Ireland: Fiscal strength amid moderating economic outlook

NTMA Investor Presentation
February 2023

Gníomhaireacht Bainistíochta an Chisteáin Náisiúnta
National Treasury Management Agency

Index

Summary

Irish economic resilience clear in labour market and tax data

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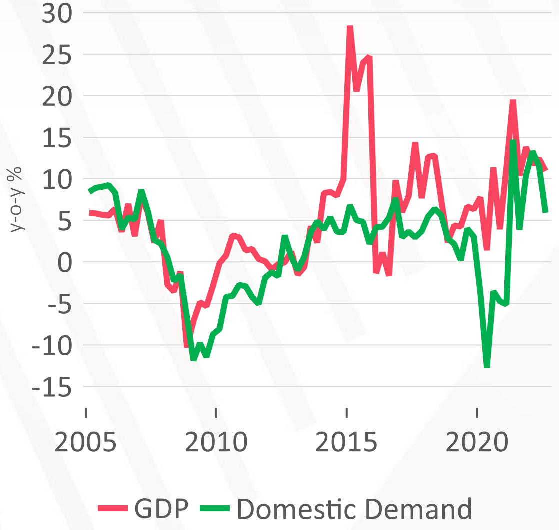
Economic growth robust in 2022

Energy crisis/inflation/monetary policy to slow growth in 2023

Domestic demand* gives better picture of Irish growth – 2022 growth c.7-8%

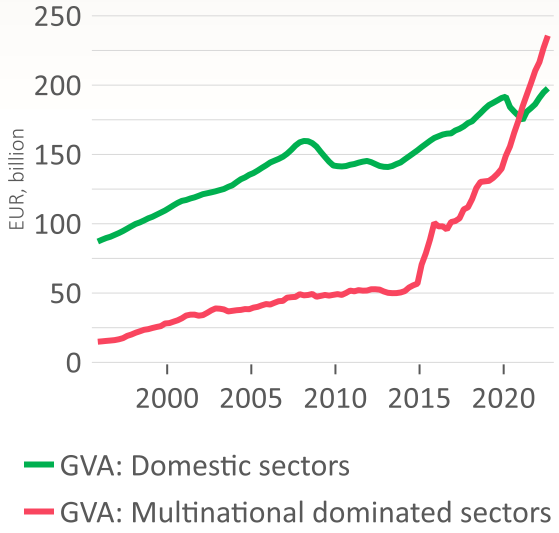


Source: CSO

Unemployment is low – labour market back close to full employment

Source: CSO

Value added from ICT & pharma has given Ireland resilience



Source: CSO

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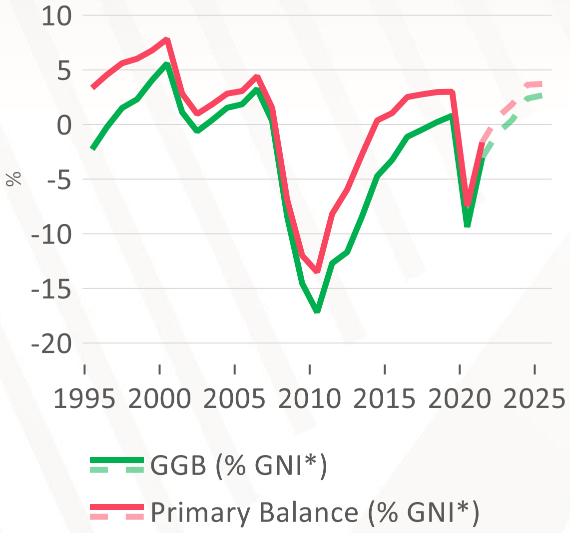
** Domestic demand series accounts for multinational activity and known as modified final domestic demand (excludes inventories)*

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 in 2022

Debt metrics all fell again last year

Forecasted 2023 GG surplus despite slowing growth



Source: CSO, Irish Department of Finance forecasts

Debt position is better than pre-pandemic

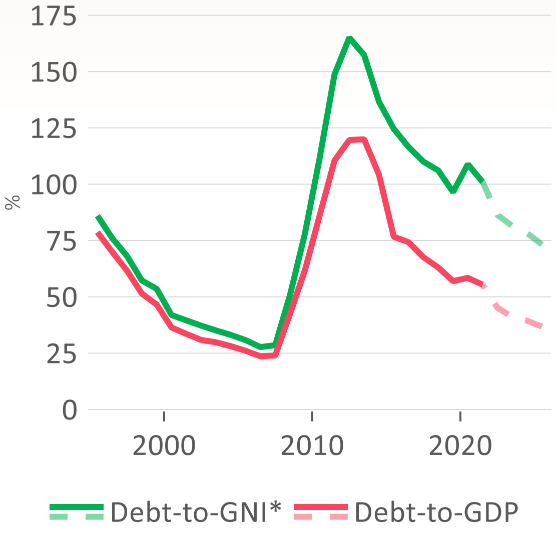
Debt-to-GNI*
(86% 2022f; 95% in 2019)

Debt-to-GG Revenue
(200% 2022f; 232% in 2019)

Average interest rate
(1.4% 2022f, from 2.2% in 2019)

Debt-to-GDP^
(45% 2022f, from 57% in 2019)

Debt to GNI* fell to c. 86% in 2022 after strong economic recovery



Source: NTMA, 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 2022 but inflation/tight monetary policy to impact growth in future quarters.

Labour market strength gives comfort.

Fiscal

Surplus for 2022 as economic recovery buoys revenues. Uncertain period ahead but in solid fiscal position.

Further spending on cost-of-living supports possible.

Inflation

High inflation in Ireland similar to any other developed economy.

Rate hikes will slow growth but Ireland enters uncertain phase with significant momentum.

2023 funding range between €7bn to €11bn

NTMA funded €3.5bn so far this year

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 €10.5bn at WAM of 16.8 years and average interest rate of 1.75%.

AA-

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

Moody's remain at A1 (positive outlook). Fitch and DBRS upgraded their rating to AA space in 2022.

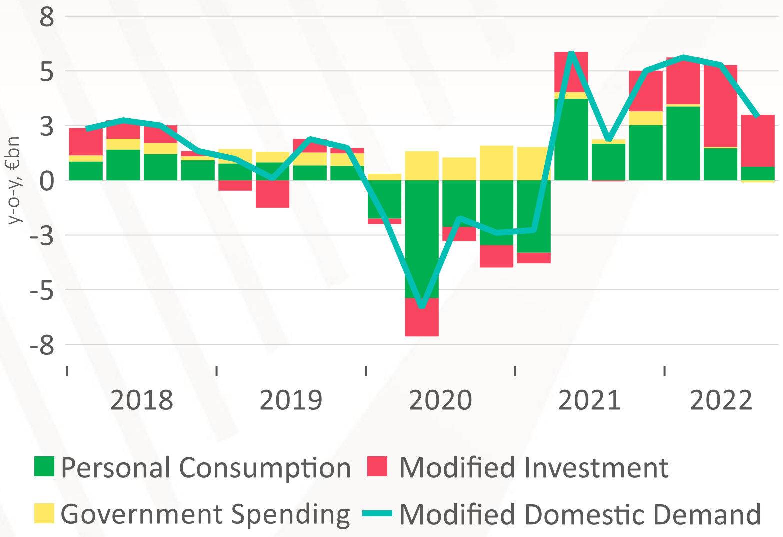
Macro

Economic strength in 2022 but signs of slowdown going into 2023

Ireland economy performed well in 2022

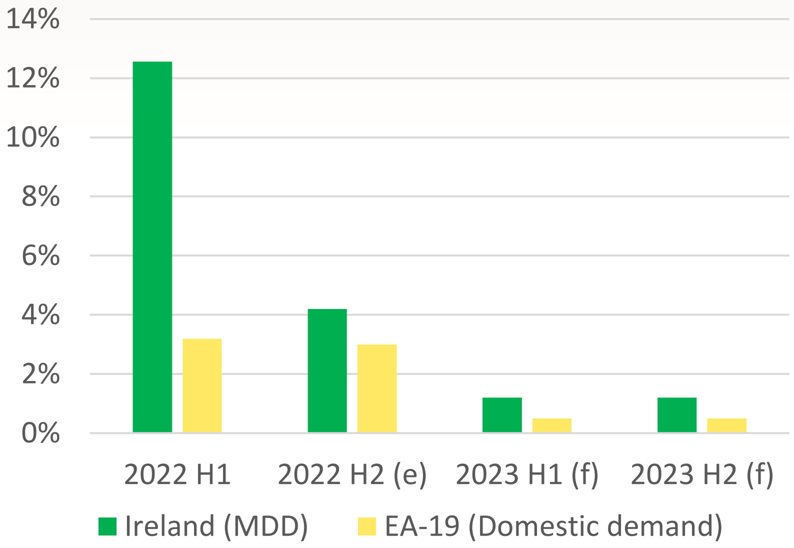
Q3 MDD data show a contraction as personal consumption slows down

Government forecasts growth could be 7.7% in 2022 but there was a notable slowdown in Q3



Source: CSO

Irish MDD strong in H1 2022 (4.7% q-o-q in Q2 important) and forecast to better euro area looking ahead



Source: Macrobond, Bloomberg

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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.

