The NTMA is responsible for borrowing on behalf of the Government and managing the National Debt in order to ensure liquidity for the Exchequer and to minimise the interest burden over the medium term.

Funding and Debt Management

Irish Bond Market Review

2022 was a year of significant volatility and change in global financial markets. The main influences on global bond markets were the Russian invasion of Ukraine, rising inflation and the resulting interest rate hikes implemented by central banks - see *Era of Expansionary Monetary Policy Draws to an End* on page 12 for more details.

Irish sovereign bond yields were still near historical lows as the NTMA issued a new 10-year bond at a yield just below 0.4% in early January.

However, sovereign yields then began to increase as the first quarter of the year progressed. In late February, Russia invaded Ukraine, and markets witnessed significant volatility, as sanctions impacted the energy sector in particular. Irish 10-year bond yields, which had more than doubled since the syndication in January, fell back to 0.5% in early March as markets reassessed their views regarding the speed and scale of European Central Bank (ECB) rate increases amidst the ongoing geo-political events.

However, yields began to rise sharply again as markets refocused on global inflation; with the Irish 10-year bond yield reaching over 1% by mid-March.

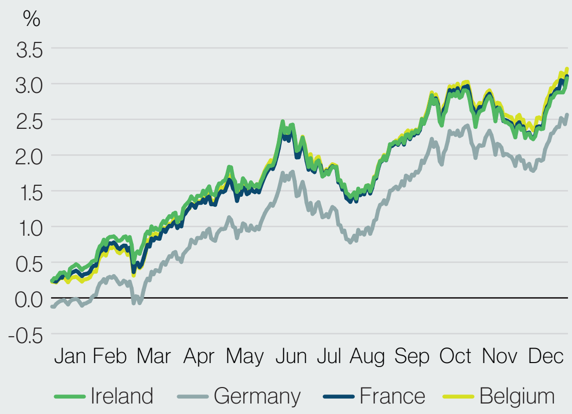
The Russian invasion of Ukraine, along with the more permanent and lasting reopening of economies post the COVID-19 pandemic resulted in significant price pressures. Inflation concerns moved from being transitory in nature to more embedded. The Bank of England (BOE) had commenced its rate hiking cycle in late 2021, and the US Federal Reserve followed suit, in March, as central banks moved to tame inflation.

Euro area sovereign yields rose over the second quarter of the year, as speculation regarding ECB interest rate changes grew. The ECB announced its first interest rate hike in July at which point the yield on the Irish 10-year bond was over 1.8%.

Markets stabilised over the summer months. However, yields rose again in September, in the lead up to a further series of rate hikes. In contrast to when first issued in January, the September auction of the new 10-year Irish Government bond was at a yield of 2.22%. Yields increased further over the final quarter of the year, with the Irish 10-year closing the year at just over 3%, an eight year high.

As sovereign bond yields had increased across the euro area, there was no significant widening of Ireland's credit spreads during 2022. The Irish 10-year spread to Germany started the year at c. 0.35% and closed at 0.5%. Ireland's 10-year bond spread traded in line with, and indeed at times traded through, the French and Belgian equivalents during the year.

10-year sovereign bond yields in 2022



Era of Expansionary Monetary Policy Draws to an End

Global Central Banks Tighten Monetary Policy in Response to Inflation Pressures

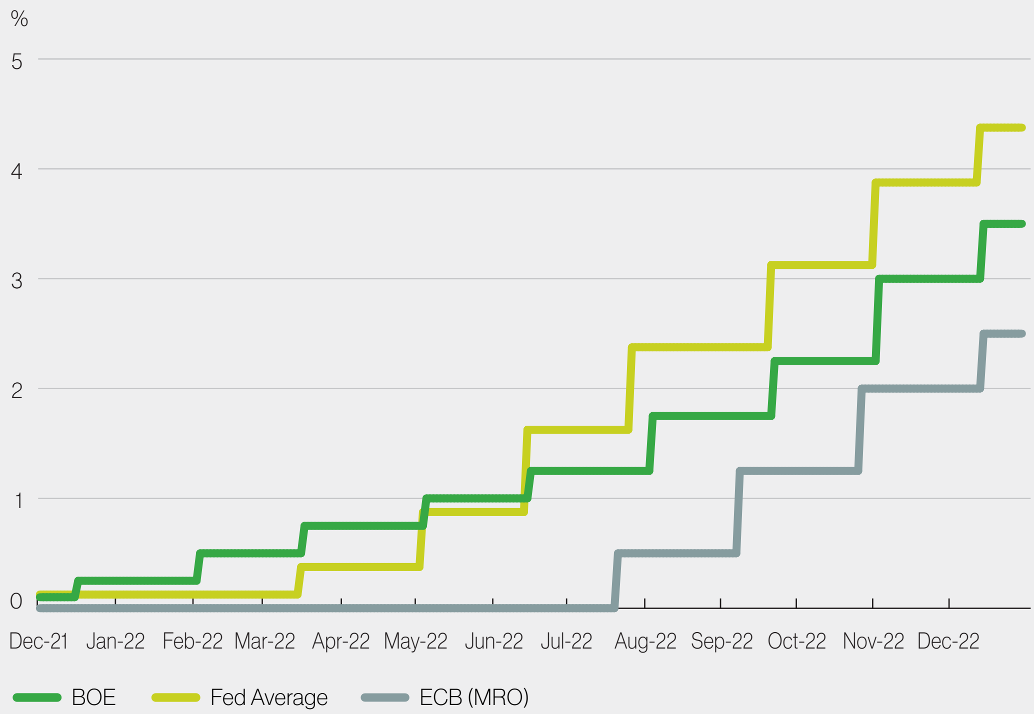
2022 was a year of change in global monetary policy. The reopening of economies on a more permanent basis post the COVID-19 pandemic, and Russia's invasion of Ukraine brought inflation sharply into focus. Initially viewed as transitory in nature when it first emerged in late 2021, central banks were forced to act aggressively to rein in more persistent price pressures as the year progressed.

