Ireland: Fiscal strength, full employment

NTMA Investor Presentation

June 2023

Gníomhaireacht Bainistíochta an Chisteáin Náisiúnta
National Treasury Management Agency

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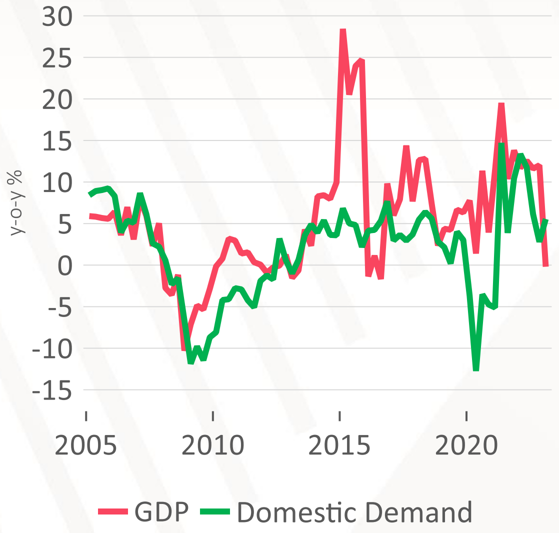
Summary

Irish economic resilience but risk from external environment clear

Economic growth expected in 2023

Energy crisis/inflation/monetary policy to slow growth versus 2022

MDD* gives better picture of growth: 2-3% forecasted for 2023 after 8.2% in 2022

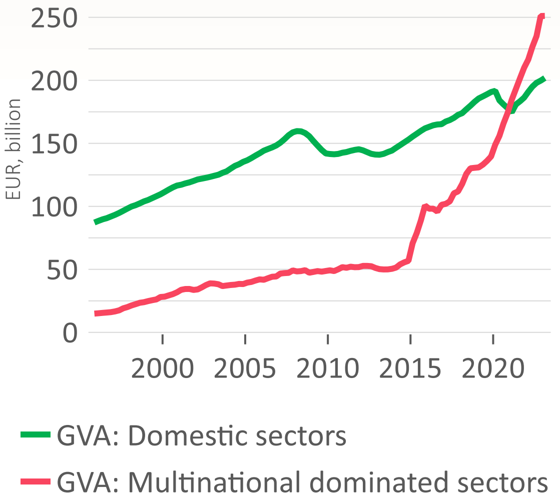


Source: CSO

Unemployment is below 4% – labour market at full employment

Source: CSO

Value added from ICT & pharma has given Ireland resilience



Source: CSO

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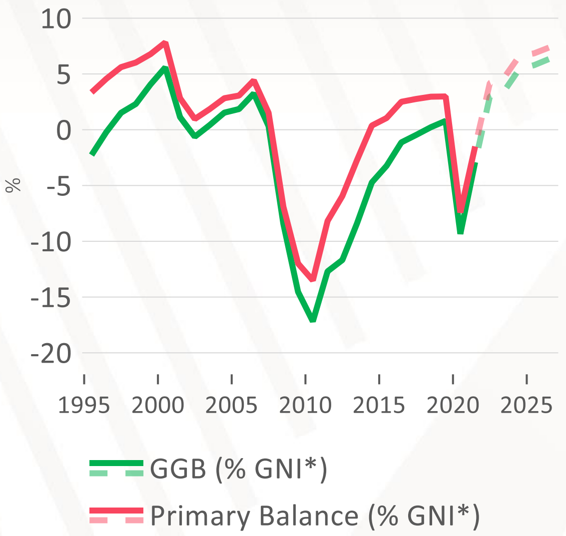
** Modified Domestic demand series accounts for multinational activity (technically modified final domestic demand (excl. inventories))*

Note: Unemployment rate series shown uses the Covid adjusted unemployment rate between March 2020 and Feb 2022 and the standard unemployment rate elsewhere.

Government surplus expected again in 2023

Debt metrics all improved again last year

Forecasted 2023 GG surplus (3.5%) despite slowing growth



Source: CSO, Irish Department of Finance forecasts

Debt metrics set to improve this year again

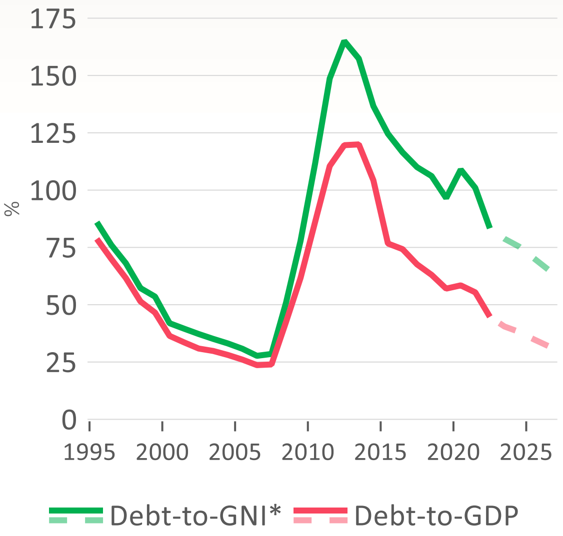
Debt-to-GNI*
(78.8% 2023f; 95% in 2019)

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

Medium term economic challenges

External environment is challenging - global slowdown and inflation

Growth

Economic strength in early 2023 but tight monetary policy to impact growth in future quarters.

Labour market strength gives comfort. MDD growth of 2-3% expected for 2023

Fiscal

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

New sovereign wealth fund to be established will house longer-term savings and partially alleviate future fiscal challenges.

Inflation

High inflation in Ireland similar to other European economies.

Tighter policy will feed through to slower growth but Ireland starting from high base

2023 funding range between €7bn to €11bn

NTMA funded €6bn so far this year, two-thirds of midpoint of range

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 €13bn at WAM of 16.9 years and average interest rate of 2.04%.

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 and DBRS upgraded their rating to AA space in 2022.

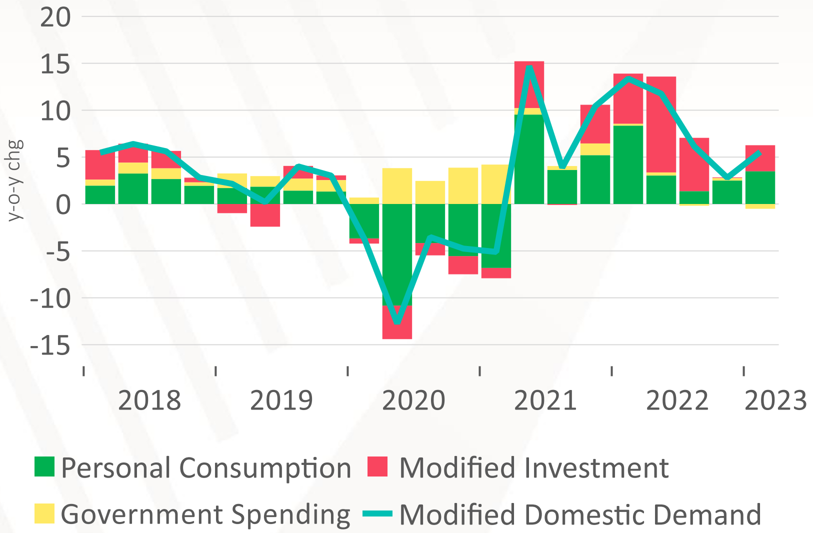
Macro

Economic strength in early 2023 but credit tightening

Irish economy performed well in early 2023

Modified domestic demand (MDD) and employment growth show resilience in Irish economy

MDD up 2.7% q-o-q in Q1 2023 and activity still growing albeit at a slower rate than in 2022



Source: CSO

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

	2022 vs. 2021	Q1 2023 y-on-y	Q1 2023 q-on-q
GDP	12.0	-0.2	-4.6
MDD	8.2	5.5	2.7
Consumption	6.6	6.4	1.7
Gov't Spending	0.7	-2.4	-3.5
Mod Investment	19.8	11.2	11.1
Employee Compensation	11.3	5.9	-0.3
MNE GVA	19.4	0.0	-15.7
Domestic GVA	7.2	4.4	2.7
Employment	6.6	4.1	1.9

% change from indicated period
Source: CSO, Eurostat

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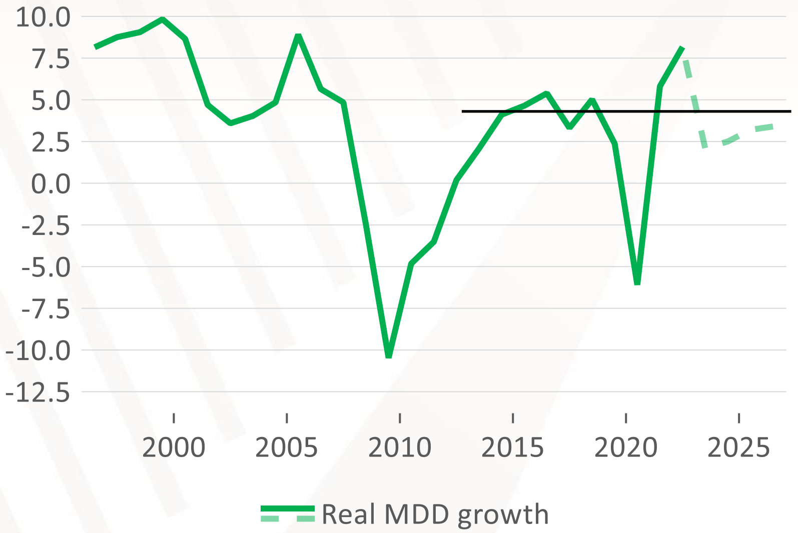
Note: MDD for Ireland is modified for multinational activity by Ireland's Central Statistics Office (CSO). MDD = Consumption + Government (current) spending + Modified Investment. Seasonal adjustment mean contributions do not always add up to MDD growth rate.

Ireland expected to grow moderately in 2023

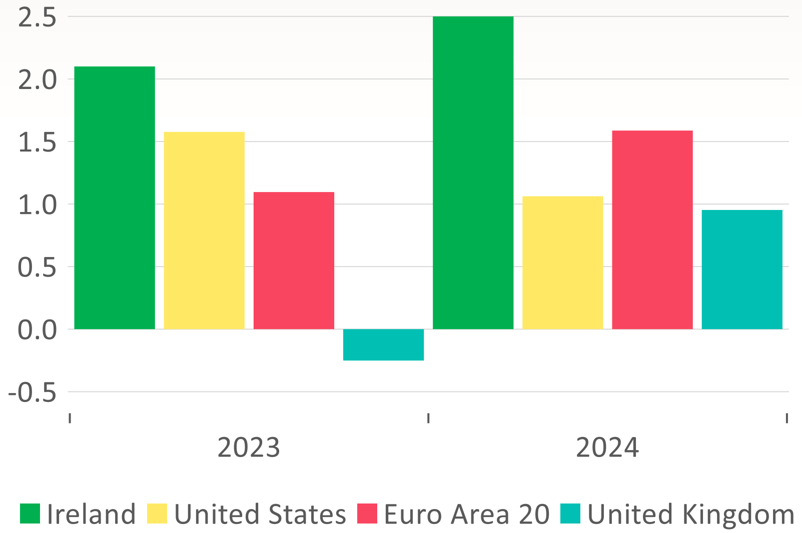
Real growth set to persist but headwinds will hamper

Growth expected to be slower than the average growth rate in pre-Covid expansion



Source: CSO

Softer growth* projected for 2023 but expected to be comparatively stronger than major trading partners



Source: DG ECFIN, IMF

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Note: MDD for Ireland is modified for multinational activity by Ireland's Central Statistics Office (CSO). MDD = Consumption + Government (current) spending + Modified Investment.

** For Ireland we use MDD growth.*

High frequency data somewhat mixed

Recent data mostly positive but not as strong as early 2022

	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
Retail sales (ex motor)	-1.3	0.1	0.6	0.2	0.0	-1.5	0.0	-0.3	0.6	0.6	0.4	0.5	-0.5	0.2	0.3	n/a
Unemployment rate	4.7	5.0	4.6	4.2	4.2	4.3	4.4	4.4	4.5	4.5	4.4	4.3	4.1	4.0	3.9	3.8
Payroll employees	1.3	1.4	1.3	0.8	0.1	-0.4	-0.4	-0.1	0.2	0.5	0.6	0.7	0.7	0.5	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
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	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	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
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
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

Source: CSO, Eurostat, DG ECFIN, SPDJI, Irish Department of Finance

Note: Retail sales, payroll employees, HICP and house prices are calculated as m-o-m % 3mma. Income tax is the monthly tax revenue; November includes income tax for those who are self-employed.

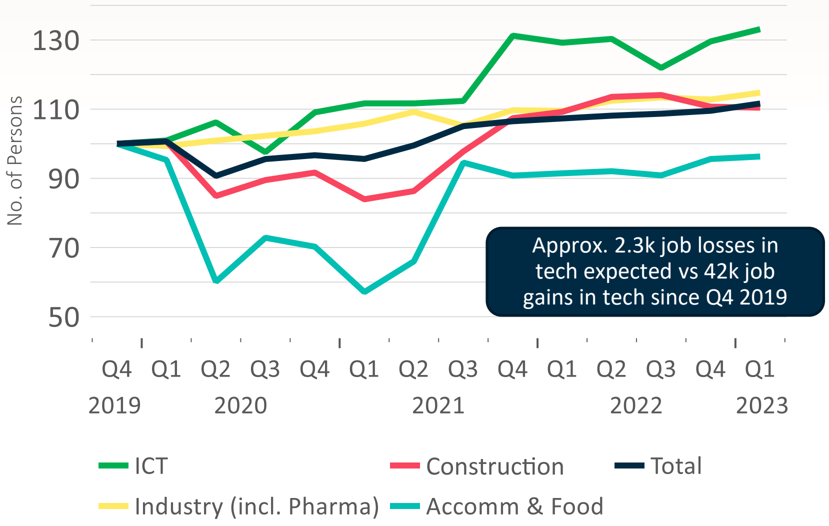
Labour market strength remains

Unemployment rate well below pre-pandemic levels

Unemployment rate at 3.8% in May – a record low in recent decades

Source: CSO

Employment growth up 12% on pre-pandemic, growth rate slowing however



Source: CSO

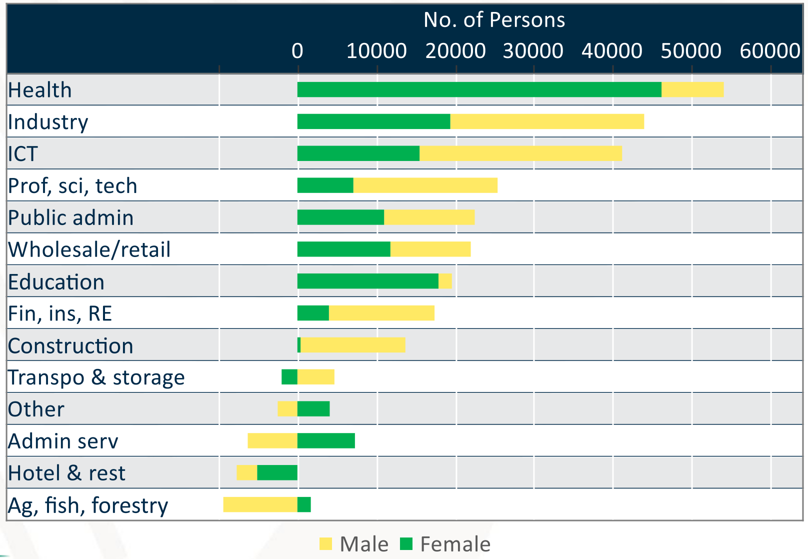
Note: Unemployment rate series shown uses the Covid adjusted unemployment rate between March 2020 and Feb 2022 and the standard unemployment rate elsewhere.

Nearly all sectors back above 2019 levels

There are clear signs of a tight labour market

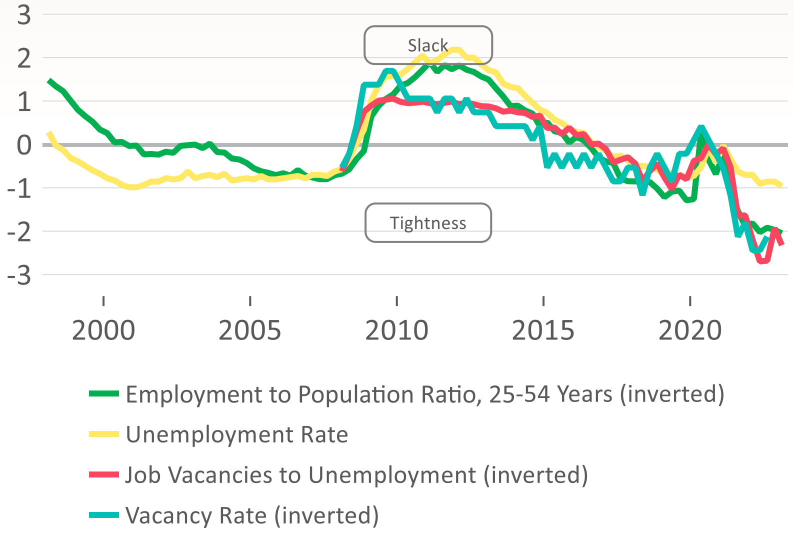
Job gains broad-based, with female employment up 12.9% compared to pre-pandemic, vs 8.7% for males

Q1 2023 vs Q4 2019



Source: CSO

Labour force has grown 10% since 2019 but indicators* suggest a very tight labour market



Source: CSO

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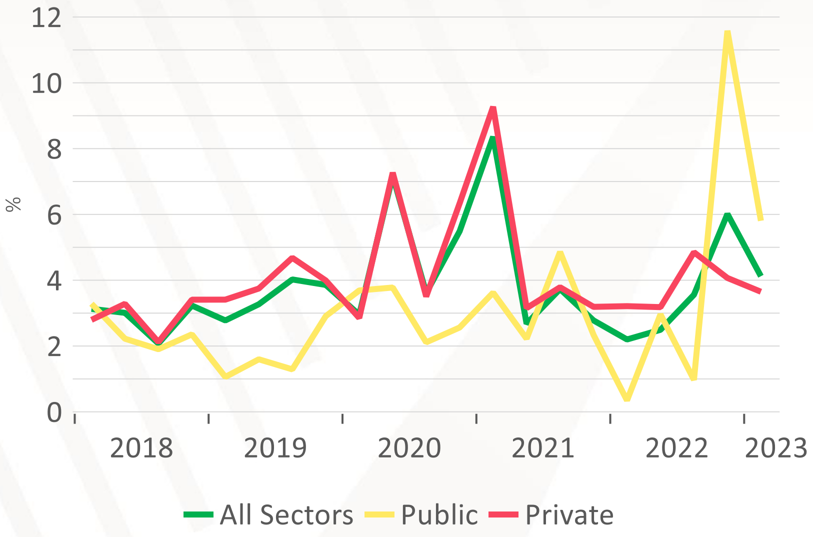
**All four indicators are standardised and measure the historical variation from "normal". The results can be read similar to a Z-score.*