Momentum going into 2023 has slowed

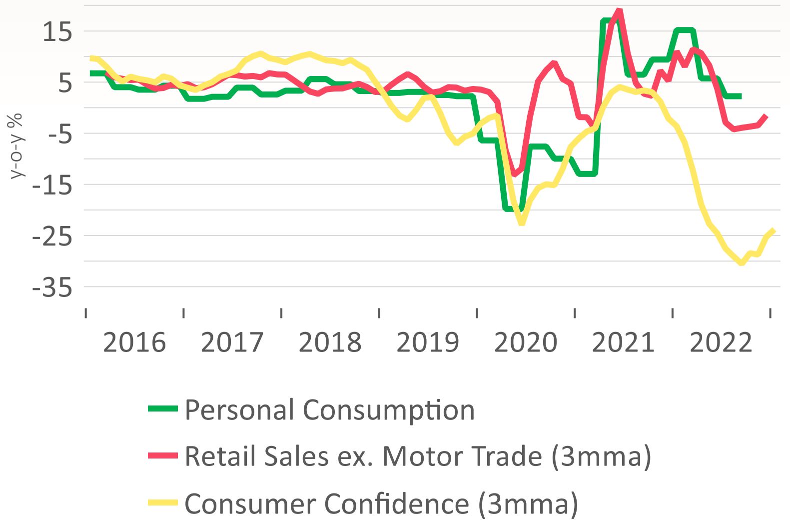
Q3 MDD data show a contraction as personal consumption slows down

Modified investment makes up majority of recent MDD growth while personal consumption's contribution softening

	Annual Growth Q3 vs Q3 2021	Quarterly Growth Q3 vs Q2 2022
GDP	10.9	2.3
MDD	5.9	-1.1
Consumption	2.2	0.3
Gov't Spending	-0.9	-0.3
Mod. Investment	22.0	-4.6
Employee Compensation	7.4	1.0

Source: CSO

Measures of consumption show a notable slowdown while consumer sentiment has plunged



Source: CSO, DG ECFIN

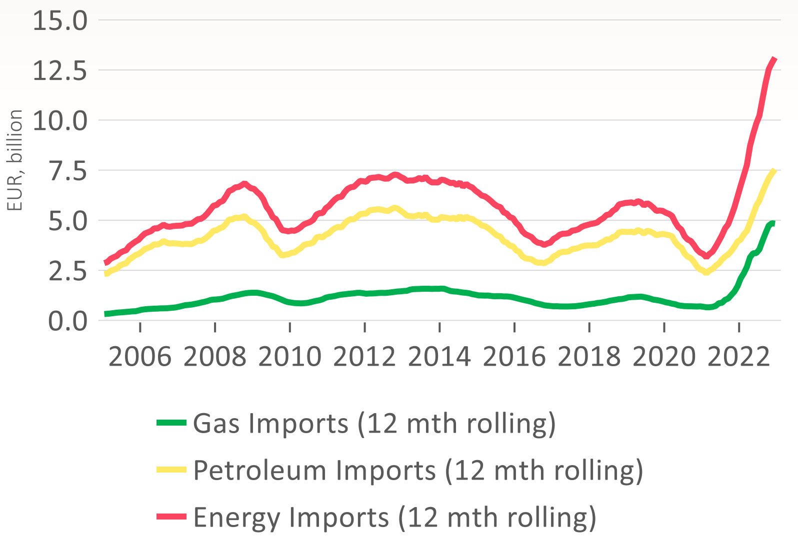
Note: MDD for Ireland is modified for multinational activity by Ireland's Central Statistics Office (CSO). MDD = Consumption + Government (current) spending + Modified Investment.

External environment in 2023 uncertain

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	Move to 5% policy rate expected	Policy rate flat or mild easing expected
US growth	Decelerating growth	Low growth, recession possible
Energy prices	Highly volatile	Elevated
UK growth	Decelerating growth	Recession forecasted
Euro Growth	Slowing growth, energy crisis	Low growth or recession
Global Inflation	Elevated in 2022	Core measures remain elevated

Ireland price taker on Oil/Gas: €13bn (c. 6% of MDD) spent on fuel imports in last 12 months, 2.1x same period in 2021



Source: CSO

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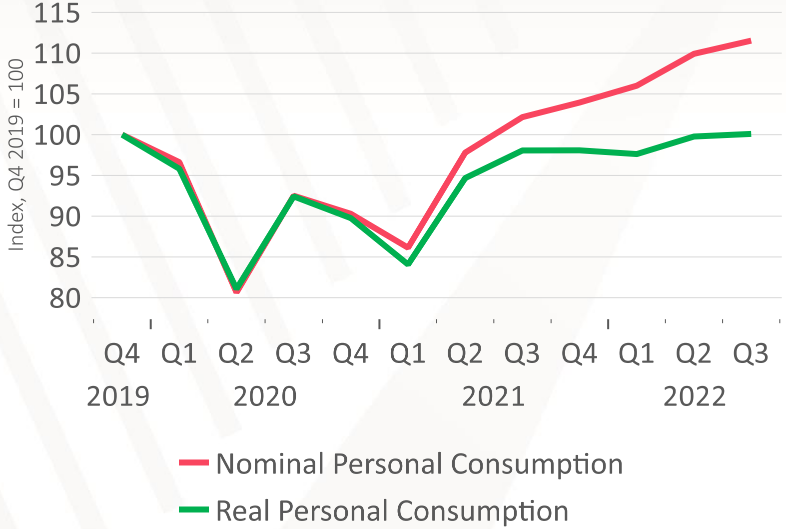
Nominal spending up, real spending flat

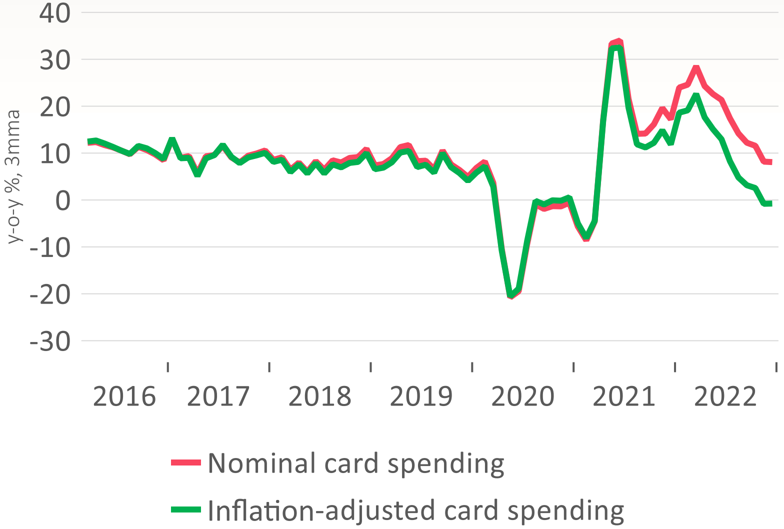
Inflation is now clearly eating into real consumption

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

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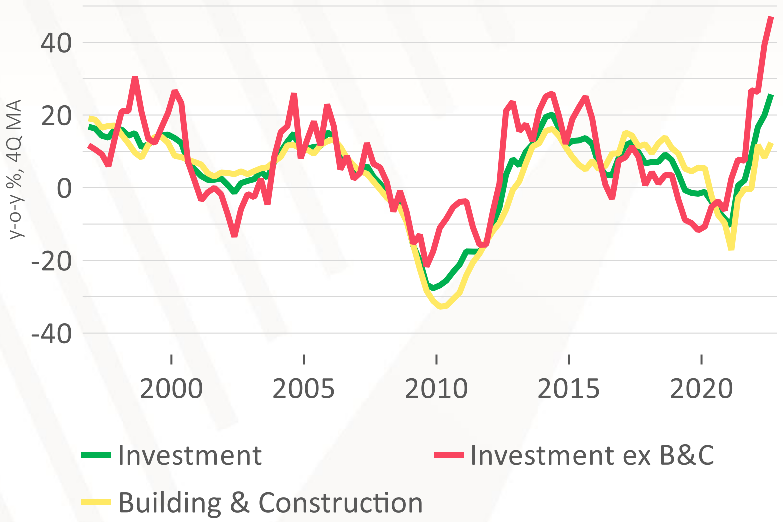
** CBI spending data is nominal data and not seasonally adjusted. RHS chart shows card data minus annual CPI inflation. Growth rate of card spending is influenced by increased digitalisation of spending habits over last decade.*

