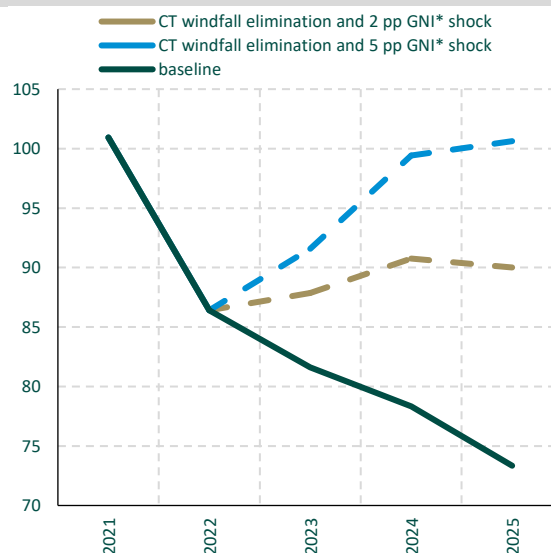
**Figure 13: scenario analysis for debt-income ratio, per cent of GNI\***

**A: shock to effective interest rate and CT receipts**



Source: Department of Finance calculations.

**B: combined CT and output shock**



Source: Department of Finance calculations.

Simulations suggest that a combined CT/output shock, where output is 2 percentage points lower than the baseline scenario, would lead to a 17 percentage point increase in the debt-income trajectory by 2025, relative to the baseline. A scenario where output fell by 5 per cent is projected to lead to a 27 percentage point increase in the debt-income ratio by 2025. These developments would see the debt-trajectory on an unsustainable path, triggering a likely increase in borrowing costs and, ultimately, the need for fiscal policy intervention.

#### 4.3: general equilibrium shocks

While the *partial equilibrium* approach has many advantages, in particular its simplicity, it is also prudent to assess sustainability using a *general equilibrium* approach. This methodology captures the second-round effects of many other variables, aside from the particular variable shocked in this process. To capture such effects, the analysis here makes use of the ESRI's COSMO model (the COre Structural MOdel) of the Irish economy).<sup>22</sup>

As part of this assessment, the analysis focuses on the impact of a shock beyond the standard Department of Finance forecast horizon. To assess the impact over the medium-term, for illustrative purposes, the baseline fiscal forecasts are mechanically extended to a t+10 horizon on a no-policy change basis. The following shocks were considered:

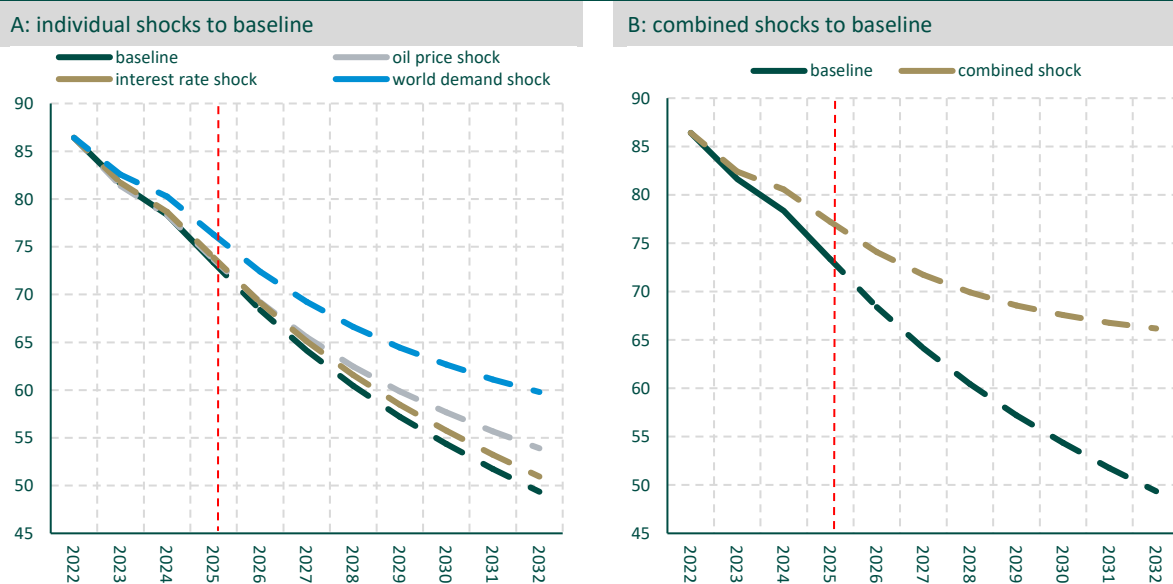
- > a permanent 150 per cent increase in oil prices;
- > a permanent 3 per cent increase in the ECB policy rate;
- > a permanent 3 per shock to world demand; and,