The BOE commenced rate hikes in December 2021 and following eight separate rate increases over the course of 2022, the official bank rate ended the year at 3.5%.

In the US, the Federal Reserve hiking cycle commenced later, in March 2022, but was more aggressive. It increased rates seven times in 2022, by a cumulative 4.25%. At year-end 2022, the Federal Funds Target range was 4.25% to 4.5%.

The ECB's first hike was in July, when it increased rates by 0.5%, thus ending a period of negative deposit rates that began in mid-2014. This was followed by hikes of 0.75% in both September and November, and a further 0.5% increase in December. The main refinancing operations (MRO) rate stood at 2.5% at year-end.

Central Bank Interest Rate Changes



All three central banks have increased their official rates further since the start of 2023.

As regards Quantitative Easing (QE), the ECB ended net purchases under both the Pandemic Emergency Purchase Programme (PEPP) and the Asset Purchase Programme (APP) in 2022 as it began to unwind the extraordinary monetary policy support that had been in place since 2015.

Net purchases under the PEPP ended in March. The reinvestment of maturing principal payments is set to continue until at least the end of 2024.

Net purchases under APP ended in June. At its December Governing Council meeting, the ECB revealed the details of Quantitative Tightening (QT), or the process of reducing the size of its balance sheet. Initially this will be done through a phased reduction in the volume of the proceeds of maturing bonds that are reinvested under the APP, from March 2023. The decline will amount to €15bn per month on average until the end of June 2023. The ECB expects to discontinue the reinvestments under the APP from July.

By end-2022, the cumulative net purchases of Irish bonds under the APP – introduced in 2015 – totalled €43bn and under the PEPP – introduced in 2020 – totalled approximately €26bn.

The BOE and the US Federal Reserve both began reducing their balance sheets in 2022.

Funding Activity

Long-Term Funding

The NTMA's original bond funding range for 2022 was €10bn to €14bn. However, reflecting the strength of the Exchequer's cash position, coupled with the surplus for the year projected in Budget 2023, the NTMA confirmed, in late September, that it had completed its 2022 funding programme having issued €7bn. A further €0.1bn was issued through the non-competitive bond auctions, bringing total bond issuance for the year to €7.1bn. This funding had a weighted average yield of 1.10% and a weighted average maturity of 14.8 years.

The NTMA raised a further €0.2bn in other long-term debt issued under its Euro Medium Term Note (EMTN) Programme. There were two fixed-rate private placements with maturities of 60 and 100 years and an average yield of just over 2%. This brought total long-term nominal funding to €7.3bn.

€bn	Nominal	Cash
Syndications/auctions	7.0	6.8
Non-competitive auctions	0.1	0.1
1. Total Benchmark Bond Issuance	**7.1**	**6.9**
- Weighted average yield	*1.10%*	
- Weighted average maturity	*14.8yrs*	
2. Private Placements	**0.2**	**0.2**
Total Long-Term	**7.3**	**7.1**

The NTMA undertook one bond syndication in 2022, issuing a new 10-year benchmark bond in January. The bond matures in October 2032. €3.5bn was issued at a yield of 0.387%. The total order book was more than €27bn and included over 180 individual accounts. Ninety three per cent of the issue was taken up by overseas investors with the largest distribution of 30% going to UK investors.

Investor Geographic Distribution for 2022 Bond Syndication

The NTMA also held three bond auctions during the year issuing a total of €3.6bn nominal, including the issuance in the non-competitive auctions. Each of these auctions was a dual auction with two different bonds being offered. In total, across the three auctions, four different bonds were sold, with maturities in 2032, 2037, 2045 and 2050.