Investment strength coming out of Covid

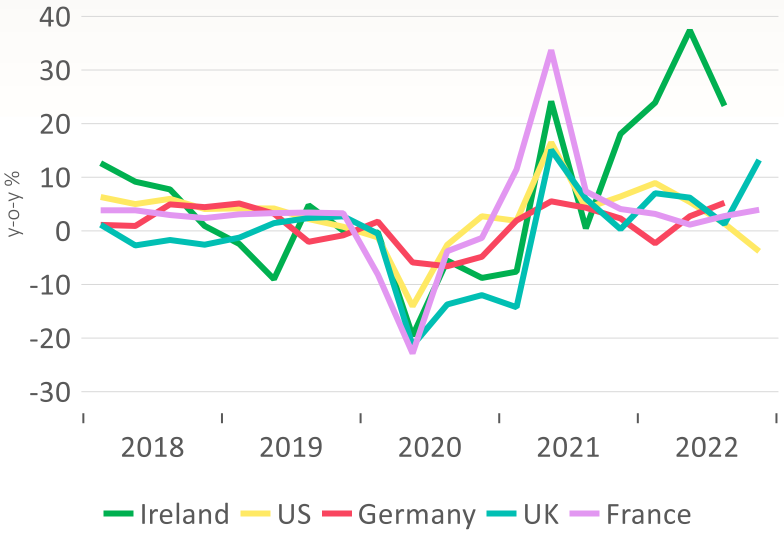
Modified investment up strongly on pre-pandemic but likely bolstered by one-off factors

Drivers: Computer hardware, production facilities/data centres & new dwelling construction. Growth may slow in ‘23



Source: CSO

Modified investment has given comparative strength to Irish economy in recent quarters; but Q3 was weaker



Source: CSO, BEA, DESTATIS, ONS, INSEE

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Note: Ireland metric is modified investment, which strips out multinational activity

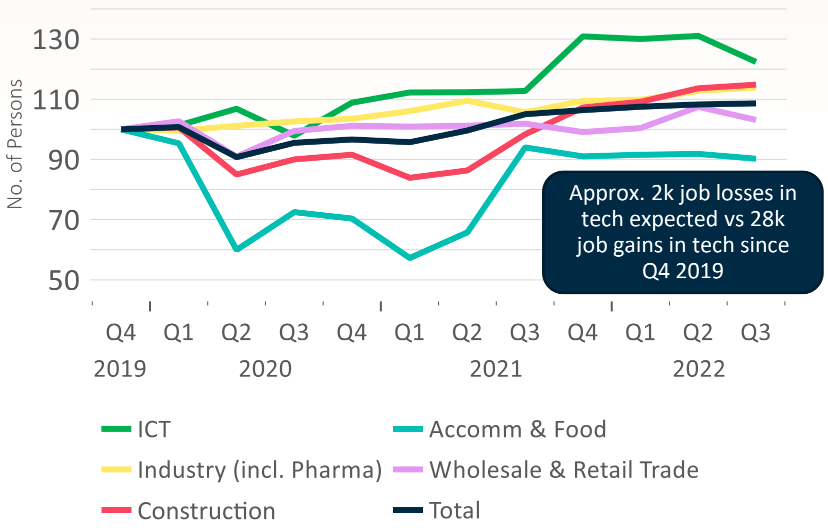
Labour market strength remains

Unemployment rate well below pre-pandemic levels

Unemployment rate at 4.4% in January – full employment position since early 2022

Source: CSO

Employment growth exceptional for MNC firms during pandemic, concerns on tech job cuts but minor in scale so far



Source: CSO

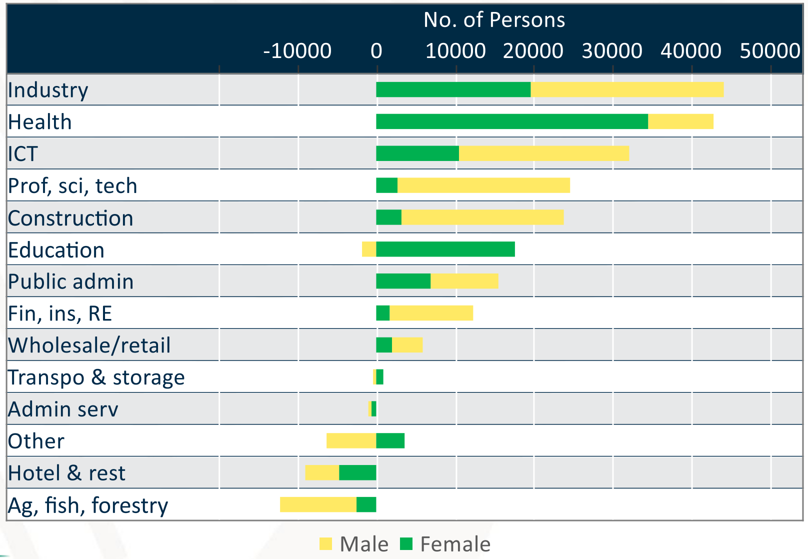
Note: Unemployment rate series shown uses the Covid adjusted unemployment rate between March 2020 and Feb 2022 and the standard unemployment rate elsewhere.

Nearly all sectors back above 2019 levels

But business expectations on employment softening

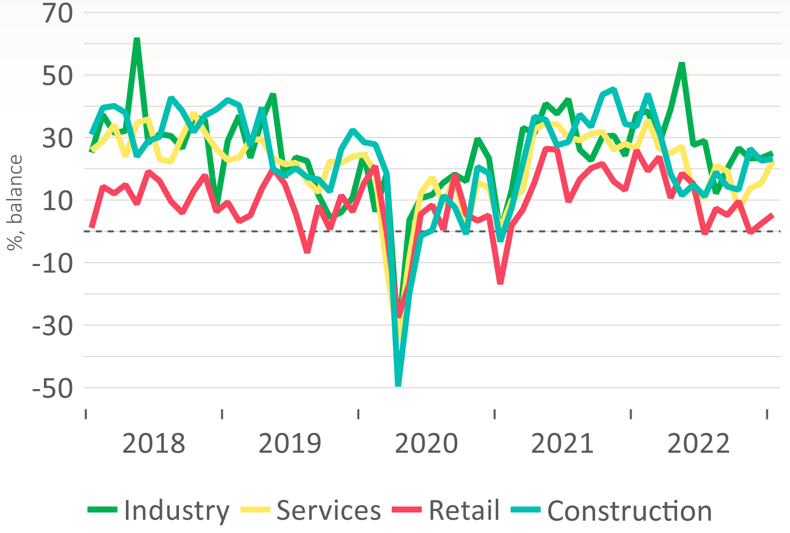
Job gains broad-based, with female employment up 10.4% compared to pre-pandemic, vs 7.1% for males

Q3 2022 vs Q4 2019



Source: CSO

Employment expectations remain positive on balance but edging down over last several months

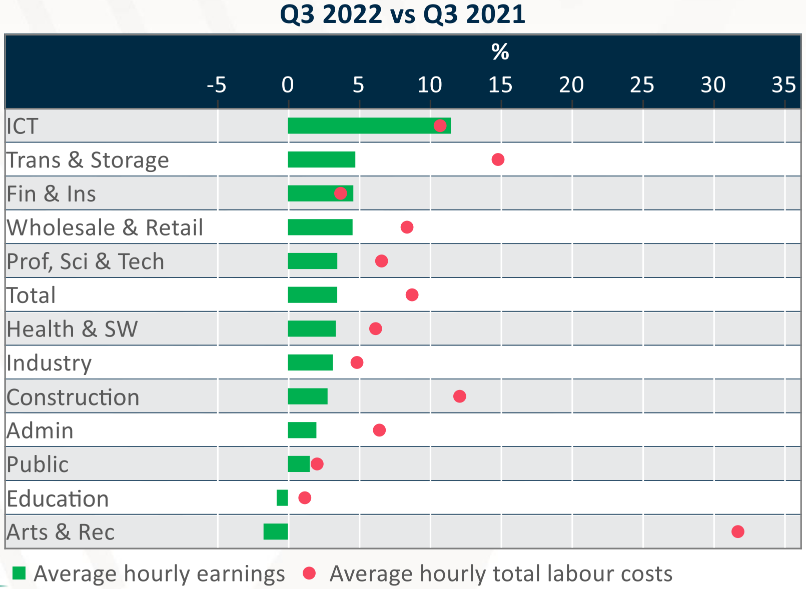


Source: DG ECFIN

Wages are increasing but below inflation

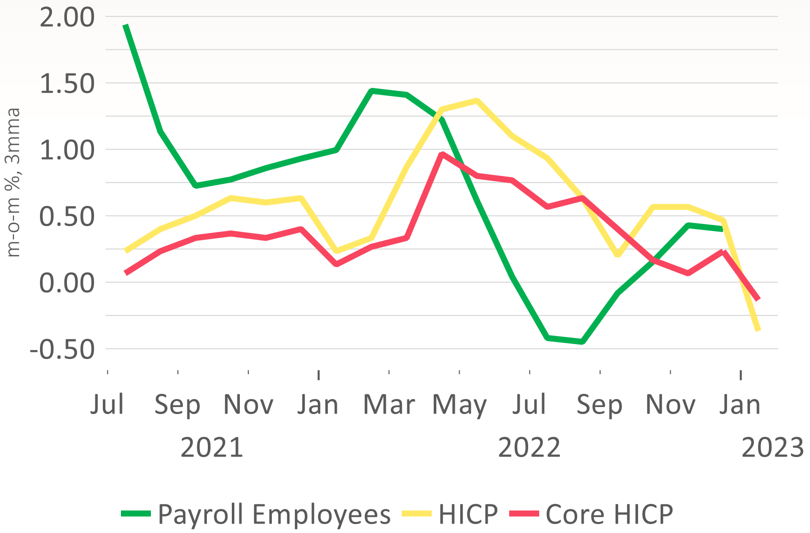
Upcoming quarters critical for wage-price spiral concerns