Wages are increasing, real wages still negative

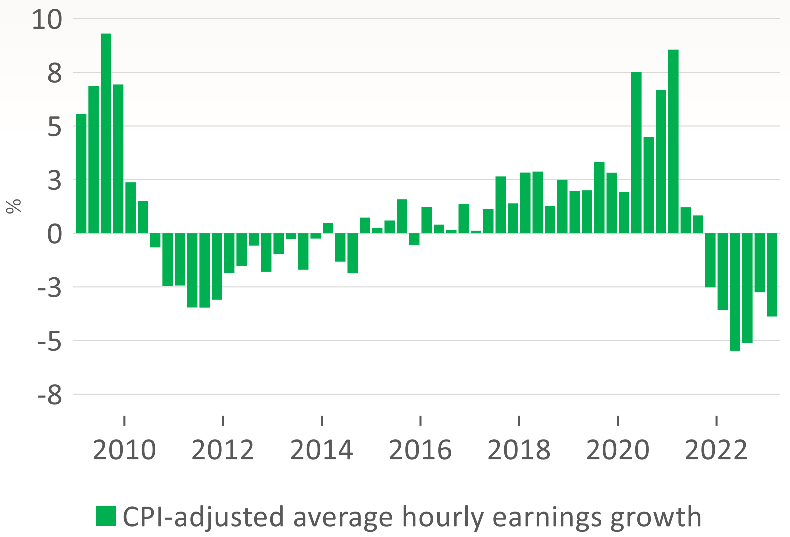
Earnings have increased but less than anticipated given high inflation and tight labour market

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



Source: CSO

Real earnings growth negative since late 2021



Source: CSO

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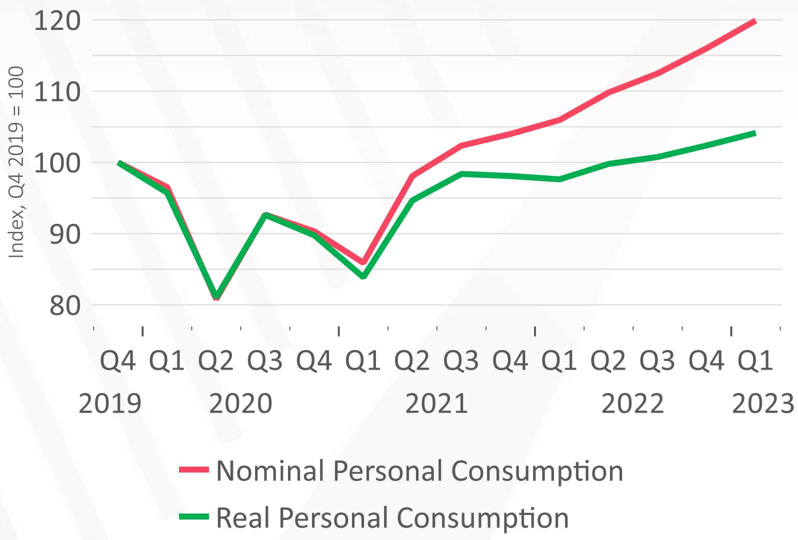
** Q4 2022 average hourly earnings distorted by backdated aspect of public sector pay deal*

Real spending growing better than expected

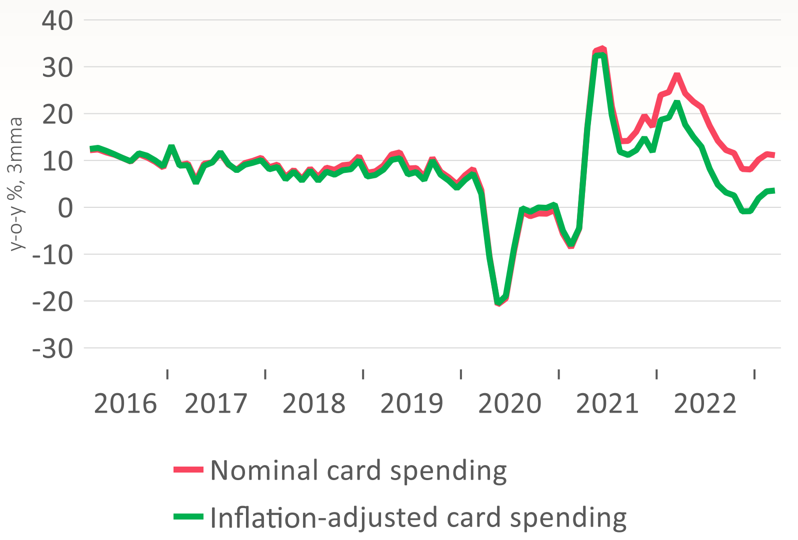
But inflation is now clearly eating into real consumption

High-inflation environment hitting real consumption as divergence between real and nominal spending widens



Source: CSO

Higher frequency data show normalisation in nominal spending* growth as well as negative impact of inflation



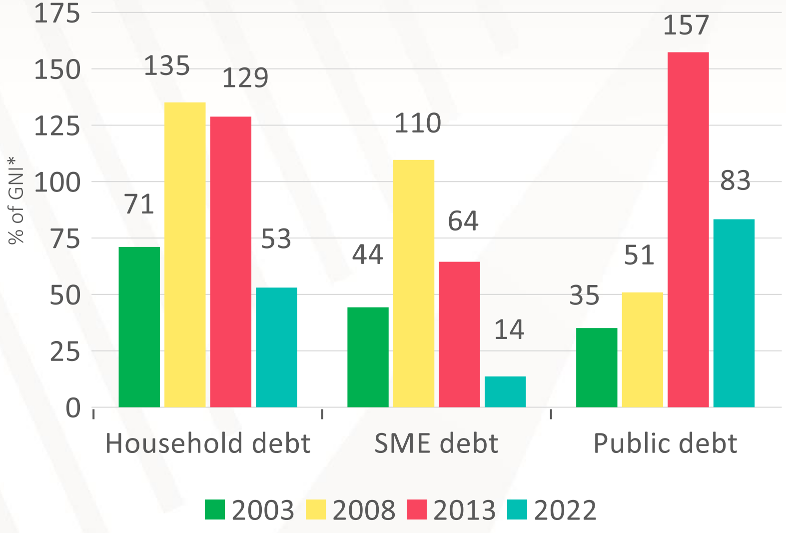
Source: Central Bank of Ireland, CSO

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

Households balance sheet strength

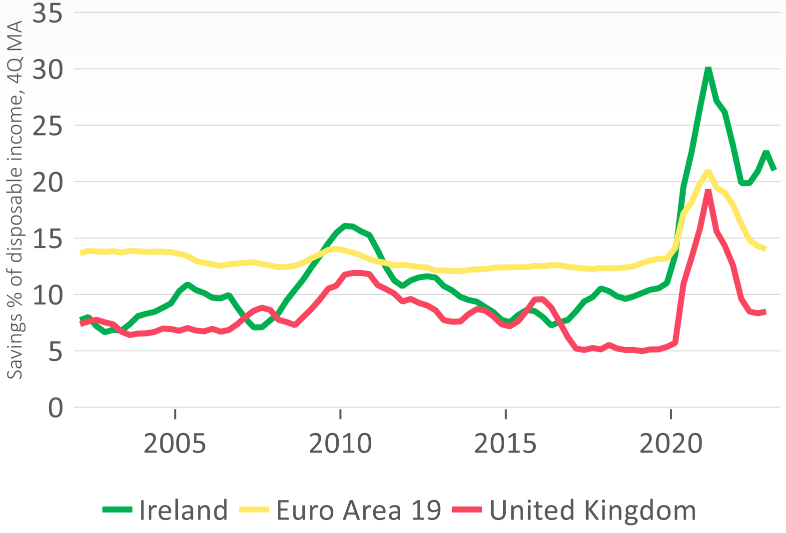
Debt levels much lower coming into pandemic + Covid savings

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



Source: Central Bank of Ireland, Eurostat, CSO

Gross HH saving rates have jumped in Ireland more than in most countries due to forced savings/income supports



Source: CSO, CSO, ONS, Eurostat

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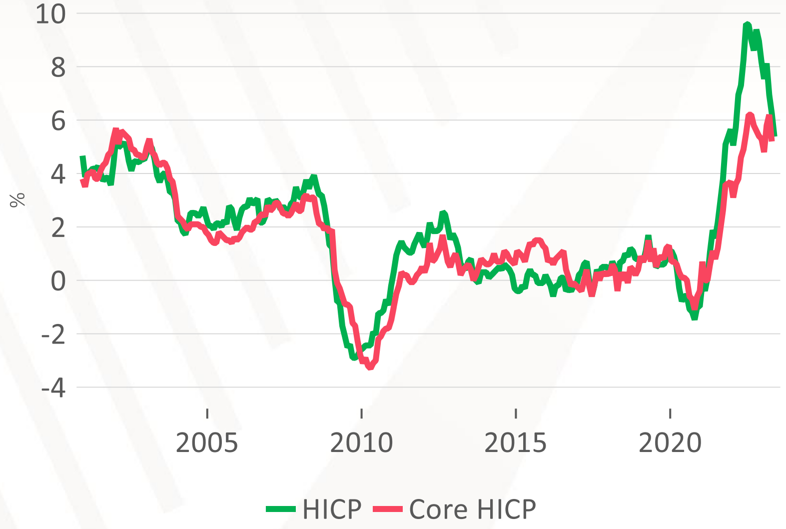
Note: Gross Savings as calculated by the CSO has tended to be a volatile series, some caution is warranted when interpreting this data

Flash harmonised inflation at 5.4%

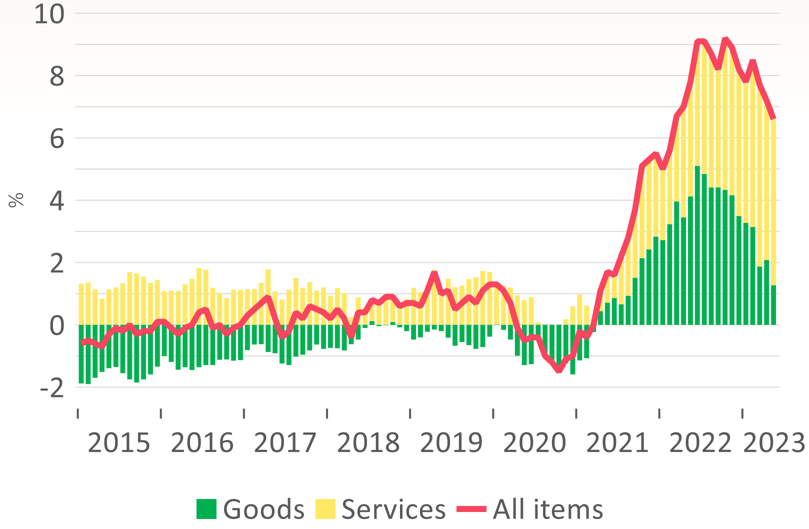
Energy and pandemic concerns easing but core inflation also elevated

Energy prices driving headline inflation but core also elevated; excluding energy and food, prices up 5.2% y-o-y



Source: CSO, Eurostat

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



Source: CSO

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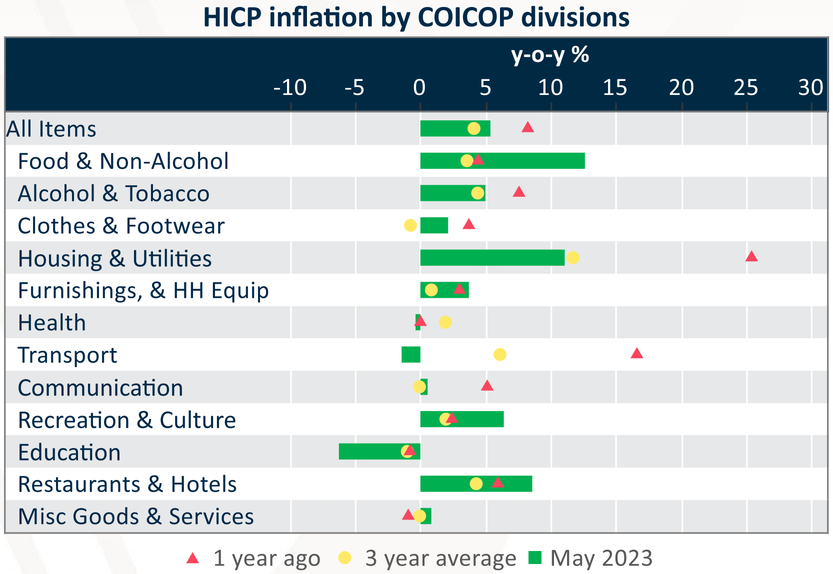
Note: RHS chart plots CPI inflation.

Inflationary pressure broad across index

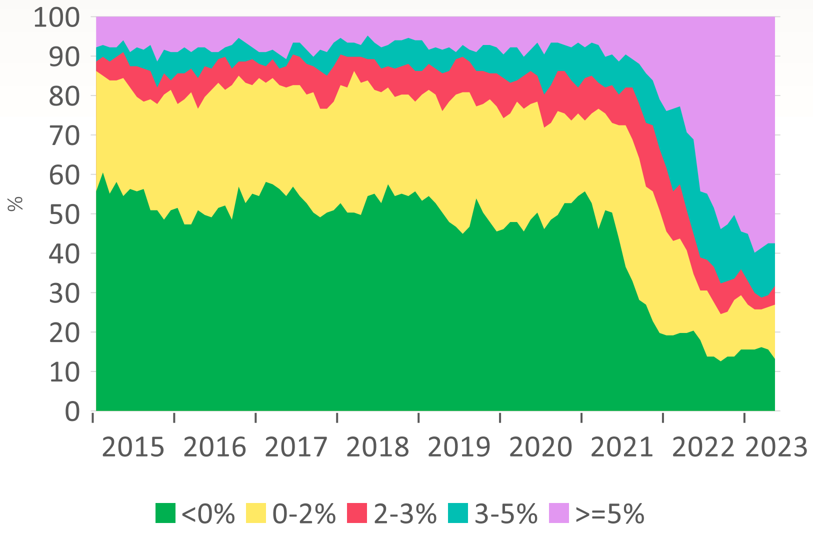
Re-opening and energy impacts evident in inflation index

Biggest pick-up in inflation concentrated in energy and Covid-hit sectors



Source: CSO

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



Source: CSO

Note: RHS shows distribution of annual inflation rates across all CPI items (unweighted).

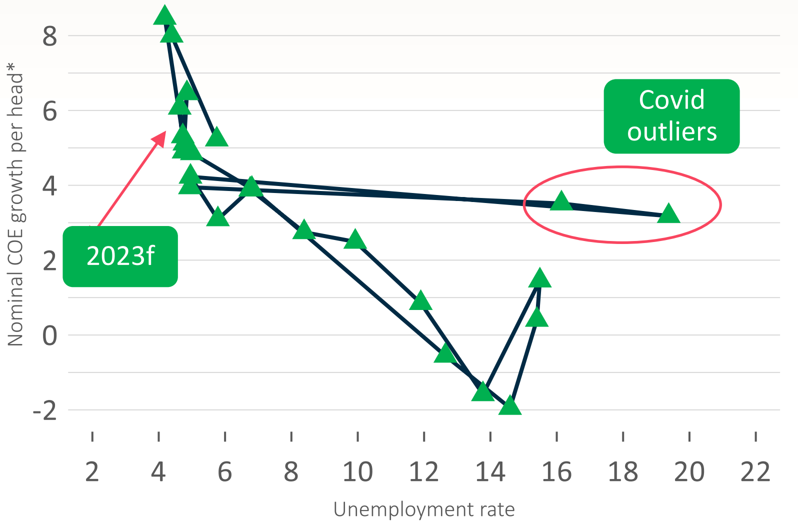
Sustained inflation an obvious risk

Phillips curve historically has held in Ireland

Inflation expectations picking up for consumers and businesses, industry dropping back

Source: DG ECFIN, Eurostat

Philips curve has held in Ireland in recent past and unemployment is below 5%



Source: CSO, Eurostat

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* Excludes agriculture incomes

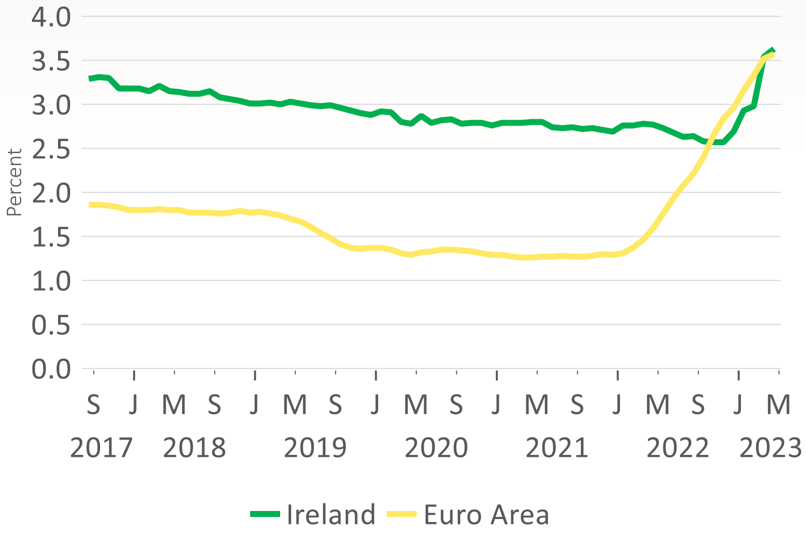
Monetary tightening starting to bite

Euro Area lending slowed around turn of the year, Irish impact more on rates

EA-wide loans to euro area residents (households and businesses) started to slow even before market turmoil