NTMA Bond Auctions 2022

Bond Name		Auction Size (€m)	Non-Competitive Auction (€m)	Yield (%)	Cover Ratio
10 March					
0.35%	Treasury Bond 2032	400	0	0.778	3.46
1.7%	Treasury Bond 2037	600	0	0.984	2.03
12 May					
0.35%	Treasury Bond 2032	400	0	1.500	2.84
2%	Treasury Bond 2045	850	11	1.789	1.41
1 September					
0.35%	Treasury Bond 2032	350	41	2.216	2.23
1.5%	Treasury Bond 2050	900	64	2.646	1.71

Floating Rate Bond buybacks

A total of €3bn nominal of Floating Rate Bonds held by the Central Bank of Ireland were bought back and cancelled during 2022. By end-2022, a total of €22.5bn of these bonds had been bought back and cancelled, leaving an outstanding balance of €2.5bn, from the €25bn originally issued in 2013. This was ahead of the minimum disposal schedule, a strategy driven by the low interest rate environment of recent years. By replacing these bonds with fixed rate bonds, the NTMA is protecting the State against future interest rate rises.

Short-Term Funding

In 2022, the NTMA held seven Treasury Bill auctions. As with the bond auctions and reflecting the strong cash position and fiscal outlook for the remainder of 2022, the final Treasury Bill auction of the year took place in September. Apart from the July auction, which had an issuance size of €1bn, €0.75bn was issued each time. In total €5.5bn was issued at a weighted average yield of -0.08% and a weighted average life of almost five months. At year-end 2022, there were no Treasury Bills outstanding and the NTMA's Annual Funding Plan for 2023 confirmed that the NTMA's strong funding position means that it does not expect to issue Treasury Bills during 2023.

The NTMA issued almost €9.1bn from Ireland's Euro Commercial Paper (ECP) programme in 2022. This issuance was completed at a weighted average, euro equivalent yield of -0.43% and a weighted average tenor of close to two months. There was no ECP outstanding at year-end 2022 compared to €1.9bn at end-2021.

The negative, average euro equivalent rates on aggregate Treasury Bill and ECP issuance in 2022 reflect the concentration of issuance in the earlier part of the year, before the ECB commenced its series of interest rate increases in July.

Short-term debt was also issued in the form of Exchequer Notes and Central Treasury Notes. Most of these notes are held by domestic public sector entities. The aggregate total outstanding at end-2022 was €9.9bn, compared to €4.9bn at end-2021.

State Savings

State Savings is the brand name applied by the NTMA to the range of Irish Government savings products offered to personal savers. During 2022, there were net inflows of €0.7bn into State Savings products, compared to €1.3bn in 2021. At year-end 2022, the total amount outstanding in fixed rate products and Prize Bonds was €20bn. When deposit accounts are included, the year-end total outstanding was €24.8bn.

State Savings – Ongoing Transformation Programme

During 2022, State Savings rolled out Electronic Funds Transfers (EFT) as a repayment option for Fixed Term and Prize Bond customers, both online and offline. There was significant uptake in respect of this option, with approximately 50% of customers choosing repayment by EFT, instead of cheques.

In September 2022, an updated Prize Bond certificate was introduced for all Prize Bond purchases. The new design consolidates key information on recycled paper and enables State Savings to reduce the volume of paper used in mail correspondence.

Future developments for State Savings will focus on further digital developments to enhance the service offering for customers and build a sustainable business for the future.

State Savings Products

	Total Outstanding at End-2022 €m	Net Inflow/ (Outflow) in 2022 €m
Savings Bonds	2,417	34
4 Year Solidarity Bonds	1,586	120
10 Year Solidarity Bonds	4,859	137
Savings Certificates	5,903	(184)
Instalment Savings/Savings Stamps	551	6
Prize Bonds	4,693	253
Deposit Accounts	4,768	348
Total	**24,777**	**714**

Figures may not total due to rounding.

Exchequer Funding Sources and Requirements 2022

The Exchequer had cash and liquid asset balances of €23.3bn at year-end 2022. This was a decrease of more than €4bn on the previous year-end. The end-2022 balance was higher than had been expected, due primarily to the strength of the public finances and the resulting Exchequer surplus of €5bn.

In addition to the Exchequer surplus, the main funding sources were long-term debt issuance (bonds and private placements) which raised more than €7bn and State Savings (including Post Office Savings Bank (POSB) deposits) inflows which were €0.7bn.

The main funding requirements were two bond maturities totalling €11.8bn as well as the purchase of €3bn nominal (€4.5bn cash price) of Floating Rate Bonds from the Central Bank of Ireland.

Debt Profile and Debt Ratios

Net National Debt is the net debt incurred by the Exchequer after taking account of cash balances and other financial assets. Gross National Debt – the debt before the netting of those cash balances and other financial assets – is the primary component of General Government Debt (GGD). While the NTMA's debt management responsibilities relate to the National Debt measures, the focus of this section is on GGD which is a measure of the total gross consolidated debt of the State and the standard measure used for comparative purposes across the EU.