Labour costs* vary by sector—sectors which saw PRSI paused during Covid seeing bounce back at its reintroduction



Source: CSO

Increases in payroll employees might signal an acceleration in core inflation over coming months



Source: CSO, Eurostat

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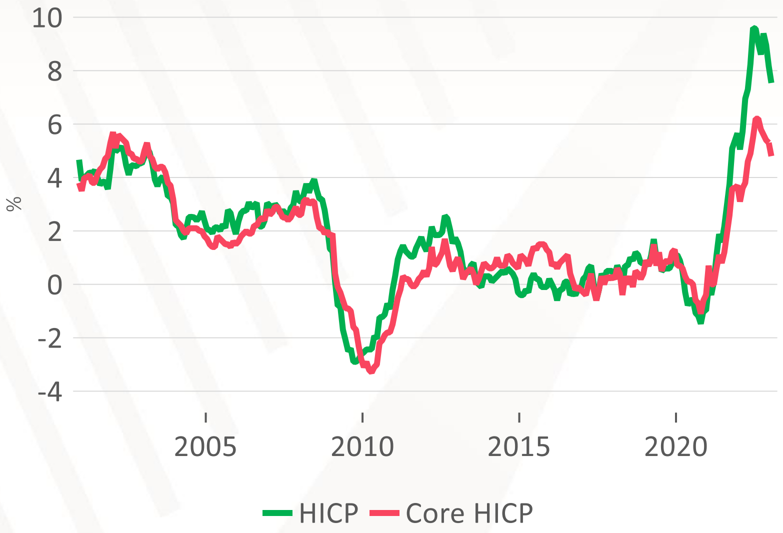
** Chart excludes Accommodation and Food Service because its average hourly total labour costs figure (+117% y-o-y) distorts the chart. For info, average hourly earnings in this sector were second fastest at +5.2% y-o-y.*

Inflation at 7.5% in Ireland

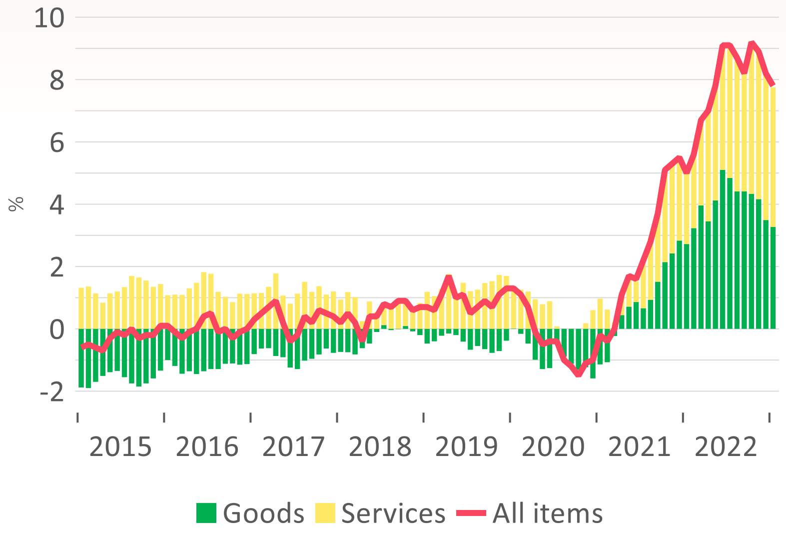
Energy and pandemic concerns easing but core inflation also elevated

Energy prices driving headline inflation but core measure also elevated; excluding energy, prices up 4.8% 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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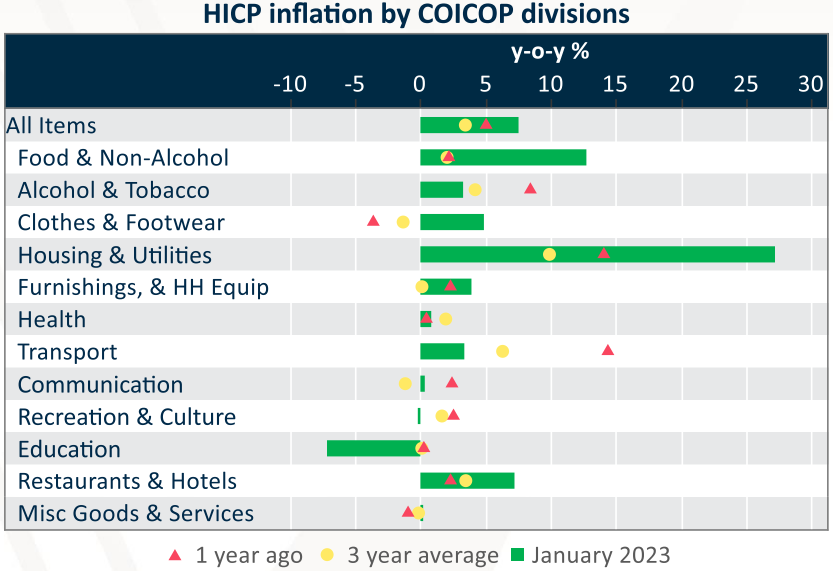
Inflationary pressure broad across index

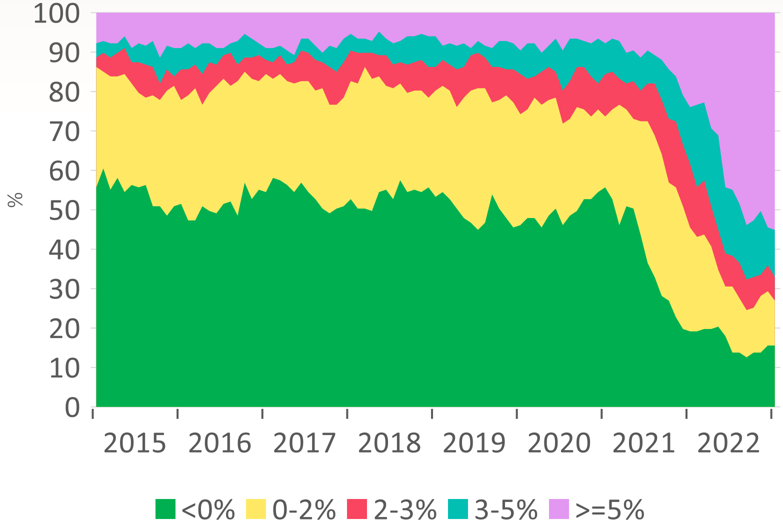
Re-opening and energy impacts evident in inflation index

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

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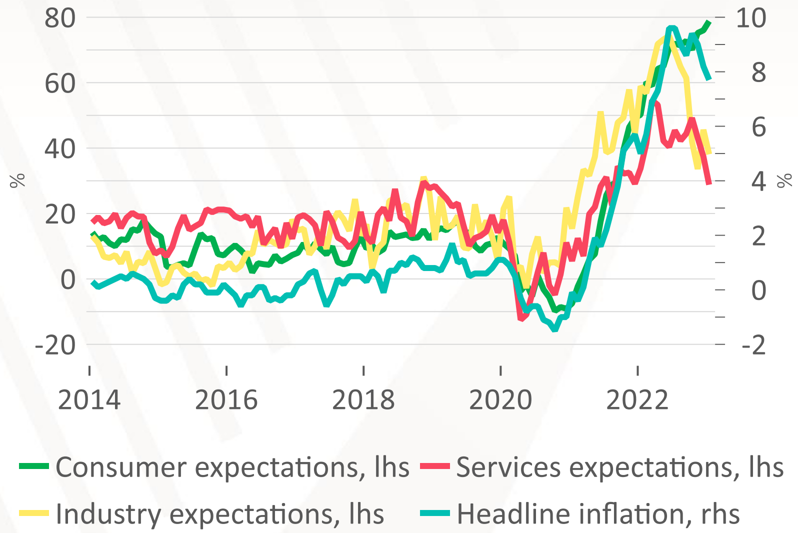
Note: RHS shows distribution of annual inflation rates across all CPI items (unweighted).

