

An aerial photograph of a port city, likely Dublin, Ireland, showing a mix of modern glass-fronted buildings and older brick structures. Several yellow construction cranes are visible, indicating ongoing development. The city is situated along a waterfront with a large harbor area containing several ships and industrial facilities. In the background, there are rolling hills under a clear blue sky. Overlaid on the top half of the image are several white, wavy, abstract lines that create a sense of movement and connectivity.

Ireland: Large surplus expected despite headwinds

NTMA Investor Presentation September 2023



Gníomhaireacht Bainistíochta an Chisteáin Náisiúnta
National Treasury Management Agency

Index

Summary – Page 3

Macro – Page 8

Fiscal – Page 25

NTMA Funding – Page 32

ESG Sustainability – Page 43

Structure of Irish economy – Page 54

Property & banks – Page 63

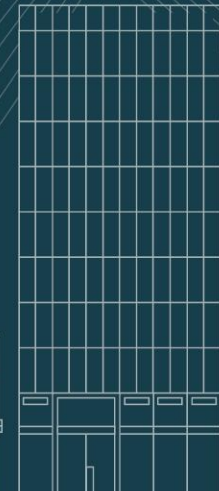
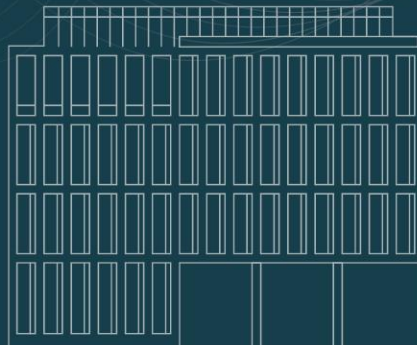


Summary

Irish economic resilience but risk
from external environment clear



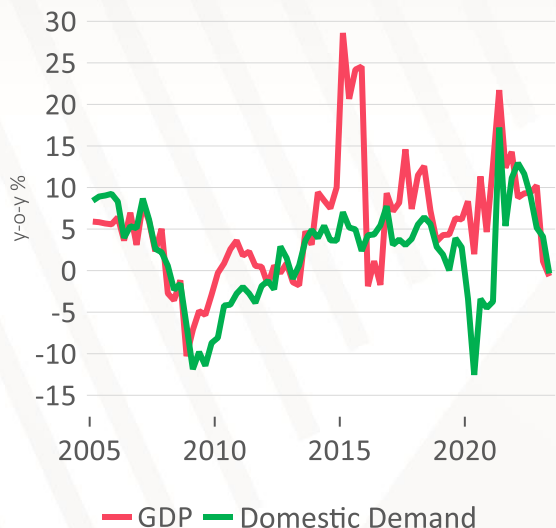
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Modest economic growth expected in 2023

Inflation/monetary policy to slow growth versus 2022

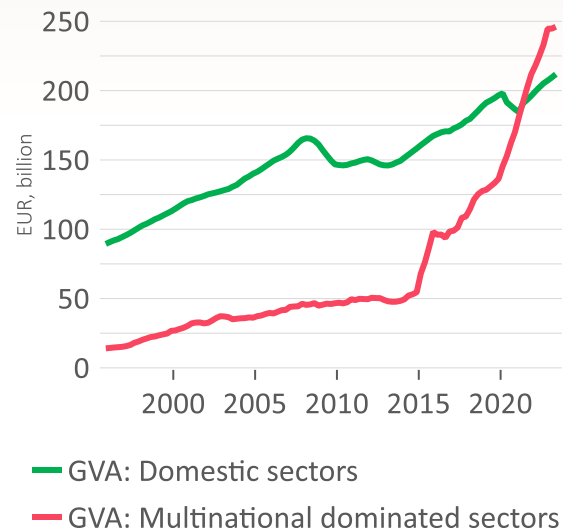
MDD gives better picture of growth: Gov't forecasts 2.1% for 2023 after +9% in 2022



Unemployment rate is at 4.1% – labour market at full employment



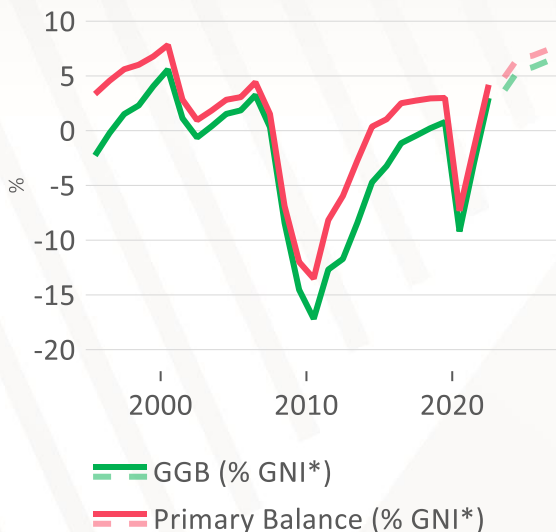
Value added from ICT & pharma clear to see – sectors give jobs, income and tax



Government surplus expected again in 2023

Debt metrics all improved again last year

Forecasted 2023 GG surplus (3.5%) despite slowing growth



Debt metrics set to improve this year again

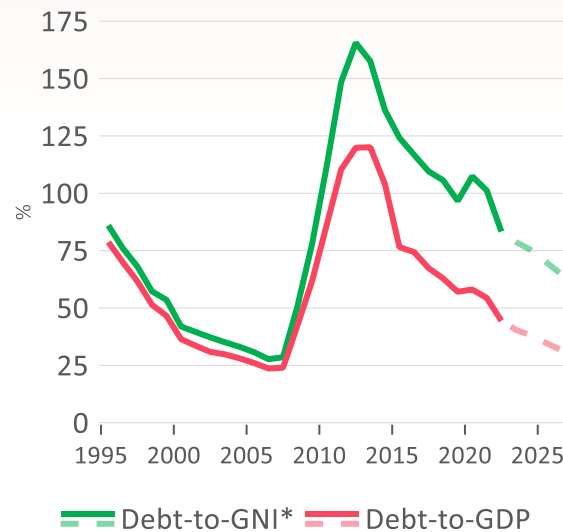
Debt-to-GNI*
(78.8% 2023f; 95% in 2019)

Debt-to-GG Revenue
(181% 2023f; 232% in 2019)

Average interest rate
(1.5% 2023f, from 2.2% in 2019)

Debt-to-GDP^
(40.5% 2023f, from 57% in 2019)

Debt to GNI* expected to fall rapidly



Source: CSO, Irish Department of Finance forecasts
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[^] Debt to GDP is not an appropriate metric to use for Ireland

Source: CSO, Irish Department of Finance forecasts

Medium term challenges/opportunities

External environment is challenging – inflation abating but global slowdown more likely

Inflation

Inflation beginning to moderate in Ireland similar to other European economies.

Core inflation remains elevated but economic resilience in face of interest rate hikes

Growth

Labour market strength remains in H1 2023. MDD growth of c. 2% expected for 2023.

Multinationals and healthy domestic balance sheets helping to offset impact from monetary policy

Fiscal

Large surplus (3.5% of GNI*) expected for 2023 via exceptional CT receipts.

Proposed new long term savings fund to be established. Intention is to house long-term savings and partially alleviate future fiscal challenges.



NTMA has issued €7bn for 2023

Funding came in at lower end of range of €7-11bn, with no more auctions scheduled in 2023

Cash

Fiscal surplus alongside NTMA's strategy of prefunding means Ireland has a strong cash position.

This affords the NTMA a large degree of flexibility around issuance.

>10 years

Weighted average maturity of debt one of longest in Europe.

NTMA issuance since 2022 of €14bn at WAM of 16.4 years and average interest rate of 2.13%.

AA

Ireland rated in the AA category with all major rating agencies.

S&P upgraded to AA and Moody's upgraded to Aa3 in 2023. Fitch has Ireland on a positive outlook.

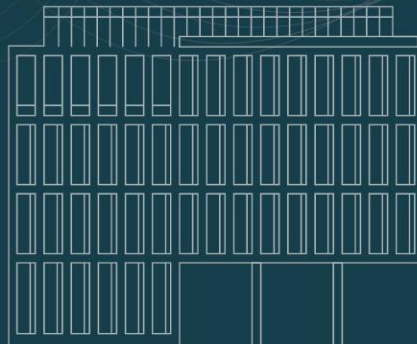


Macro

Economic strength in early 2023 but
growth has moderated



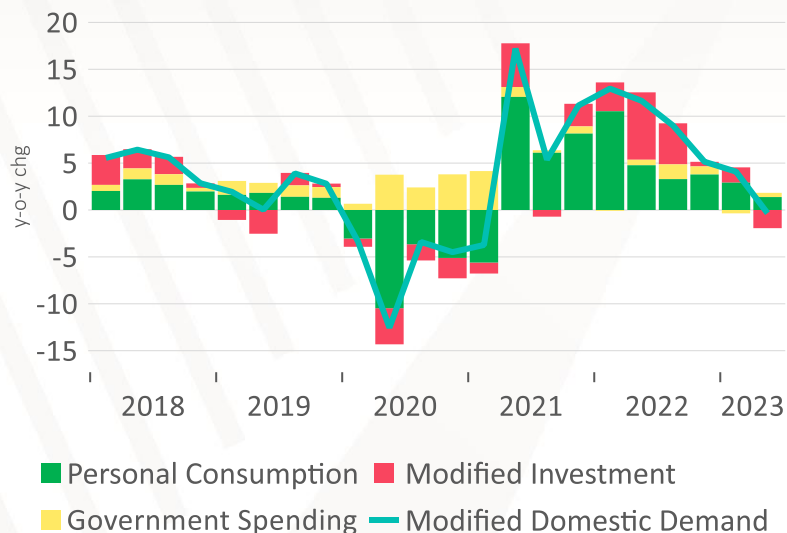
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Irish economy growing modestly in 2023

Consumption and employment growth still display resilience

Modified Domestic Demand down 0.3% y-o-y in Q2 2023, but up 1.8% in H1 2023 versus H1 2022 (Q1 MDD was strong)



Irish measures of activity are mixed, pointing to slowing but still positive growth for the Irish economy

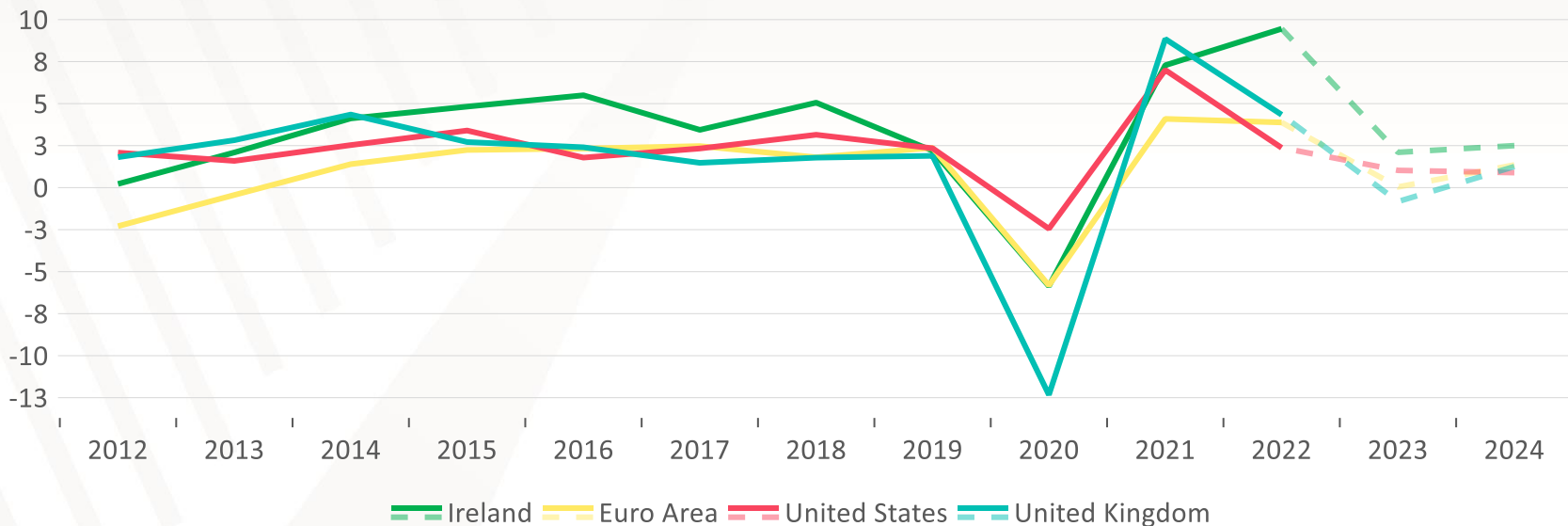
	2022 vs. 2021	Q2 2023 y-on-y	Q2 2023 q-on-q
GDP	9.4	-0.7	0.5
MDD	9.5	-0.3	1.0
Consumption	9.4	2.4	0.9
Gov't Spending	3.5	2.1	4.3
Mod Investment	15.9	-9.1	-1.7
Employee Compensation	9.6	7.4	2.3
MNE GVA	15.6	1.7	6.2
Domestic GVA	5.6	4.8	1.5
Employment	6.6	3.5	0.3

% change from indicated period

Source: CSO, Eurostat

Economic activity normalising in 2023

Domestic demand projected to grow 2.1% in 2023 after growing by 9.5% in 2022



Source: CSO, OECD, Irish Department of Finance

High frequency data somewhat mixed

Recent data tilting to the downside (PMIs, retail sales)

	2/22	3/22	4/22	5/22	6/22	7/22	8/22	9/22	10/22	11/22	12/22	1/23	2/23	3/23	4/23	5/23	6/23	7/23	8/23
Retail sales (ex motor)	-1.1	0.1	0.6	-0.1	-0.3	-1.1	0.4	-0.1	0.2	0.2	0.4	0.5	-0.2	0.2	0.5	0.5	0.7	-1.0	n/a
Unemployment rate	4.7	5.0	4.5	4.1	4.2	4.2	4.4	4.4	4.6	4.6	4.4	4.3	4.1	4.1	4.1	4.1	4.2	4.1	4.1
Payroll employees	0.9	0.9	0.8	0.6	0.3	0.1	0.2	0.3	0.4	0.4	0.4	0.3	0.2	0.1	0.1	0.1	0.1	n/a	n/a
Headline HICP	0.3	0.9	1.3	1.4	1.1	0.9	0.6	0.2	0.6	0.6	0.5	-0.4	0.1	0.5	0.9	0.5	0.5	0.4	0.5
Core HICP	0.3	0.3	1.0	0.8	0.8	0.6	0.6	0.4	0.2	0.1	0.2	-0.1	0.4	0.6	1.1	0.8	0.6	0.5	n/a
House prices	0.8	0.7	0.5	0.5	0.7	0.9	1.0	0.9	0.6	0.3	0.2	0.0	-0.2	-0.5	-0.3	-0.3	0.1	n/a	n/a
Consumer confidence	77.0	67.0	57.7	55.5	57.7	53.7	53.4	42.1	46.1	45.3	48.7	55.2	55.6	53.9	59.2	62.4	63.7	64.5	63.2
Composite PMI	59.1	61.0	59.6	57.5	52.8	52.9	51.0	52.2	52.1	48.8	50.5	52.0	54.5	52.8	53.5	51.9	51.4	50.0	52.6
Income Tax	2.1	2.1	2.7	2.4	2.4	2.5	2.4	2.2	2.5	4.4	2.5	2.8	2.2	2.3	3.1	2.6	2.5	2.7	2.5

Source: CSO, Eurostat, ILCU, SPDJI, Irish Department of Finance

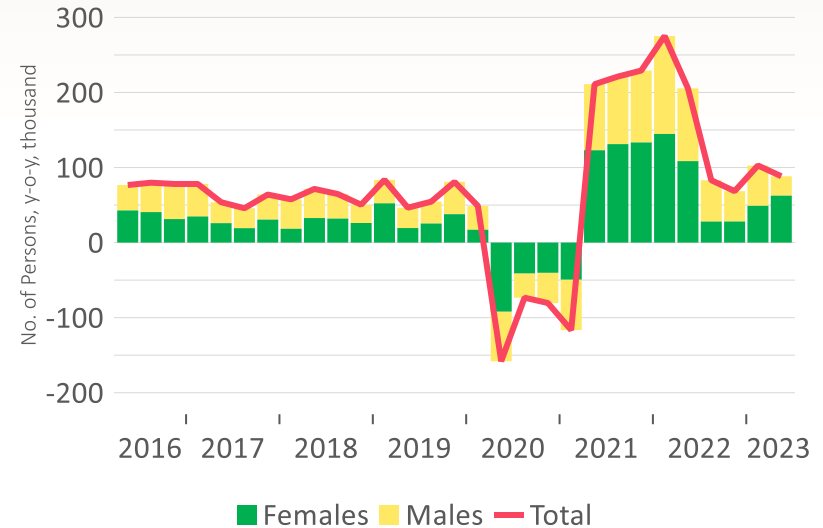
Labour market strength remains

Unemployment rate below pre-pandemic levels

Unemployment rate at 4.1% in August – a record low in recent decades



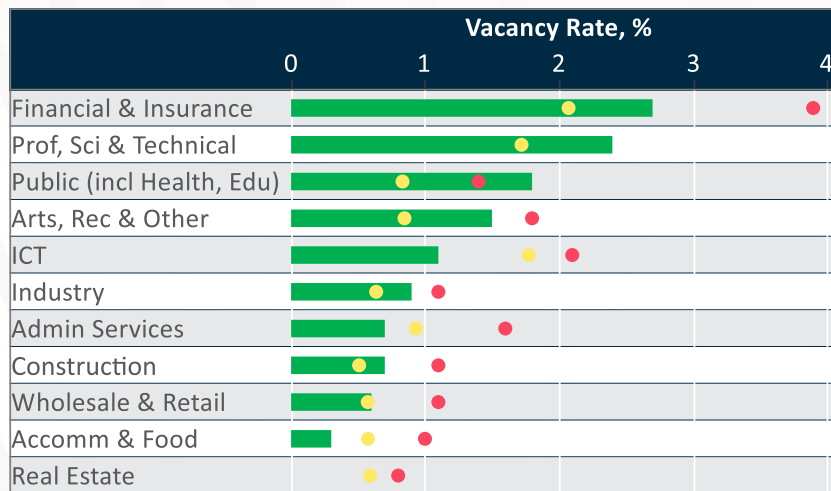
Employment up 12% on pre-pandemic as female employment surges, but growth moderating



Some signs of labour market tightness

Vacancy rates across sectors falling but still elevated

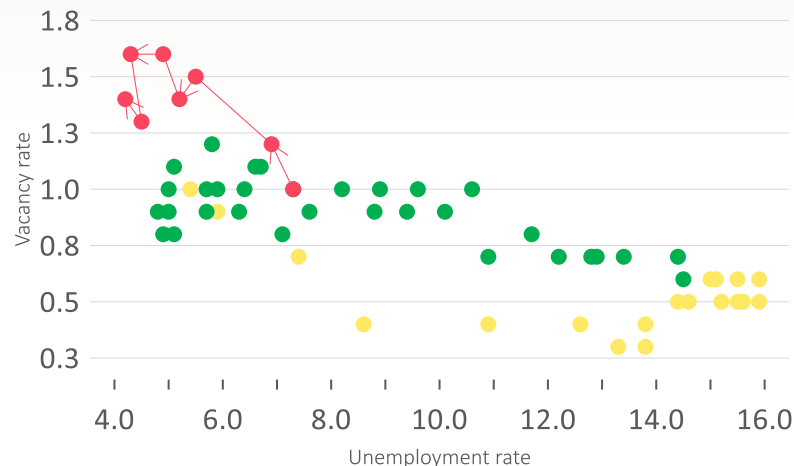
Vacancy rates falling compared to a year ago but still elevated from historical averages