Composition of National Debt and General Government Debt at End-2022

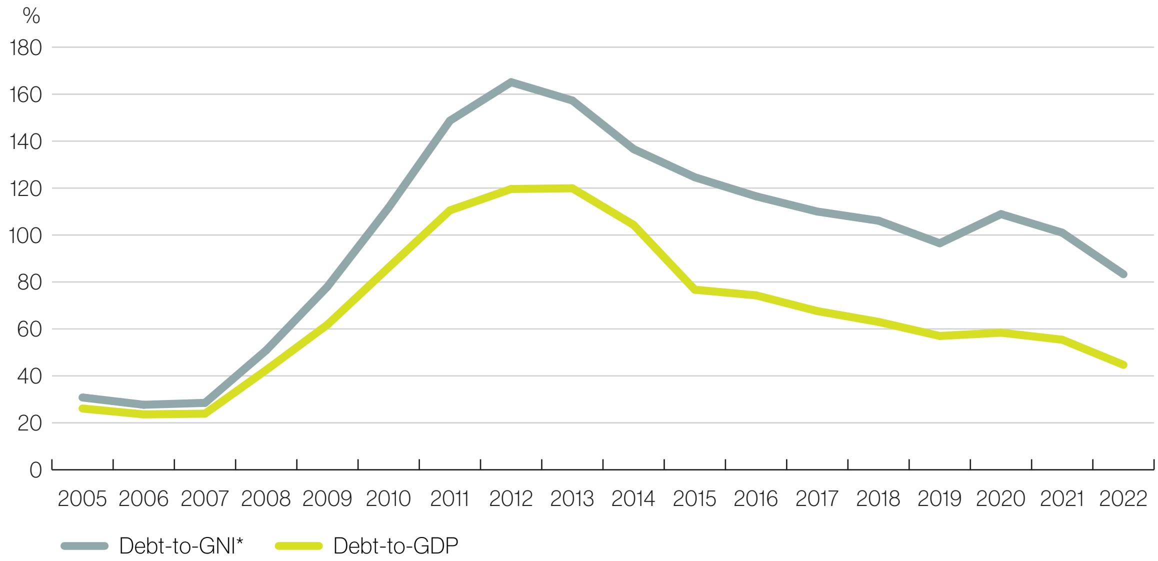
		€bn
Government Bonds		
Fixed Rate	*142.5*	
Floating Rate	*2.5*	
Amortising	*0.4*	
Inflation-Linked	*1.2*	
Total		146.6
EU Loans (EFSM & EFSF)		40.9
SURE		2.5
Other Medium and Long-term Debt		5.4
State Savings Schemes*		20.0
Short-Term Paper		9.9
Borrowings from Ministerial Funds		6.0
Gross National Debt		**231.2**
Less Exchequer Cash and Liquid Assets		23.3
Less Other Financial Assets		3.0
Net National Debt		**204.9**
Gross National Debt		**231.2**
General Government Debt Adjustments		-6.5
General Government Debt		**224.8**

Figures may not total due to rounding.

Source: NTMA and Central Statistics Office (CSO)

* State Savings Schemes also include POSB deposits. While not an explicit component of the National Debt, these funds are mainly lent to the Exchequer as an alternative source of Exchequer funding and liquidity. Including POSB Deposits, total State Savings outstanding were €24.8bn at end-2022.

General Government Debt Ratios 2005-2022



Source: NTMA, CSO and Department of Finance for GNI* 2022

Ireland's GGD/GDP ratio continued its downward trend in 2022 ending the year at 45%, a decline of almost 11 percentage points on the end-2021 position. A decade ago, the ratio was 120%.

The fall in the ratio in 2022 was due to a combination of a reduction in the level of debt outstanding, down over €11bn, and further strong nominal GDP growth, of 18%.

This decrease in the absolute level of public debt is in part attributable to the budget surplus achieved last year, which resulted in the NTMA reducing its level of borrowing.

However, it is widely accepted that the GGD/GDP ratio is a less reliable indicator of sustainability for Ireland. In that context, it is necessary to focus on other metrics to obtain a better picture of Ireland's debt burden.