<sup>22</sup> Bergin, A. et al, *COSMO: A new COre Structural MOdel for Ireland*, ESRI Working Paper No. 553.

- > a shock combining all three of the above.

As evident below (figure 14a), the impact of the oil price and interest rate shocks are relatively limited, with the debt trajectory projected to be 5 and 2 percentage points higher respectively, relative to the baseline projection by 2032. The shock to world demand (a proxy for a domestic output shock) sees a bigger adverse impact with the debt-income trajectory projected to be 10 percentage points higher by 2032.

**Figure 14: shocks to economy, general equilibrium impact on debt-income trajectory, per cent of GNI\***



Note: Department of Finance baseline projections extended on no-policy change basis.

Source: Department of Finance calculations based on COSMO.

Note: Department of Finance baseline projections extended on no-policy change basis.

Source: Department of Finance calculations based on COSMO.

When all three of these shocks are combined, the debt trajectory is expected to be 17 percentage points higher than the baseline. Similar to the partial equilibrium analysis, the general equilibrium approach suggests that while the impact of shock to a single variable may have a limited impact, a major shock to the economy that has an adverse influence on a number of channels, is likely to have a material impact on the trajectory of the debt-income ratio.

#### 4.4: summary

In a context of an uncertain external environment, and with economic activity in Ireland more volatile than elsewhere, it is important that alternative scenarios are considered for fiscal projections, looking at plausible risks and their consequences for debt sustainability. The application of ‘stress tests’ to the baseline scenario reveals how sensitive the debt trajectory is to underlying assumptions and tests the sustainability of debt in different circumstances.

Simulations are run using a partial equilibrium approach – involving the standard ‘debt equation of motion’ which focus solely on the variables included – and a general equilibrium approach – involving a general equilibrium model of the economy. The results of both approaches suggest that the public finances in Ireland are well placed to absorb a shock to interest rates, reflecting the positive structural aspects of the national debt. On the other hand, the public finances are vulnerable to a shock to corporation tax receipts, particularly when combined with an underlying shock to domestic activity which might precipitate a fall in CT revenues. Ultimately, the most significant threat to debt sustainability would be from a major shock which has an adverse effect via a number of channels.

## Section 5: Conclusion

The sudden and rapid increase in inflation across all advanced economies, alongside the associated shift in policy interest rates, highlights once again how quickly economic conditions can change.

From a public finances perspective, several structural features of Ireland's debt stock provide short-term insulation. However, re-financing of existing debt over the medium-term will lead to increased debt servicing costs, a situation which would be compounded if the State had to issue new debt to cover deficit needs.

While current projections suggest a positive outlook for the debt-income ratio, there are significant risks to this baseline. Among the largest known risks is the narrow tax base, in particular the over-reliance on corporation tax receipts as a source of revenue. These revenue streams now account for more than €1 in every €4 collected by the State, with around half of that collected from just ten large companies. Analysis set out in this document shows that if these windfalls were to disappear, the direct effects alone would add 10 percentage points to the debt-income ratio by 2025.