● 1 year ago ● Average (2008 - present) ■ Current

Source: Eurostat

Beveridge curve suggests a tight labour market in recent quarters



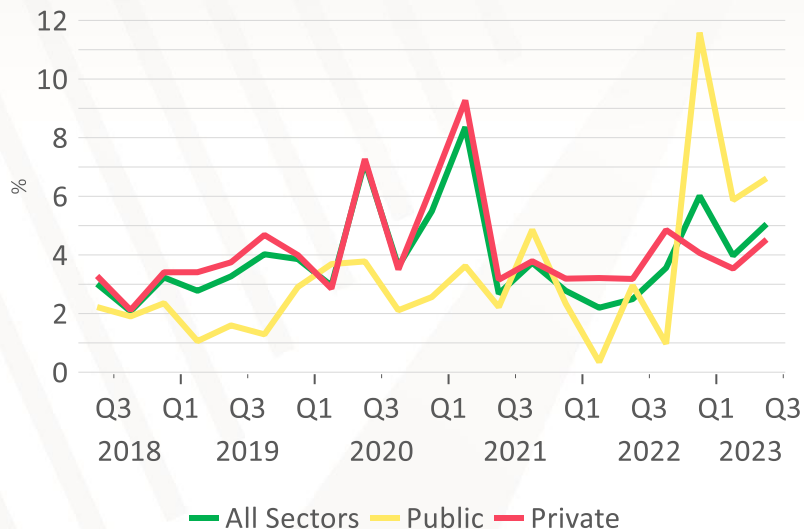
● 2008 - 2012 ● 2013 - 2020 ● 2021 - present

Source: Eurostat, CSO

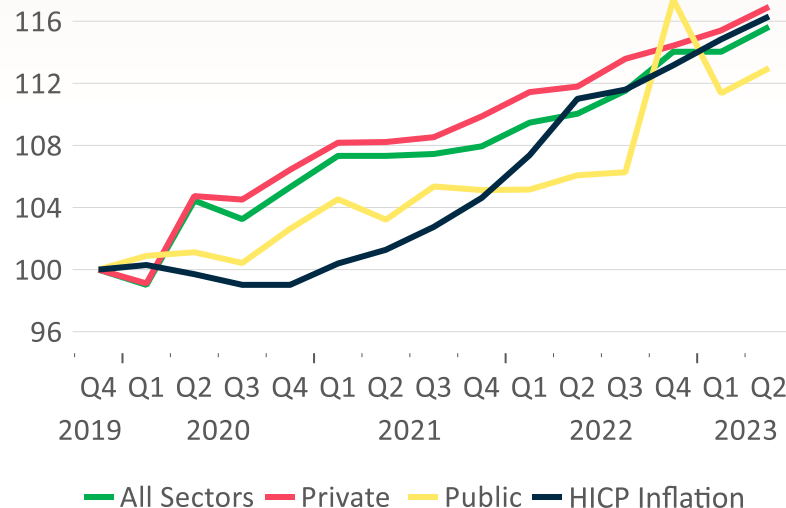
Wages are growing, but not spiralling

Earnings have increased, averaging c. 4.25% in last year

Outside public pay deal*, private sector earnings growth is not spiralling upwards yet



Earnings growth not out of line with inflation since 2019

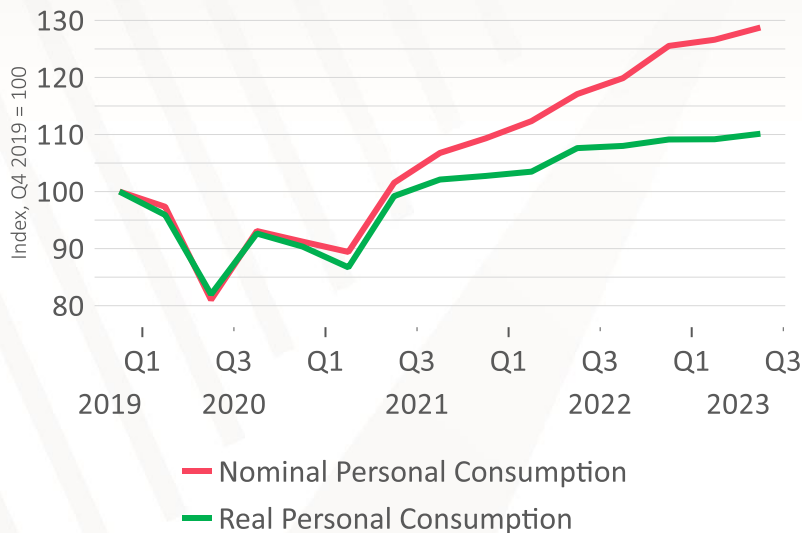


* Q4 2022 average hourly earnings distorted by backdated aspect of public sector pay deal

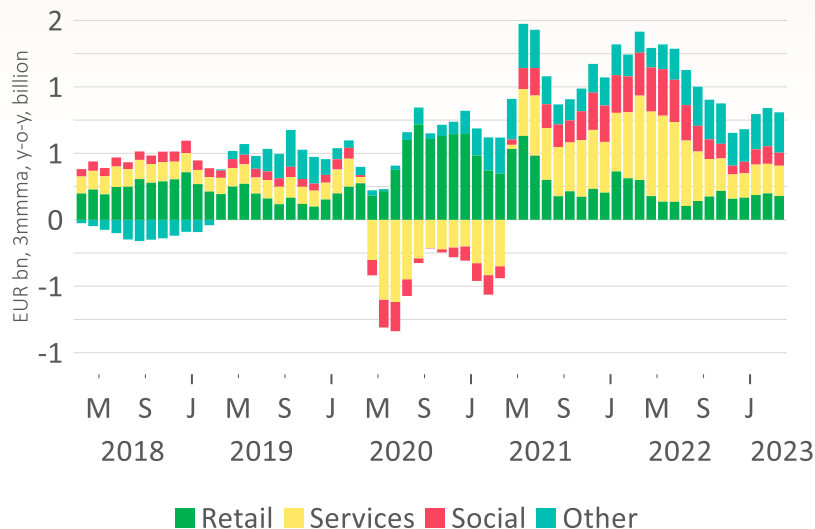
Real spending growing better than expected

Consumption revised upwards significantly in 2021 and 2022

High-inflation environment hampering real consumption but still up 10% on pre-pandemic levels



Higher frequency data still show elevated nominal spending growth partly due to impact of inflation*

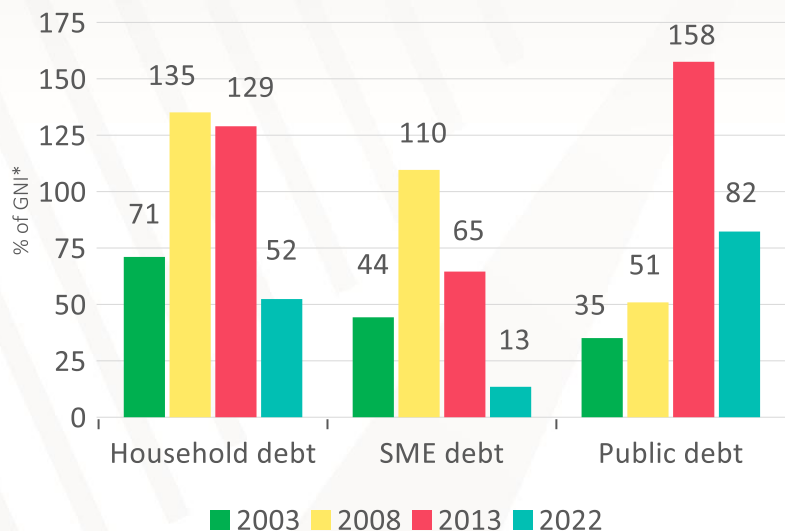


* CBI spending data is nominal data and not seasonally adjusted. RHS chart shows card data. Growth of card spending is influenced by increased digitalisation of spending habits over last decade.

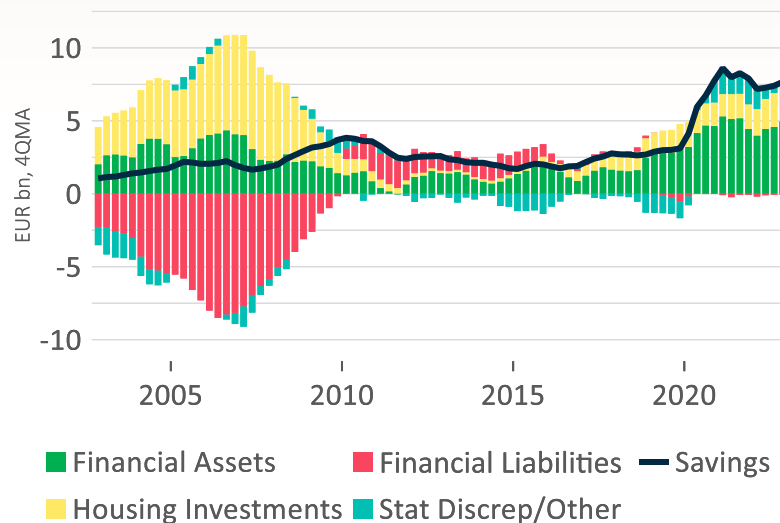
Households balance sheet strength

Debt levels much lower coming into pandemic + Covid savings

Private sector balance sheets are not over leveraged – healthy position will insulate against tighter monetary policy



Household savings rate has been volatile but clear that households saving into financial assets since 2019



Harmonised inflation at 4.9%

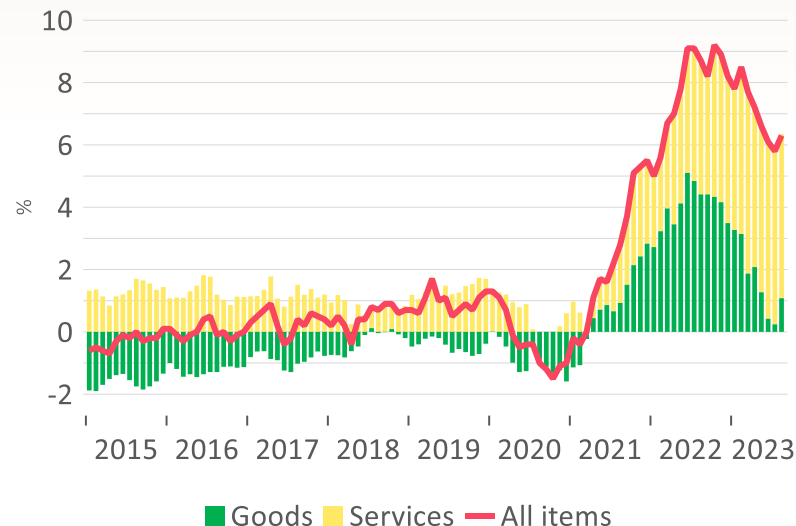
Energy and pandemic concerns easing but core inflation also elevated

Energy prices driving headline inflation but core also elevated; excluding energy and food, prices up 4.8% y-o-y



Source: CSO, Eurostat

Goods inflation easing strongly on back of energy prices – services inflation could be stickier



Source: CSO

Note: RHS chart plots CPI inflation.

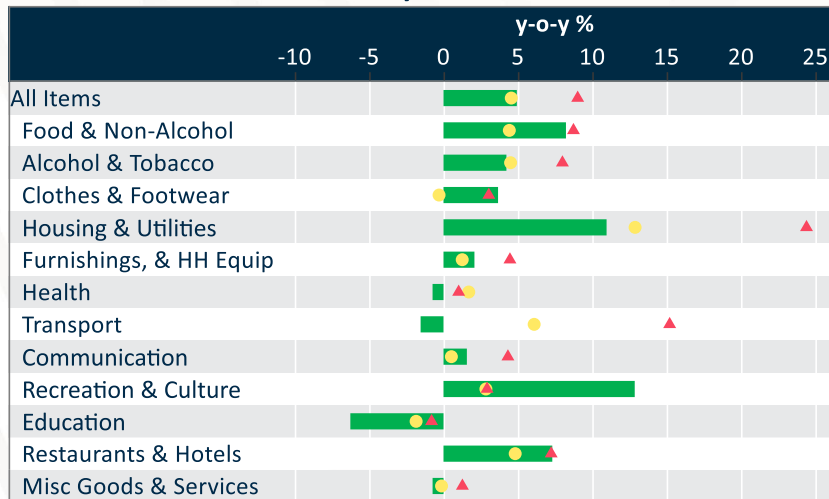
Inflationary pressure broad across index

Services sectors alongside utilities costs seeing price pressure

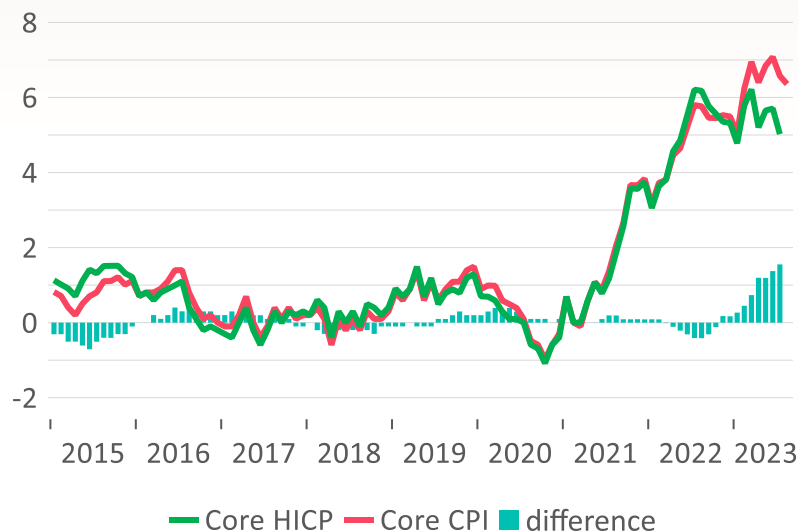
Inflation has eased from a year ago in nearly all sectors

Core HICP levelling off but core CPI elevated largely due to mortgage interest (which is excluded from HICP basket)

HICP inflation by COICOP divisions



▲ 1 year ago ● 3 year average ■ August 2023

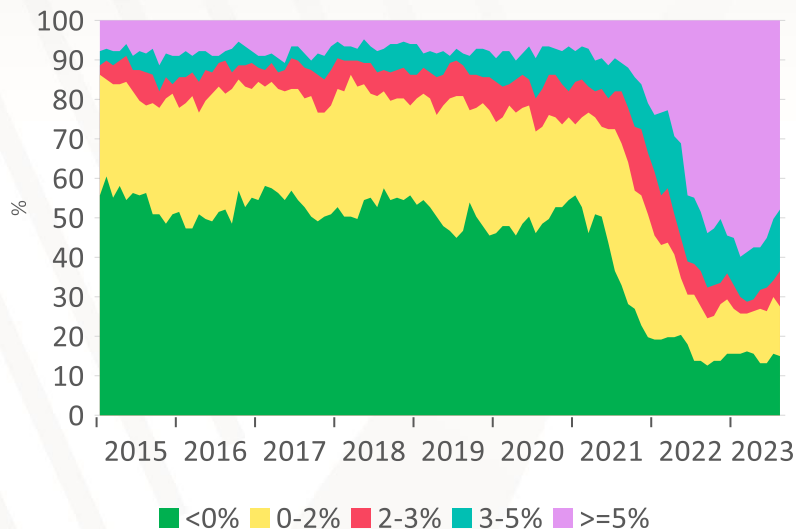


— Core HICP — Core CPI ■ difference

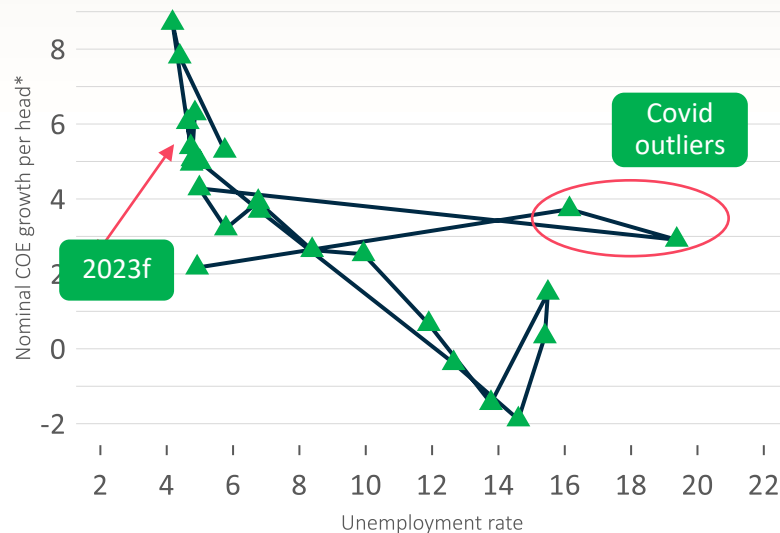
Sustained inflation an obvious risk

Phillips curve historically has held in Ireland

Inflation is broad: >50% of products in CPI basket are seeing >5% annual inflation



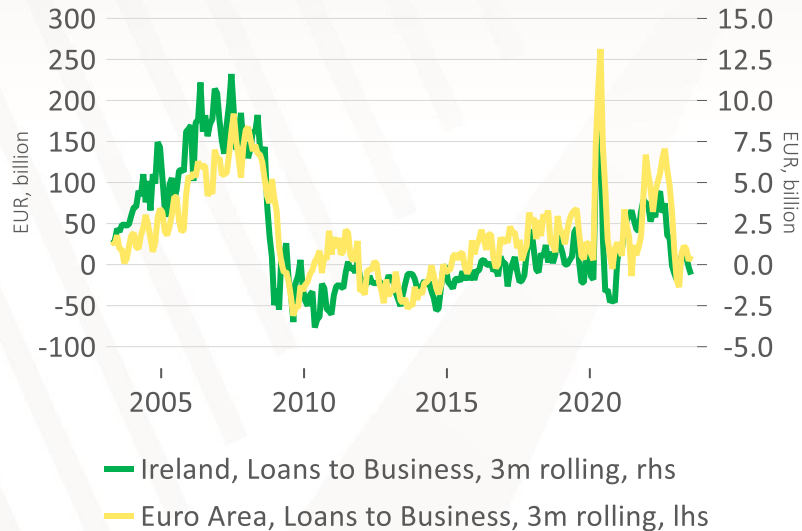
Multiple years in early 2000s with unemployment below 5% and strong wage growth



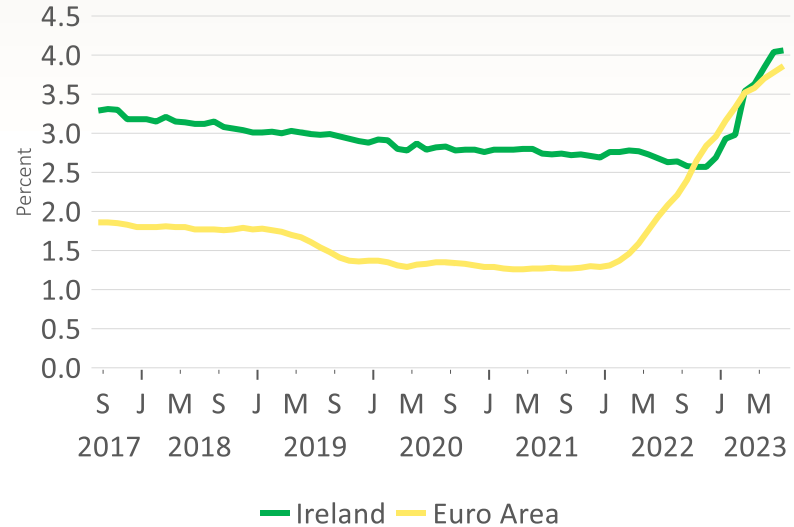
Monetary tightening starting to bite

NFC lending slowed around turn of the year, housing impact more on rates

Lending to Irish NFCs similar to EA-wide loans, slowed since November 2022



After slow initial pass-through, Irish mortgage rates rose above EA average in March