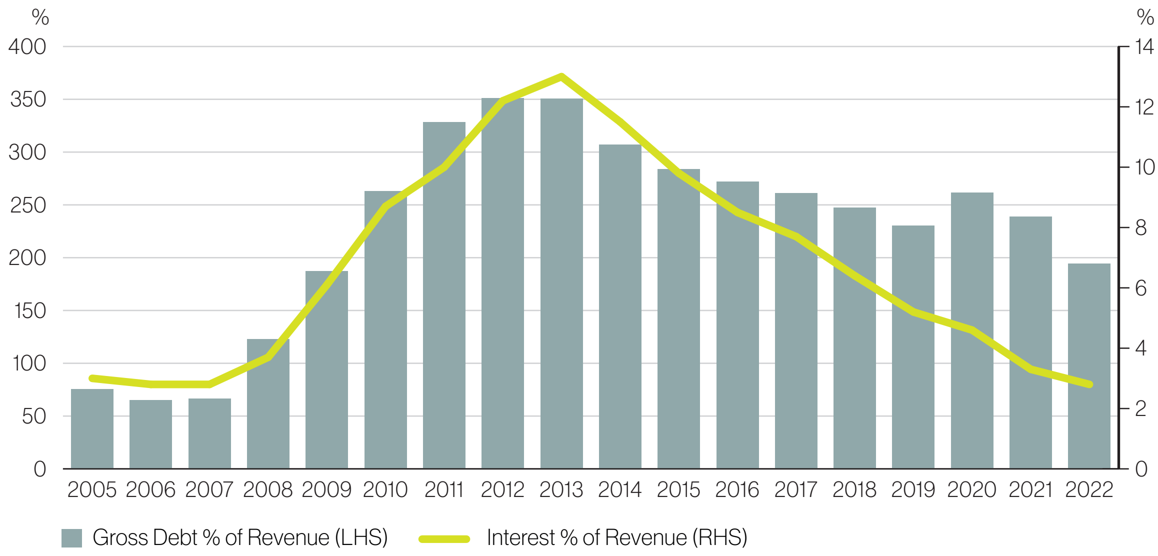
One such alternative metric is GGD as a percentage of Modified Gross National Income, or GNI*. GNI* is considered the best, though still an imperfect, guide to the size of Ireland's economy as it strips out the impact of certain multinationals' activities. As with the trend in the GGD/GDP ratio, the GGD/GNI* ratio has also declined sharply, from a peak of 165% at end-2012. The ratio which stood at 101% at end-2021 fell further in 2022, to stand at an estimated 83% by year-end.

Other important metrics examining the burden of public debt include both debt and interest as a percentage of General Government Revenue (GGR). GGR displayed strong growth in 2022, increasing by 17% over 2021. This growth was largely driven by robust income tax and VAT receipts as well as a significant increase in corporate tax receipts, which were up 48% on 2021 levels.

At end-2022, the GGD/GGR ratio was at 195%, reducing by 44 percentage points on the previous year-end. This is far below the 2012 peak of 351%.

With the interest bill broadly stable last year, the strong growth in GGR saw the interest/GGR ratio also continue its downward trend in 2022, falling from 3.3% in 2021 to 2.8%. By contrast, this ratio was almost 13% in 2013. The debt interest bill is discussed in more detail on page 18.

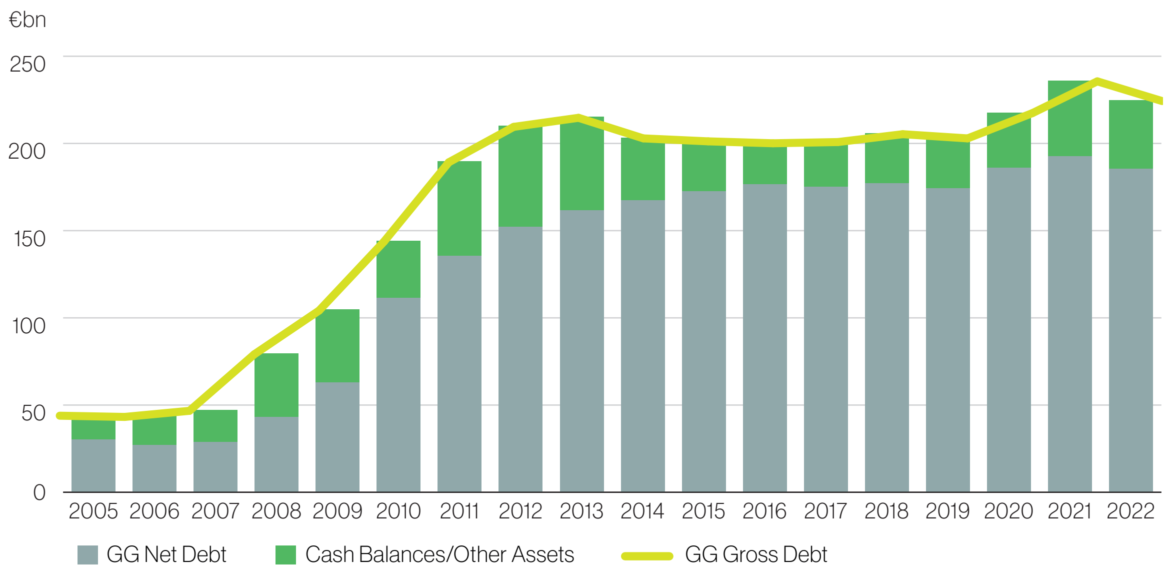
General Government Debt Metrics 2005-2022



Source: NTMA and CSO

GGD is a gross measure of debt. It does not allow for the netting of cash balances and other financial assets. However, the CSO does produce an estimate of General Government Net Debt. At end-2022, it stood at €185bn, meaning General Government assets totalled some €39bn. The main asset netted off for the purpose of calculating Net Debt is the Exchequer cash balance which was €23.3bn at end-2022. Other assets include ISIF cash and non-equity investments. The Government's equity stakes in the Irish banking sector, most notably AIB, are not part of these assets.