Source: ECB

After years of higher priced mortgages, Irish rates are in line with EA average



Source: ECB

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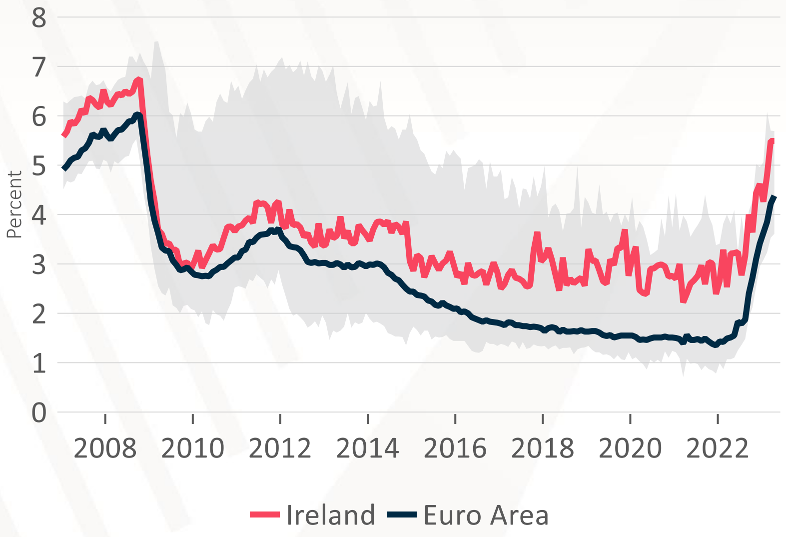
Banks passing on rate hikes to businesses

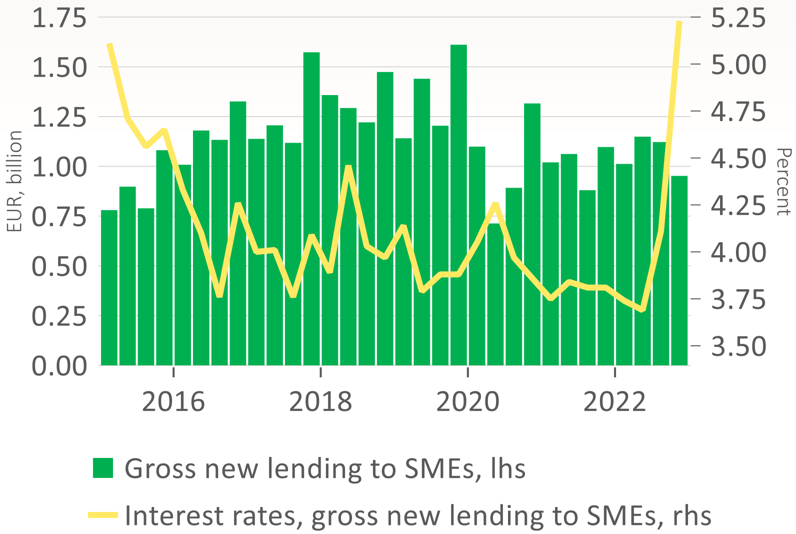
Rates on new lending to corporates moving faster than mortgage rates

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



Source: ECB

Lending volume to SMEs flat but rates have jumped in latest data

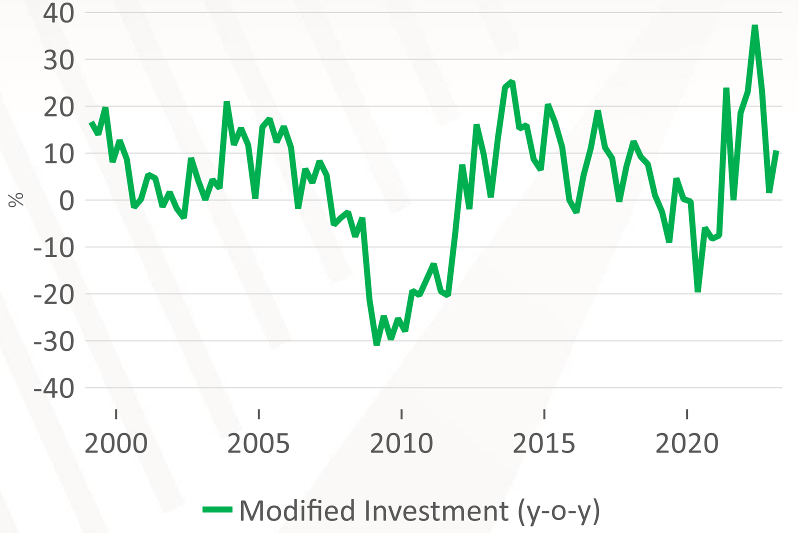


Source: Central Bank of Ireland

Investment strong, partly due to one-off factors

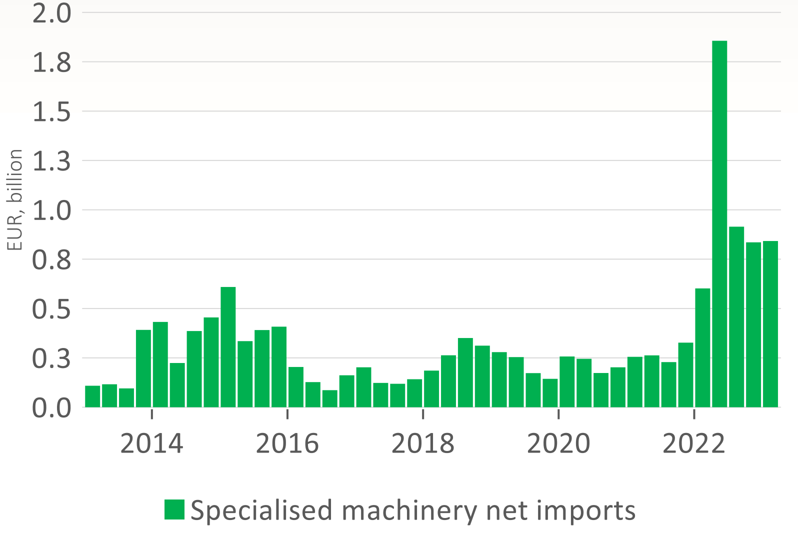
Increases due to computer hardware, production facilities/data centres & new dwellings

Machinery and Equipment had outsized increase in Q2 2022



Source: CSO

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



Source: CSO

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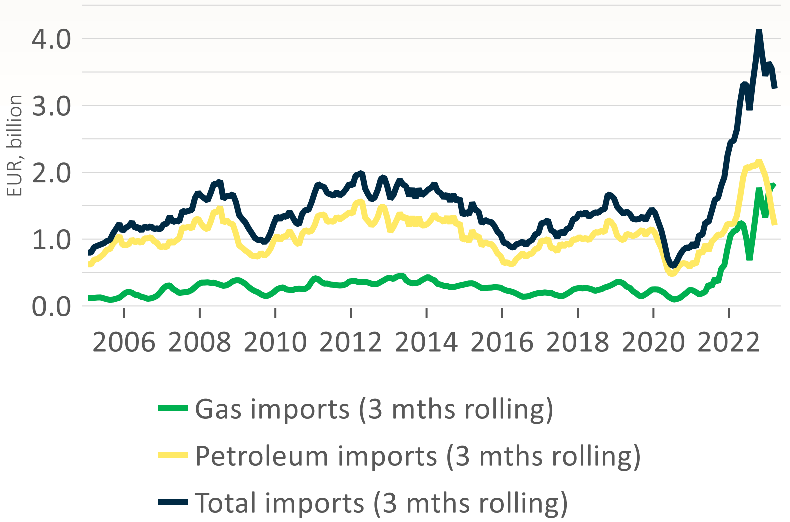
Note: Ireland metric is modified investment, which strips out multinational activity. For some series, there are no figures available as data is suppressed for confidentiality reasons.

External environment in 2023

Recent data better than expected but still mixed and 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 but may see cuts year-end
US growth	Decelerating growth	Low growth
Energy prices	Severe crisis	Prices pressure easing
UK growth	Decelerating growth	Low growth at best
Euro Growth	Slow growth	Low growth at best
Global Inflation	Elevated in 2022	Core measures elevated
Financial Stability	Little concern	Unknown but negative at margin

Ireland price taker on Oil/Gas: significant cost beginning to recede in early 2023



Source: CSO

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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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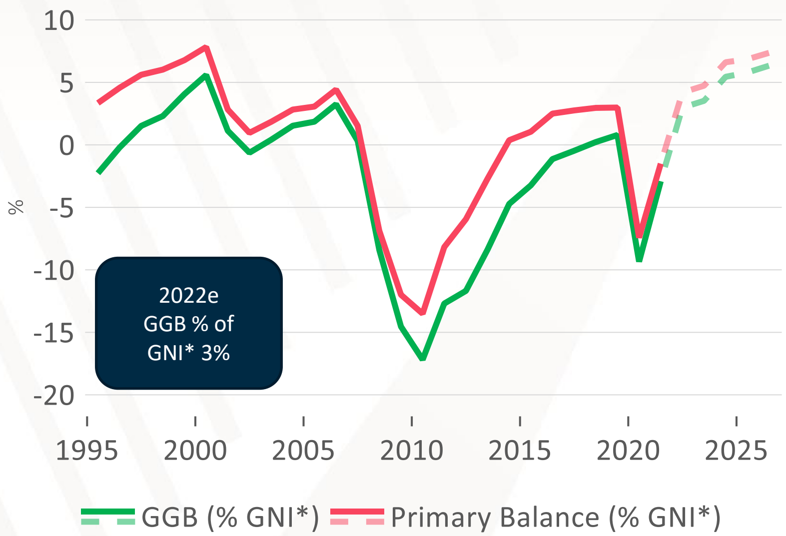
Ireland’s fiscal strength apparent

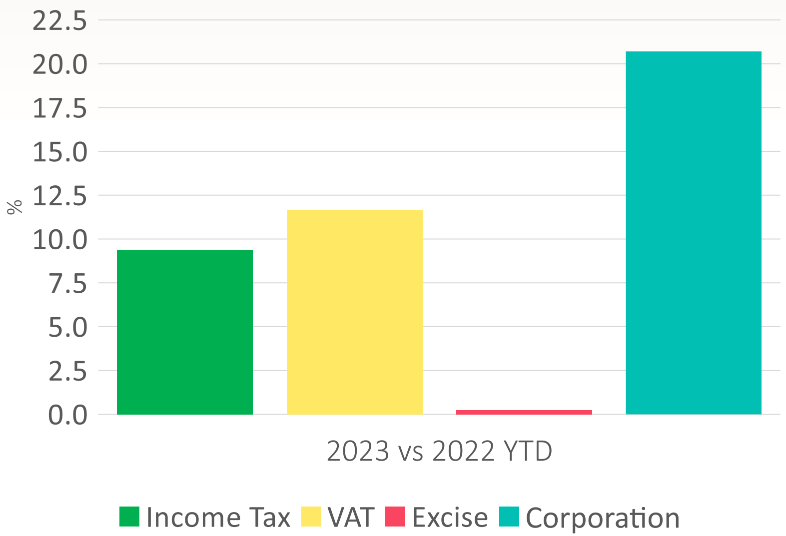
Robust revenues mean surplus just two years after large Covid-induced deficit

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



Source: CSO, Irish Department of Finance forecasts

Revenues starting strong in 2023; income tax and VAT important but corporate tax up over 20%



Source: Irish Department of Finance

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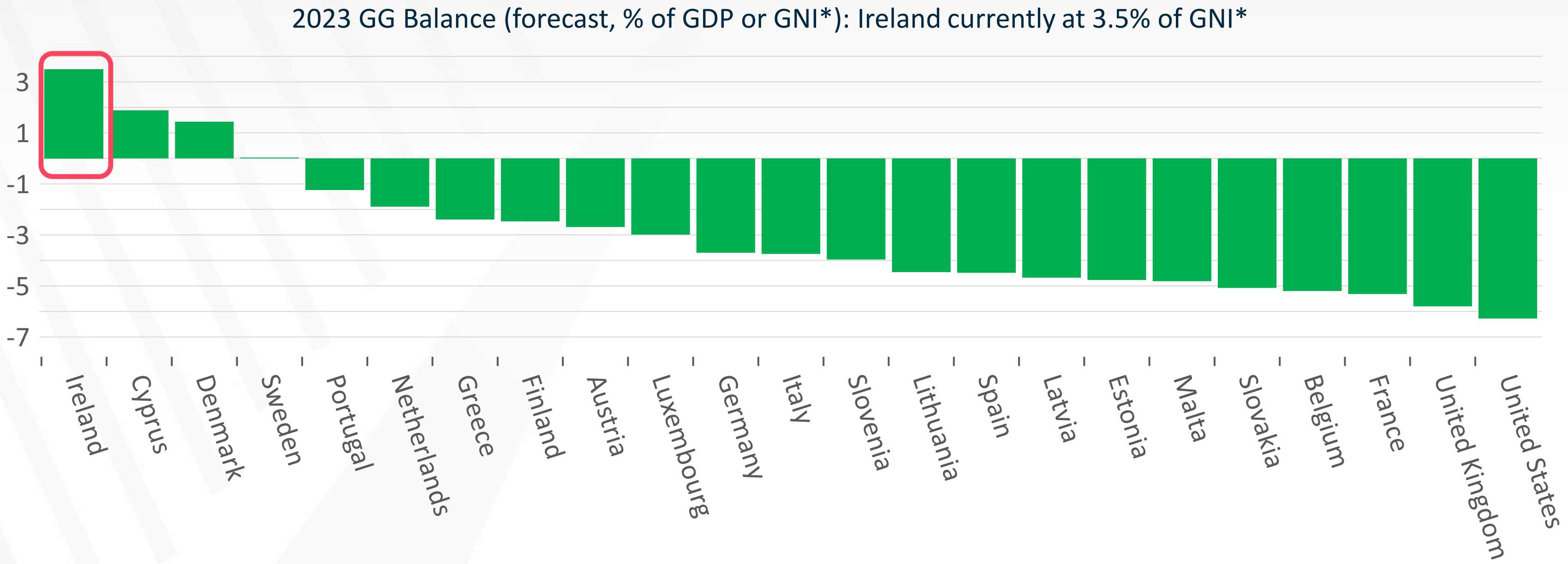
LHS chart: GG and primary balance numbers used exclude banking recapitalisations during GFC

Surplus compares well to others

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



Source: IMF, Irish Department of Finance

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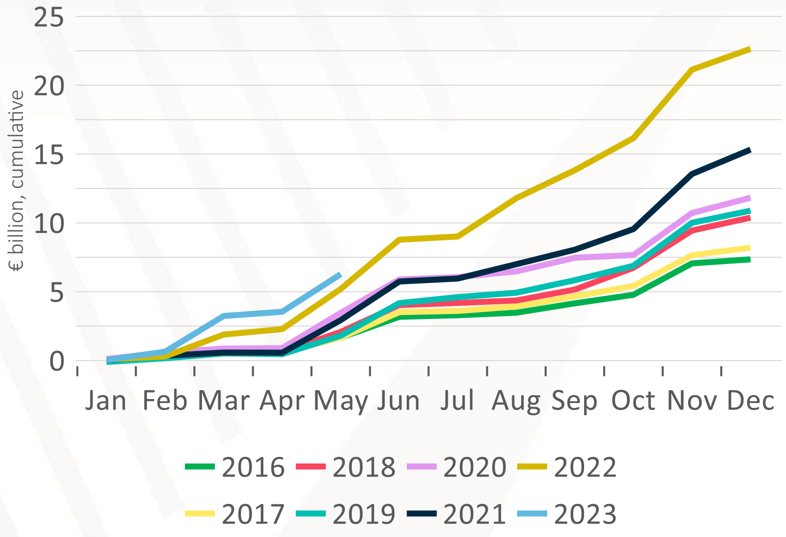
Note: Irish forecast based on Department of Finance Stability Programme Update 2023 forecasts. Forecasts for other countries taken from IMF World Economic Outlook April 2023 Forecasts

Corporate tax receipts growing strongly

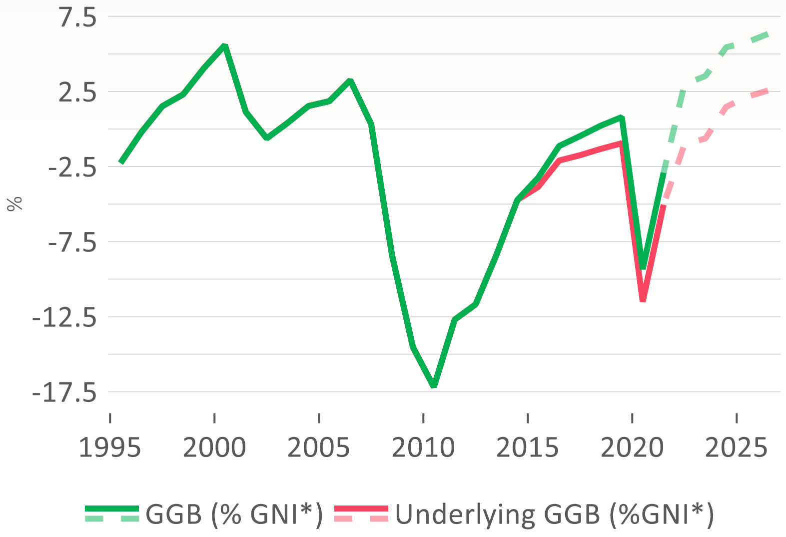
Government planning to place excess receipts in long term sovereign fund

Corporation tax at €22.6bn in 2022, nearly double 2020 level – the growth suggests 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

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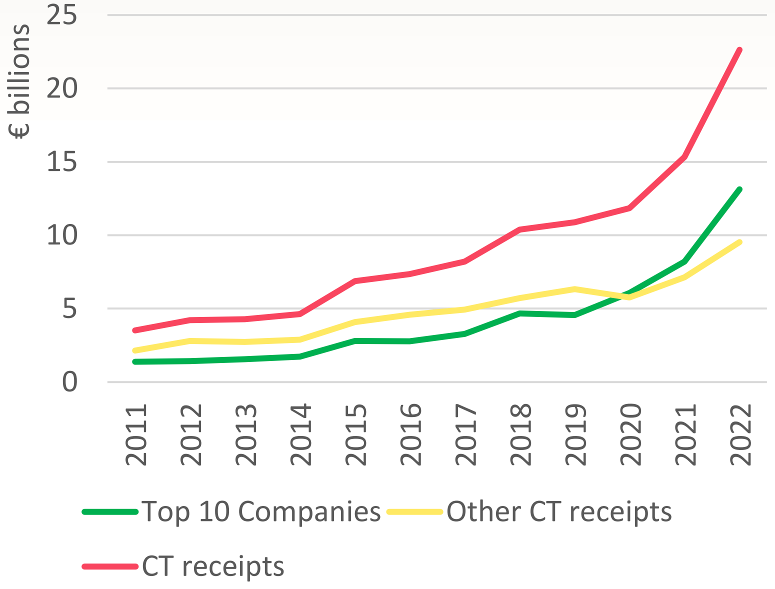
Note: The Department of Finance's underlying general government balance is the GGB excluding the Government's estimated windfall corporation tax receipts (windfall estimated at €10.8bn for 2022 and €11.8bn for 2023).