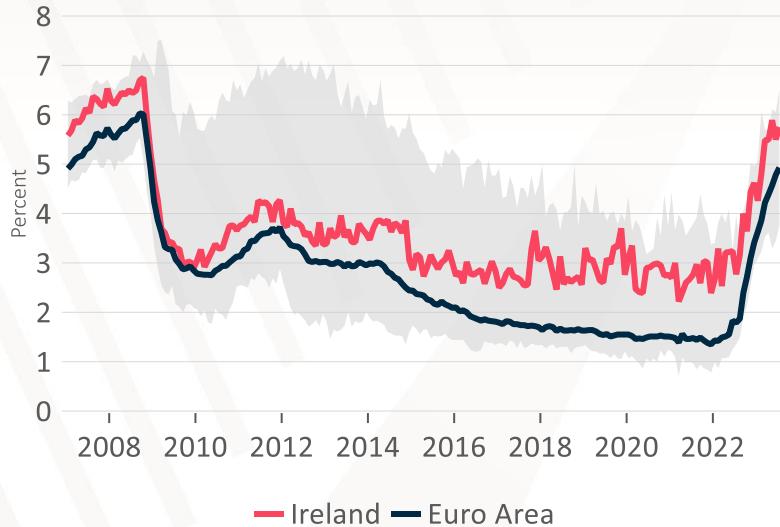
Source: ECB

Source: ECB

Banks passing on rate hikes to businesses

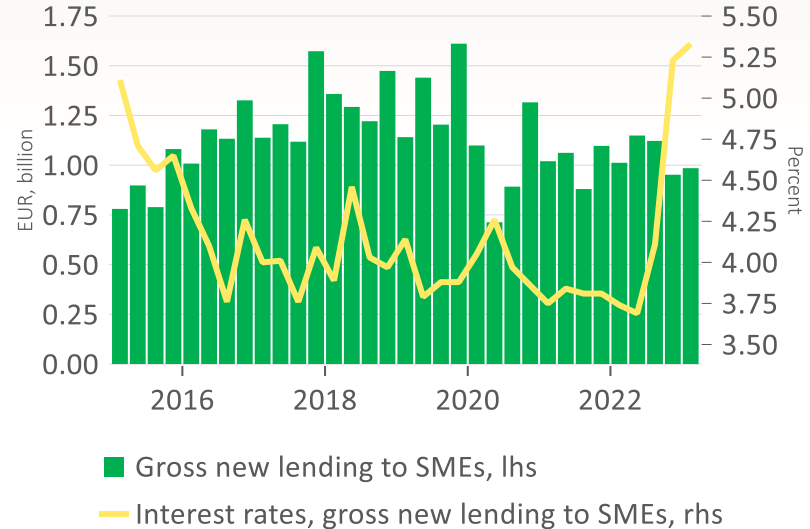
Rates on new lending to corporates moved earlier than mortgage rates

Lending rates to NFCs among highest in Euro Area and have been increasing (grey equals min/max range)



Source: ECB

Lending volume to SMEs down modestly but rates have jumped in latest data

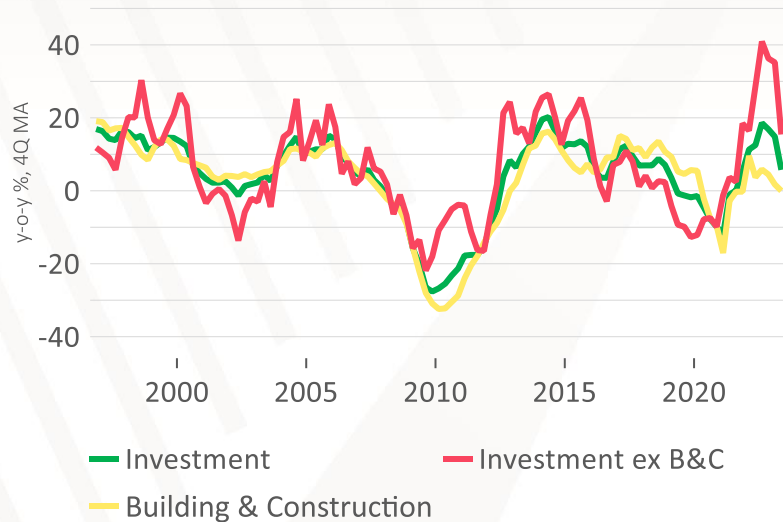


Source: Central Bank of Ireland

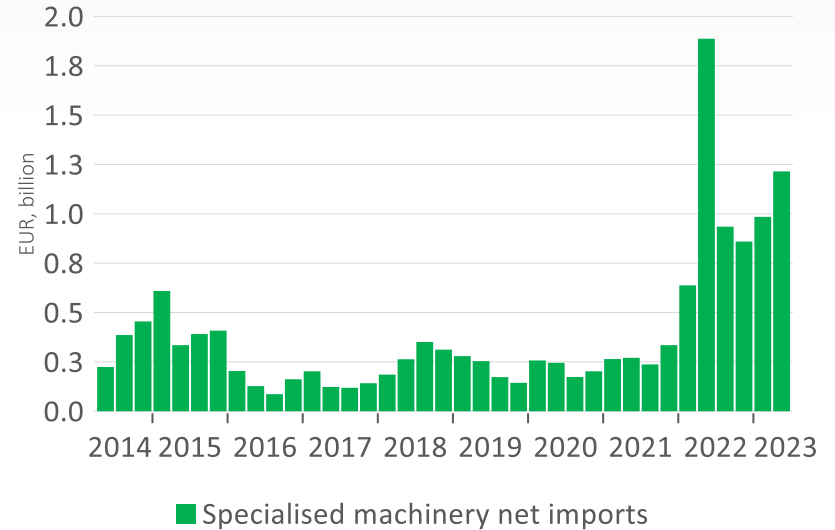
Investment strength fallen off

Machinery and Equipment had outsized increase in 2022

Recent strength due to computer hardware, production facilities/data centres & new dwellings



Net imports of specialised machinery for particular industries saw huge bump in Q2 2022, led to jump in mod. investment

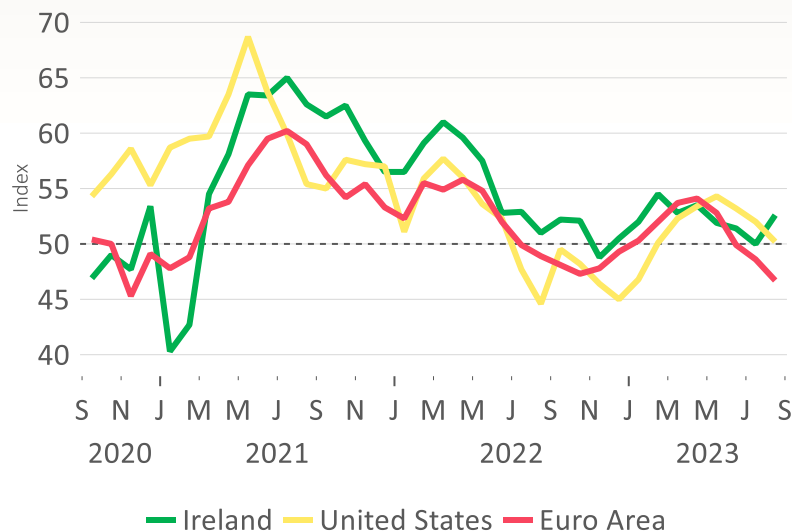


External environment in 2023

Recent data leaning towards global slowdown

	2022	2023
EA Monetary Policy	Purchases ended; Rate normalisation	Rate normalisation + start of QT
EU Fiscal Policy	Expansionary	Expansionary
US Monetary Policy	Sharp increase in rates	Policy rate elevated
US growth	Decelerating growth	Low to modest growth
Energy prices	Severe crisis	Prices pressure easing
UK growth	Decelerating growth	Minimal growth at best
Euro Growth	Slow growth	Minimal growth at best
Global Inflation	Elevated in 2022	Core measures elevated
Financial Stability	Little concern	Unknown but steady after initial concerns

Irish PMI has slipped like other economies, but services optimism helping to keep PMI above 50



Source: S&P Global

OECD's BEPS process may impact FDI offering

Pillar Two due for EU implementation in 2024, Pillar One still to be ironed out

Pillar One: proposal to re-allocate taxing rights on non-routine profits

- ▶ Over 130 countries have signed on for the BEPS 2.0 two-pillar set of reforms.
- ▶ The first pillar focuses on proposals that would re-allocate some taxing rights between jurisdictions where companies reside and the markets where user/consumers are based.
- ▶ Under such a proposal, a proportion of profits would be re-allocated from small countries to large countries.
- ▶ Pillar 1 will reduce Ireland's corporation tax base. Some estimates place the hit at c. €2bn per annum by the middle of the decade.
- ▶ Ireland has always been fully supportive of Pillar One despite the implied cost to the Exchequer.

Pillar Two: 15% minimum effective global tax rate

- ▶ Countries will introduce a minimum effective tax rate with the aim of reducing incentives to shift profits.
- ▶ Where income is not taxed to the minimum level, there will be a 'top-up' to achieve the minimum rate of tax.
- ▶ The EU have agreed a directive to implement the 15% rate in 2024.
- ▶ The minimum rate is greater than the 12.5% rate that Ireland levies and thus some of Ireland's comparative advantage in attracting FDI will be lost. However Ireland's rate will remain one of the lowest in EU.
- ▶ Ireland can lean on other positives; educated and young workforce, English speaking, EU access, and ease of doing business.

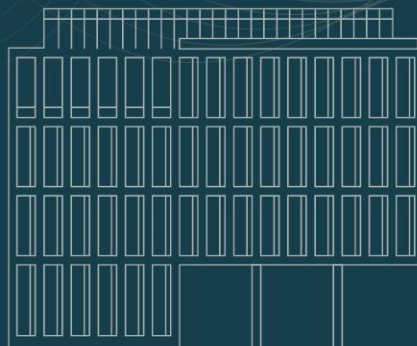


Fiscal

Large surplus in 2023 expected on back of continued revenue growth



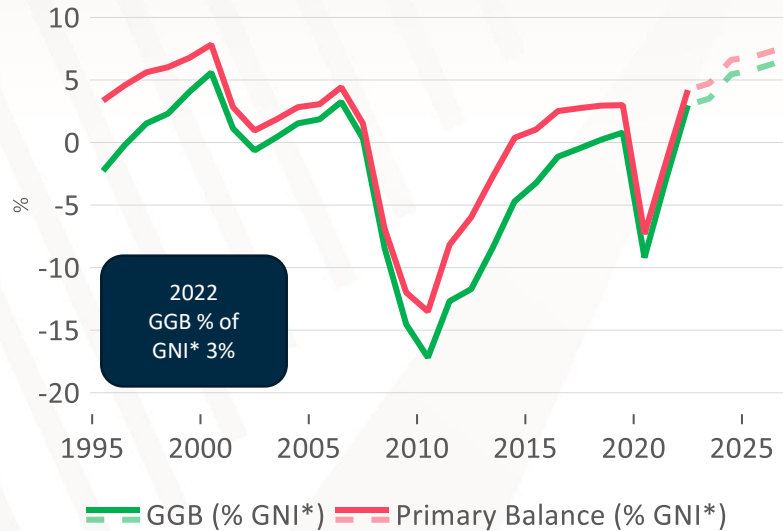
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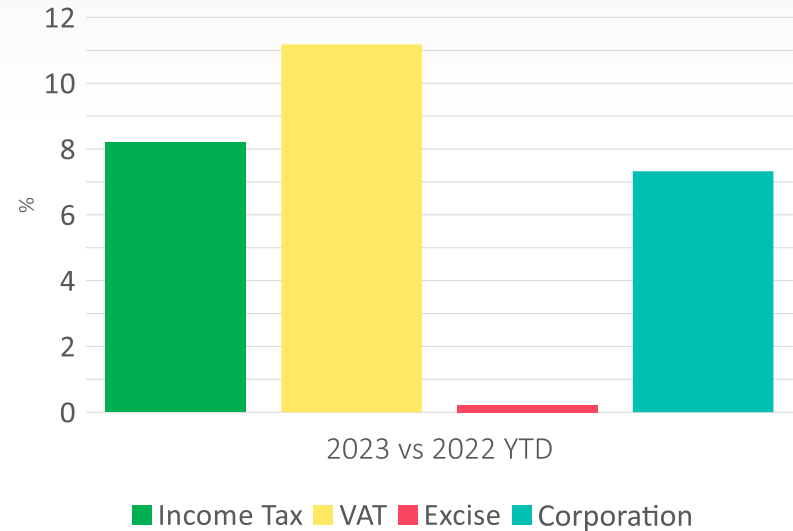
Expected fiscal surpluses in Ireland

Robust revenues mean surpluses expected in short term

2023 General Government surplus expected to be c. €10bn, or 3.5% of GNI*



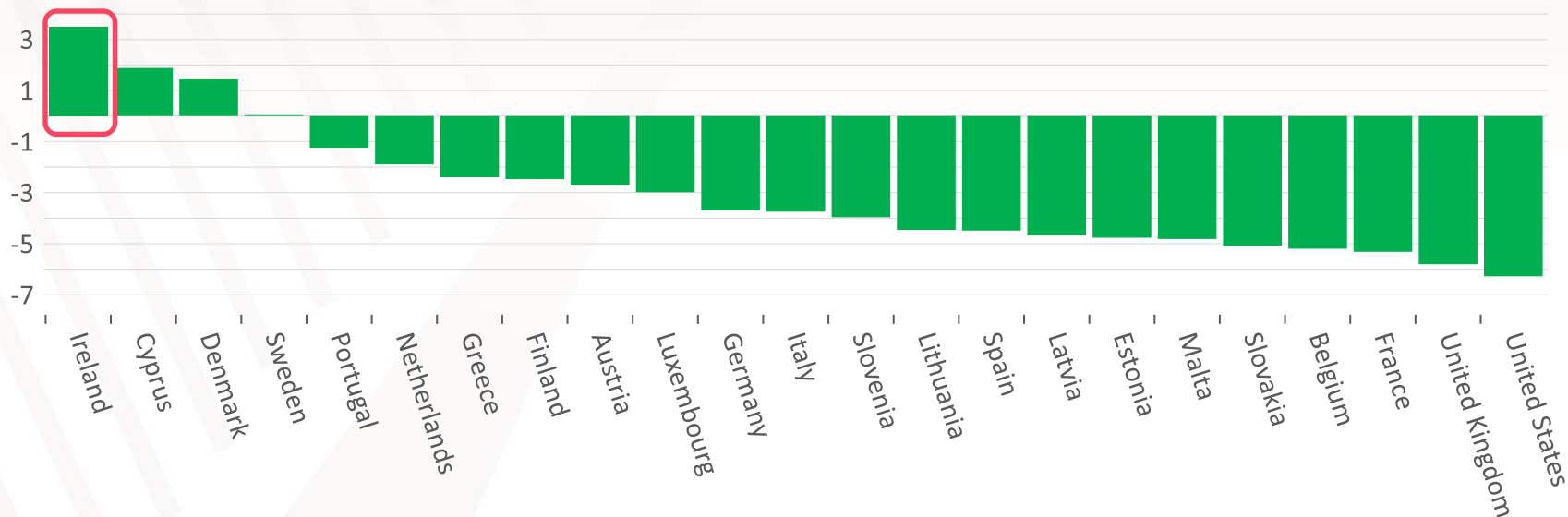
Revenues strong in 2023 but have normalised vs 2022; Income tax, VAT, corporate tax up 7-11%



Surplus compares well to others

Recovery in fiscal position evident, question arises to how to manage such surpluses

2023 GG Balance (forecast, % of GDP or GNI*): Ireland current estimate at 3.5% of GNI*

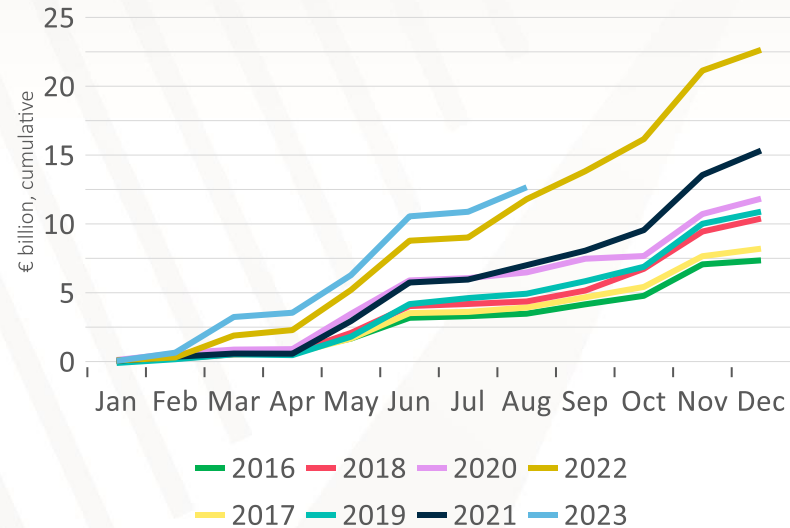


Source: IMF, Irish Department of Finance

Corporate tax growing more modestly in 2023

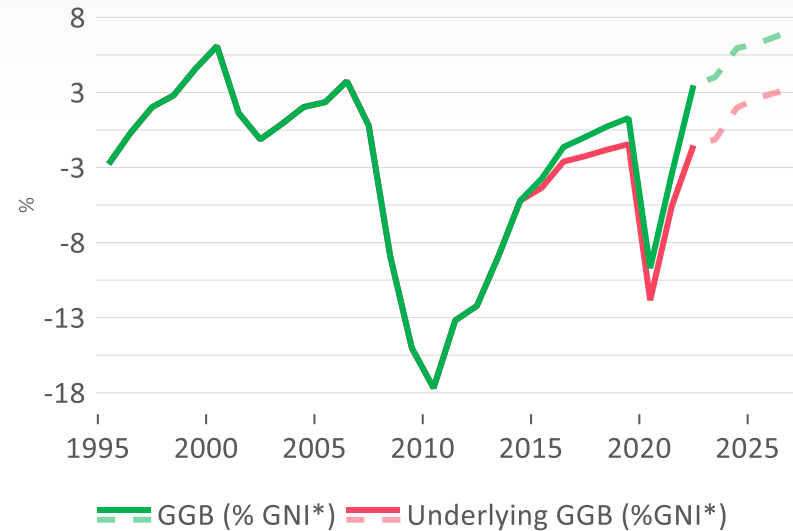
Government planning to place excess receipts in long term sovereign fund

Corporation tax tracking towards €24bn in 2023, double 2020 level – legitimate concern receipts are transitory



Source: Irish Department of Finance

Underlying GGB suggests Ireland would be in small deficit in 2023 if excess Corporate Tax excluded (-0.6% of GNI*)



Source: CSO, Irish Department of Finance forecasts

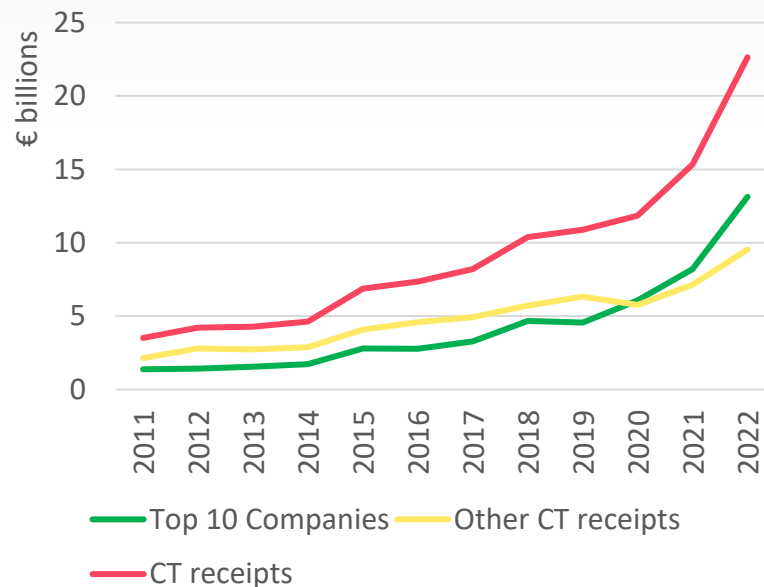
Note: The Department of Finance's underlying general government balance is the GGB excluding the Government's estimated windfall corporation tax receipts (windfall estimated at €10.8bn for 2022 and €11.8bn for 2023).