Gross and Net General Government Debt 2005-2022



Source: NTMA and CSO

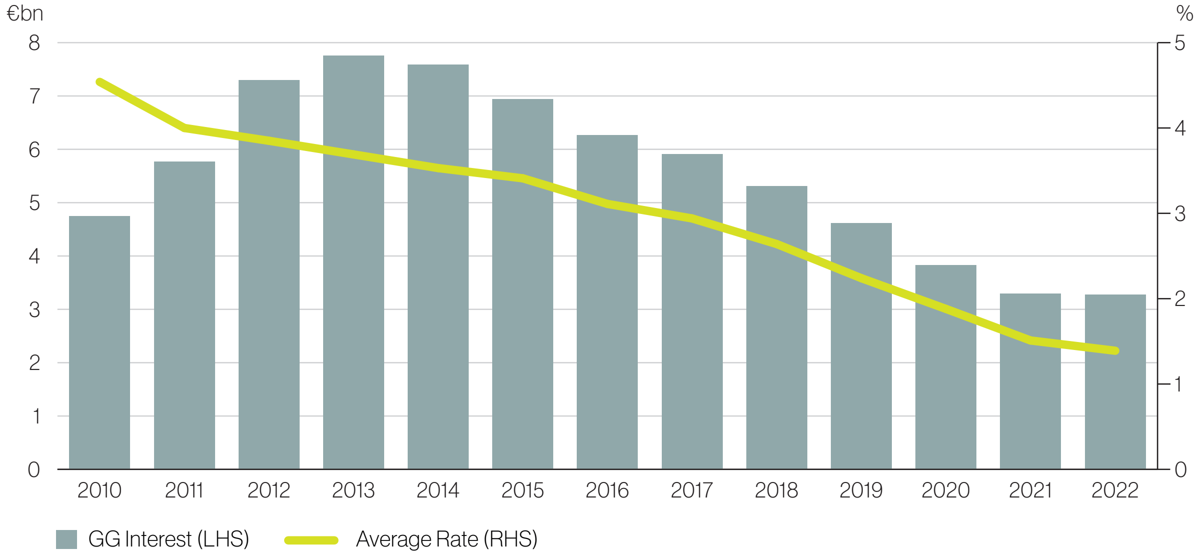
Debt Interest Bill

The NTMA's primary debt management objectives are to ensure liquidity for the Exchequer and to minimise the interest burden over the medium term.

From a peak of €7.8bn in 2013, the General Government interest bill had fallen almost 60%, to €3.3bn by 2021. However, with the bulk of expensive, financial crisis era debt now repaid and with interest rates increasing in 2022, the interest bill last year was broadly equivalent to the level seen in 2021.

The weighted average yield of benchmark bond issuance in 2022 was 1.1% compared to 0.2% in 2021. While the cost of issuing debt rose in 2022, the volume of issuance dropped significantly as COVID-19 supports were unwound and strong growth in revenue, most notably corporation tax, meant the NTMA issued just over €7bn of bonds. In 2021, the equivalent figure was more than €19bn. The average interest rate[1] on Ireland's stock of debt fell to 1.4% in 2022 compared to 3.8% in 2012.

General Government Interest and Average Rate 2010-2022



Source: NTMA and CSO

1 *General Government interest as a percentage of the stock of debt outstanding at the previous year-end.*

Irish Government Bond Market

Bond		Maturity Date	Outstanding End-2021 €m*	Outstanding End-2022 €m*	Change in 2022 €m*
0.8%	Treasury Bond 2022	15 March 2022	6,788	-	-6,788
0%	Treasury Bond 2022	18 October 2022	5,040	-	-5,040
3.9%	Treasury Bond 2023	20 March 2023	7,006	7,006	0
3.4%	Treasury Bond 2024	18 March 2024	8,031	8,031	0
5.4%	Treasury Bond 2025	13 March 2025	11,490	11,490	0
1.0%	Treasury Bond 2026	15 May 2026	11,639	11,639	0
0.2%	Treasury Bond 2027	15 May 2027	7,251	7,251	0
0.9%	Treasury Bond 2028	15 May 2028	8,458	8,458	0
1.1%	Treasury Bond 2029	15 May 2029	10,228	10,228	0
2.4%	Treasury Bond 2030	15 May 2030	9,409	9,409	0
0.2%	Treasury Bond 2030	18 October 2030	8,088	8,088	0
1.35%	Treasury Bond 2031	18 March 2031	6,848	6,848	0
0%	Treasury Bond 2031	18 October 2031	9,193	9,193	0
0.35%	Treasury Bond 2032	18 October 2032	-	4,691	+4,691
1.3%	Treasury Bond 2033	15 May 2033	5,085	5,085	0
0.4%	Treasury Bond 2035	15 May 2035	5,366	5,366	0
1.7%	Treasury Bond 2037	15 May 2037	6,137	6,737	+600
0.55%	Treasury Bond 2041	22 April 2041	4,133	4,133	0
2.0%	Treasury Bond 2045	18 February 2045	9,707	10,568	+861
1.5%	Treasury Bond 2050	15 May 2050	7,125	8,089	+964