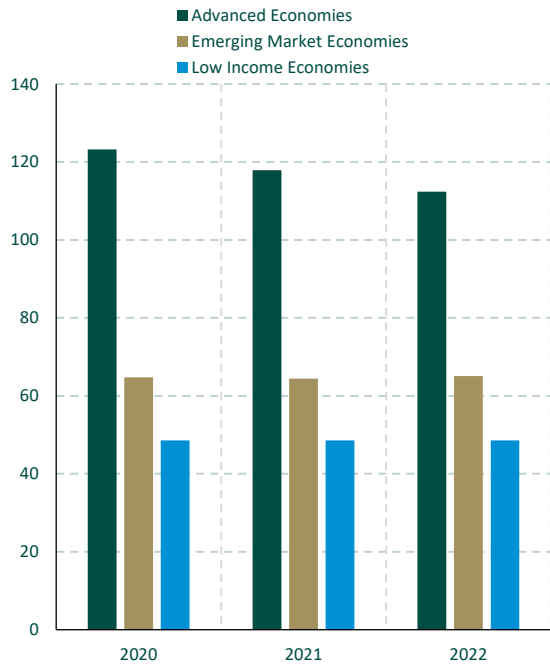
On top of this, the public finances face significant structural challenges in the coming decades due to the costs associated with the dual transitions (green and digital) and the fiscal implications of population ageing.

As well as these *known* structural changes that are on the horizon, it seems that major *unknown* economic shocks are becoming increasingly regular: over the last decade-and-a-half, the economy has been buffeted by the global financial crisis, the Covid-19 pandemic and war on European soil. This underscores the importance of building sufficient fiscal buffers in order to use budgetary policy in a pro-active, counter-cyclical manner to mitigate unforeseeable shocks.

## Annex

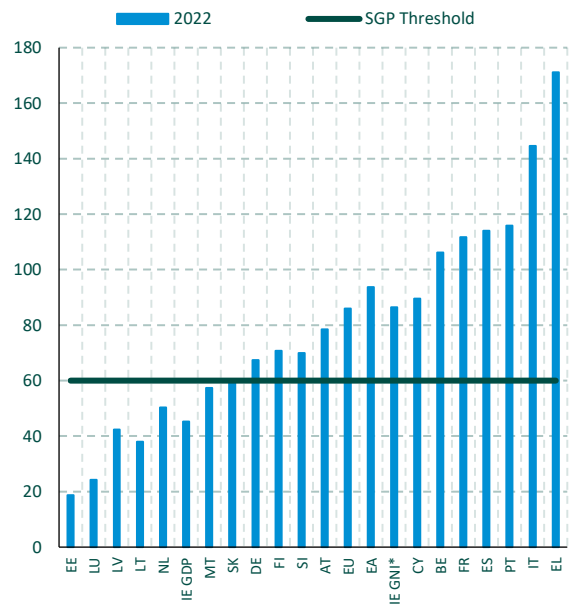
**Figure A1: public debt, international context**

A: debt by income grouping, per cent GDP



Source: IMF Fiscal Monitor October 2022

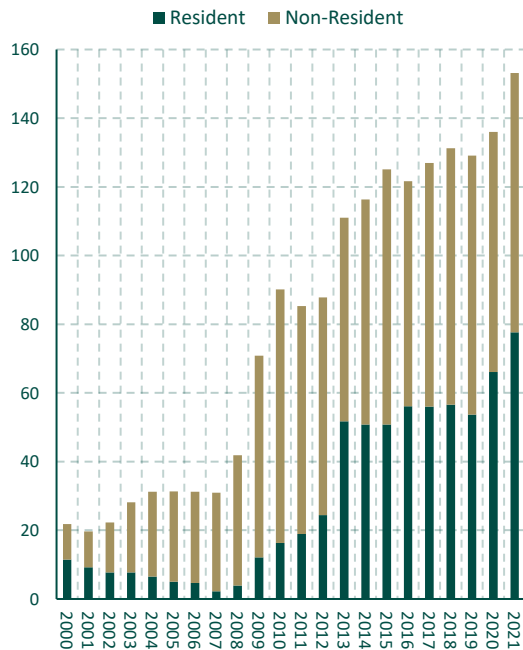
B: debt ratios in the euro area, per cent GDP