Multinationals at core of CT payments

Manufacturing the driver in last year's CT surge

CT paid (€m)	2022	vs. 2021
Manufacturing	10,078*	+5,660
ICT	4,184	+922
Fin and Insurance	2,698	+334
Wholesale, retail	2,292	-49
Admin and Support	1,199	-86
Prof, Sci, Tech	660	+4
Construction	469	+105
Mining, Quarry, Utilities	304	+127
Other	760	+304

Top 10 driving recent CT surge – likely that even top 3 companies pay c. 30% of all CT receipts (Fiscal Council analysis)



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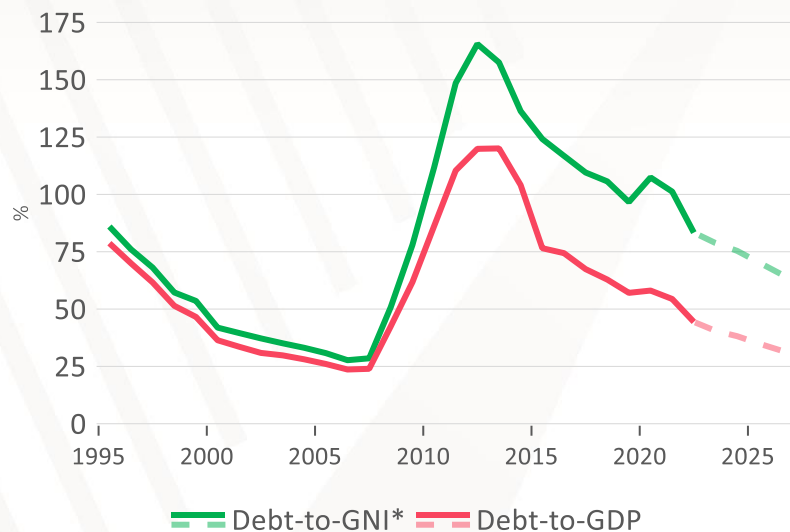
Source: Revenue Report, Macrobond

*€5,536m chemical and pharma manufacture (+ €2,645m on 2021), €3,788m ICT manufacture (+ €2,855m on 2021)

GG debt to GNI* falls to 83% in 2022

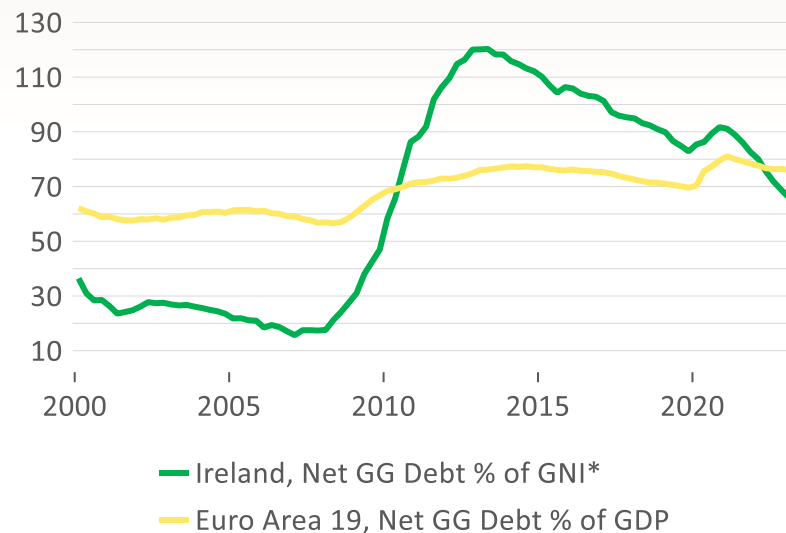
Debt to GNI* expected to fall as growth and fiscal position both help

Debt to GNI* falling into 70s in 2023; low debt to GDP means proposed EU fiscal rules won't impact Ireland in short term



Source: CSO, Irish Department of Finance forecasts

Net debt position is back below EA average, completing a more than decade long journey



Source: Eurostat, CSO

Alternative Debt Metrics

Need to assess other metrics apart from debt to GDP when analysing debt sustainability
2022

	GG debt to GDP %	GG debt to GG revenue %	GG interest to GG revenue %
Greece	171	341	4.8
Italy	144	296	8.9
Portugal	114	257	4.4
Spain	113	263	5.5
France	112	209	3.5
Belgium	105	212	3.1
UK	101	246	10.6
EA 19	93	198	3.6
Cyprus	87	206	3.6
EU 27	85.4	184	3.5
Ireland	45 (83 GNI*)	195	2.8
Austria	78	158	1.9
Slovenia	70	165	2.5
Germany	66	141	1.4
Slovakia	58	144	2.6
Netherlands	51	115	1.2



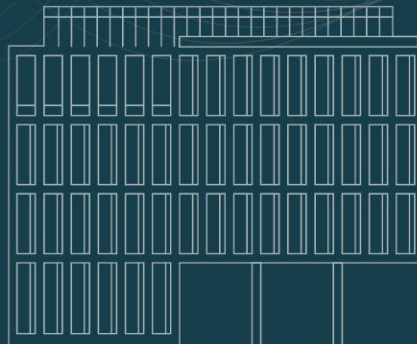
NTMA Funding

2023 funding complete at €7bn

Continued flexibility in strategy due to cash balances and long average life



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NTMA has issued €7bn for 2023

Funding came in at lower end of range of €7-11bn, with no more auctions scheduled in 2023

Cash

Fiscal surplus alongside NTMA's strategy of prefunding means Ireland has a strong cash position.

This affords the NTMA a large degree of flexibility around issuance.

>10 years

Weighted average maturity of debt one of longest in Europe.

NTMA issuance in 2022/23 of €14bn at WAM of 16.4 years and average interest rate of 2.13%.

AA

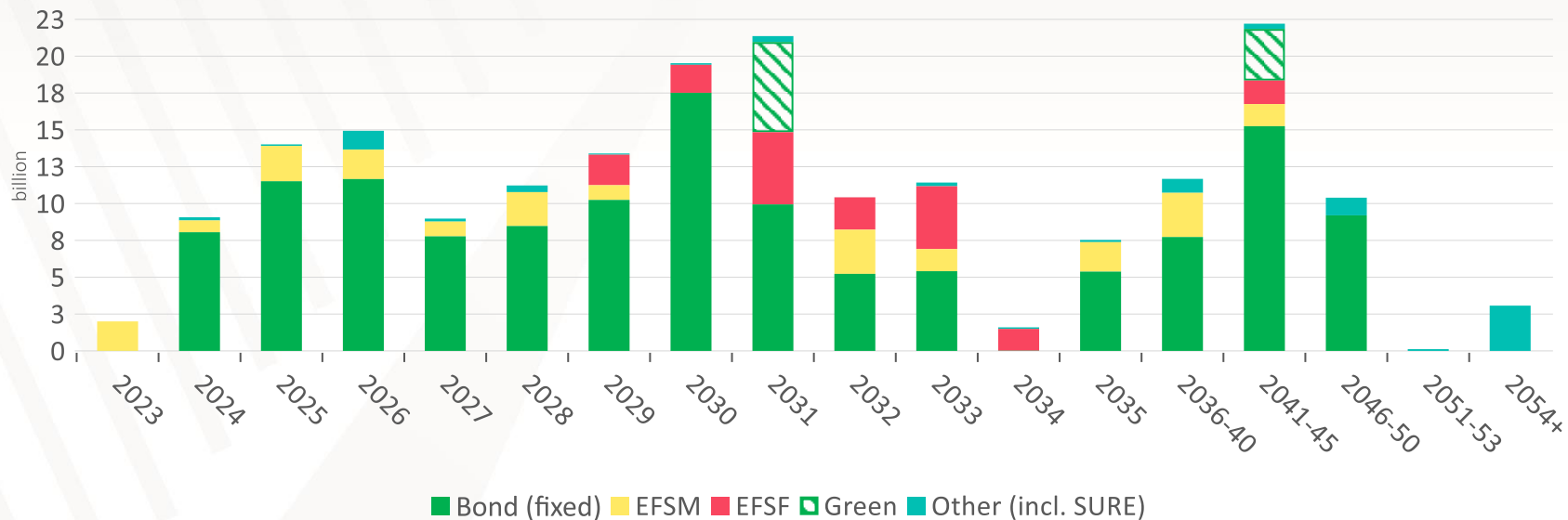
Ireland rated in the AA category with all major rating agencies.

S&P upgraded to AA and Moody's upgraded to Aa3 in 2023. Fitch has Ireland on a positive outlook.



High level of flexibility in NTMA issuance plans

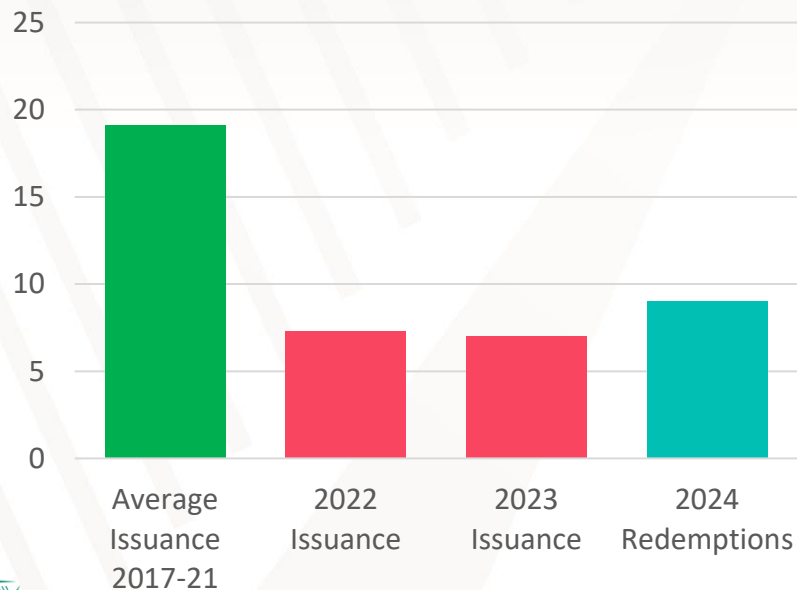
Helped by smoother maturity profile, FRNs fully repaid



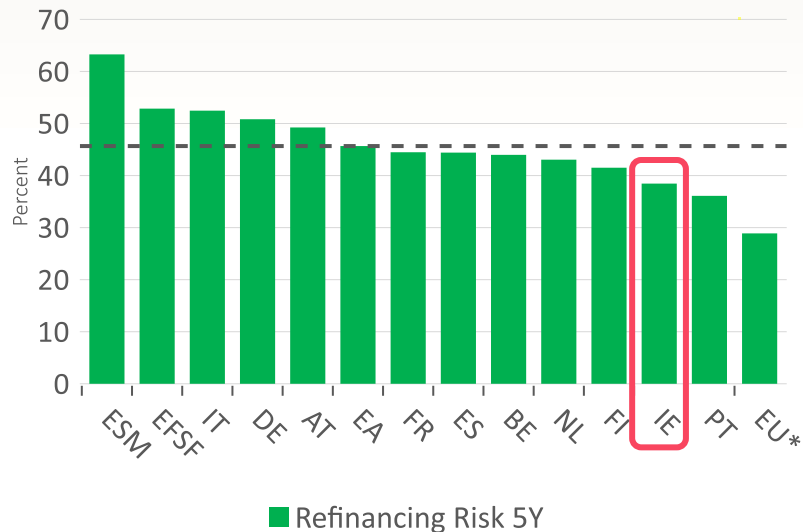
Lower supply expected in coming years

Ireland has low redemptions compared to rest of Europe

Current borrowing requirements suggest NTMA issuance won't match recent past (€bns)



Ireland's refinancing risk is low - only a third of debt is set to mature in the next five years

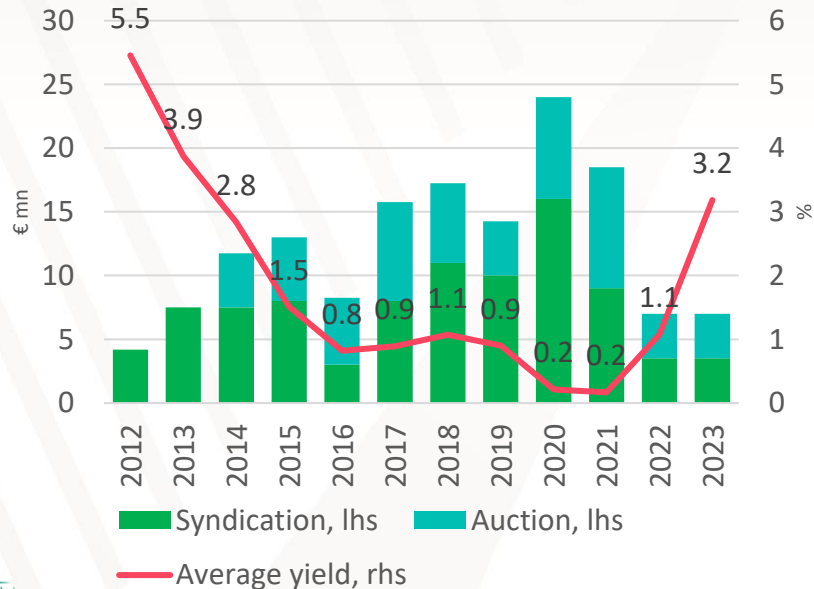


Source: ESDM

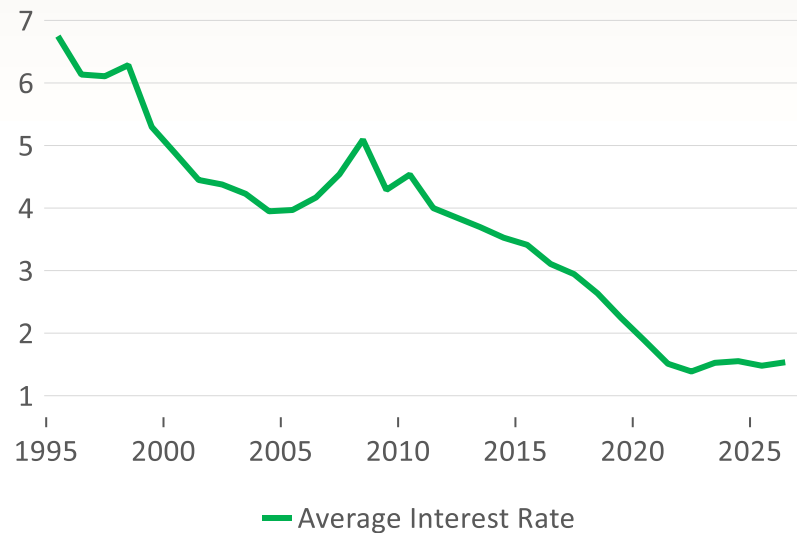
Borrowing costs anchored

Ultra-low rate era over but Ireland used the period well

NTMA issued €42.5bn MLT debt in 2020/21 at 12.8 yr. weighted maturity and avg. rate 0.19%



Vast majority of Irish debt is fixed rate at average cost of 1.5%



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National Treasury Management Agency

Source: NTMA

Note only auctions and syndication

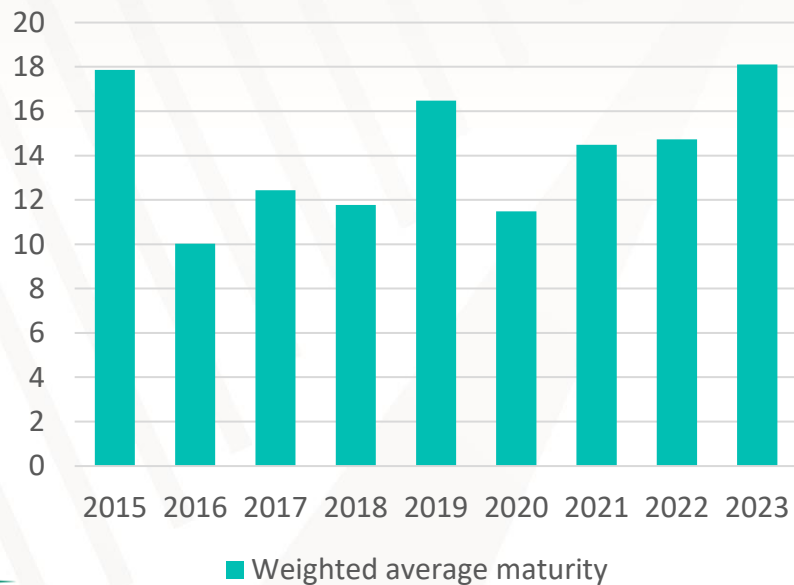
* EU data is EU as an issuer

Source: CSO

NTMA has lengthened weighted maturity

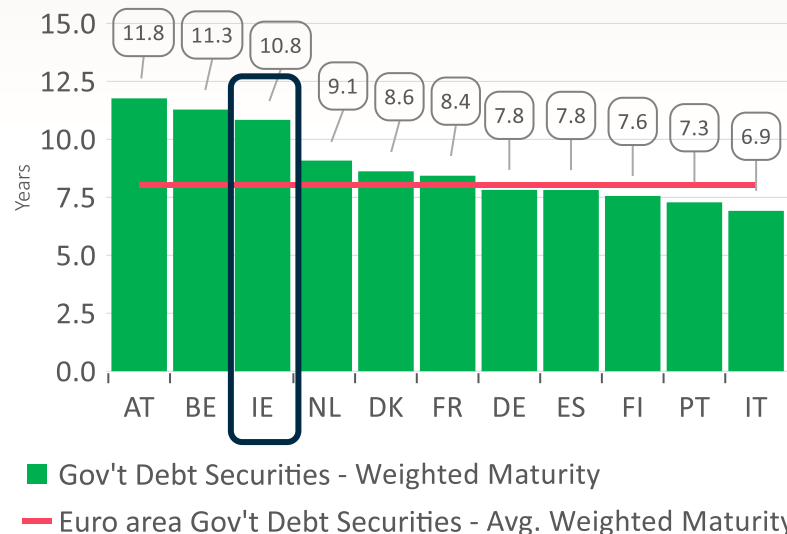
Debt management strategy has extended debt profile since 2015

Benchmark issuance has extended the maturity of Government debt since 2015



Source: NTMA

Ireland (in years) compares favourably to other EU countries



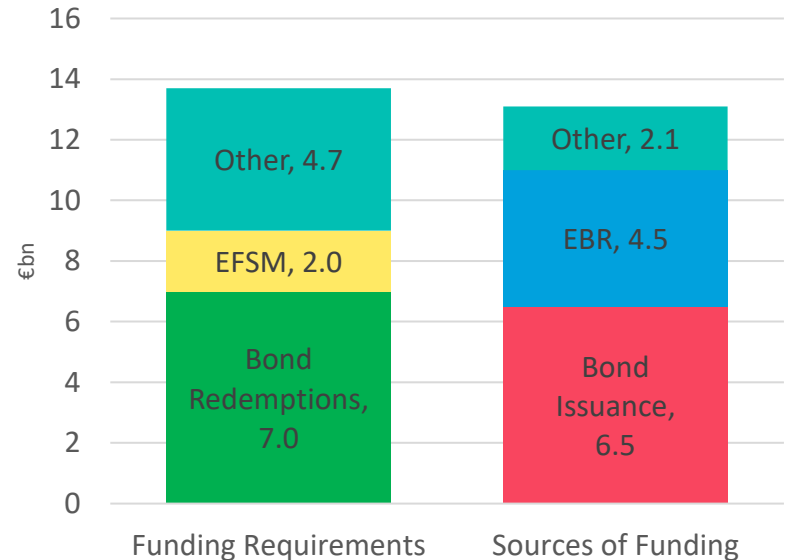
Source: ECB

Note: Weighted maturity for Ireland includes Fixed rate benchmark bonds, FRNs, Amortising Bonds, Notes issued under EMTN programme, T-Bills and ECP Data. It excludes programme loans and retail.

Funding needs and sources for 2023

Lower borrowing amid expected EBR surplus

- ▶ There was one bond redemption in 2023 (€7.0bn in March). There is also a EFSM repayment due this year. Lastly, the remaining FRNs were bought back from the CBI was in September (included in other funding requirements).
- ▶ The Exchequer Borrowing Requirement (EBR) for 2023 is expected to be a surplus (hence shown as funding source).
- ▶ The NTMA is likely to continue to hold significant cash throughout 2023. The balance at year-end 2022 was c. €23bn.