*Excluding repos.

Figures may not total due to rounding.

At end-2022, Ireland's benchmark bond curve consisted of 18 fixed rate bonds with a range of maturities extending to 2050. The total outstanding balance stood at €142.5bn.

The Irish Government bond market has a strong primary dealer group, mainly consisting of international investment banks with a global reach. The 14 primary dealers have exclusive access to Irish Government bond auctions and are required to quote continuous buy and sell prices in Irish benchmark bonds.

Maturity Profile

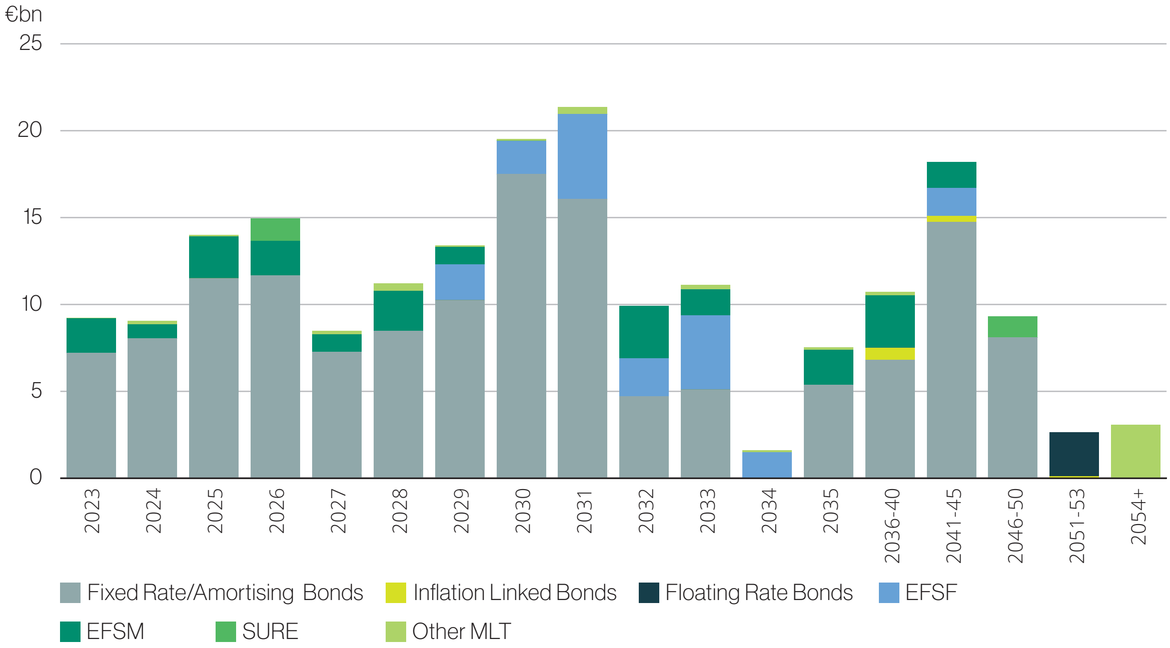
The maturity profile of Ireland's €195.3bn medium-long term (MLT) debt portfolio, as at end-2022, is shown in the graph on page 20.

There were two benchmark bond maturities in 2022:

- The 0.8% 2022 bond matured on 15 March with a balance of €6.8bn; and
- The 0% 2022 bond matured on 18 October with a balance of €5bn.