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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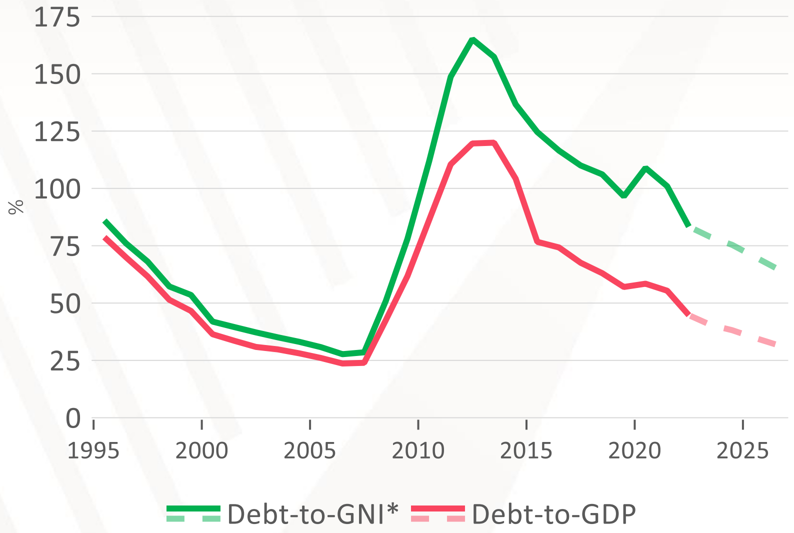
Source: Revenue Report, Macrobond

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

GG debt to GNI* falls to c. 83% in 2022

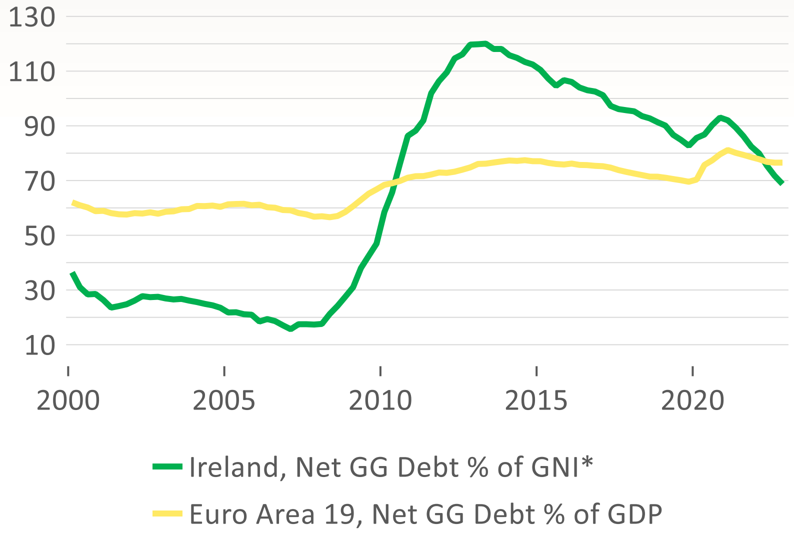
Debt to GNI* expected to fall as growth and fiscal position both help

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

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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

Source: DG ECFIN, Irish Department of Finance

NTMA Funding

Funding range of €7bn to €11bn in 2023

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

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National Treasury Management Agency

2023 funding range between €7bn to €11bn

NTMA funded €6bn so far this year, two-thirds of midpoint of range

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 €13bn at WAM of 16.9 years and average interest rate of 2.04%.

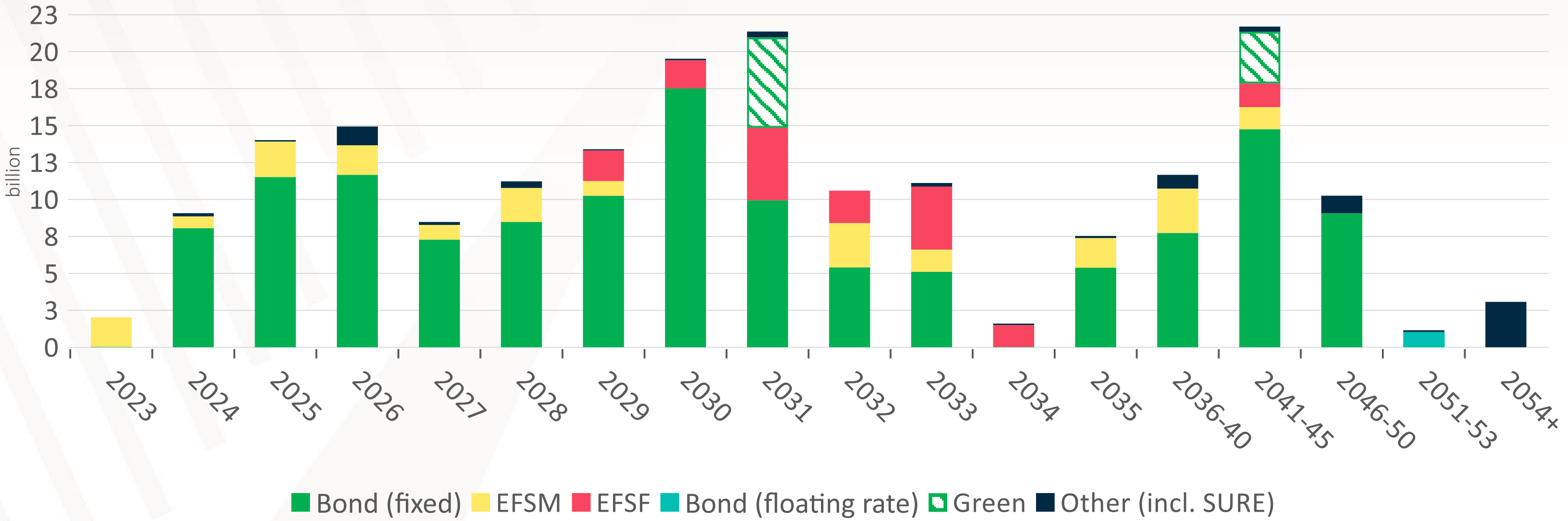
AA

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 and DBRS upgraded their rating to AA space in 2022.

High level of flexibility in NTMA issuance plans

Helped by smoother maturity profile



Source: NTMA

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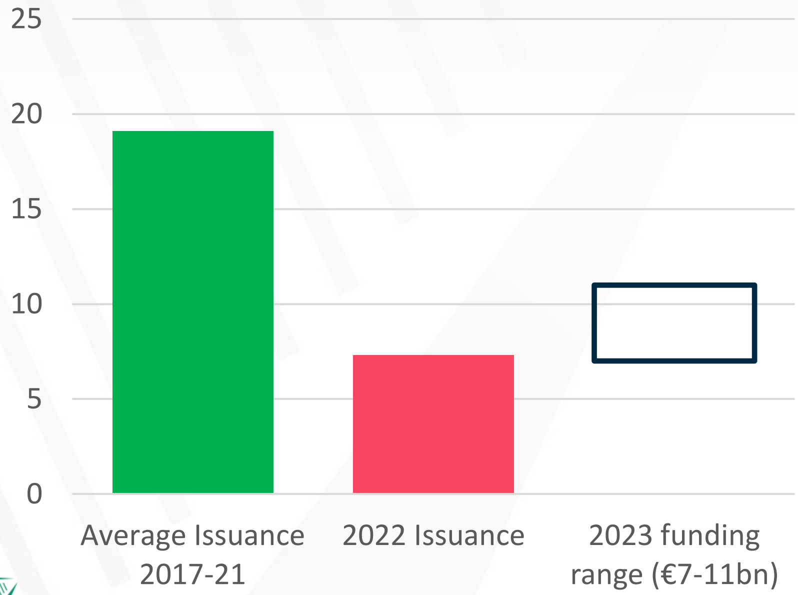
NTMA redeemed at maturity €7bn in IGBs in March 2023

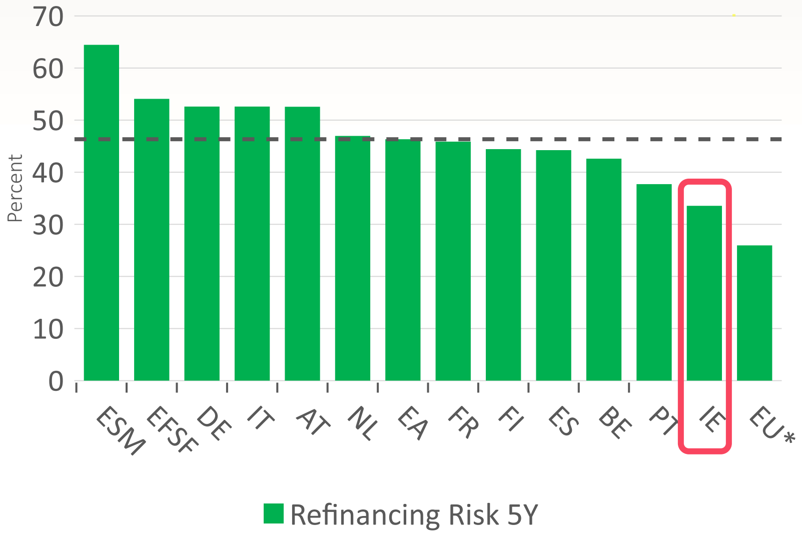
Lower supply expected in coming years

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

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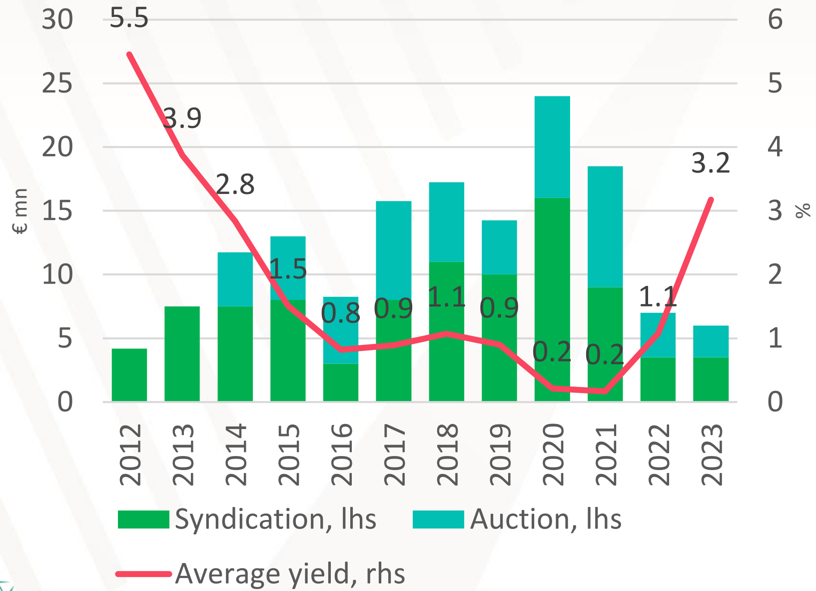
*Refinancing rate defined as debt maturing within five years divided by total debt outstanding. * EU data is EU as an issuer*

Borrowing costs anchored

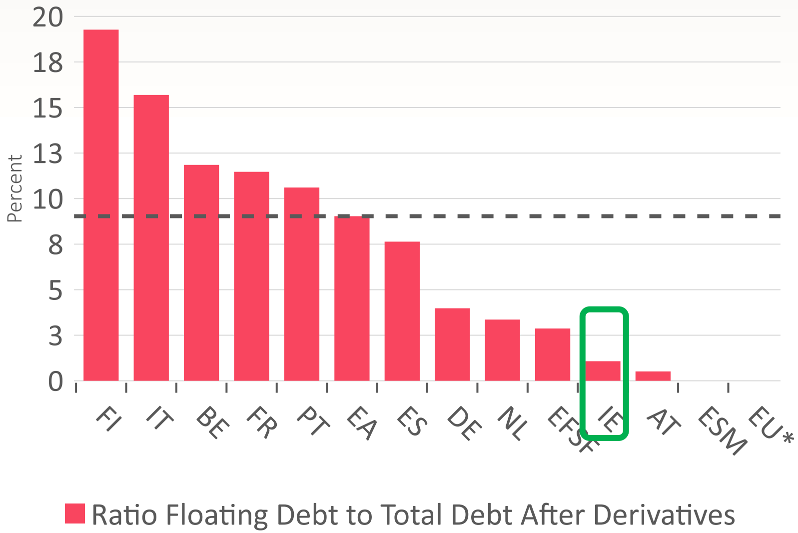
Ultra-low rate era over but Ireland used the period well

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



Source: NTMA

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



Source: ESDM

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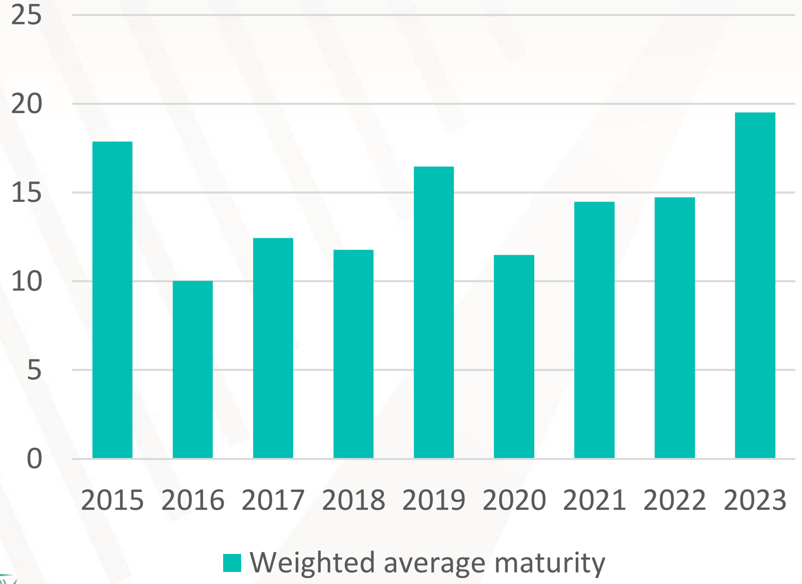
Note only auctions and syndication

** EU data is EU as an issuer*

NTMA has lengthened weighted maturity

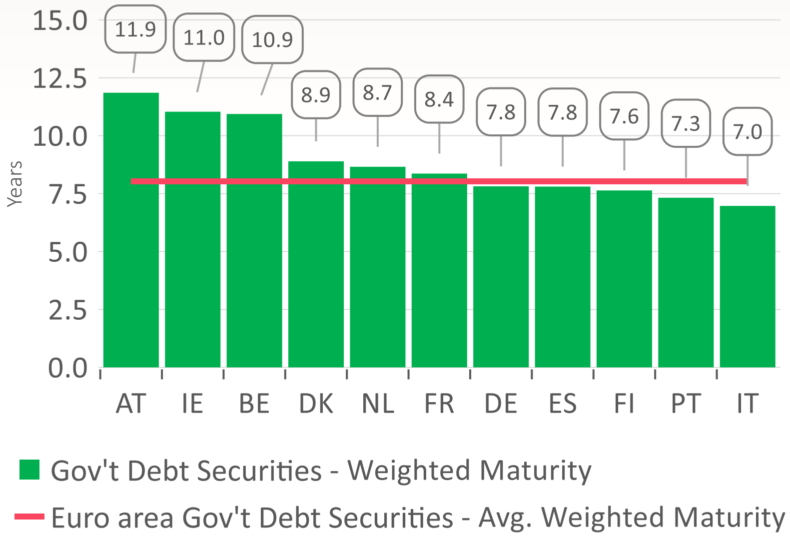
Debt management strategy has extended debt profile since 2015

Benchmark issuance has extended the maturity of Government debt since start of QE but still continue in 2023



Source: NTMA

Ireland (in years) compares favourably to other EU countries



Source: ECB

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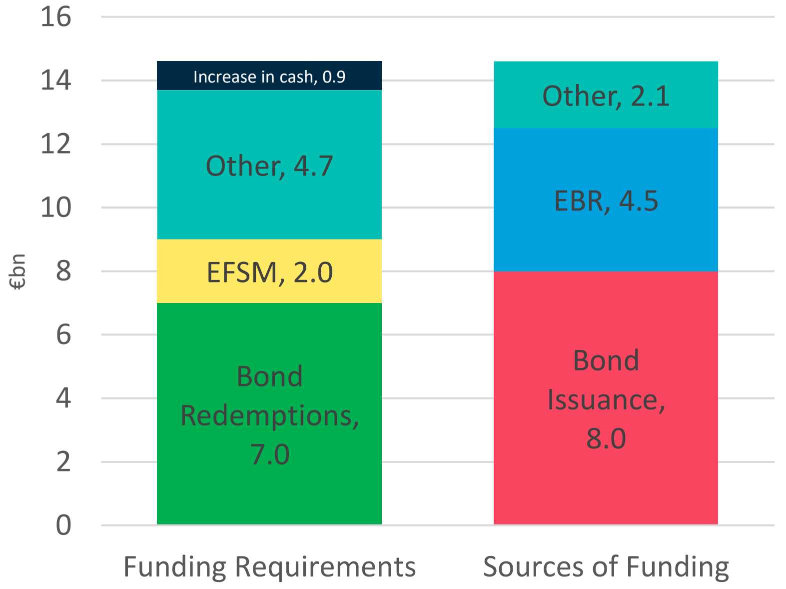
Note: Weighted maturity for Ireland includes Fixed rate benchmark bonds, FRNs, Amortising Bonds, Notes issued under EMTN programme, T-Bills and ECP Data. It excludes programme loans and retail.