Sustained inflation an obvious risk

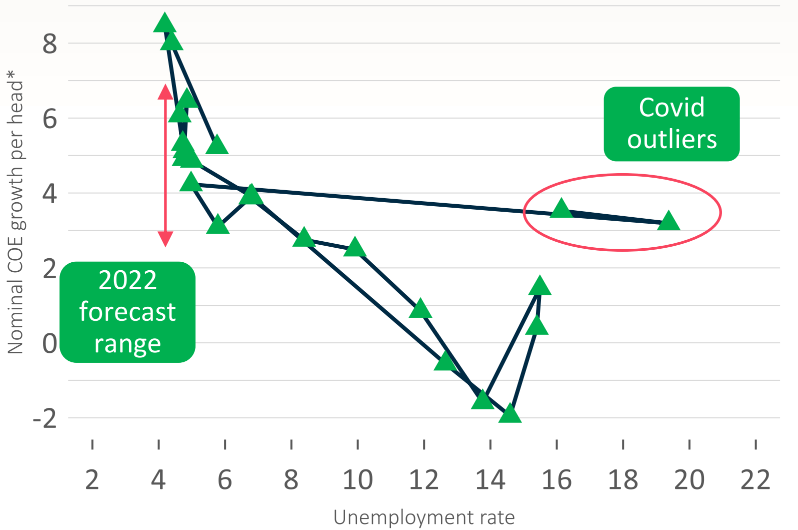
Phillips curve historically has held in Ireland

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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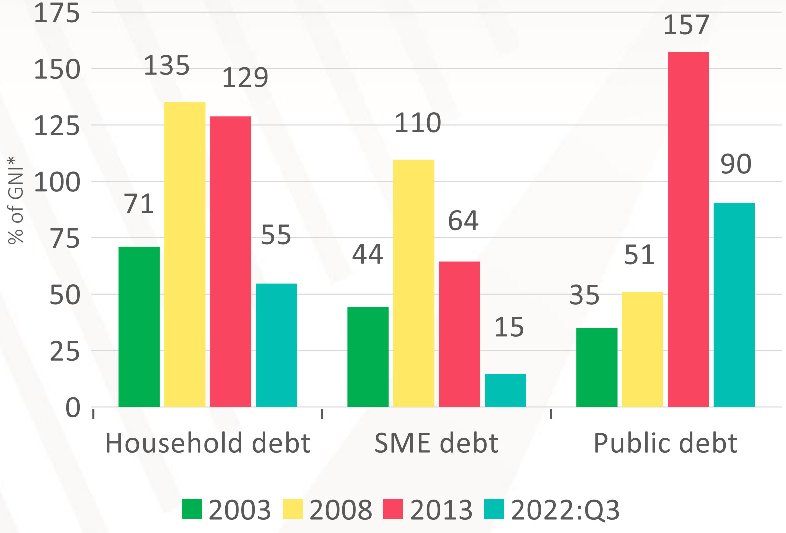
** Excludes agriculture incomes*

Households balance sheets improved

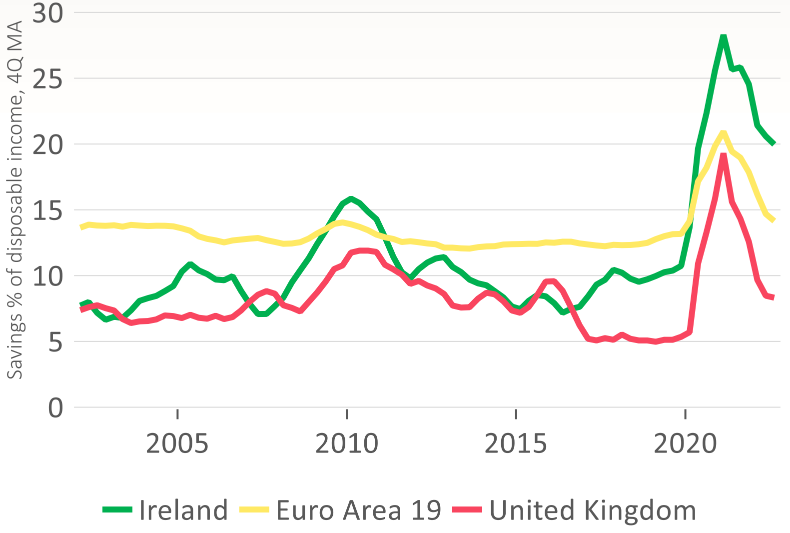
Debt levels much lower coming into pandemic + Covid savings

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

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 up to €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.
- Ireland can lean on other positives; educated and young workforce, English speaking, EU access, and ease of doing business

Fiscal

Surplus in 2022 on back of strong revenue growth

Ireland fiscal surplus in 2022

Recovery in fiscal position in just three years – thanks to strong revenues

Response

GG surplus of 2% of GNI* in 2022. One of the best in Europe.

GG Deficit was large in 2020 at €19bn but swung into surplus in 2022 due to increased revenues.

Revenues

Ireland's economic structure has meant revenues have rebounded strongly.

Strength of both Corporate and Income tax revenues from multinational sectors has helped buoy government finances.

Debt

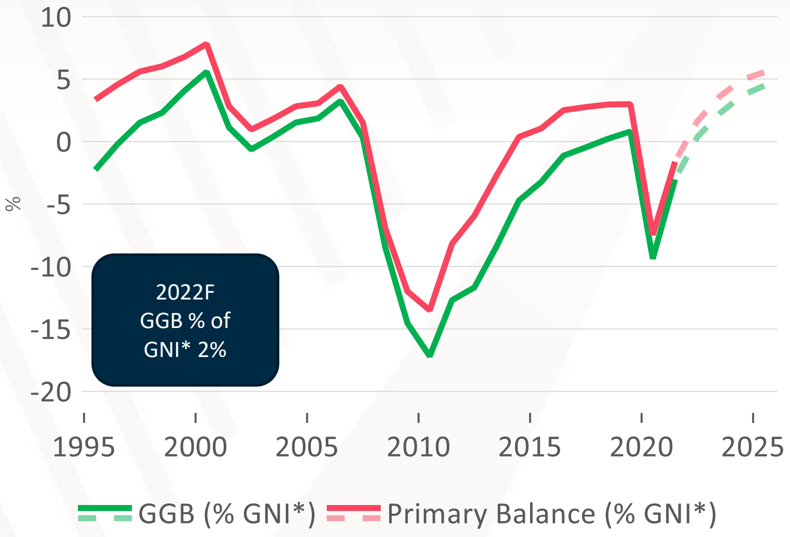
Ratios to have fallen below pre-pandemic levels by end-2022 (Debt to GNI* fell to c. 86%).

Debt ratios increased due to Covid with end-2021 Debt to GNI* ratio at 101%.

Ireland's fiscal strength apparent

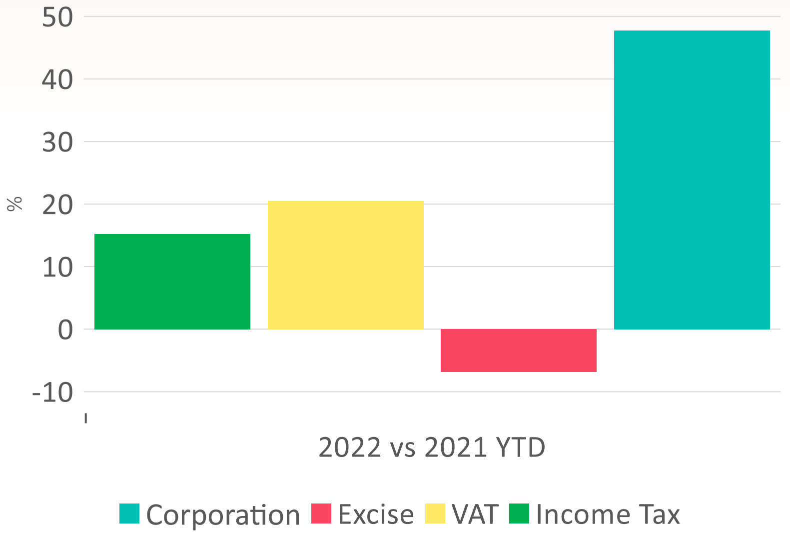
Robust revenues mean surplus two years after large Covid-induced deficit

Gen. Govt. surplus expected in 2022, €5.2bn, or 2% of GNI*



Source: CSO, Irish Department of Finance forecasts

Revenues strong in 2022; income tax and VAT important but corporate tax exceptionally strong