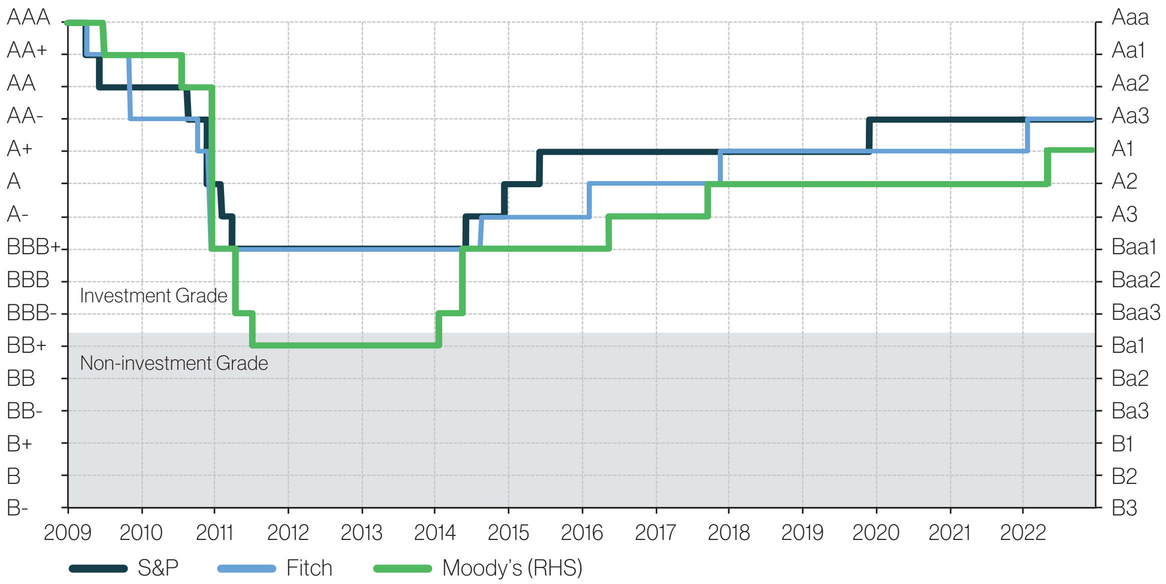
As with previous redemptions in recent years, the NTMA took the opportunity to pre-fund these maturities. The weighted average maturity of the MLT debt portfolio was 10.4 years at end-2022.

Maturity Profile of Ireland's Medium & Long-Term Debt at End-2022



Credit Ratings

2022 saw positive movements in Ireland's credit ratings. In January, Fitch upgraded Ireland's rating by one notch to AA-, with a stable outlook. In May, Moody's also upgraded Ireland's rating by one notch, to A1, and maintained the positive outlook. Both upgrades were the first from the rating agencies since 2017. The Fitch upgrade returned Ireland to the AA rating category for the first time since 2010 while the Moody's rating was the highest since 2010. Standard & Poor's (S&P) changed the outlook on Ireland's rating to positive in November 2022, maintaining the AA- rating. The graph below charts Ireland's historical ratings for the three main rating agencies up to and including year-end 2022.



DBRS Morningstar and R&I also upgraded Ireland's rating, to AA (low) and AA- respectively in the early months of 2022.

In their assessments, the rating agencies noted the resilience of the Irish economy, strong revenue performance, and the improved debt sustainability metrics.

In April 2023, Moody's upgraded Ireland's rating for the second time in less than a year, bringing the rating to Aa3 with a stable outlook. This means that Ireland is now rated in the AA category with all the major global ratings agencies.

Ireland's Sovereign Credit Ratings – as at April 2023

Rating Agency	Long-Term rating	Short-Term rating	Outlook/ Trend
S&P	AA-	A-1+	Positive
Moody's	Aa3	P-1	Stable
Fitch Ratings	AA-	F1+	Stable
DBRS Morningstar	AA (low)	R-1 (middle)	Stable
R&I	AA-	a-1+	Stable
KBRA	AA-	K1+	Stable
Scope Ratings	AA-	S-1+	Positive

Investor Relations

The goal of the NTMA's Investor Relations programme is to develop and maintain long-term relationships with investors. It provides transparency to the market about Ireland's macroeconomic situation and the NTMA's funding plan. The programme returned to a combination of in-person and virtual meetings from March 2022 onwards.

Throughout the year, the NTMA met with investors from all the major financial centres, as well as secondary centres such as Italy, Switzerland and Austria. The NTMA met investors from 17 countries, including in-person meetings with investors in the USA and Asia for the first time since 2019.

Ireland Apple Escrow Fund

The NTMA continues to perform certain functions of the Minister for Finance in relation to the investment of the Ireland Apple Escrow Fund (the "Fund") in accordance with delegation orders made by the Minister and related Ministerial directions. An Investment Committee comprising an equal number of members appointed by the NTMA (as agent of the Minister) and by the relevant Apple entities, is responsible for investment oversight and for monitoring the performance of the investment managers and the escrow agent/custodian. The committee met on four occasions during 2022.

In accordance with Section 28 of the *National Treasury Management Agency (Amendment) Act 2000* and at the direction of the Minister for Finance, the NTMA is required to prepare and keep accounts for the Fund, which are subject to audit by the Comptroller and Auditor General. These accounts, which are submitted annually to the Minister for Finance, reflect the overall value, income and expenditure of the Fund using IFRS accounting standards. All income, expenses, gains and losses accrue to the Fund. The accounts are published separately to the NTMA accounts.

Further information on the background to, and establishment of, the Fund as well as information on the investment strategy for the Fund, can be found in the NTMA Annual Report 2020.