Source: NTMA

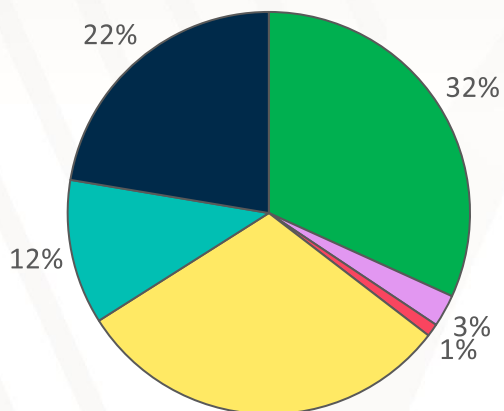
Rounding may affect totals

1. In September 2023, the NTMA completed its 2023 bond funding at €7bn. €6.5bn is the cash proceeds from this nominal issuance (including non-comp).
2. Other funding needs includes provision for the potential bond/FRN purchases and general contingencies.
3. EBR is the Department of Finance's SPU 2023 estimate of the Exchequer Borrowing Requirement

Diverse holders of Irish debt

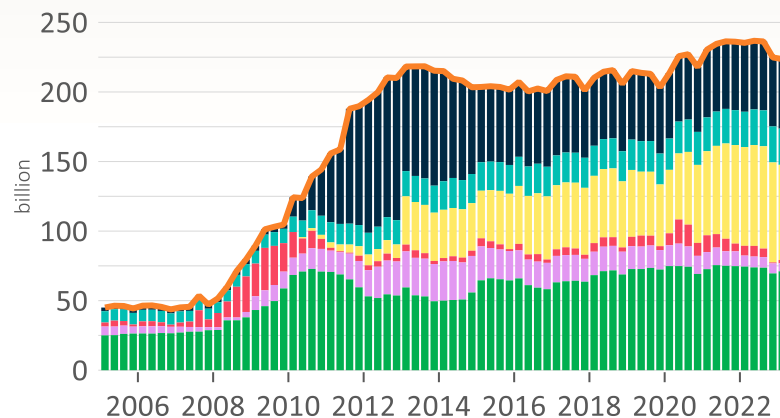
Sticky sources account for greater than 60%

Ireland roughly split 85/15 on non-resident versus resident holdings (Q1 2023)



■ IGB - Non-Resident ■ Short-Term ■ Retail
■ IGB - Resident ■ Eurosystem ■ Other

“Sticky” sources - official loans, Eurosystem, retail - make up c. 60% of Irish debt

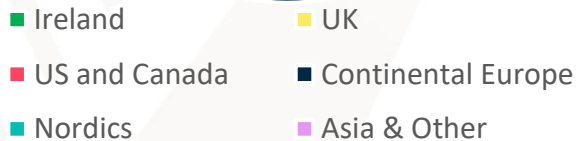
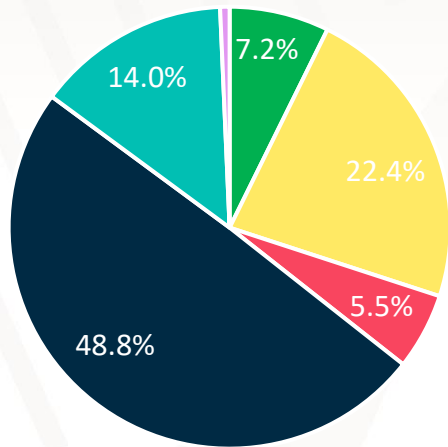


■ IGB - Non-Resident ■ Short-term ■ Retail — Total Debt
■ IGB - Resident ■ Eurosystem ■ Other

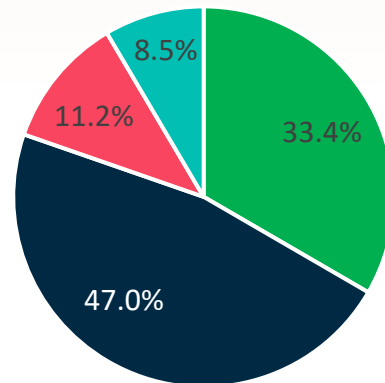
Investor base

Demand for Government bonds is wide and varied

Country breakdown:
Average over last five syndications



Investor breakdown:
Average over last five syndications



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National Treasury Management Agency

Source: NTMA

Source: NTMA

* Does not include ECB. ECB does not participate on primary market under its various asset purchasing programmes

Credit Ratings for Ireland

S&P upgrade in May 2023; Ireland rated in AA category by all

Rating Agency	Long-term	Short-term	Outlook/ Trend	Date of last rating change	Date of next review
Standard & Poor's	AA	A-1+	Stable	May 2023	17 th Nov 2023
Fitch Ratings	AA-	F1+	Positive	Jan 2022	1 st Dec 2023
Moody's	Aa3	P-1	Stable	Apr 2023	20 th Oct 2023
DBRS Morningstar	AA(low)	R-1 (middle)	Stable	Jan 2022	3 rd Nov 2023
R&I	AA-	a-1	Stable	Feb 2022	Q1 2024
KBRA	AA	K1+	Stable	May 2023	27 th Oct 2023
Scope	AA-	S-1+	Positive	May 2021	2024



Commission's ruling on Apple annulled

Further appeal by EC means case continues

- In 2016, the European Commission ruled that Ireland illegally provided State aid of up to €13bn, plus interest to Apple. This figure was based on the tax foregone as a result of a historic provision in Ireland's tax code. The Irish Government closed this provision on December 31st 2014.
- Apple appealed the ruling, as did the Irish Government. **The General Court granted the appeal in July 2020, annulling the EC's ruling.**
- This case had nothing to do with Ireland's corporate tax rate. It related to whether Ireland gave unfair advantage to Apple with its tax dealings. **The General Court has judged no such advantage occurred.**
- The Commission have appealed to a higher court: the European Court of Justice. The advocate general, an official adviser to the court, is expected to deliver his opinion on the case in November. A final judgement is expected within 12 months. Pending the outcome of the second appeal, the €13bn plus EU interest will remain in an escrow fund.
- **The NTMA has not included these funds in any of its issuance plans in the past or currently.** The funds are seen as separate and will be returned to Apple if the General Court's decision is upheld.

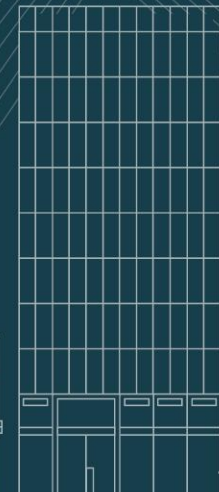
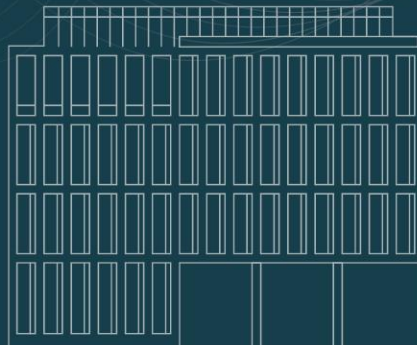


ESG

Issuance & government policy
demonstrate Ireland's green commitment



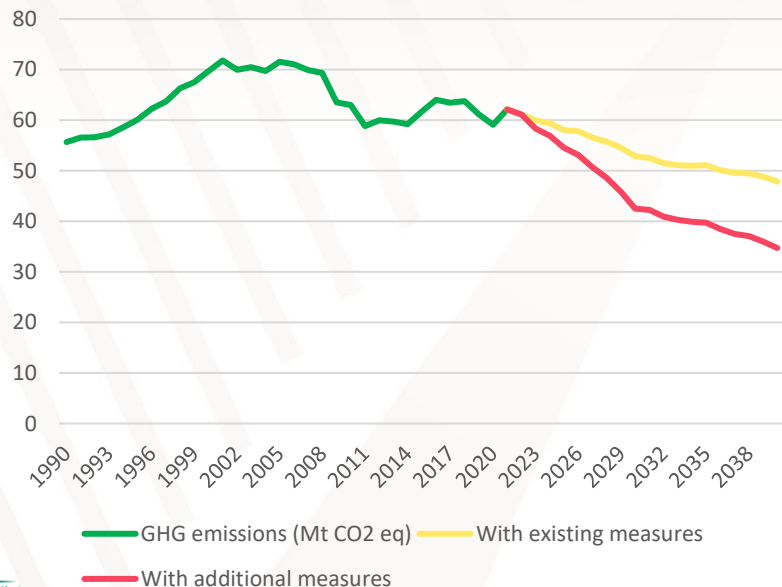
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National Treasury Management Agency



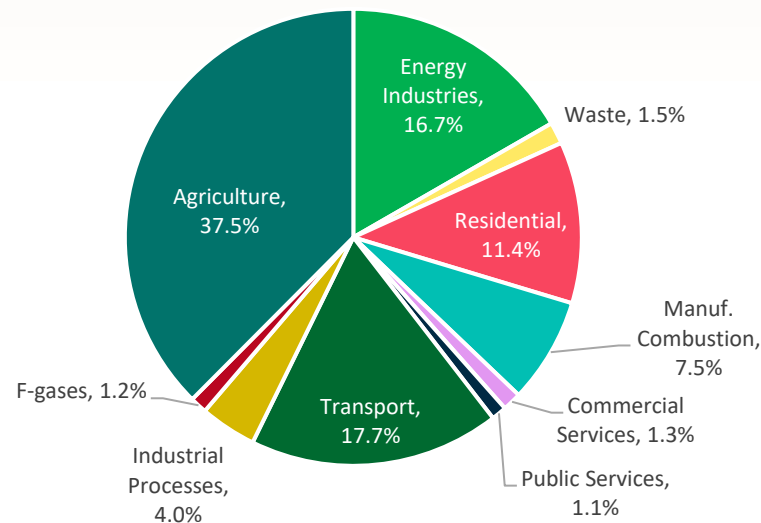
Ireland's Greenhouse Gas emissions

State of Play – emissions rose in 2021 after fall in Covid year

Ireland will comply with the 2030 EU emissions reduction target if all planned measures are implemented as proposed



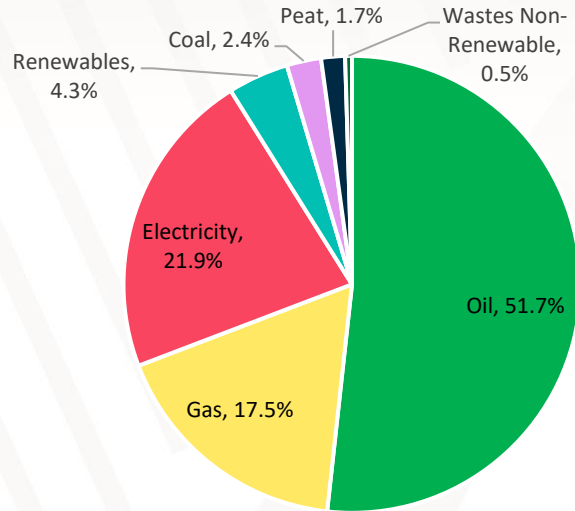
Emissions from agriculture make up a significant portion of the total In Ireland (c. 10% in EU and US)



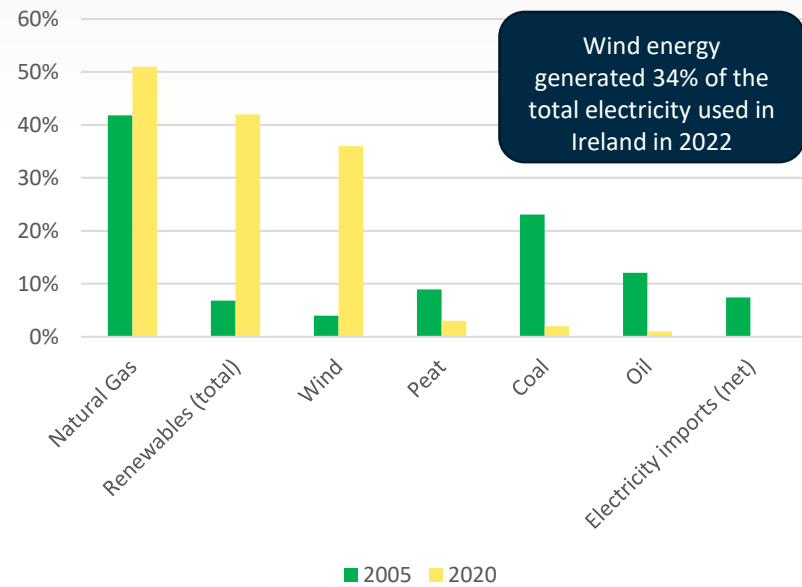
Ireland Energy: Fossil fuels prevalent

Ireland's energy mix is reliant on fossil fuels but renewables share to increase by 2030

Oil accounts for the largest share of Ireland's energy mix.
Transport accounted for 63% of oil use in 2021



Electricity production has become more renewables based but still far from Climate Action Plan aim of 80% by 2030



Climate Action Legislation

The Climate Action & Low Carbon Development Act 2021 aims for Net Zero by 2050

Climate Action & Low Carbon Act:

- **Carbon Budgeting:** The Act embeds the process of carbon budgeting into law. It requires Government to adopt a series of economy-wide-five-year carbon budgets.
- **51% reduction:** First carbon budgets will aim for a reduction of 51% of emissions by 2030.
- **Climate Action Strategy:** A national plan will be prepared every five years and actions for each sector will be updated annually.
- **All of Government approach:** Local authorities are required to prepare a Climate Action Plan and public bodies obliged to conduct their functions in line with the national plan.

Carbon Budgets & Sectoral Ceilings

Budget Period	2021-2025	2026-2030	2031-2035 (provisional)
MtCO ₂ eq	295	200	151
Average Annual Reduction	4.8%	8.3%	3.5%

Sector	% Reduction by 2030 relative to 2018	GHG emissions 2030 Ceiling
Electricity	75%	3 MtCO ₂ eq
Transport	50%	6 MtCO ₂ eq
Buildings (Commercial and Public)	45%	1 MtCO ₂ eq
Buildings (Residential)	40%	4 MtCO ₂ eq
Industry	25%	4 MtCO ₂ eq
Agriculture	25%	17.25 MtCO ₂ eq
Other*	50%	1 MtCO ₂ eq



Climate Action Plan 2023

Pillars to tackle emissions reduction

Powering renewables

- 9GW onshore wind, 8GW solar and at least 7GW offshore wind by 2030
- Phase out and end use of coal and peat in electrical generation
- Green Electricity Tariff incentive people to use lower cost renewable electricity at times of high wind and solar generation

Building Better

- Retrofit 500,000 dwellings by 2030
- Put heat pumps into 680,000 homes by 2030
- Generate 2.5TWh of district heating by 2030
- Improve carbon sequestration and reduce management intensity of drained soils on grasslands

Transport

- Reduce distance driven across all car journeys by 20%
- Walking, cycling, public transport will account for 50% of journeys
- 1 in 3 private cars will be EV's
- Increase rural bus routes and frequency

Agriculture

- Reduce use of chemical nitrogen as fertiliser
- Increase organic farming to 450,000 hectares
- Expand indigenous biomethane sector
- Contribute to delivery of land use targets for afforestation, reduce mgmt. intensity of organic soils
- Increase uptake on protected urea on farms to 90-100%

Enterprise

- Reduce clinker content in cement and substitute products with lower carbon content for construction materials
- Reduce fossil fuel share of final consumption
- Increase total share of heating to 70-75% by 2030
- Grow the circular and bioeconomy

Land Use

- Increase annual afforestation rates to 8,000 hectares p/a from 2023 on
- Promote forest management initiatives in forests to increase carbon sinks and stores
- Improve carbon sequestration and reduce management intensity of drained soils on grasslands
- Rehabilitate 77,760 hectares of peatlands



Irish Sovereign Green Bonds (ISGB)

Over €10bn issued in Green; allocated to green projects following fourth year

- €10.35bn nominal outstanding across two bonds (€10.8bn cash equivalent)
- Cumulatively €10.8bn allocated
- Issuance through both syndicated sales and auctions
- Pipeline for eligible green expenditure remains strong
- Launched 2018 and based on ICMA Green Bond Principles – Use of proceeds model
- Governed by a Working Group of government departments chaired by the Department of Finance
- Compliance reviews by Sustainalytics
- Five annual allocation reports and four annual impact reports now published

Irish Sovereign Green Bond Impact Report 2021: Highlights*

▶ Environmentally Sustainable Management of Living Natural Resources and Land Use

Number of hectares of forest planted: 2,016

Number of Landfill Remediation projects being funded: 70

▶ Renewable Energy

Number of companies (including public sector organisations) benefitting from SEAI Research & Innovation programmes as lead, partner or active collaborators : 143

SEAI Research & Innovation awards: 48

▶ Sustainable water and wastewater management

Water savings (litres of water per day) : 222.1 million

New & upgraded water and wastewater treatment plants: 12

Length of water main laid (total) : 202km

*For a more detailed break-down please see the ISGB 2021 Impact Report

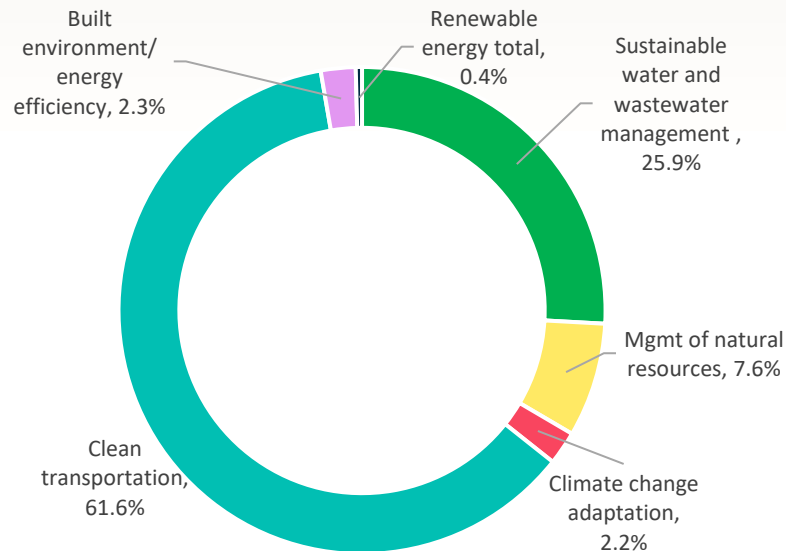
Irish Sovereign Green Bonds (ISGB)

Irish Sovereign Green Bond Impact Report 2021 & Allocation Report 2022: sample impacts

Some highlights from the report*

- **Built Environment/ Energy Efficiency**
 - Energy saving (GigaWattHours) : 458
 - Number of homes renovated : 17,187
 - EV home charger grants provided: 15,547
- **Clean Transportation**
 - Number of public transport passenger journeys: 139.8 million
 - Length of regional and national greenways constructed: 70km
 - Take-up of Grant Schemes/ Tax foregone provided (number of vehicles) : 33,020
- **Climate Change Adaptation**
 - 16 major Flood relief projects at planning, development or construction phase.
 - 8,296 properties protected on completion

Allocation in 2022 of ISGB funding has focused on Water/Waste management and transportation



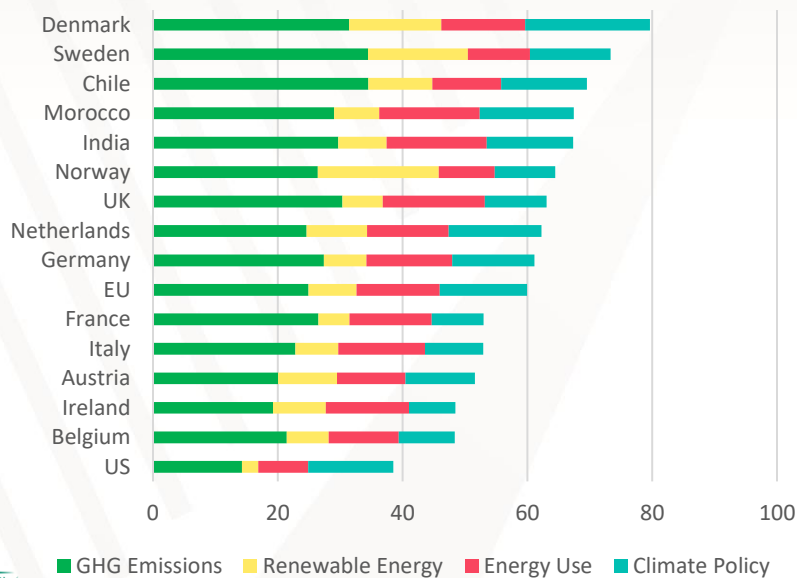
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*For a more detailed break-down please see the *Irish Sovereign Green Bond Allocation Report 2022*

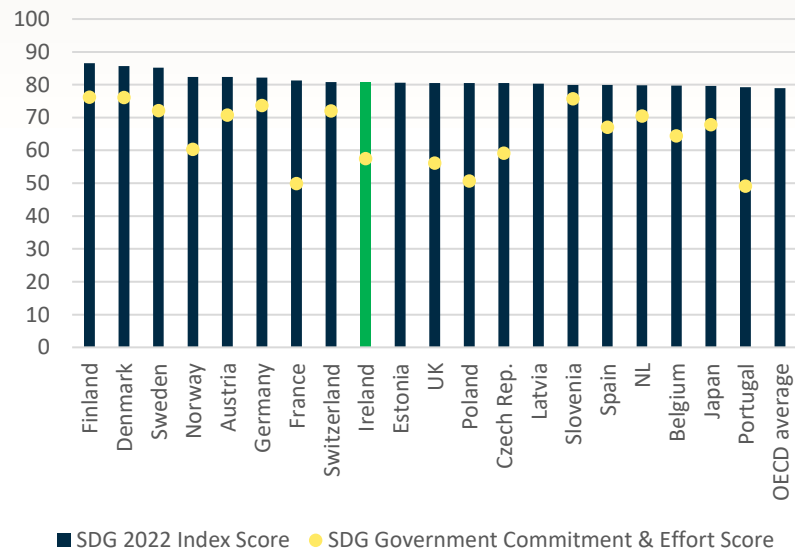
On the “E” of ESG, Ireland is currently behind