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, further buybacks of FRNs from the Central Bank of Ireland are expected (included in other funding requirements).
- 2023 funding range is indicated as between €7bn to €11bn.
- 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. *On 1 December 2022, the NTMA announced a 2023 bond funding range of €7-€11bn. €8bn is the estimated cash proceeds from nominal issuance of €9bn - the mid-point of the range.*
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*

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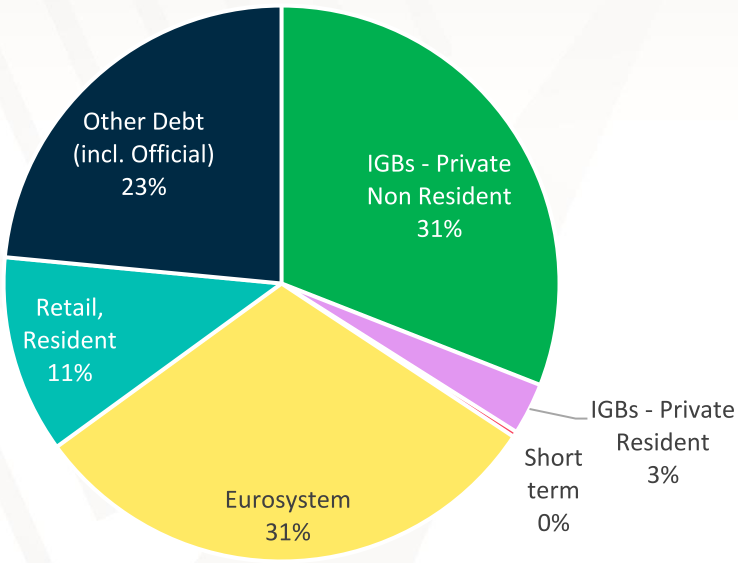
Diverse holders of Irish debt

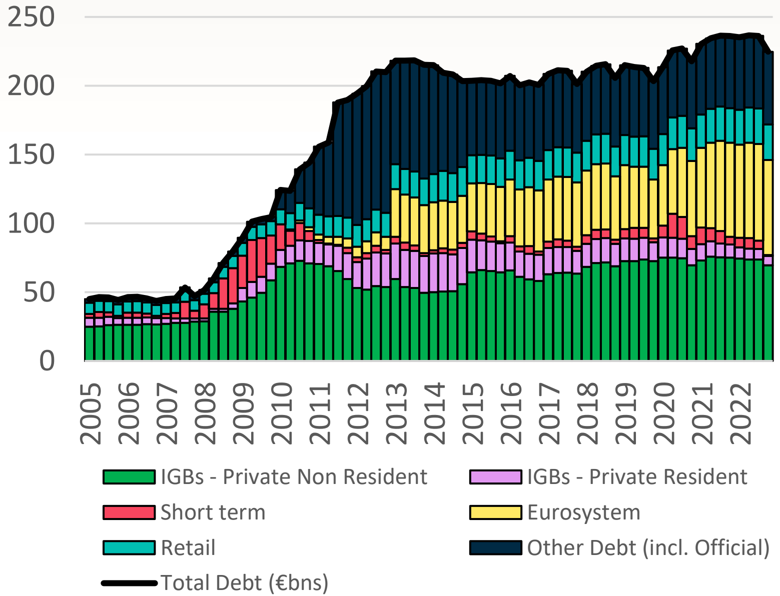
Sticky sources account for greater than 60%

Ireland roughly split 85/15 on non-resident versus resident holdings (Q4 2022)



Source: CBI, Eurostat, ECB

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



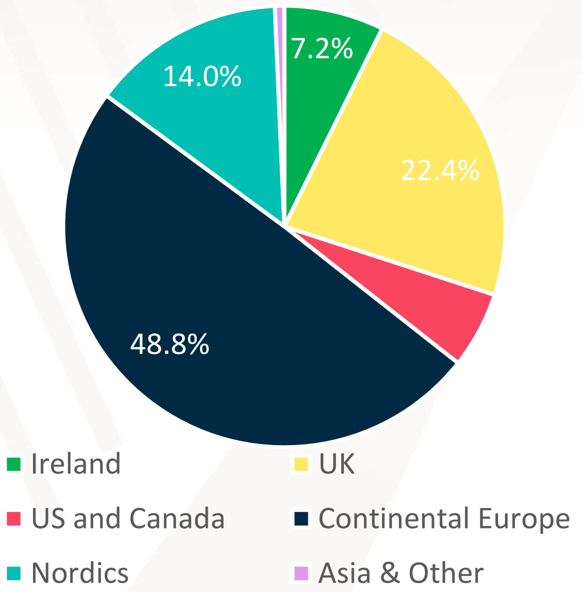
Source: CBI, Eurostat, ECB

IGBs excludes those held by Eurosystem. Eurosystem holdings include SMP, PSPP, PEPP and CBI holdings of FRNs. Figures do not include ANFA. Other debt has included IMF, EFSF, EFSM, Bilateral as well as IBRC-related liabilities over time. Retail includes State Savings and other currency and deposits. The CSO series has been altered to exclude the impact of IBRC.

Investor base

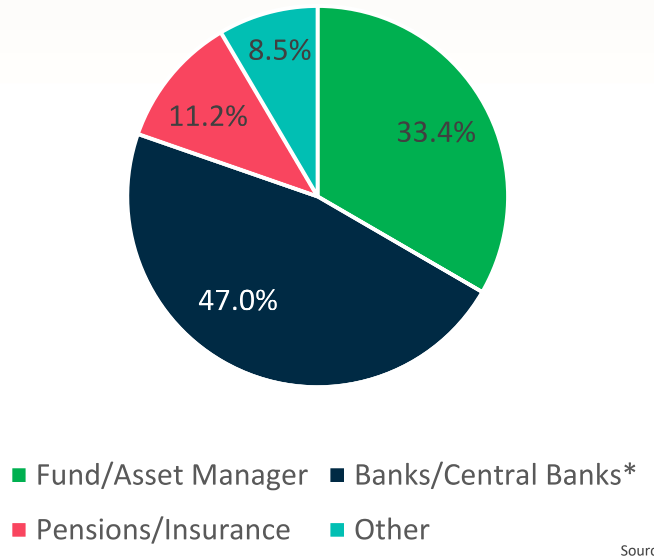
Demand for Government bonds is wide and varied

Country breakdown:
Average over last five syndications



Source: NTMA

Investor breakdown:
Average over last five syndications



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	17th Nov 2023
Fitch Ratings	AA-	F1+	Stable	Jan 2022	14th July 2023
Moody's	Aa3	P-1	Stable	Apr 2023	20th Oct 2023
DBRS Morningstar	AA(low)	R-1 (middle)	Stable	Jan 2022	3rd Nov 2023
R&I	AA-	a-1	Stable	Feb 2022	Q1 2024
KBRA	AA	K1+	Stable	May 2023	27th Oct 2023
Scope	AA-	S-1+	Positive	May 2021	15th Sept 2023

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. A judgement is next expected this year. 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.

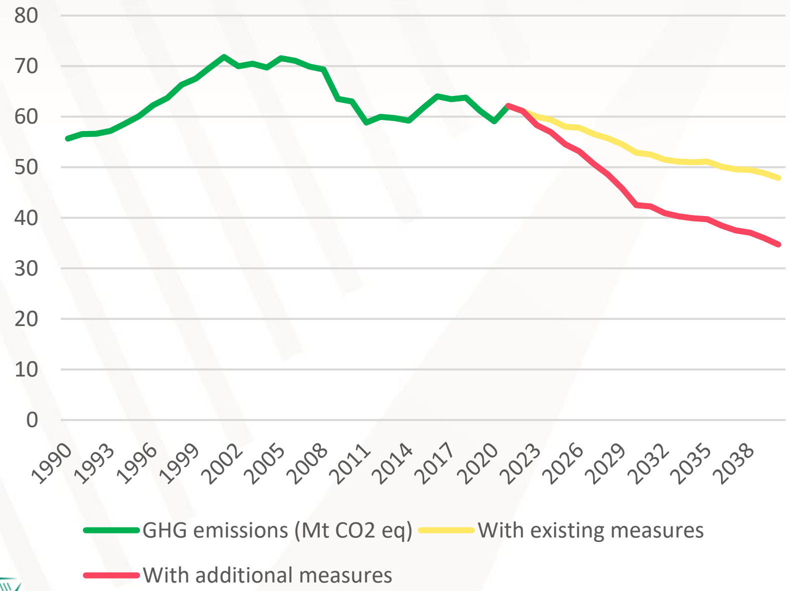
ESG

Issuance & government policy
demonstrate Ireland’s green commitment

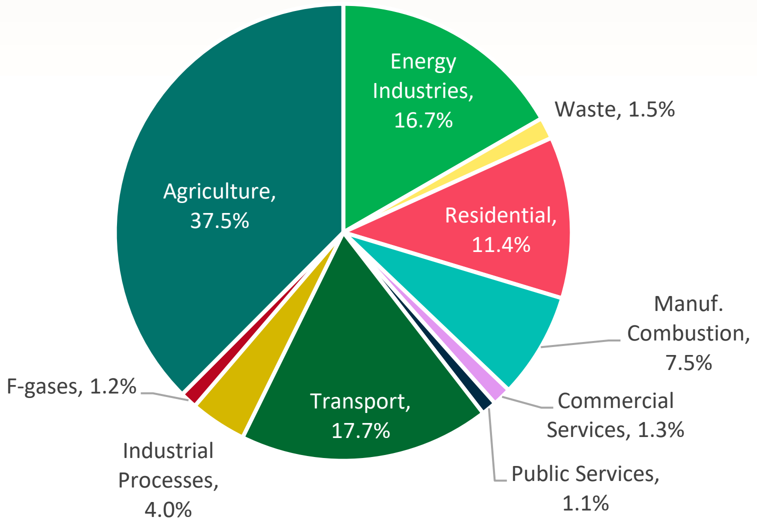
Ireland's Greenhouse Gas emissions

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)



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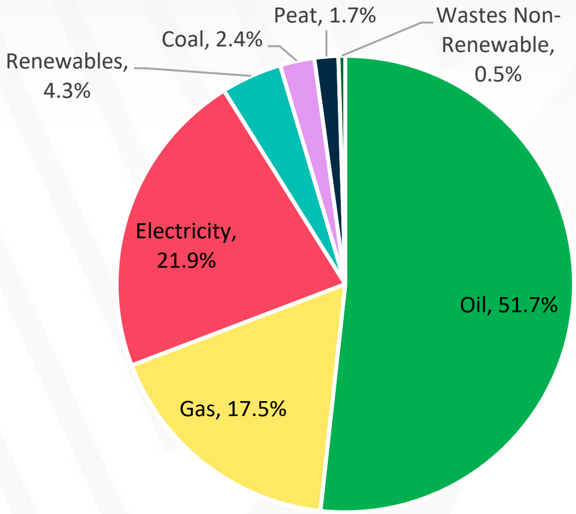
Source: Environment Protection Agency (Ireland)

Note: Metric used is million tonnes carbon dioxide equivalent (Mt CO2eq)

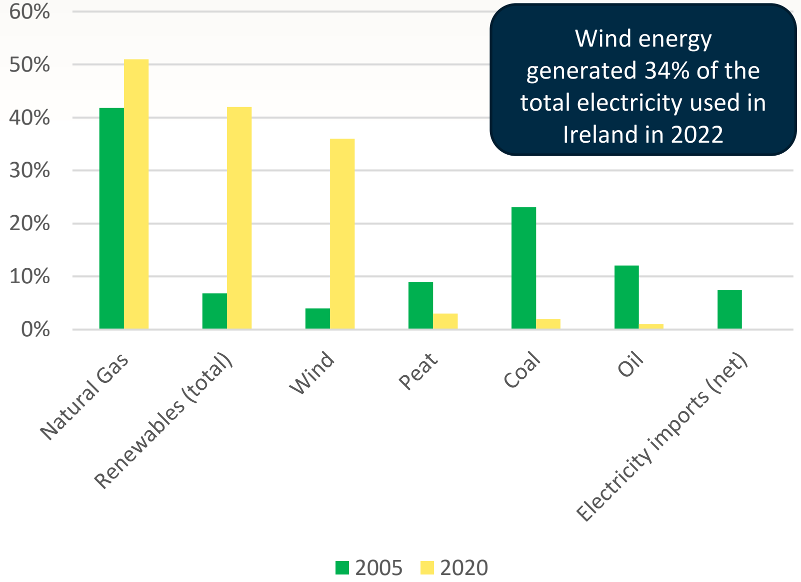
Ireland Energy: Fossil fuels prevalent

Irelands energy mix is reliant on fossil fuels but renewables share to increase by 2030

Oil accounts for the largest share of Irelands 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



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Source: SEAI, Climate Action Plan, EU Renewable Energy Directive, Gas Networks Ireland
Waste (non-renewables) accounted for 0% (2005) and <1% (2019) of electricity production

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 update 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)
MtCO2eq	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 MtCO2eq
Transport	50%	6 MtCO2eq
Buildings (Commercial and Public)	45%	1 MtCO2eq
Buildings (Residential)	40%	4 MtCO2eq
Industry	25%	4 MtCO2eq
Agriculture	25%	17.25 MtCO2eq
Other*	50%	1 MtCO2eq

**F-gases, Petroleum Refining and Waste*

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 electric gen'tion

· 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 (€10.84bn cash equivalent)
- Cumulatively €7.34bn allocated at year end 2021
- 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
- Four annual allocation reports and three annual impact reports now published

Irish Sovereign Green Bond Impact Report 2020: Highlights*

- **Environmentally Sustainable Management of Living Natural Resources and Land Use**

  Number of hectares of forest planted: 2,434

  Number of Landfill Remediation projects being funded: 76
- **Renewable Energy**

  Number of companies (including public sector organisations) benefitting from SEAI Research & Innovation programmes as lead, partner or active collaborators : 19

  SEAI Research & Innovation awards: 11
- **Sustainable water and wastewater management**

  Water savings (litres of water per day) : 227.6 million

  New & upgraded water and wastewater treatment plants: 5

  Length of water main laid (total) : 178km

**For a more detailed break-down please see the ISGB 2020 Impact Report*

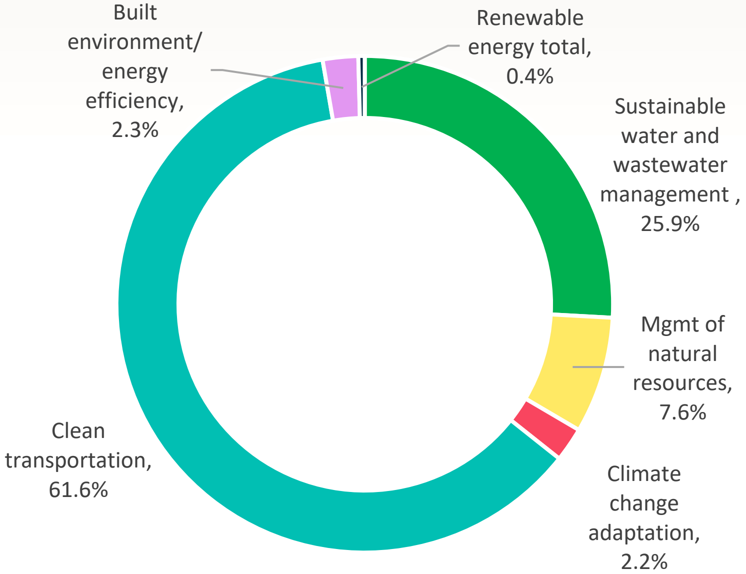
Irish Sovereign Green Bonds (ISGB)

Irish Sovereign Green Bond Impact Report 2020 & Allocation Report 2021: sample impacts

Some highlights from the report*

- **Built Environment/ Energy Efficiency**
  - Energy saving (GigaWattHours) : 156
  - Number of homes renovated : 19,086
  - EV home charger grants provided: 2,523
- **Clean Transportation**
  - Number of public transport passenger journeys: 137.7 million
  - Greenway users: 725,191**
  - Take-up of Grant Schemes/ Tax foregone provided (number of vehicles) : 24,122
- **Climate Change Adaptation**
  - 16 major Flood relief projects at planning, development or construction phase.
  - 8,296 properties protected on completion

Allocation in 2021 of ISGB funding has focused on Water/Waste management and transportation



*For a more detailed break-down please see the Irish Sovereign Green Bond Allocation Report 2021

** Raw count from 3 longest Greenways- Waterford, Old Rail Trail, Royal Canal Greenway

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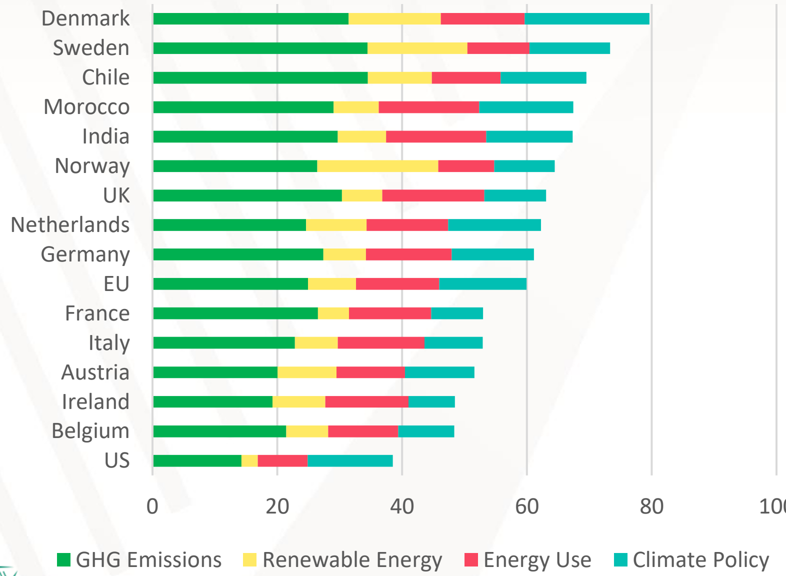
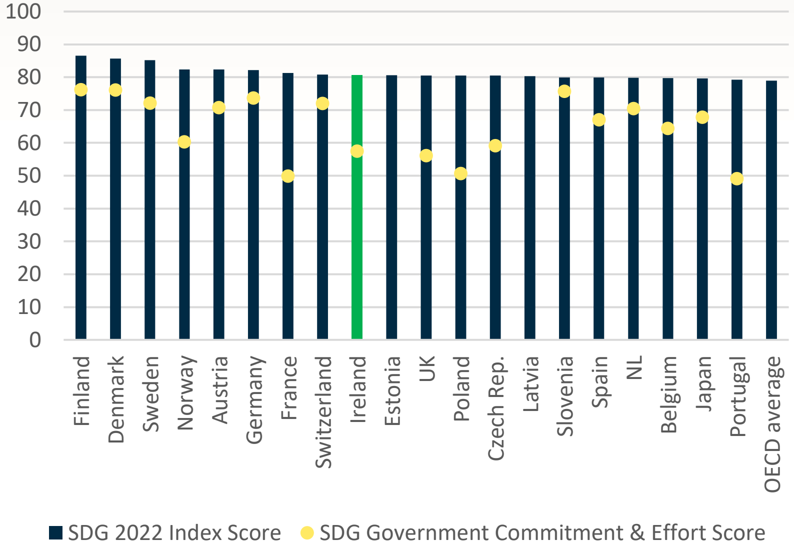
On the “E” of ESG, Ireland is currently behind