Source: Irish Department of Finance

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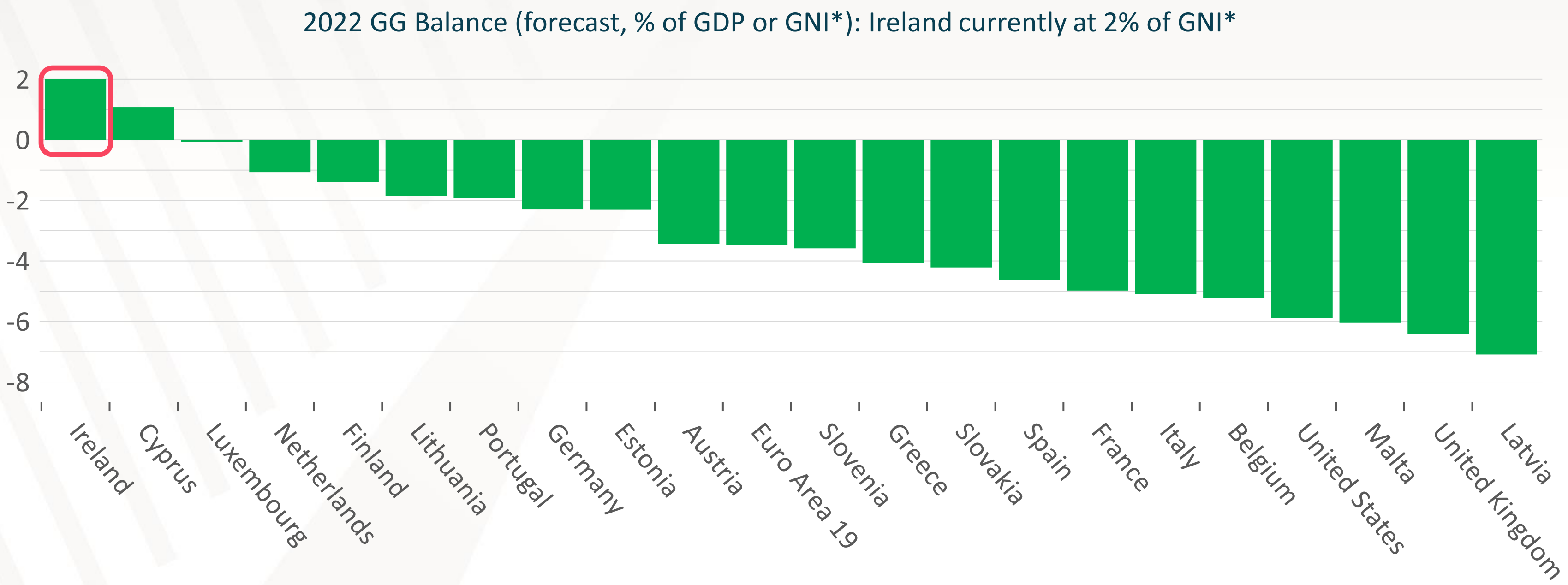
LHS chart: GG and primary balance numbers used exclude banking recapitalisations during GFC

Surplus compares well to others in EA

Recovery in fiscal position evident



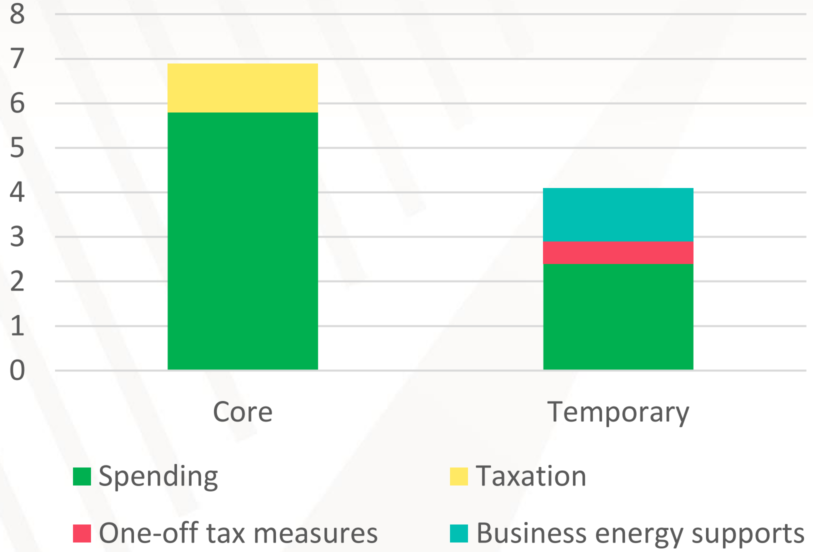
Source: DG ECFIN, Irish Department of Finance

Note: Irish forecast based on end-2022 Exchequer Returns data and Department of Finance Budget 2023 forecast of modified GNI. Forecasts for other countries taken from European Commission Autumn 2022 Forecasts

Surplus despite cost of living supports

Mix of permanent measures and one-offs equate to 4.2% of GNI* announced in Budget 2023

Permanent budget measures amounted to €6.9bn and one-off cost of living measures amounting to €4.1bn



Source: Irish Department of Finance

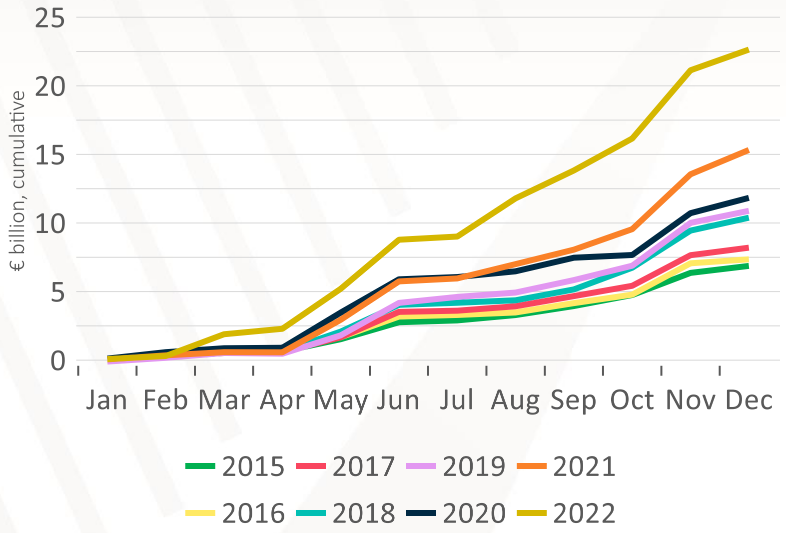
- The one-off measures include:
  - Households receiving €600 in electricity credits.
  - Double child benefit payment in Q4 2022
  - Other lump sum welfare payments
  - Businesses receive up to €10K a month for energy bills.
- The permanent measures include:
  - Tax band for highest income rate of 40% rising from €36.8K to €40K (€1.2bn cost).
  - Increases to pension and unemployment payments.
  - 25% cut to childcare costs & college fees will be reduced.
  - GG expenditure to increase by 4.8% in 2022. “Core” expenditure, which excludes Covid spending, will increase by 9.1% (& 6.3% for 2023). In both years this exceeds the Government’s 5% spending rule^. The Government plans to revert to its 5% rule in 2024.

^ The Government’s 5% spending rule aims to tie expenditure growth to the estimated sustainable nominal growth rate of the Irish economy, which is 5%.

Corporate tax receipts growing strongly

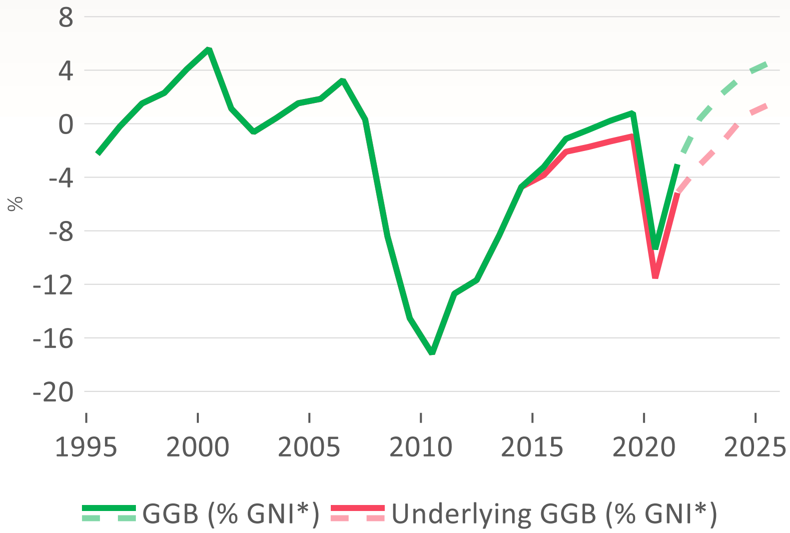
New measure of underlying GGB which excludes “windfall corporate tax” published

Corporation tax at €22.6bn in 2022, nearly double 2020 level – obvious concentration risk as a revenue source