But we are viewed strongly on progress and commitment to SDG policy

Ireland ranks behind leaders like Denmark in current environmental metrics



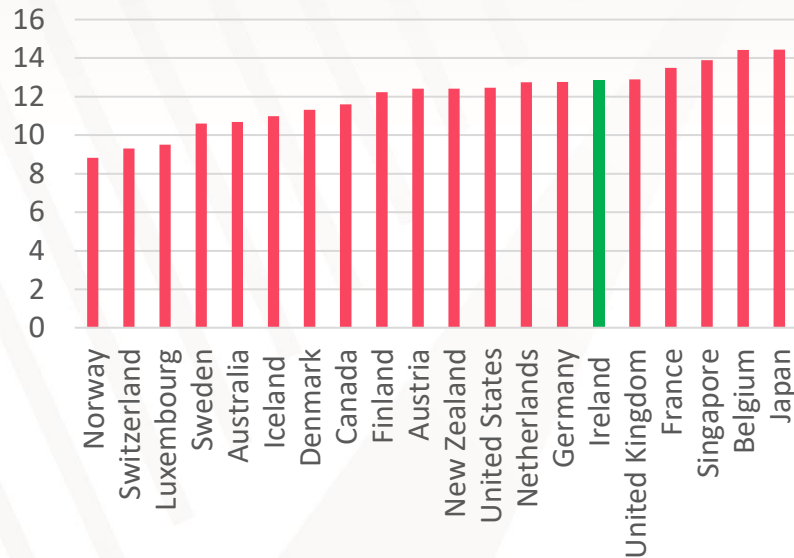
Ireland ranked 9th globally on progress towards achieving the Sustainable Development Goals



Ireland in top 20 most sustainable countries

Ireland rated highly by Sustainalytics and rating agencies on ESG

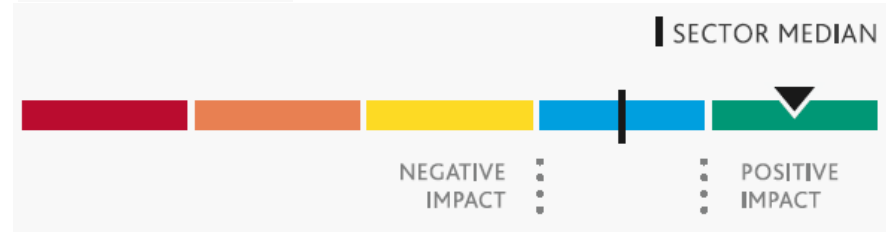
Ireland ranks 15th globally by Sustainalytics for ESG risk



Moody's view on Ireland much like other agencies – strong governance a key risk mitigant

CIS-1
Positive

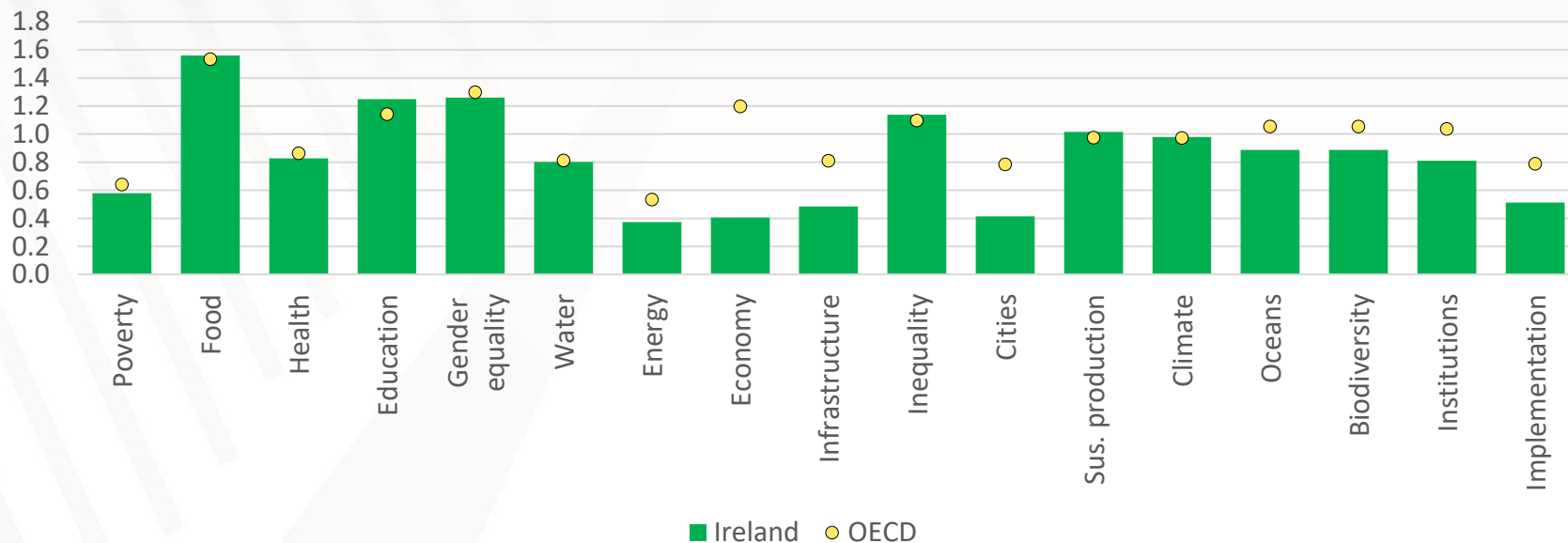
“For an issuer CIS-1 (Positive), its ESG attributes are overall considered as having a positive impact on the rating. The overall influence... .. is material”.



Ireland's ESG Credit Impact Score:
 “low exposure to environmental risk”
 “a positive influence of its social considerations”
 “very strong governance profile”

Ireland compares well to OECD on “S&G”

Based on the 17 Sustainability and Development Goals of the UN



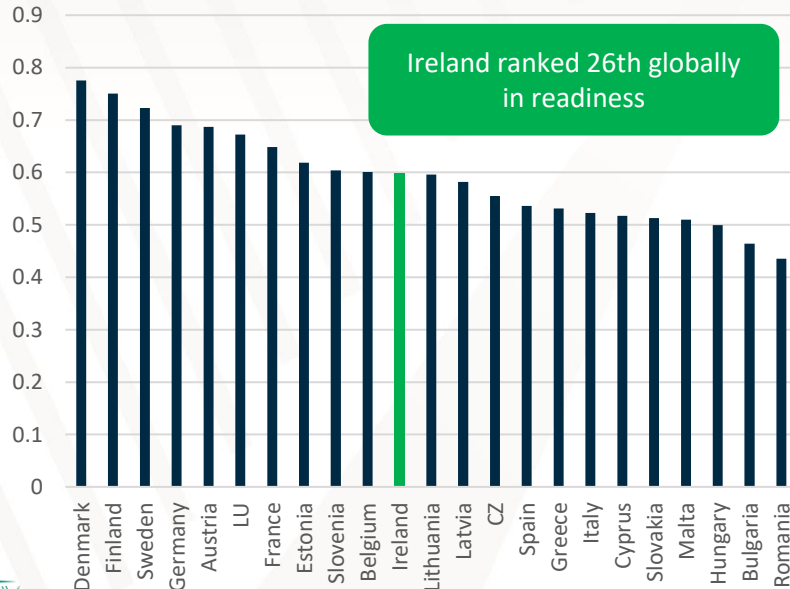
Source: OECD (2021)

Each bar shows “distance” country needs to travel to reach each SDG. Distances are measured in standardised units with 0 indicating that the level for 2030 has already been attained; and 3 is the distance most OECD countries have already travelled. Bars show the average country performance against all targets under the relevant Goal for which data are available, and diamonds show the OECD average.

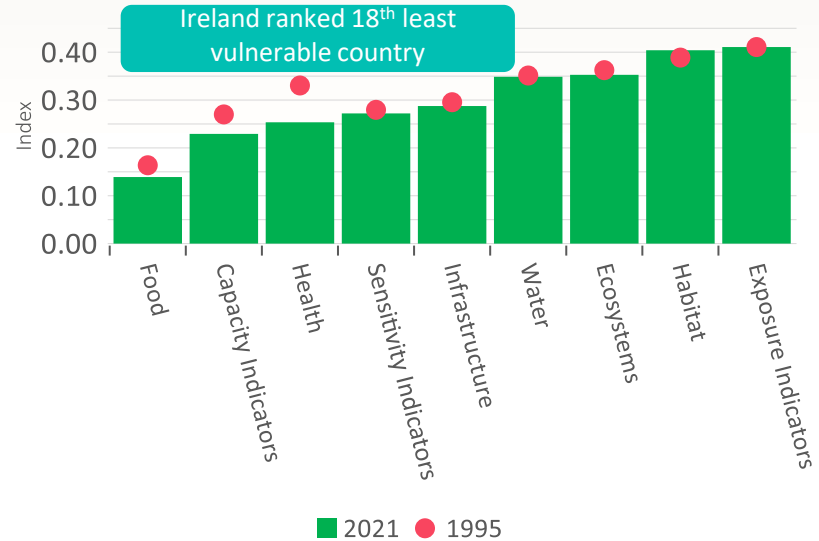
Readiness and vulnerability to climate change

Ireland's vulnerability to climate change and readiness to strengthen resilience have improved

Ireland ranked middle of the pack for readiness* when compared to EU27



Ireland's overall vulnerability** has decreased 1.8% from 1995-2021

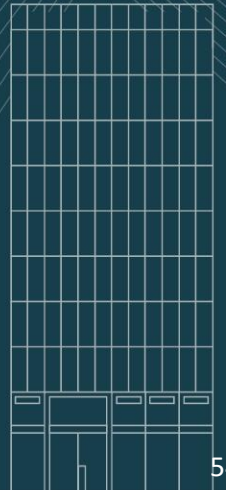
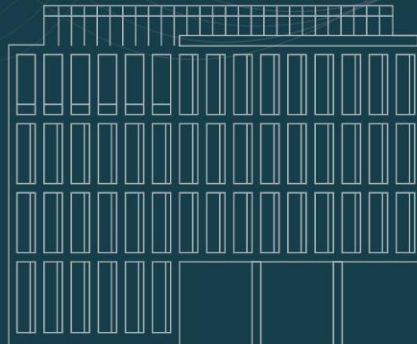


Structure of the Irish Economy

Multinationals overstate economic prosperity but offer clear benefits of jobs, income, taxes



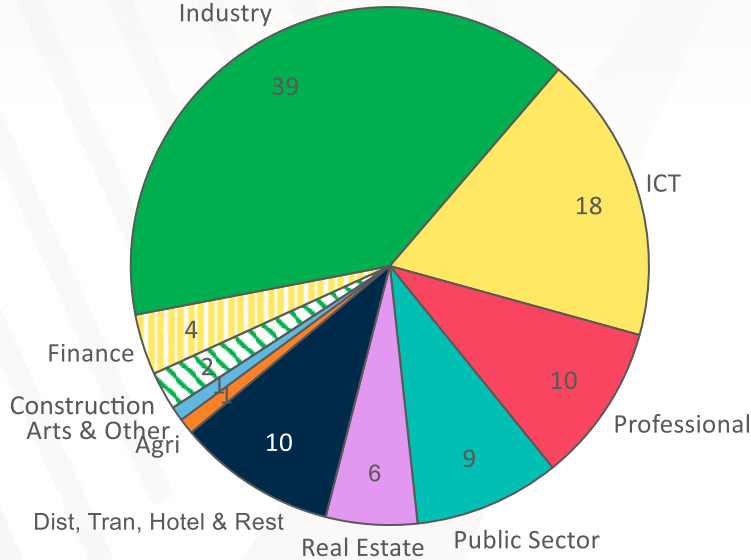
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National Treasury Management Agency



Multinational activity distorts Ireland's data

Notwithstanding those issues, MNCs have real positive impact

Multinationals dominate GVA: profits are booked here but overstate Irish wealth generation



Source: Eurostat

Domestic side of economy adds jobs; MNCs add GVA/high wages

Percentage of Total

	Employment	Compensation of Employees	Real GVA
Industry (incl Pharma)	13	14	39
ICT (Tech)	7	10	18
Professional	10	14	10
Dist, Tran, Hotel & Rest	24	18	10
Public Sector	30	29	9
Real Estate	0	1	6
Financial	5	7	4
Construction	6	4	2
Agriculture	1	1	1
Arts & Other	4	2	1

Source: Eurostat



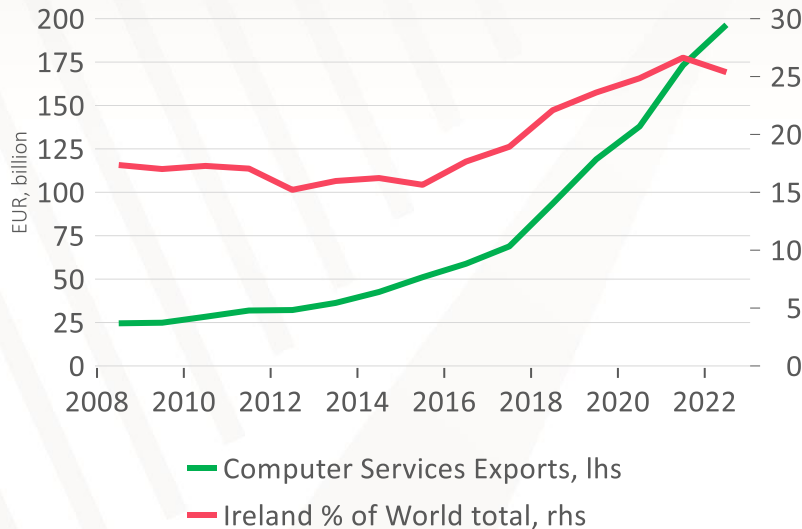
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National Treasury Management Agency

Note: RHS based on calendar-adjusted seasonally-adjusted data as of 2023 Q1.

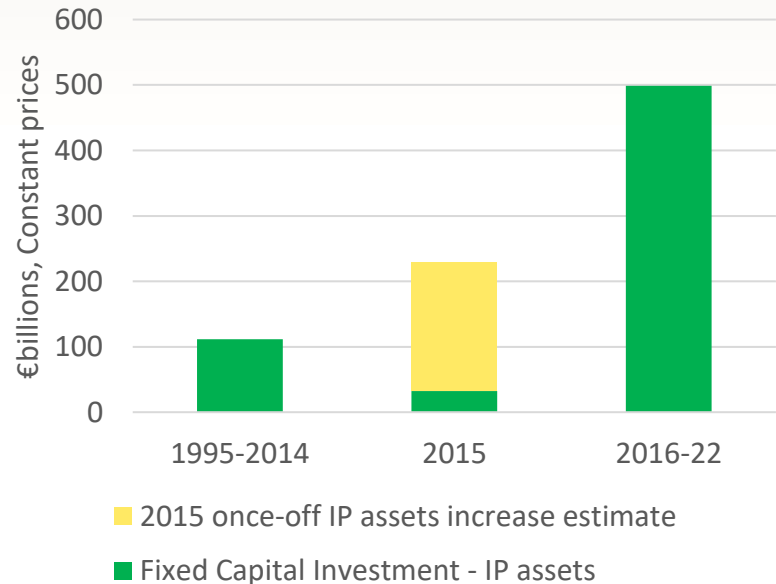
€0.68trn of intellectual property into Ireland

Assets brought here by tech. & pharma. in recent years

Ireland is now a leader in Computer Services; Exports have up from €50bn to c. €170bn since 2015



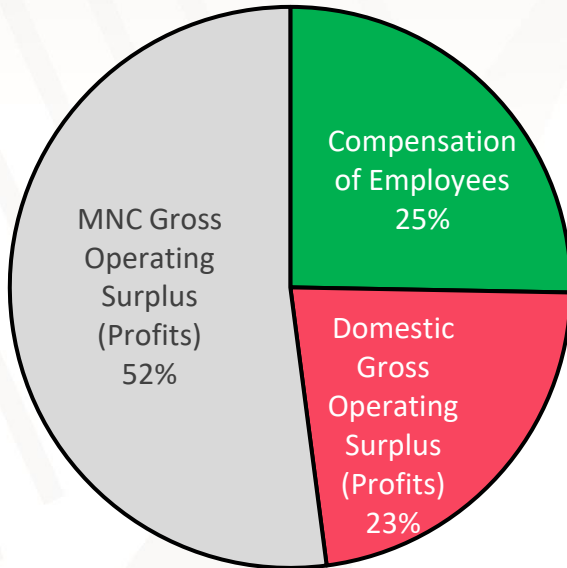
Enormous inflows (c. €0.68trn) of IP assets into Ireland since 2015 on the back of BEPS 1.0 and other tax reforms



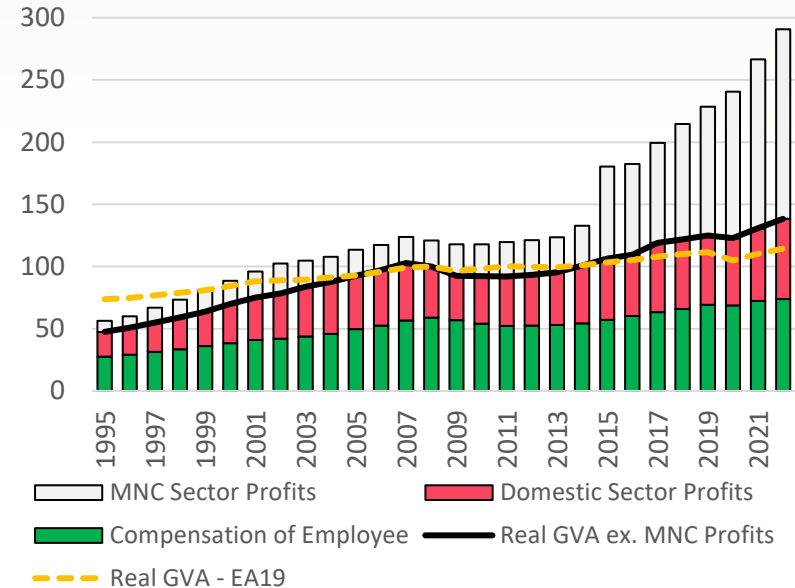
Underlying economy above EA average

MNCs add real substance to IE economy as wage bill filters out to domestic sectors

Ireland's income = wages (all sectors) + domestic sectors profits + tax on MNC profits



Ireland, on an underlying basis, growing faster than euro area average in recent years (2008 = 100)



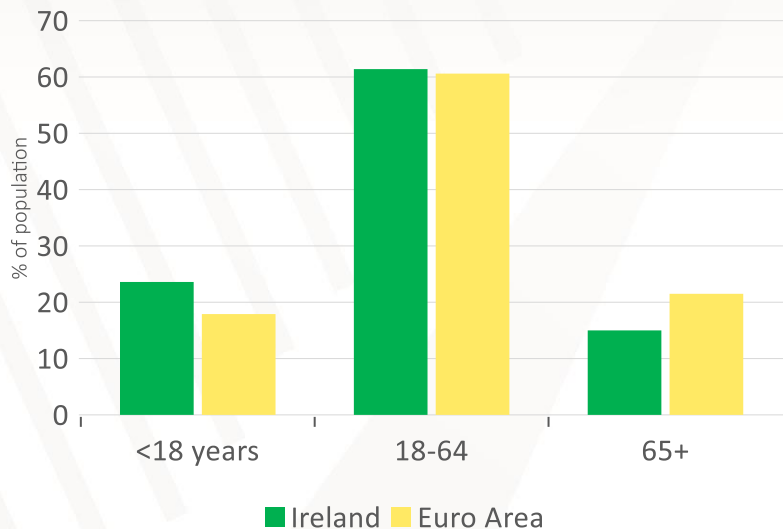
Source: CSO, NTMA calculations (Nominal 2022 data used in left chart)

Ireland's GVA data has been adjusted to strip out the distortionary effects of some of the multinational activity that occurs in Ireland. Specifically a profit proxy is estimated for the sectors in which MNCs dominate.