Source: AMECO, CSO

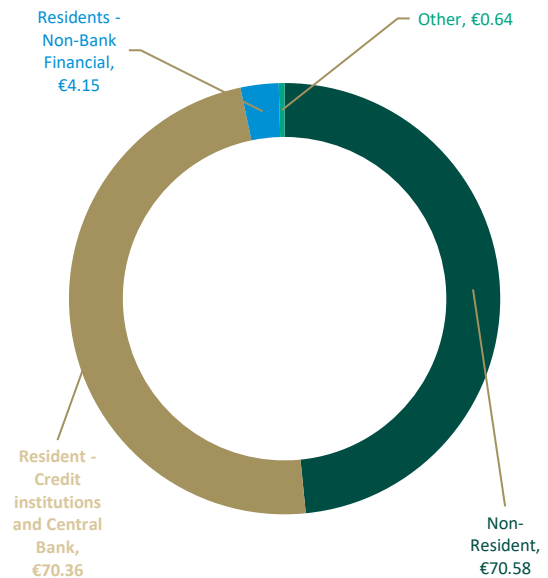
**Figure A2: composition of national debt**

A: holders of Irish government bonds over time, billions



Source: Central Bank and Dept. of Finance calculations

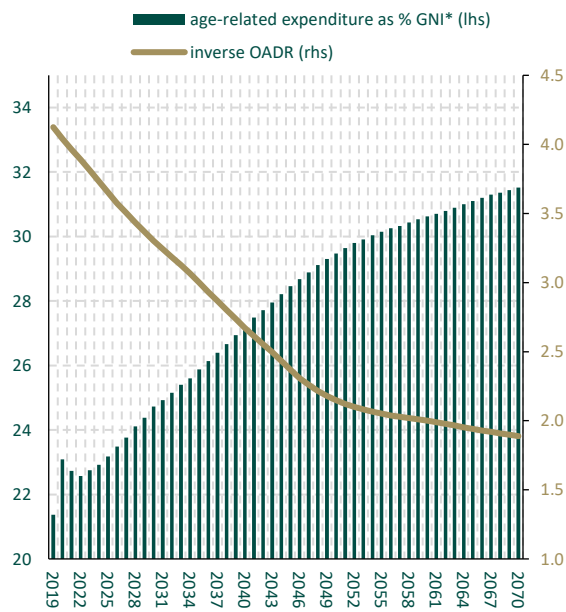
B: holders of Irish government bonds end-November 2022



Source: Central Bank and Dept. of Finance calculations

**Figure A3: impact of population ageing on public finances**

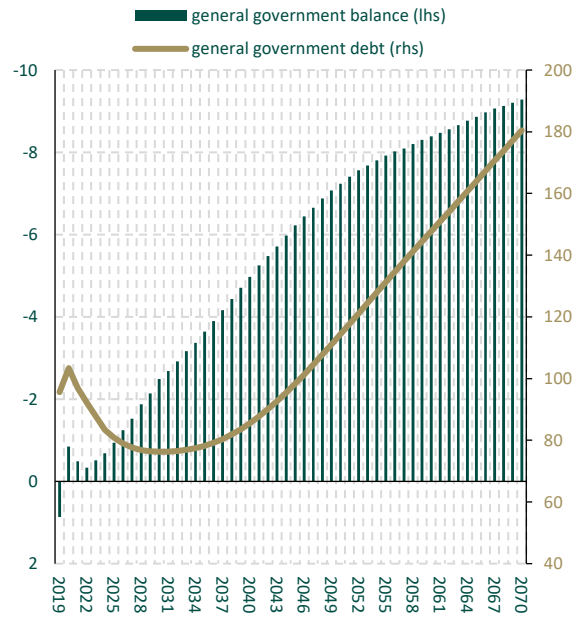
**A: demographic and expenditure projections**



Note: Inverse Old Age-Dependency Ratio (OADR) shows the population aged 65 and over relative to the population aged between 20-65- a proxy for the working age population.