Source: Irish Department of Finance

Underlying GGB measure suggests Ireland would reach surplus by 2024



Source: CSO, Irish Department of Finance forecasts

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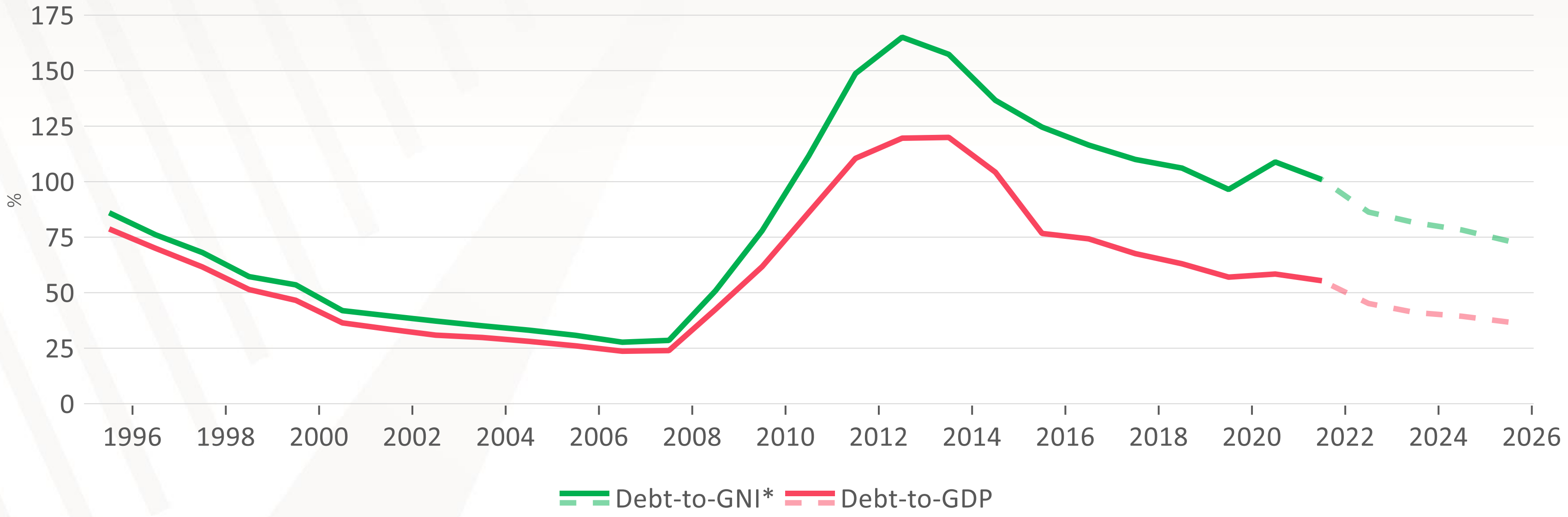
Note: The Department of Finance’s underlying general government balance is the GGB excluding the Government’s estimated windfall corporation tax receipts (windfall estimated at €10bn for 2022).

GG debt to GNI* falls to c. 86% in 2022

Debt 101% of GNI* in 2021 and expected to fall as growth and fiscal position both help

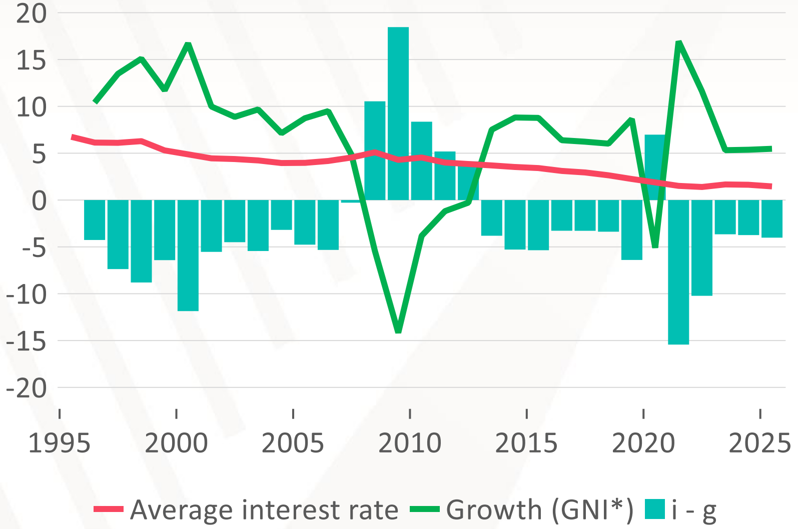


Source: NTMA, CSO, Irish Department of Finance forecasts

The "i-g" snowball effect in Ireland's favour

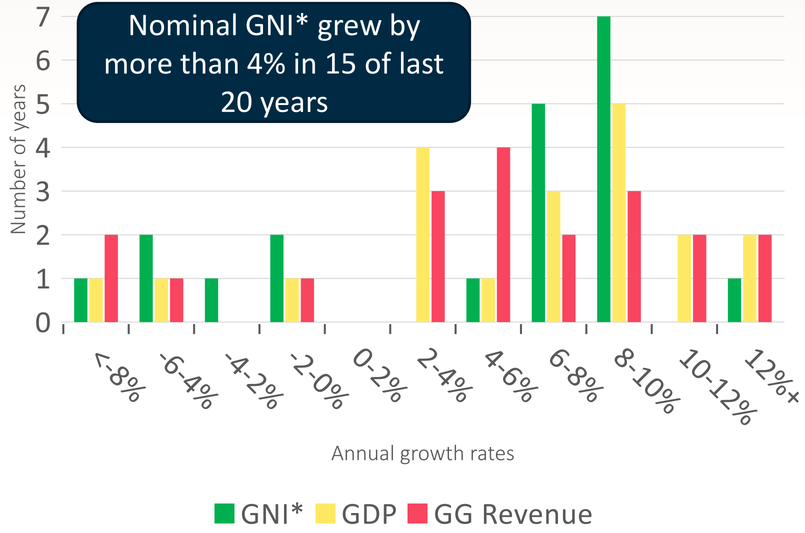
Low interest rates coupled with high nominal growth underpins debt dynamics

With low rates locked in, Ireland's "hurdle rate" for a positive snowball effect is low



Source: CSO, Irish Department of Finance forecasts, NTMA analysis

Histogram of Ireland's recent growth history (2002-2021)



Source: CSO, NTMA analysis

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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	340	4.8
Italy	145	295	8.1
Portugal	116	264	4.9
Spain	114	259	5.0
France	112	211	3.4
Belgium	106	217	3.0
UK	103	256	8.2
EA 19	94	199	3.4
Cyprus	90	217	3.7
Ireland	**45 (86 GNI*)**	**200**	**3.2**
EU 27	86	185	3.3
Austria	78	161	2.3
Slovenia	70	162	2.6
Germany	67	143	1.3
Slovakia	60	146	2.5
Netherlands	50	115	1.3

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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NTMA funded €3.5bn so far this year

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 €10.5bn at WAM of 16.8 years and average interest rate of 1.75%.

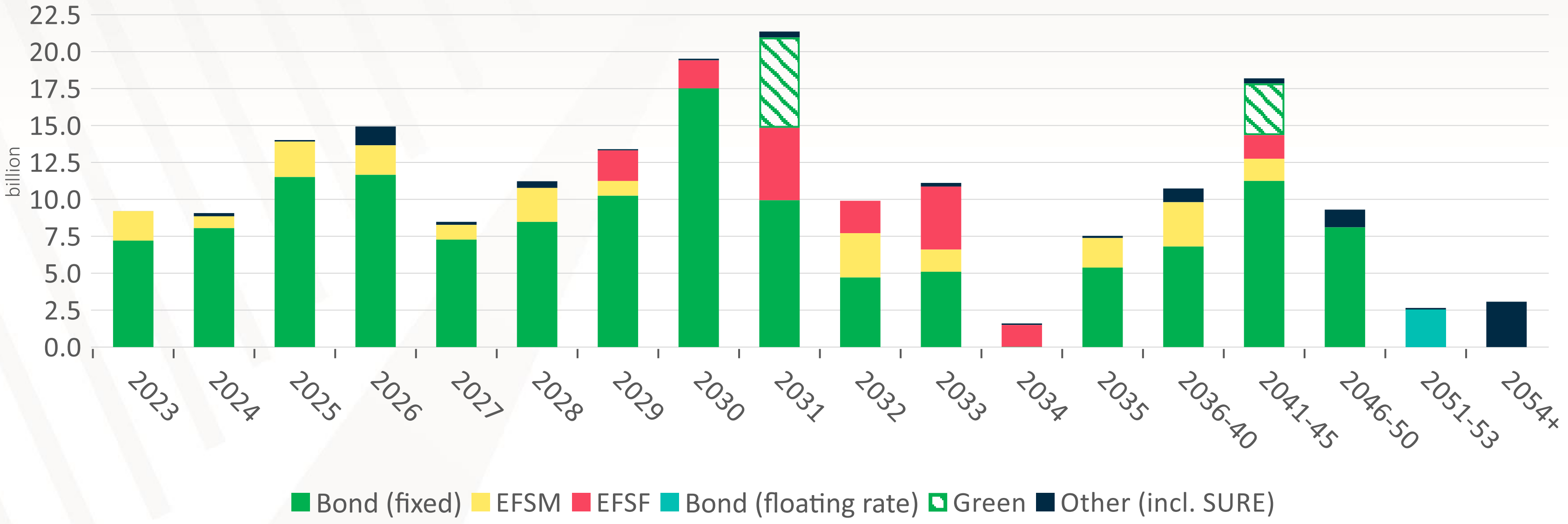
AA-

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

Moody's remain at A1 (positive outlook). 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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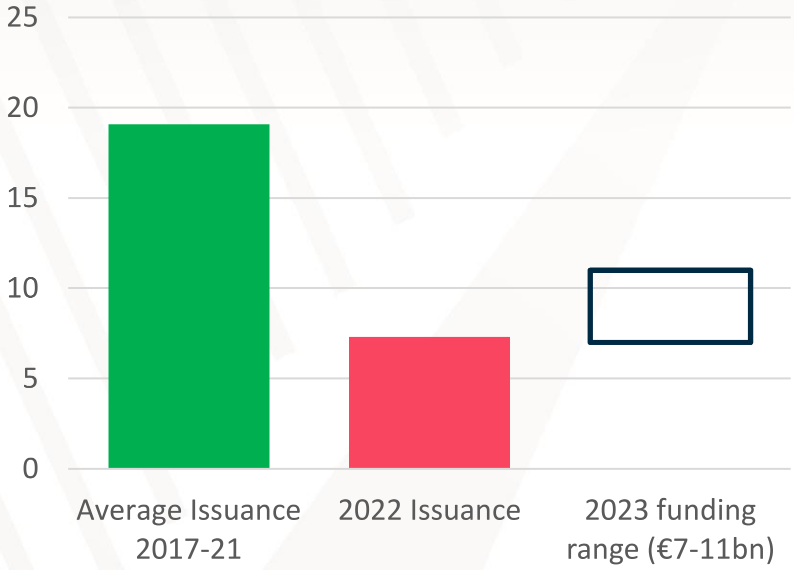
National Treasury Management Agency