Ireland's population helps growth potential

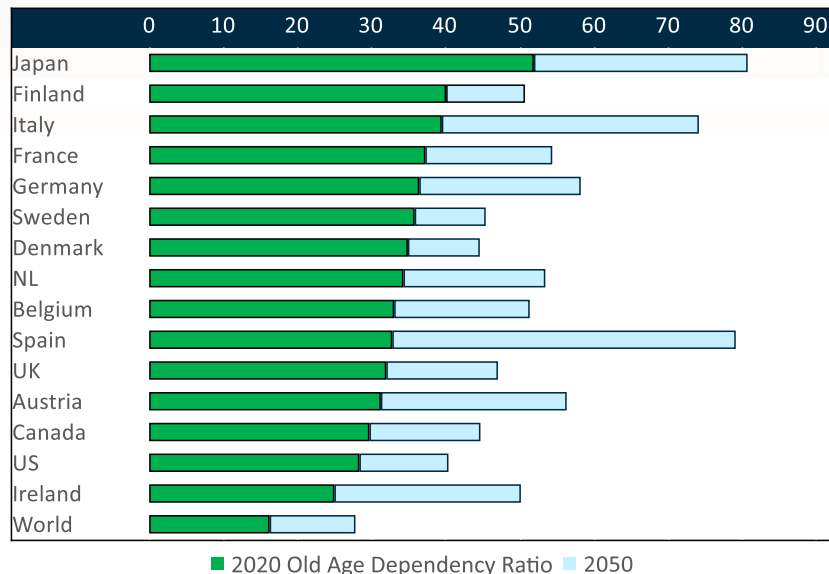
Age profile younger than the EU average but won't outrun aging demographics

Ireland's population at 5.1m in 2022: younger population than EU



Source: Eurostat

Ireland's population will age rapidly in decades to come; to remain younger than most of its EA counterparts

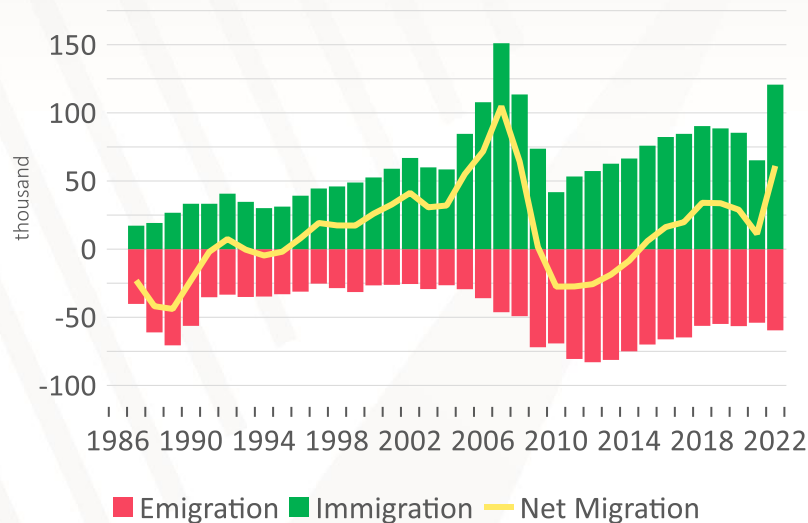


Source: UNDESA

Migration improves Ireland's human capital

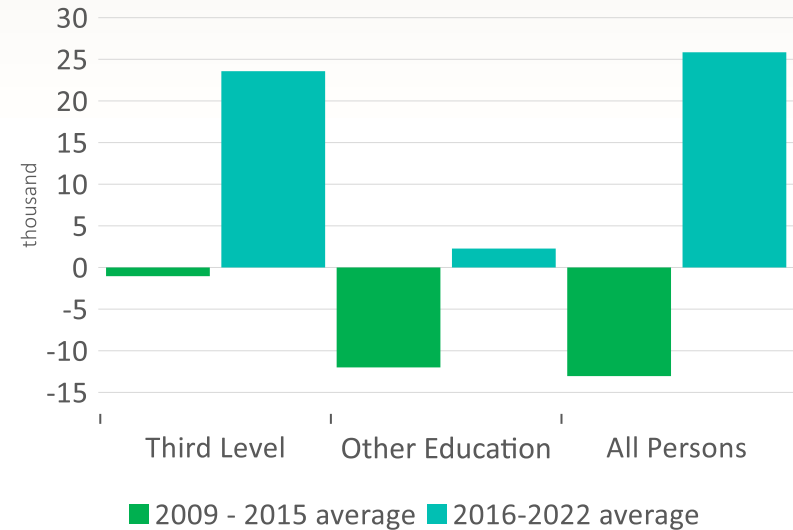
Ireland's net migration has swung back and forth on economic performance

Latest Census data show net migration positive since 2015 – last year saw large increase partly due to UKR refugee efforts



Source: CSO

Migration inflow particularly strong in highly educated cohort – work in MNCs attractive



Source: CSO

Brexit: Free Trade Agreement in place

Allows for tariff free trade but non-tariff barriers have increased

Main points of FTA

- From January 1 2021, the UK became a “third country” outside the EU’s single market and customs union. As such without a free trade agreement, trade would have been subject to tariffs and quotas.
- Under the deal, goods trade between the two blocs remain free of tariffs.
 - However, goods moving between the UK and the EU will be subject to customs and other controls.
 - Due to these non-tariff barriers, Brexit will likely result in less trade.
- Under the deal, services trade between the two blocs will continue but again could be hampered.
 - The Agreement provides for a significant level of openness for trade in services and investment.
 - But providing services could be hampered. For example, UK service suppliers no longer have a “passporting” right, something crucial for financial services. They may need to establish themselves in the EU to continue operating.
- The deal means less cooperation in certain areas compared to before Brexit. Financial and business services are only included to a small extent. Cooperation on foreign policy, security and defence will be lower also.
- Brexit is likely to result in less trade in the long run between the EU and the UK but the deal does avoid the worst case scenarios: Hard Brexit was averted and the economic impact to Ireland will be more modest.



Windsor Framework + NI Protocol

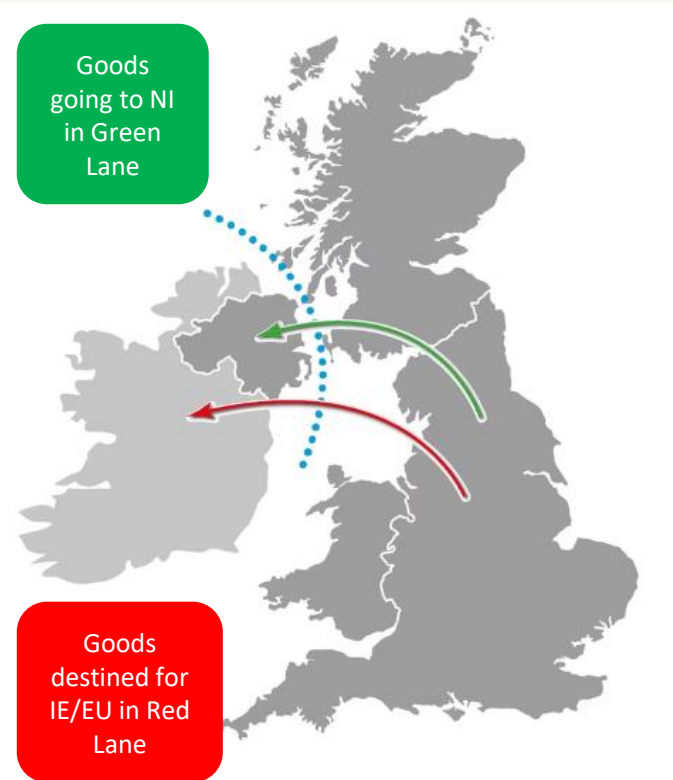
Windsor Framework expands on NI Protocol agreement; NI parliament remains suspended

Northern Ireland Protocol (signed in 2019)

- The withdrawal agreement (and the Northern Ireland Protocol within it) is a legally binding international treaty which works in tandem with the FTA.
- Northern Ireland remains within the UK Customs Union but will abide by EU Customs Union rules – dual membership for NI.
- No hard border on the island of Ireland: customs border is “in the Irish Sea”.

Windsor Framework (signed in 2023)

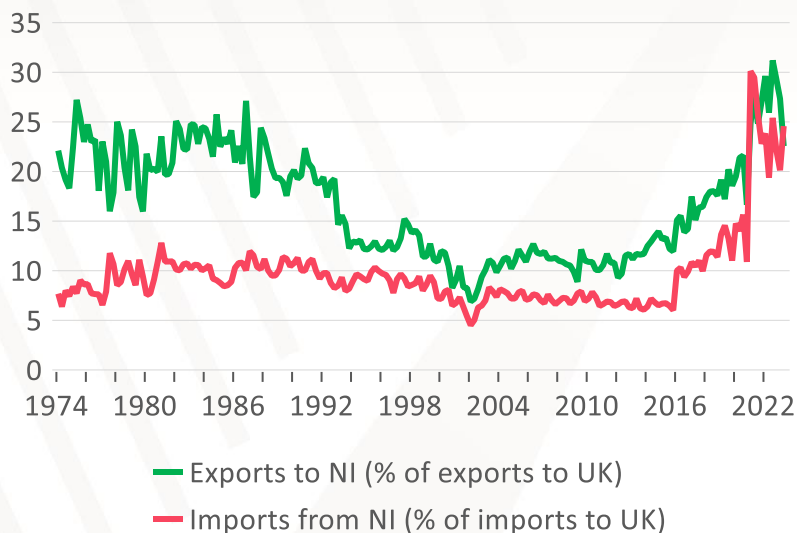
- Green lane/Red Lane: goods from the UK for NI will travel through new green lane, with a separate red lane for goods that might travel on to the EU. Border “in the Irish Sea” effectively ended for goods destined for NI market.
- VAT: EU VAT rules could be applied in NI whilst the UK can make “critical VAT” changes which include NI. Concerns on food/medicines/parcels have been addressed.
- Stormont Brake: Agreement gives the NI Assembly (at least 30 MLAs from two parties) the ability to pull an “emergency brake” if it disagrees with an EU goods law which would have significant and lasting effects. If the brake is pulled, the UK government could veto new EU laws but an arbitration process has been established also.



Trading flows are changing after FTA

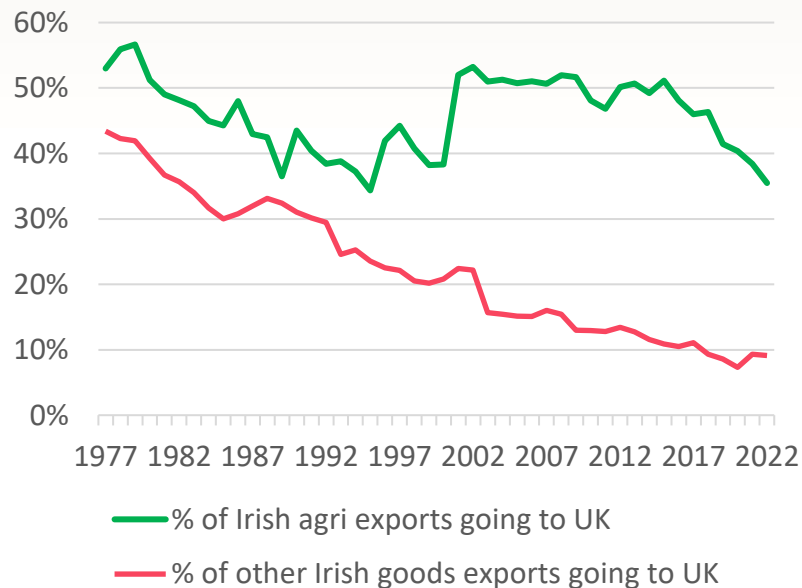
ROI-NI trade jumped in 2021, both imports and exports

NI trade at highest level compared to overall IE-UK trade for many decades – special trade status of NI a factor



Source: CSO

UK exit from single market will continue trend of lower goods trade between IE & UK



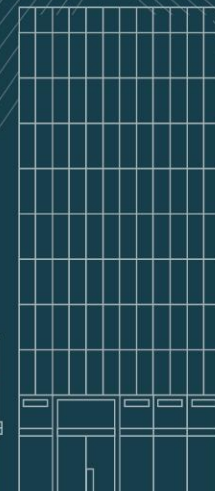
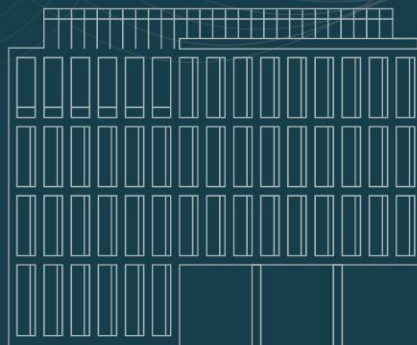
Source: CSO

Property & Banks

Prices cooling in recent quarters after
upward pressures in recent years –
monetary policy having an effect



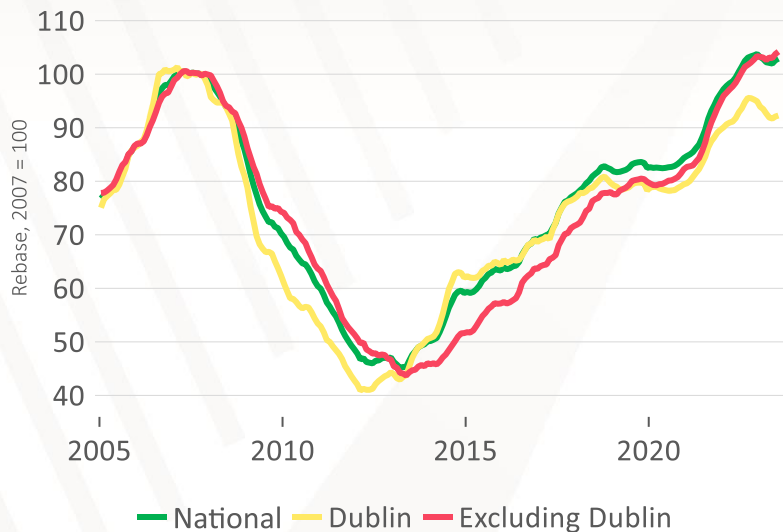
Gníomhaireacht Bainistíochta an Chisteáin Náisiúnta
National Treasury Management Agency



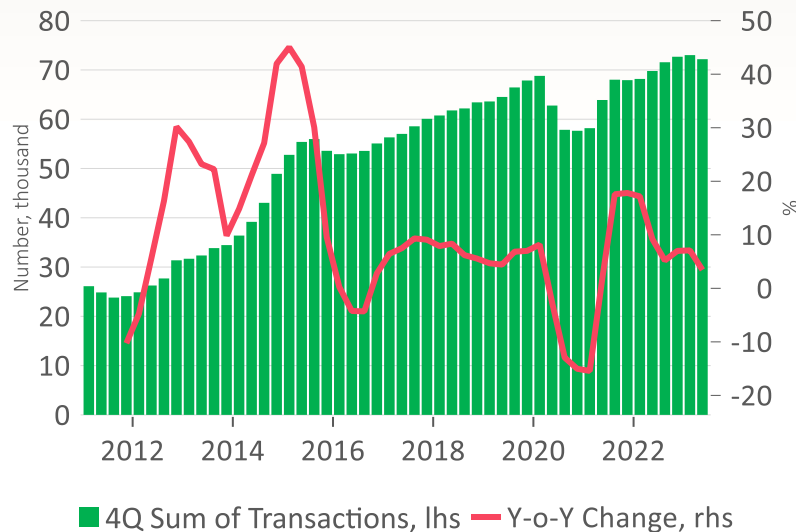
Prices up in recent years but stalling

Supply hampered by the pandemic and inflation (c.33-40k units needed p.a.)

House prices up 1.5% y-on-y, above previous peak in 2007 – Dublin seeing prices recede in last year



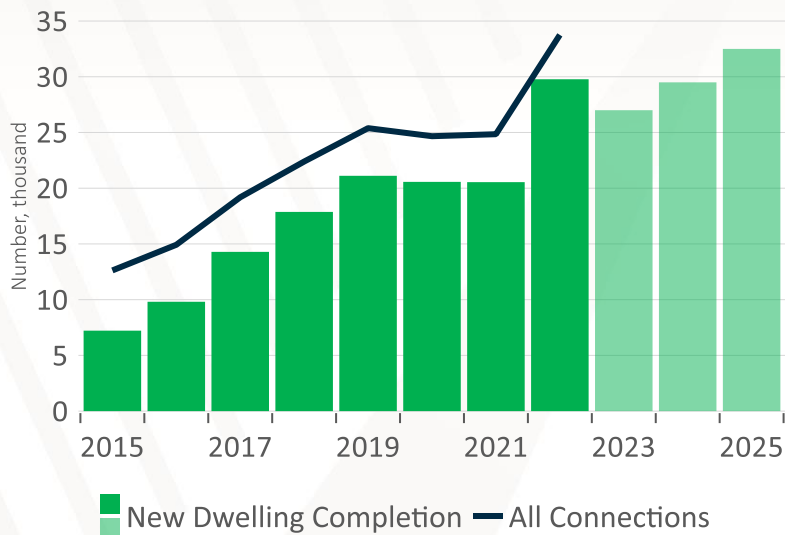
Transaction volumes have started to slow following ECB rate hikes



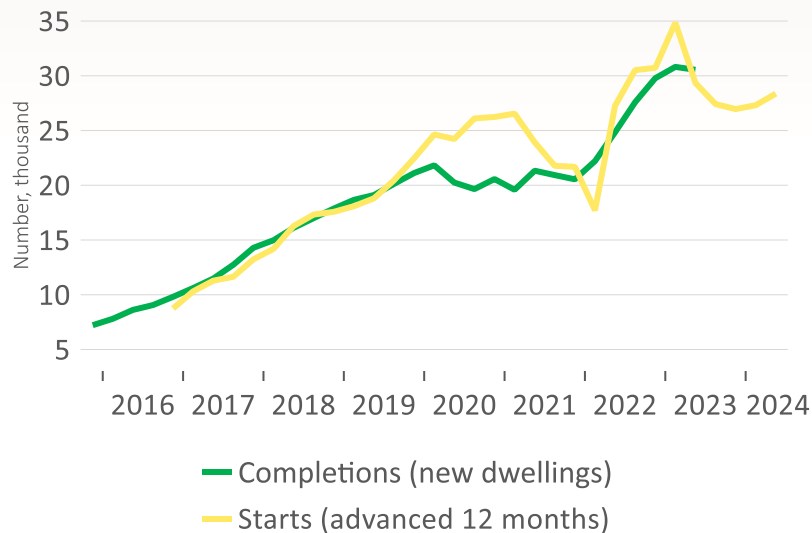
Supply outlook uncertain

Stronger supply in 2022 but 2023 supply could be impacted by costs/interest rates

New Dwellings Completions* estimated to be less than 30,000** in 2023, below 2022 level



Housing starts show supply chain issues and inflation has started to weigh on development



Source: CSO, Irish Department of Housing, Planning & Local Government

Source: CSO

* Housing completions derived from electrical grid connection data for a property. Reconnections of old houses overstate the annual run rate of new building (all connections in graph).