Source: 2021 Ageing Report / Dept of Finance calculations.

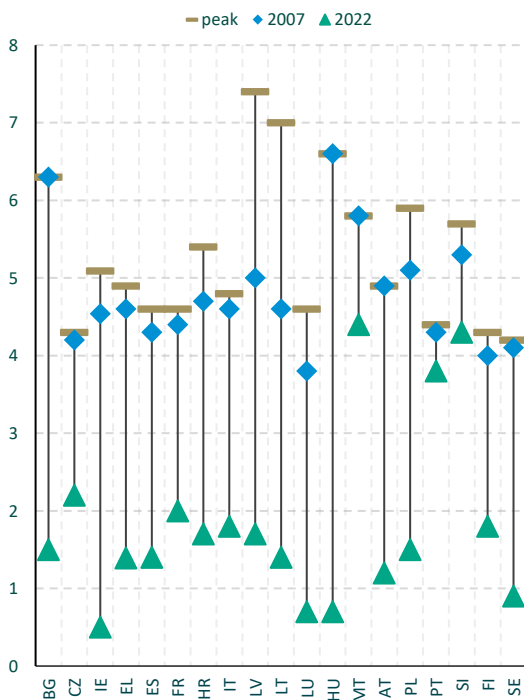
**B: no-policy change basis, per cent of GNI\***



Source: Department of Finance calculations.

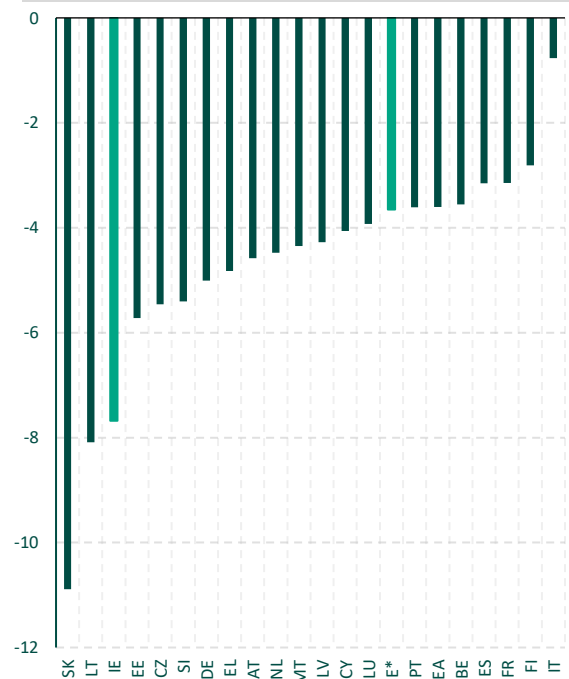
**Figure A4: interest rates for euro area sovereign borrowing**

**A: effective interest rates in the euro area, per cent**



Source: Dept of Finance calculations based on AMECO data.

**B: r-g change 2019-2023**



Source: Dept of Finance calculations based on AMECO data

**Table A1: Irish sovereign credit ratings, January 2023<sup>^</sup>**

	Long-term rating	Short-term rating	Outlook
Standard & Poor's	AA-	A-1+	Positive
Moody's	A1	P-1	Positive
Fitch Ratings	AA-	F1+	Stable
DBRS Morningstar	AA (low)	R-1 (middle)	Stable
R&I	AA-	a-1+	Stable

<sup>^</sup> As of mid-January 2023.

Source: NTMA





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