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



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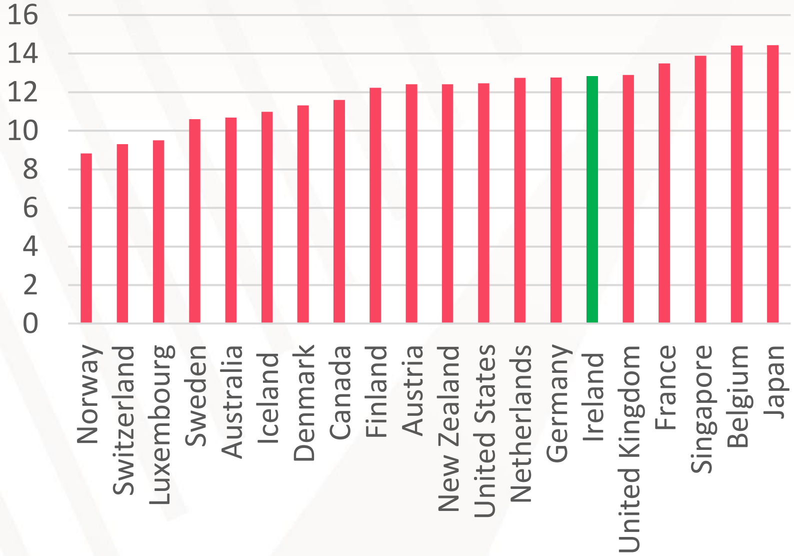
National Treasury Management Agency

Source: Climate Change Performance Index; OECD Sustainable development report 2022

Ireland in top 20 most sustainable countries

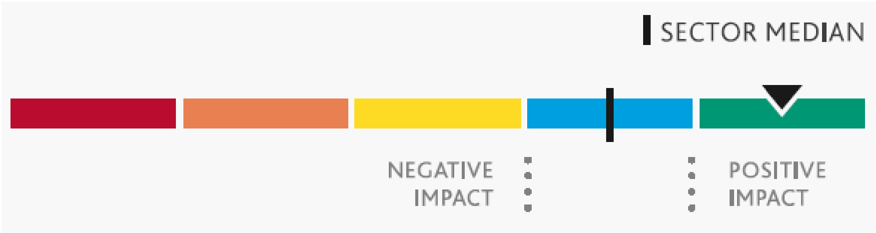
Ireland rated highly by Sustainalytics and rating agencies on ESG

Ireland ranks 15th globally by Sustainalytics for ESG risk



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

"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"

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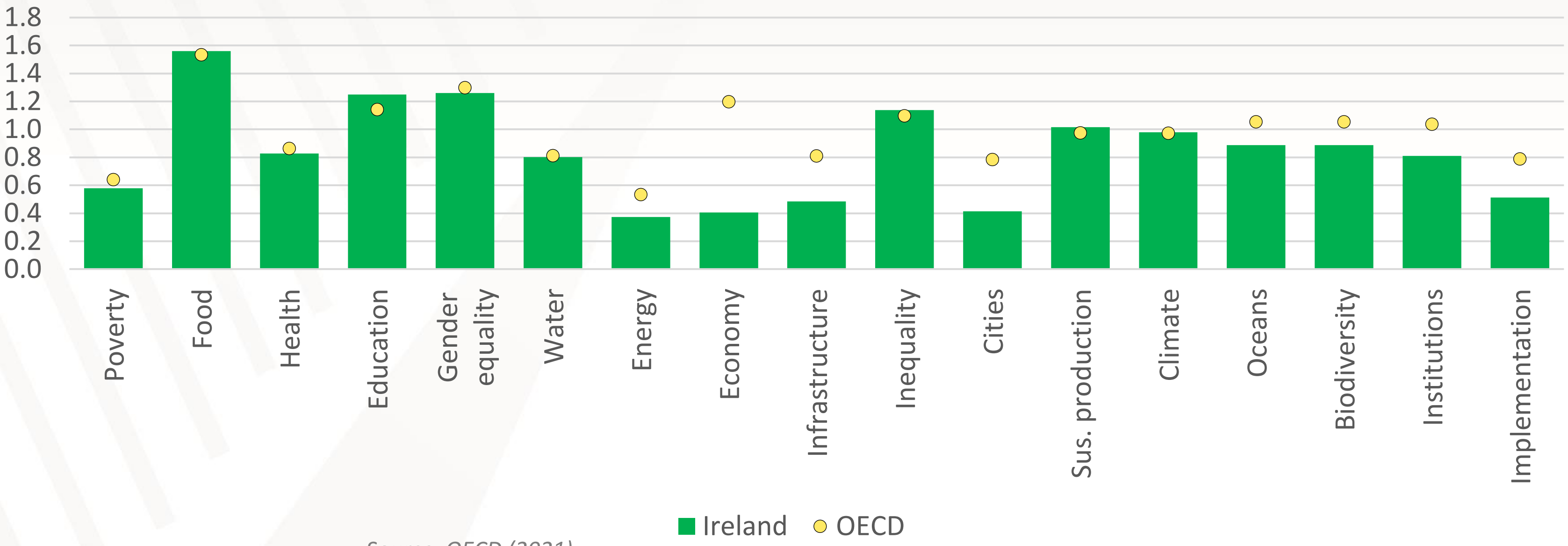
National Treasury Management Agency

Source: Sustainalytics (2022), Moody's

Note: Sustainalytics score is out of 100, closer to zero means less ESG risk

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.

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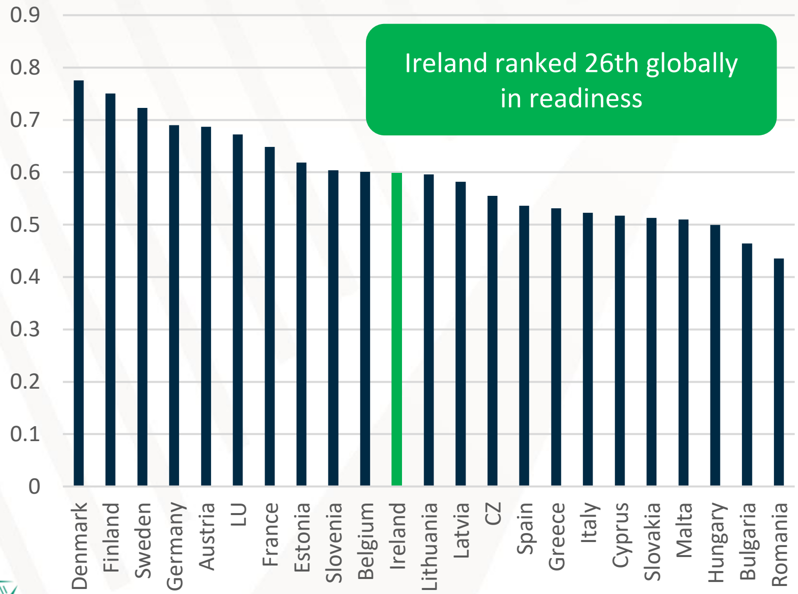
National Treasury Management Agency

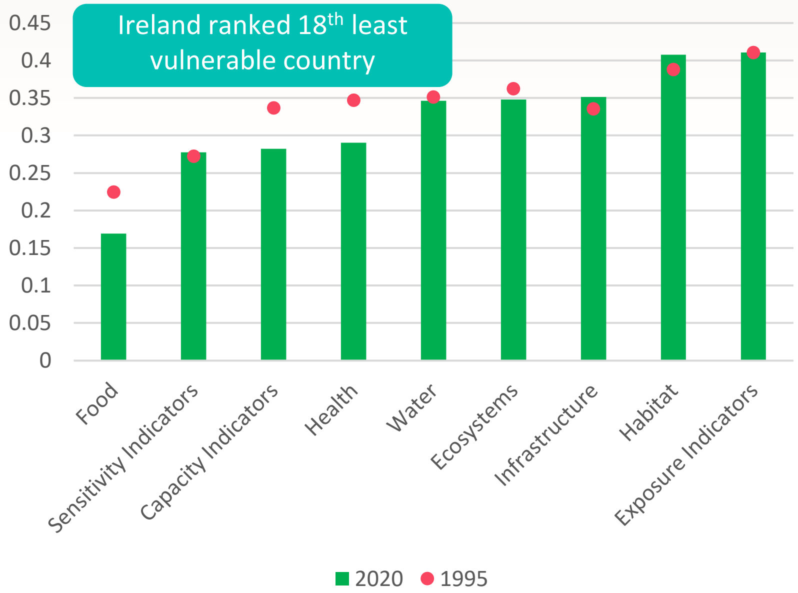
Readiness and vulnerability to climate change

Irelands 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 4.8% from 1995-2020



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Source: Notre Dame Global Adaptation Initiative

**Readiness: Measures a country's ability to leverage investments and convert them to adaptation actions.*

*** Vulnerability: Measures a country's exposure, sensitivity and capacity to adapt to the negative effects of climate change.*

Structure of the Irish Economy

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

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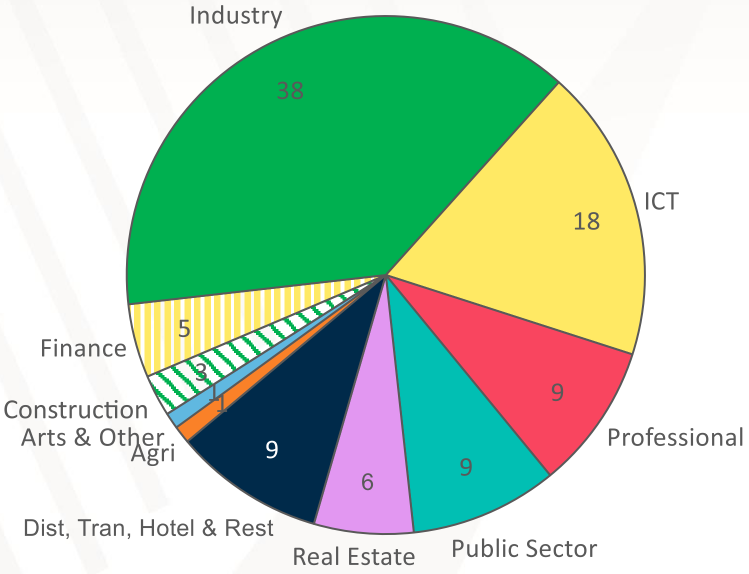
Multinational activity distorts Ireland's data

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)	14	14	38
ICT (Tech)	7	10	18
Dist, Tran, Hotel & Rest	24	18	9
Public Sector	29	28	9
Professional	10	14	9
Real Estate	0	1	6
Financial	5	8	5
Construction	5	4	3
Agriculture	1	1	1
Arts & Other	4	2	1

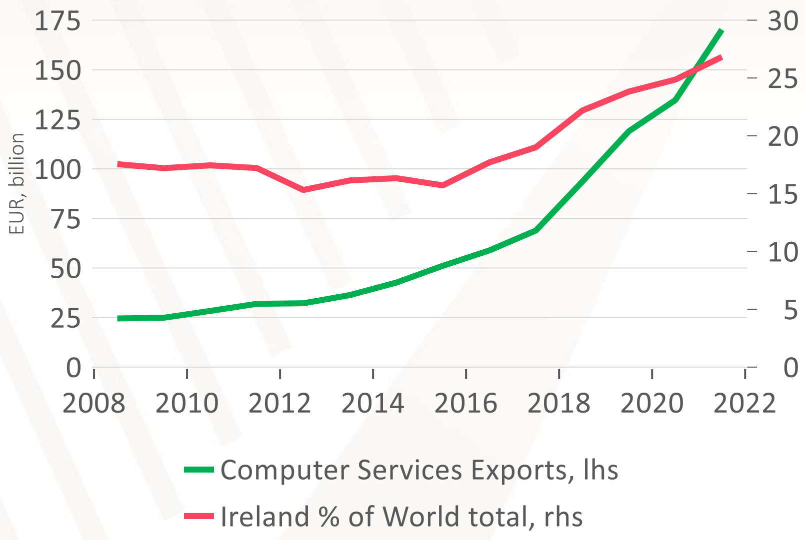
Source: Eurostat

Note: RHS based on calendar-adjusted seasonally-adjusted data as of 2022 Q3.

€0.67trn of intellectual property into Ireland

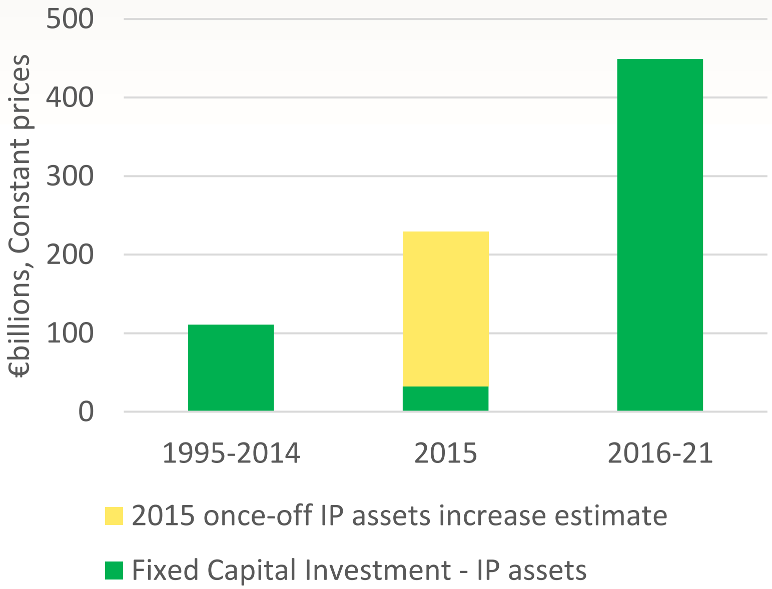
Assets brought here by tech. & pharma. in recent years

Ireland is now a leader in Computer Services; Exports have up from €50bn to €173bn since 2015



Source: CSO, WTO

Enormous inflows (c. €0.67trn) of IP assets into Ireland since 2015 on the back of BEPS 1.0 and other tax reforms

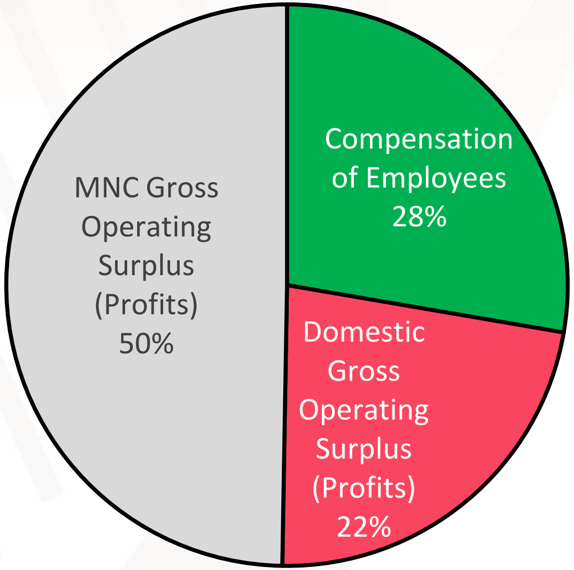


Source: CSO and NTMA analysis – Gross Fixed capital formation and Gross capital stock figures used in RHS chart

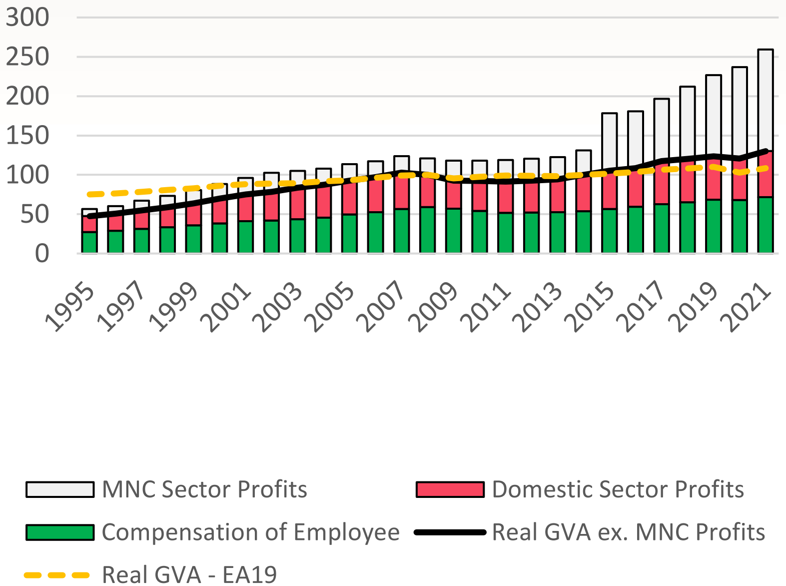
Underlying economy above EA avereage

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)



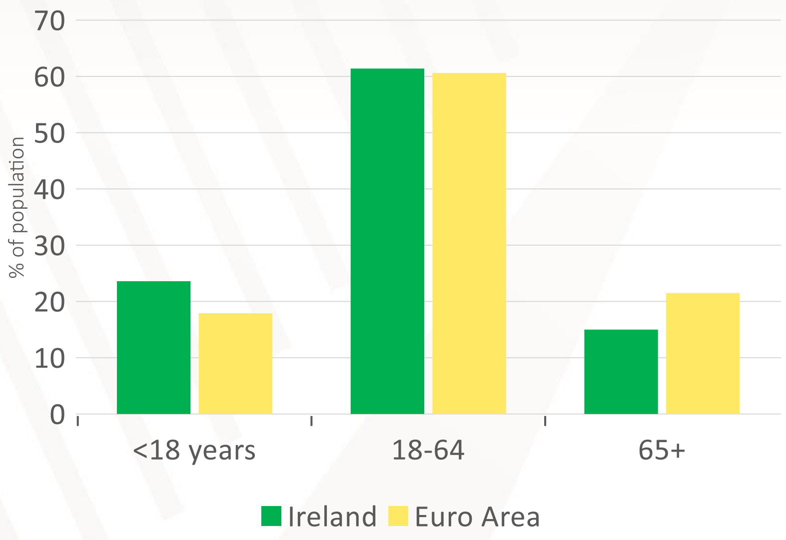
Source: CSO, NTMA calculations (Nominal 2021 data used in left chart)