**CBI Forecast

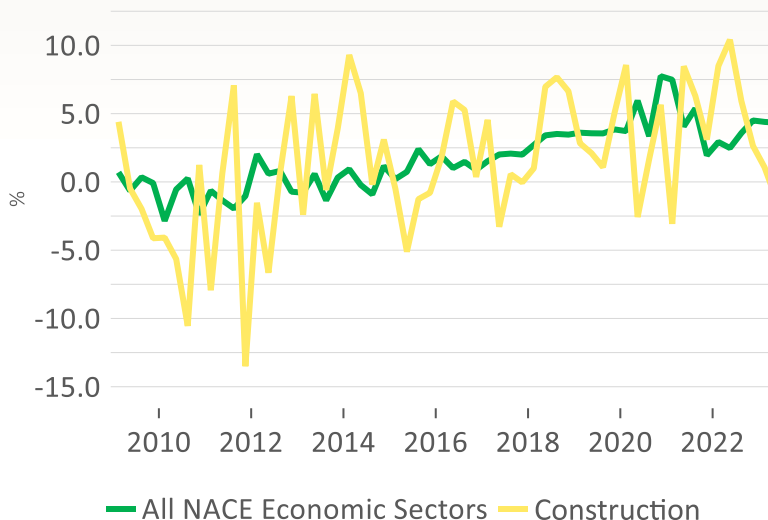
Inflation normalising in construction sector

Growth in material and labour costs has softened in recent months

Materials up 2.2% year-on-year in July but inflation in the sector is past its peak



Labour costs in construction have eased, down 1.2% y-on-y in Q2



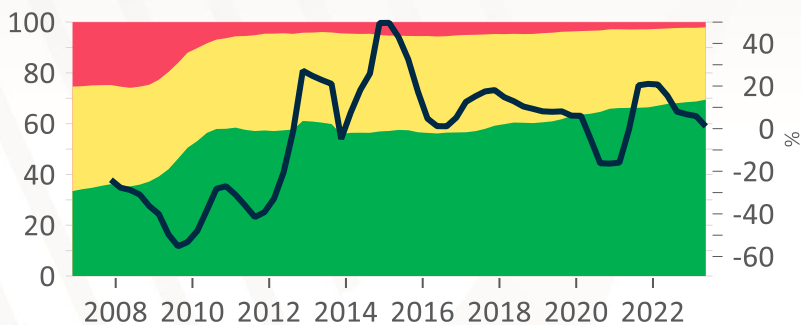
Source: CSO

Source: CSO

Demand is strong, but drawdowns slowing

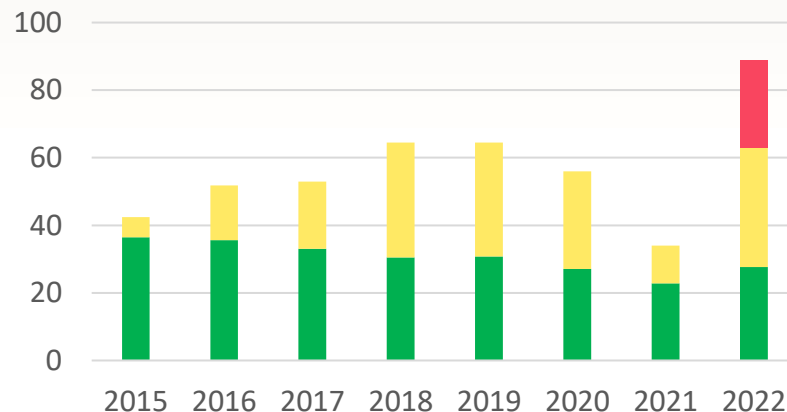
Increased net migration further fuelling tight demand in the housing market

Mortgage drawdowns* increase starting to slow, fuelled by a fall in residential investment drawdowns



- First-Time Buyer Purchase, % total, lhs
- Mover Purchase, % total, lhs
- Residential Investment Letting Purchase, % total, lhs
- Total drawdowns, y-on-y % , rhs

Increased net migration and refugees from Ukraine** add demand for housing

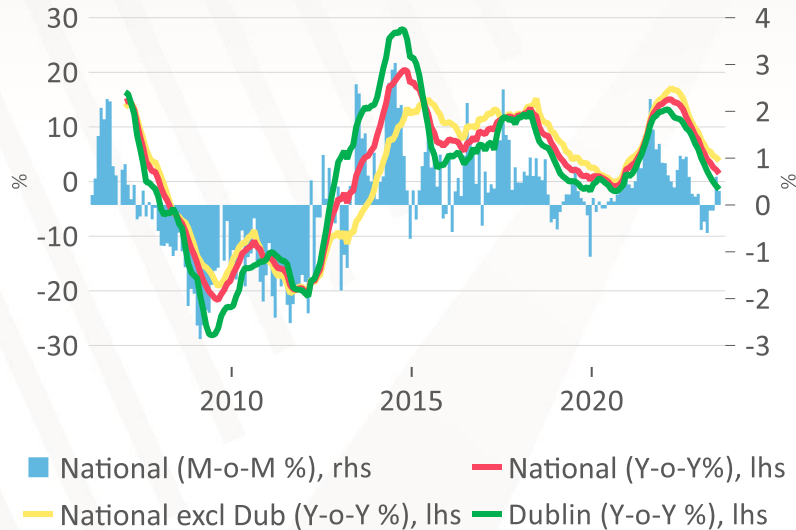


- Ukrainian refugees
- Net migration
- Natural population change

House prices continue to rise

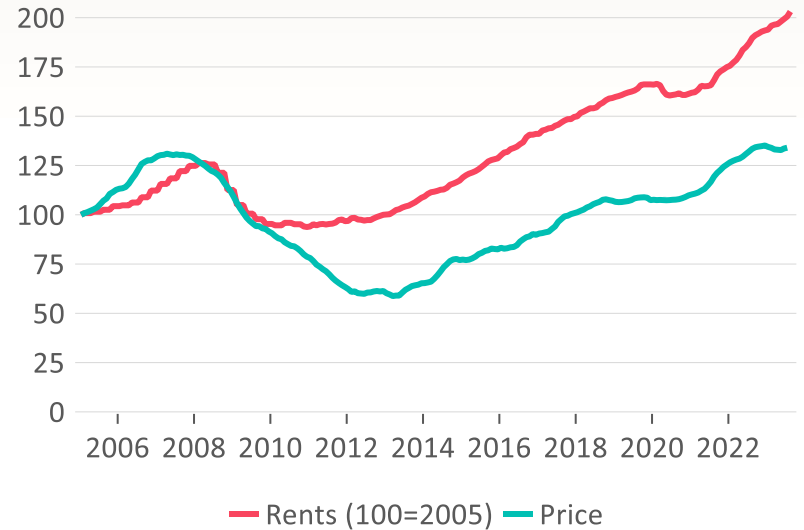
Inflation driven by strong demand, labour shortages and increased supply prices

House prices up 1.5% in the year to June 2023, the lowest level of price growth recorded in almost three years



Source: CSO

Rents pressures remain strong with a y-on-y increase of 7.1% in August

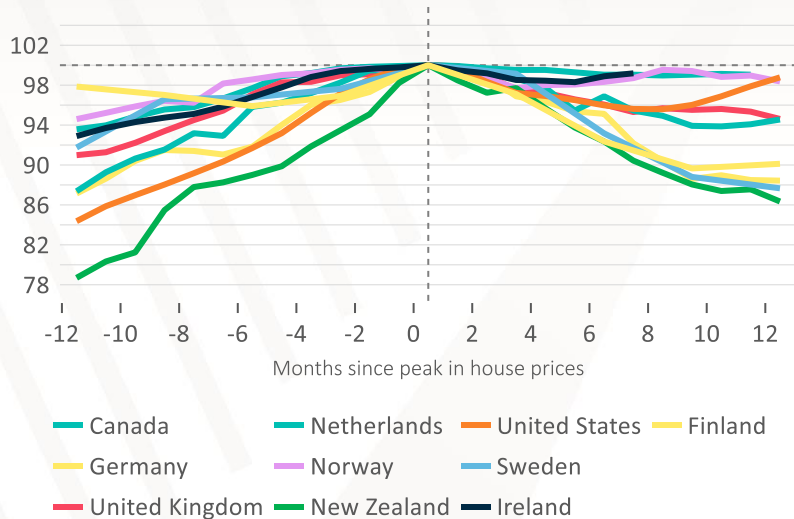


Source: CSO

House price increases slowing

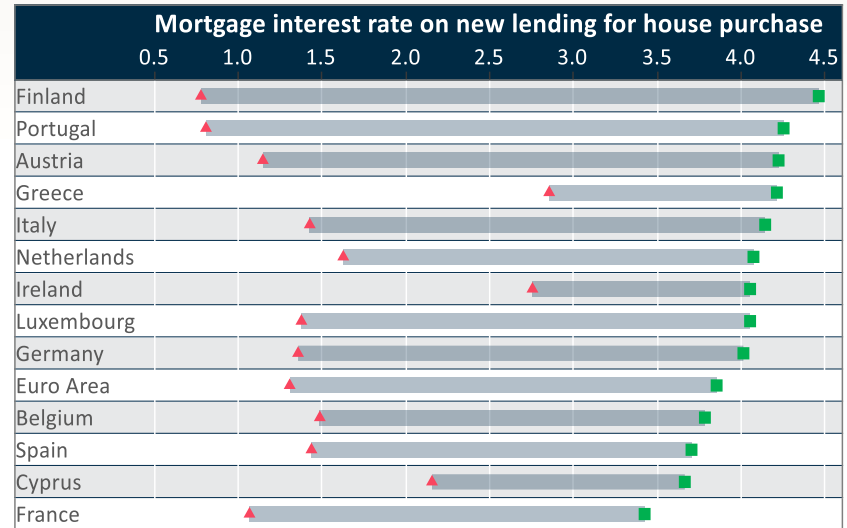
Irish mortgage rates moving slower than other countries

House prices have peaked in most countries but Irish prices declining at slower rate



Source: StatCan, CBS, Nationwide, S&P Global, EUROPACE, Real Estate Norway (Eiendom Norge), REINZ, SCB, CSO, StatFin

Pass-through from ECB hikes to mortgage rates less than seen in other countries. Interest rates still above EA average



excludes revolving loans and others

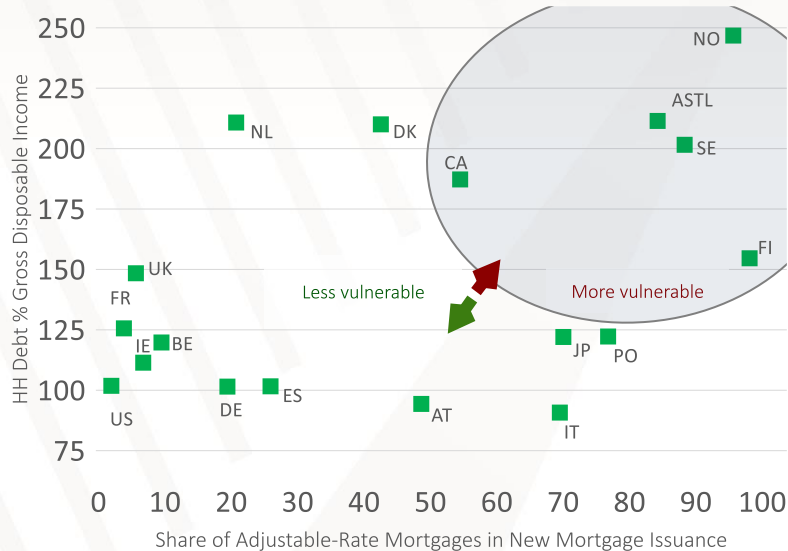
▲ 1/2022 ■ 7/2023

Source: ECB

Ireland less vulnerable to rising interest rates

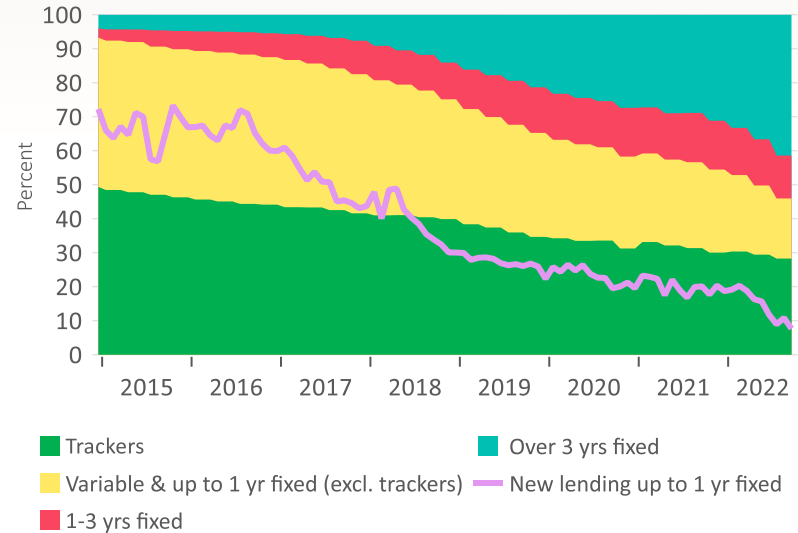
But could pose a greater threat in the medium term

Low share of adjustable rate mortgage and low HH debt to income ratios- Ireland less exposed to rising interest rates



Source: OECD, ECB, FHFA

...but most mortgages in Ireland exposed to higher interest rates over the medium term



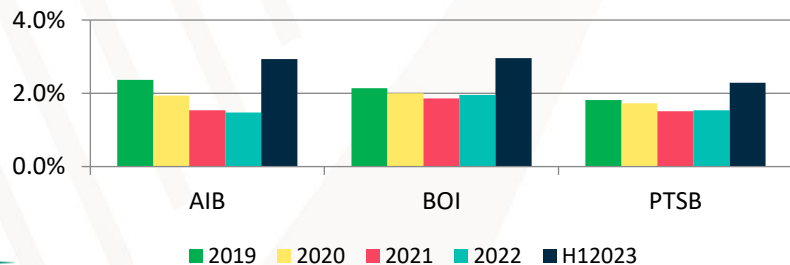
Source: Central Bank of Ireland

Ireland's Banking Sector Overview

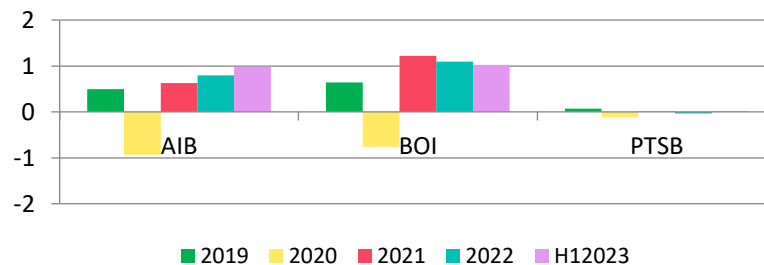
Less competition possible in decade to come

- Banking sector well capitalised with sufficient liquidity buffers
- Banks profitable as net interest margins will be helped by rising interest rate environment.
- Ulster Bank and KBC - both of which have no govt. ownership have decided to leave Irish banking market. Reduced competition is main impact.
- The Irish Government has sold its share in BOI. This leaves just AIB and PTSB with government involvement.
- Further tranches of AIB and PTSB shares were sold in 2023. The Government owned approx. 47% of AIB and 57% of PTSB. Sales are likely to be ongoing as government divests from sector.

Net Interest Margin



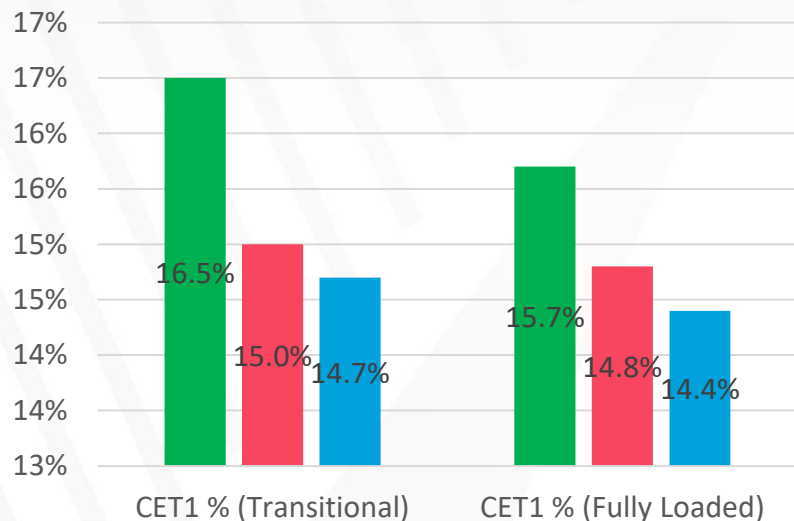
Profit before Tax (€bns)



Capital ratios strengthened in last 10 years

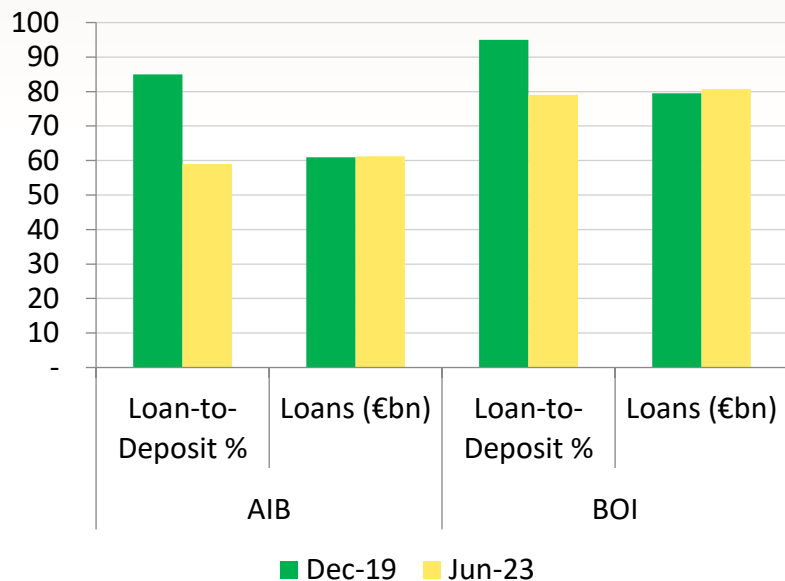
Bank's balance sheets contracted and consolidated since GFC

CET 1 capital ratios allow for ample forbearance in 2023



■ AIB ■ BOI ■ PTSB

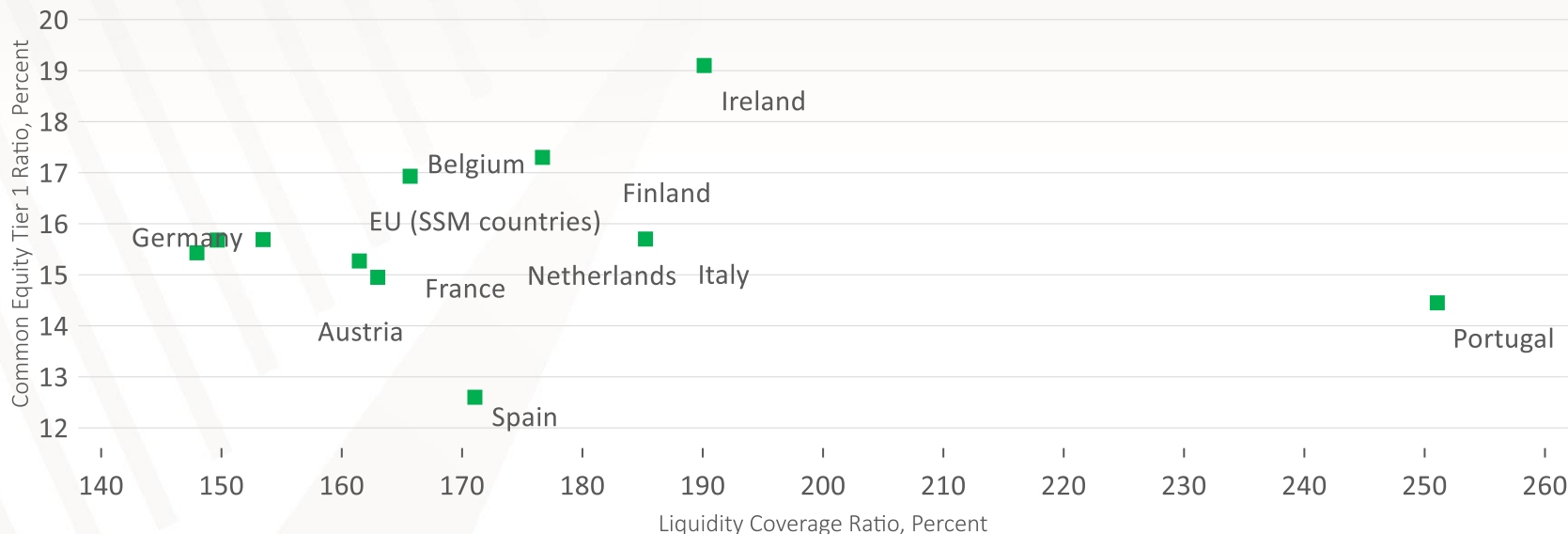
Loan-to-deposit ratios have fallen in recent years as deposits have increased on back of HH savings, banks leaving



■ Dec-19 ■ Jun-23

Ireland's banking sector well positioned

CET1 ratios are high and liquidity coverage ratio is better than EU average



Source: ECB

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