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

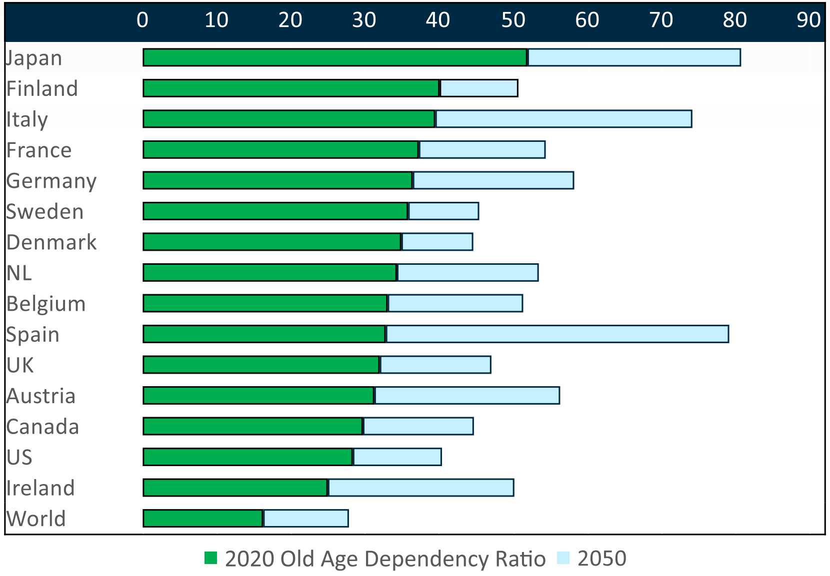
Age profile younger than the EU average but won’t outrun aging demographics

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

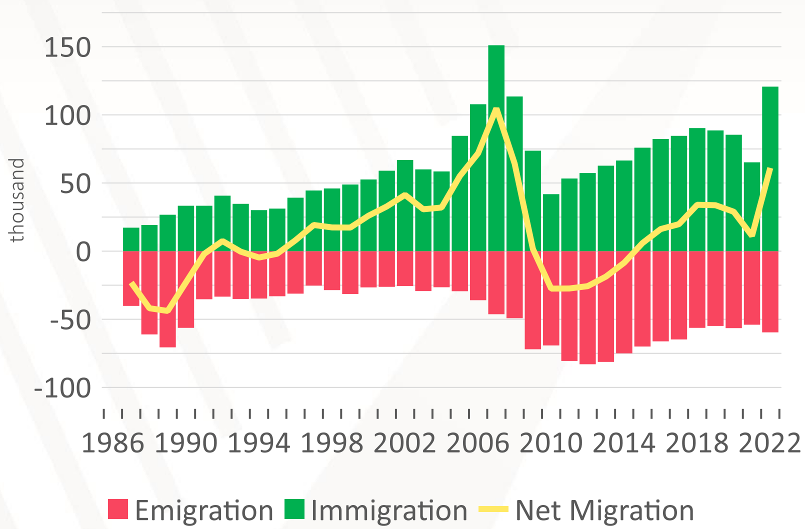


Source: UNDESA

Migration improves Ireland's human capital

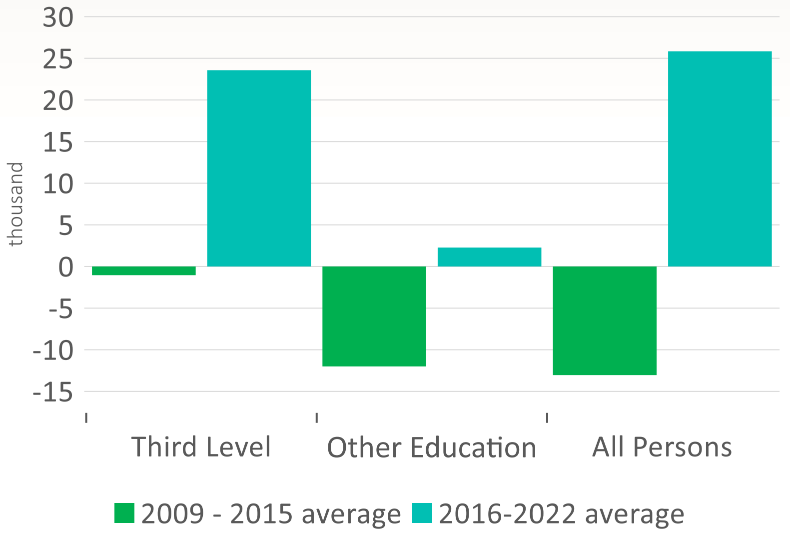
Ireland's net migration has swung back and forth on economic performance

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

Migration figures based on year to April

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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

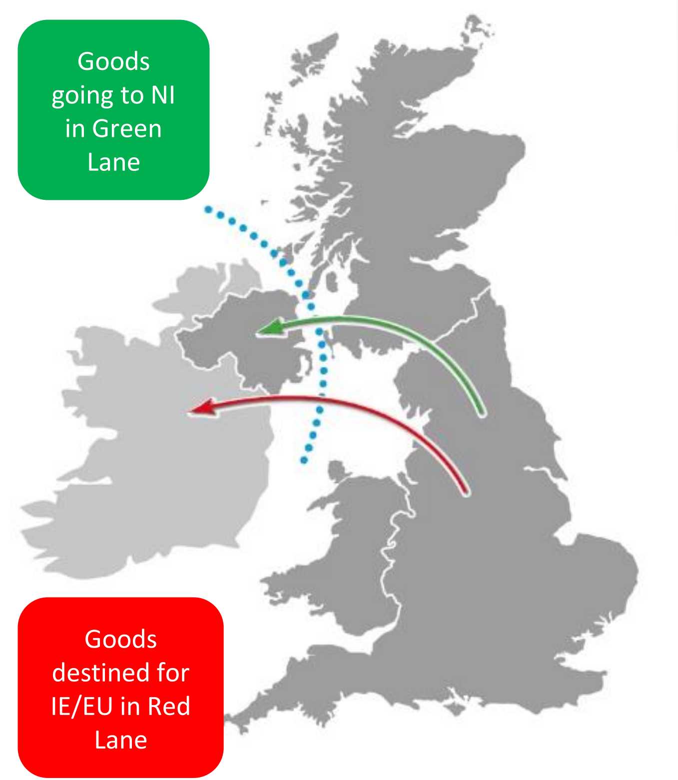
Windsor Framework expands on NI Protocol agreement; NI parliament remains suspended

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)

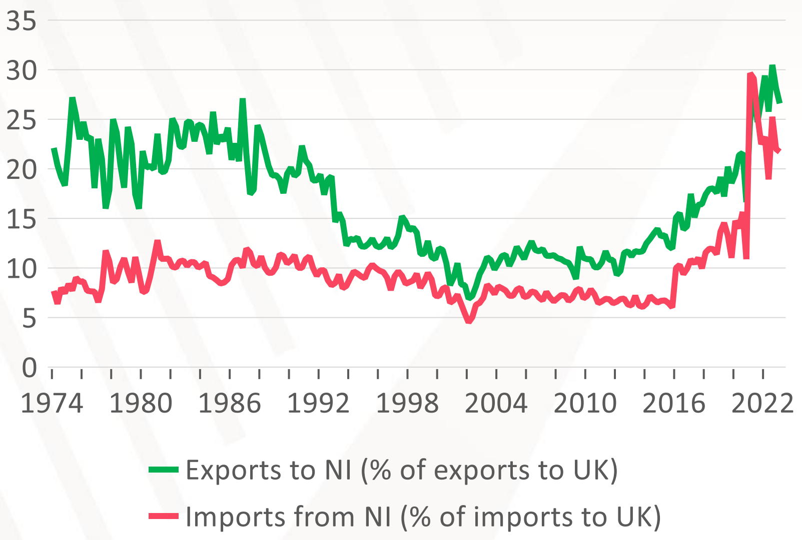
- Green lane/Red Lane: goods from the UK for NI will travel through new green lane, with a separate red lane for goods that might travel on to the EU. Border “in the Irish Sea” effectively ended for goods destined for NI market.
- VAT: EU VAT rules could be applied in NI whilst the UK can make “critical 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

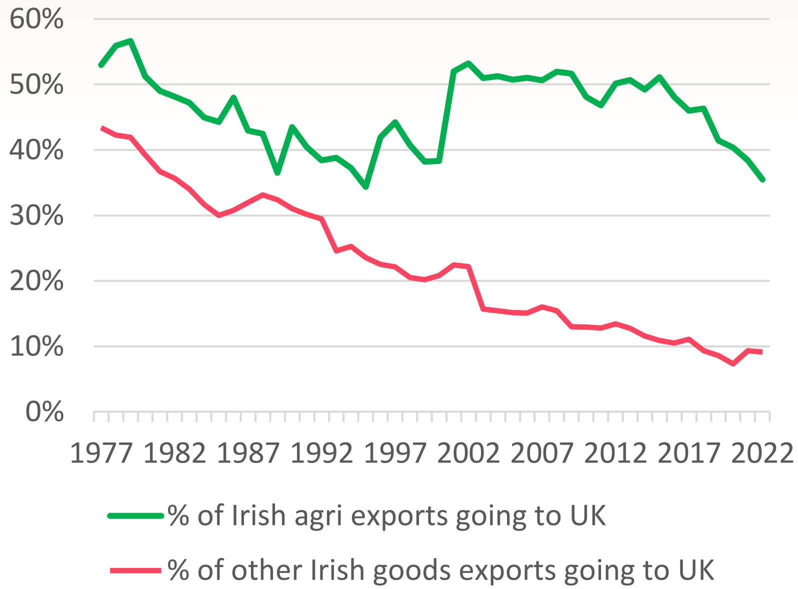
ROI-NI trade jumped in 2021, both imports and exports

NI trading route more important than ever for IE-UK trade – 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

Significant price pressures in recent years – tightening monetary policy having an effect

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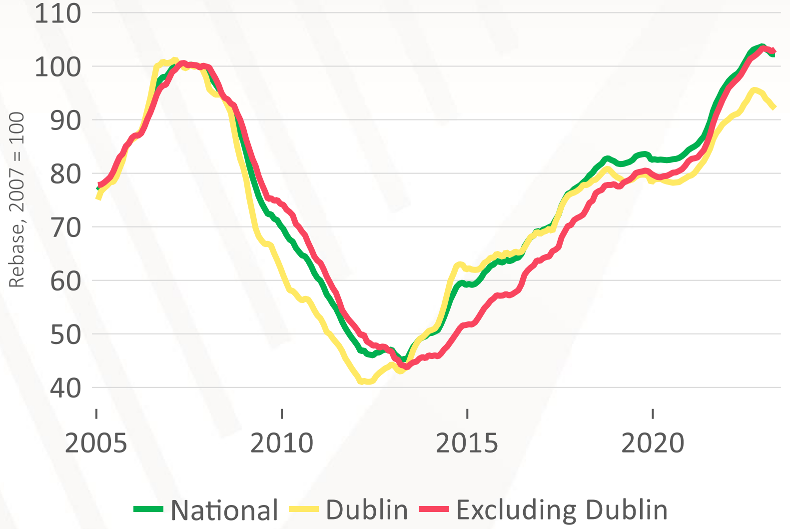
Prices up in recent years but stalling

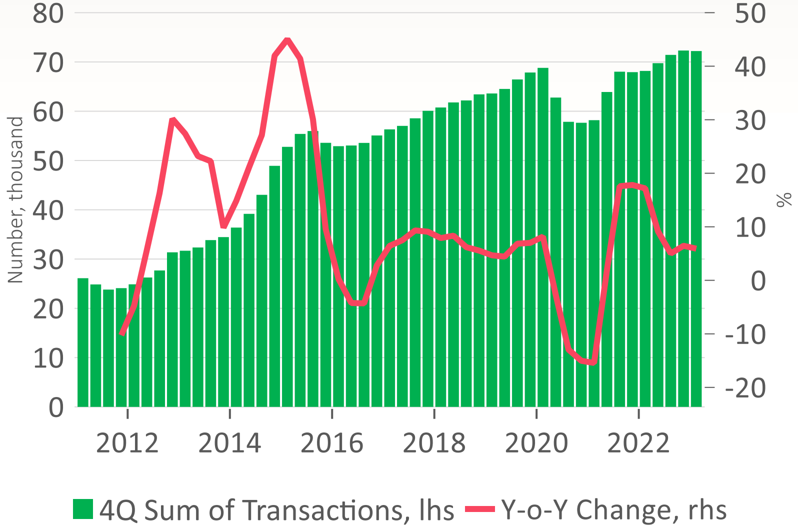
Supply hampered by the pandemic and inflation (c.33-40k units needed p.a.)

House prices up 3.6% y-on-y, above previous peak in 2007 – Dublin seeing prices cool



Source: CSO

Transactions still above pre-pandemic levels



Source: CSO

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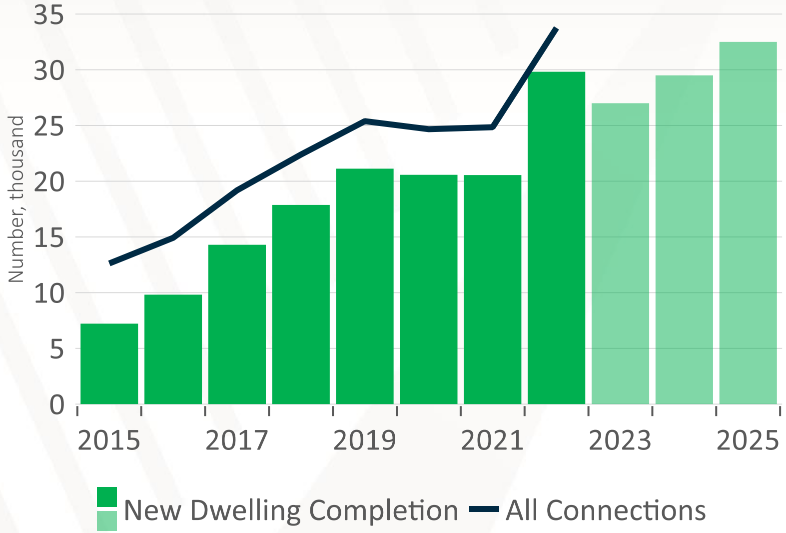
* Some estimates have put housing needs as high as 60,000 a year over the coming decades

Supply outlook uncertain

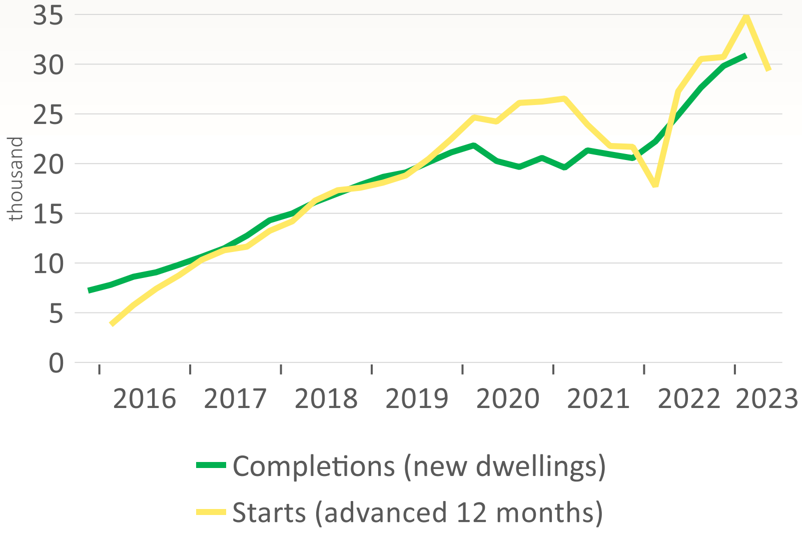
Stronger supply in 2022 but 2023 supply could be impacted by costs/interest rates

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



Source: CSO

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



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

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* 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

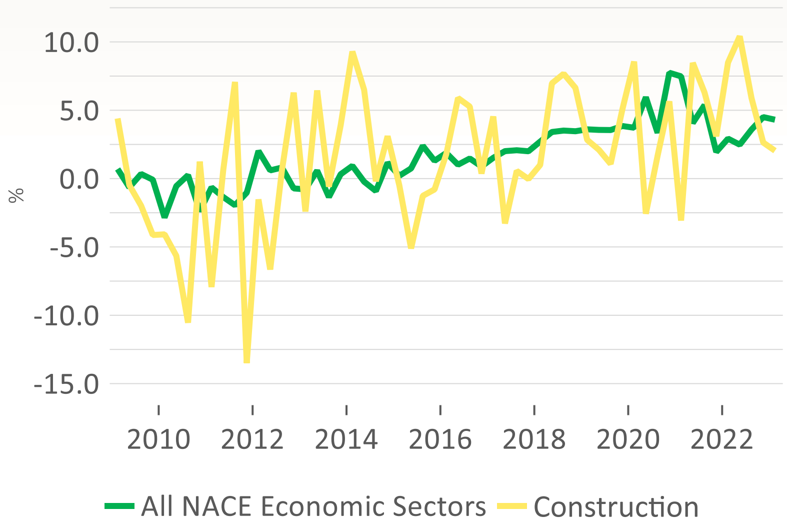
Inflation clear in construction sector

Increased material costs obvious along but construction costs have softened

Materials up 11.7% year-on-year in April possibly impeding new development, but inflation may have peaked

Source: CSO

Labour costs in construction have eased but still remain above long run average



Source: CSO

RHS = weekly earnings on a 4Q yearly growth rate

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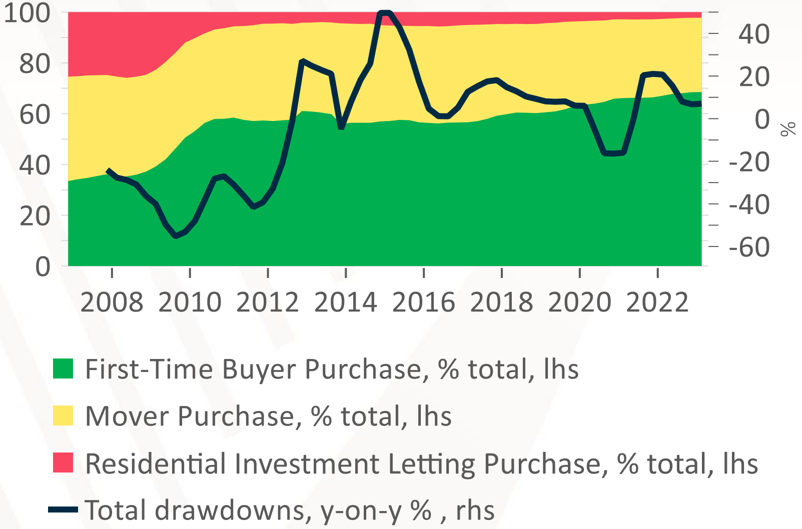
Demand is strong, but drawdowns slowing

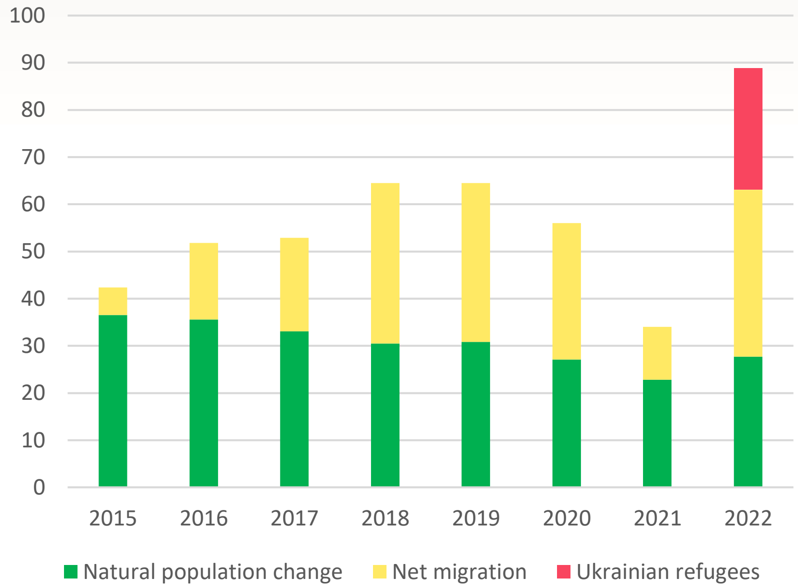
Increased net migration further fuelling tight demand in the housing market

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



Source: BPFI

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



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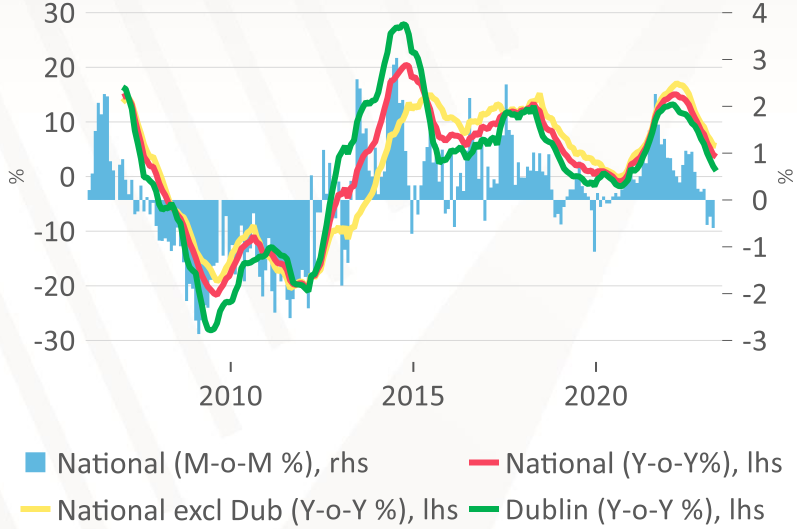
*4 quarter sum used (LHS)

***Arrivals from Ukraine as of April 2022

House prices continue to rise

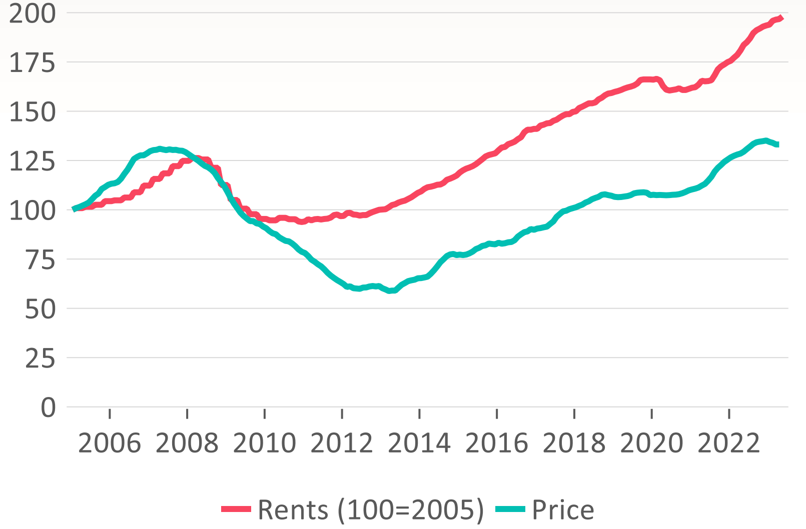
Inflation driven by strong demand, labour shortages and increased supply prices

House prices up 3.6% in the year to April 2023. Monthly change was flat on March.



Source: CSO

Rents pressures remain strong with a y-on-y increase of 8.8% in April

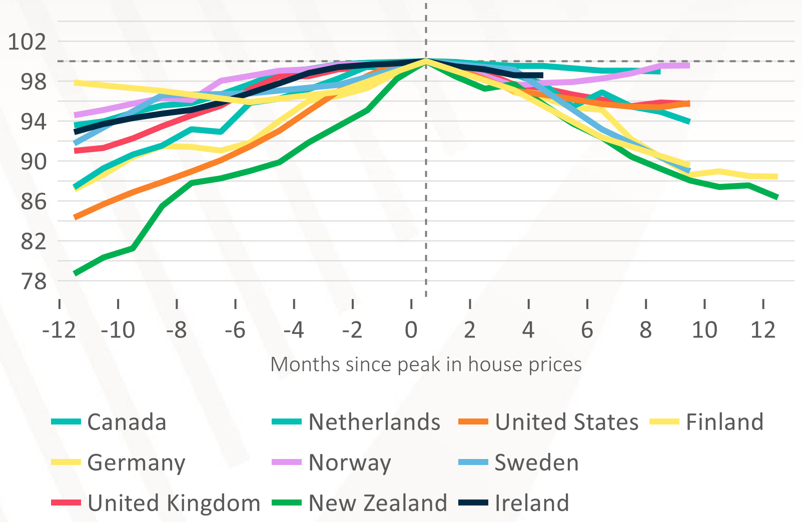


Source: CSO

House price increases slowing

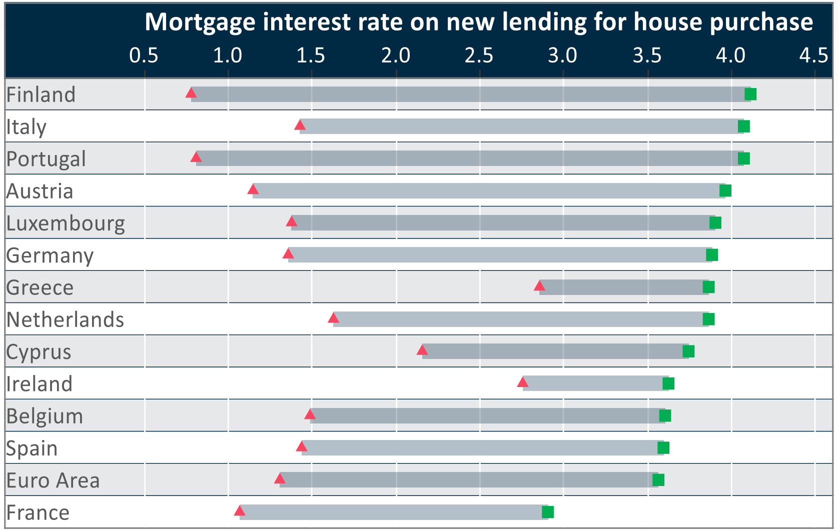
Irish mortgage rates moving slower than other countries

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 much less than seen in other countries



excludes revolving loans and others

▲ 1/2022 ■ 4/2023

Source: ECB

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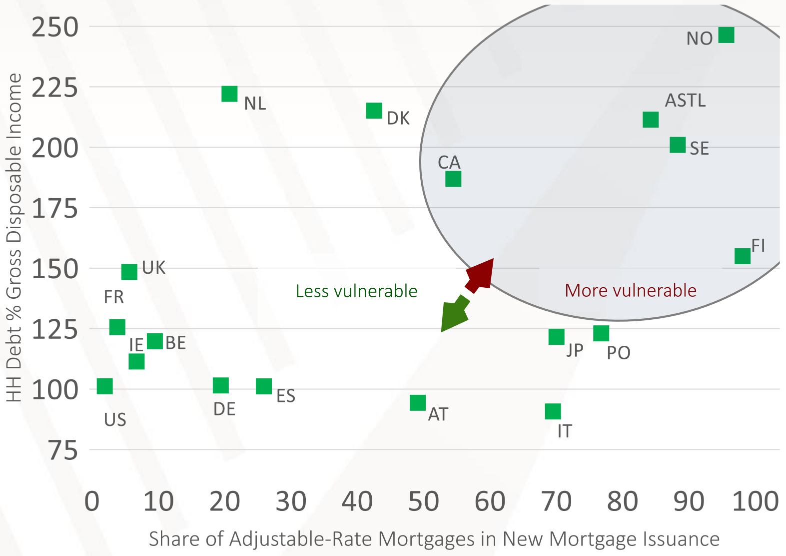
Ireland less vulnerable to rising interest rates

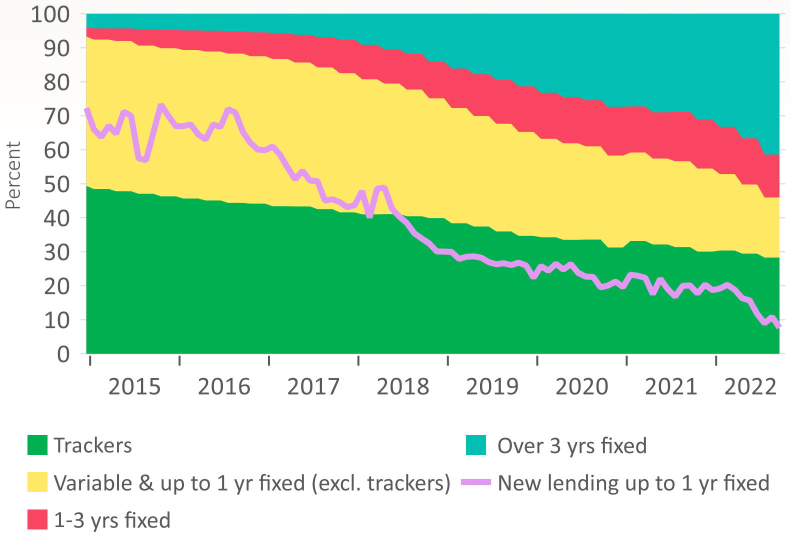
But could pose a greater threat in the medium term

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

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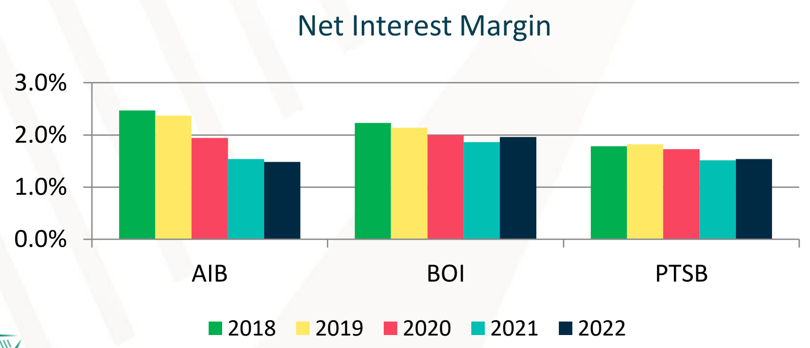
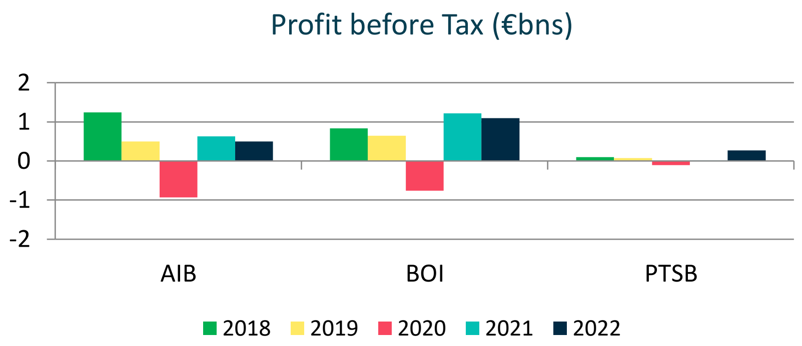
Ireland's Banking Sector Overview

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. 53% of AIB and 57% of PTSB at that stage. Sales are likely to be ongoing as government divests from sector.





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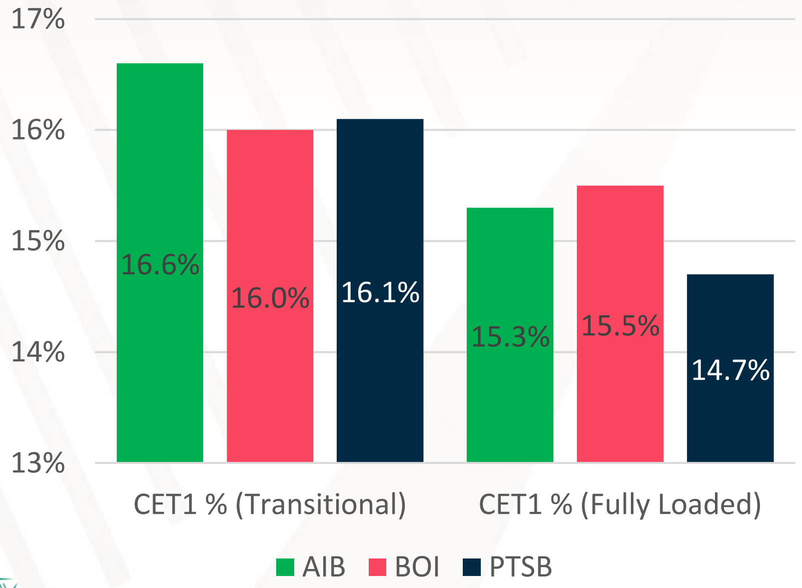
Source: Annual reports of banks - BOI, AIB, PTSB

**AIB Annual Results for full year 2022*

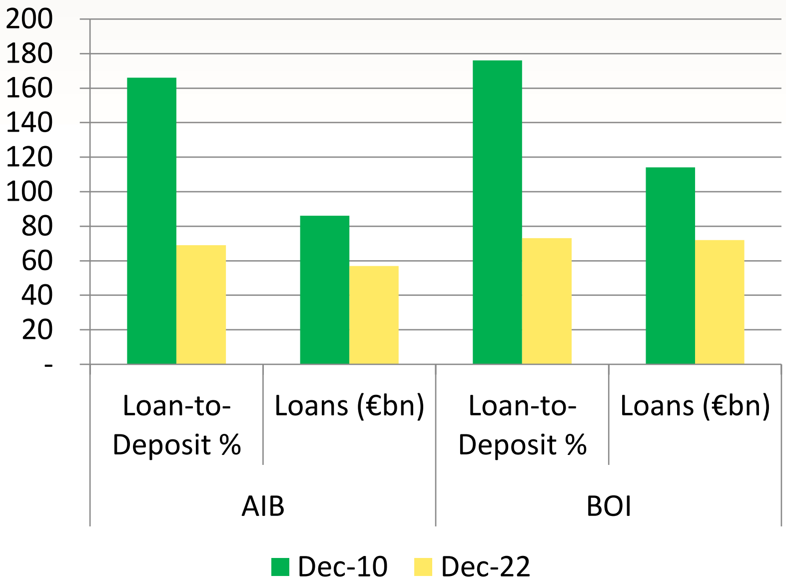
Capital ratios strengthened in last 10 years

Bank's balance sheets contracted and consolidated since GFC

CET 1 capital ratios allow for ample forbearance in 2022



Loan-to-deposit ratios have fallen significantly as loan books were slashed – euro area average LTD ratio is c. 85%



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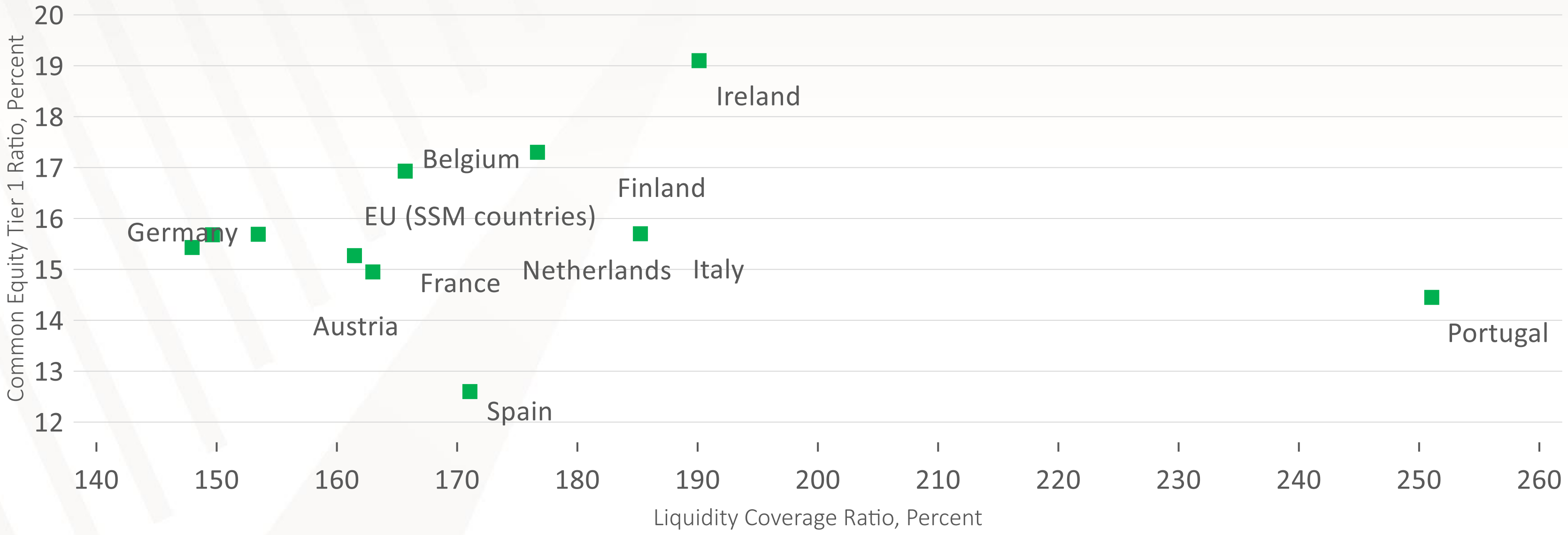
Source: Published bank accounts

Note: "Fully loaded" CET1 ratios used. Refers to the actual Basel III basis for CET1 ratios.

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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Source: ECB (Q3 2023 data)

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