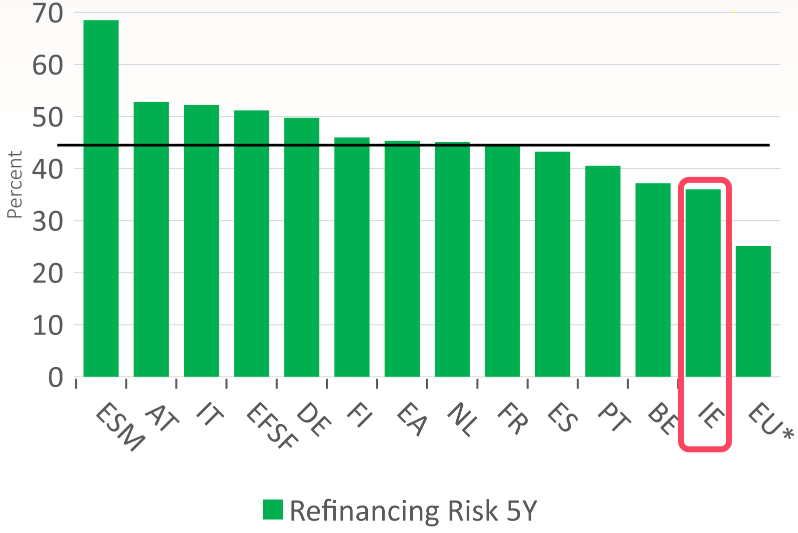
Lower supply expected in coming years

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



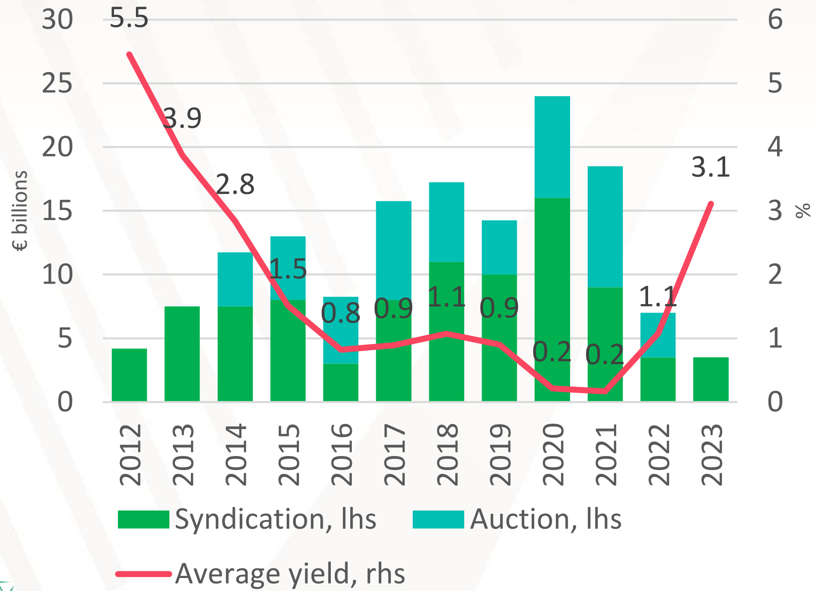
Source: ESDM

Refinancing rate defined as debt maturing within five years divided by total debt outstanding

Borrowing costs anchored

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

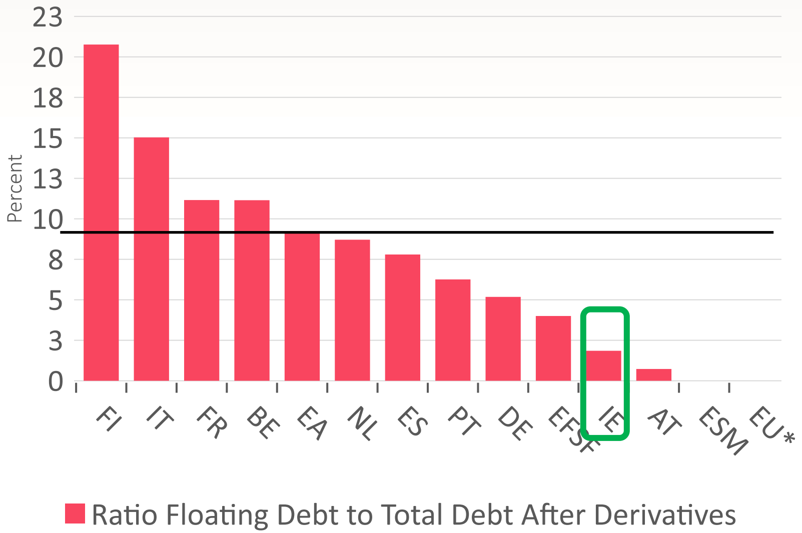
NTMA issued €42.5bn MLT debt 2020/21 at 12.8 yr. weighted maturity and avg. rate 0.19%



Source: NTMA

Note only auctions and syndication

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



Source: ESDM

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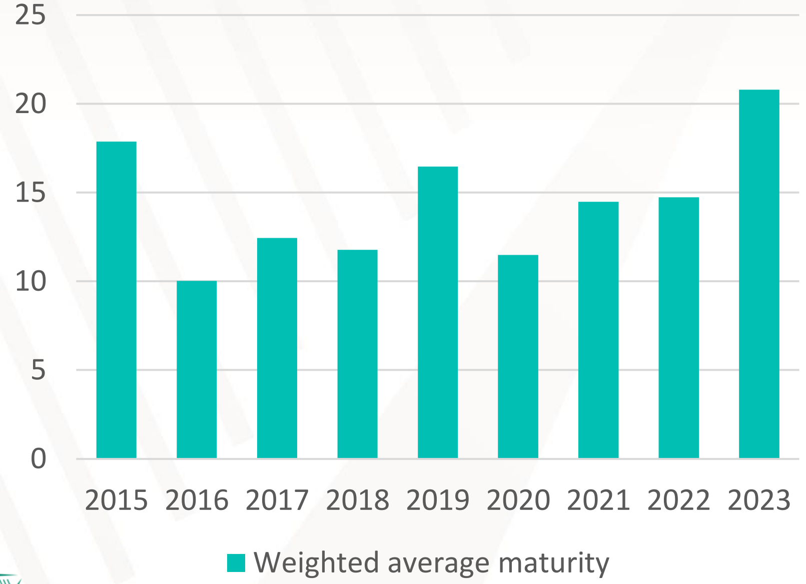
NTMA has lengthened weighted maturity

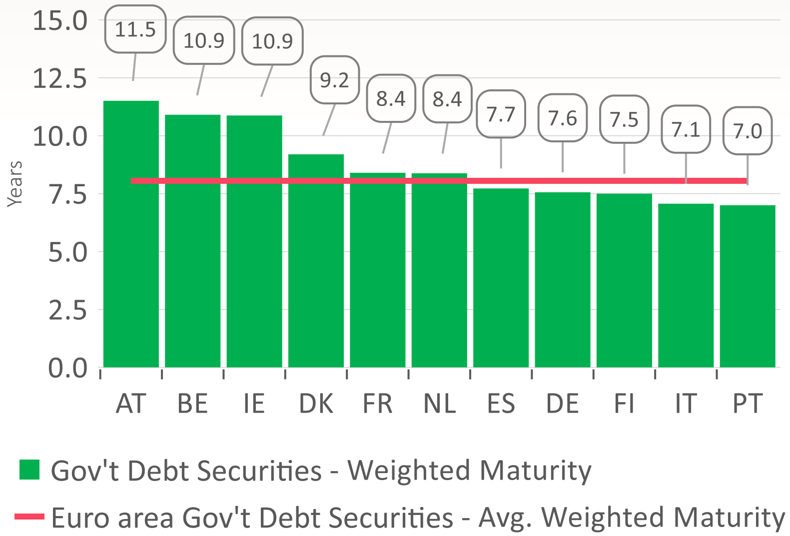
Debt management strategy took advantage of QE to extend debt profile since 2015

Benchmark issuance has extended the maturity of Government debt …



Source: NTMA

…Ireland (in years) compares favourably to other EU countries



Source: ECB

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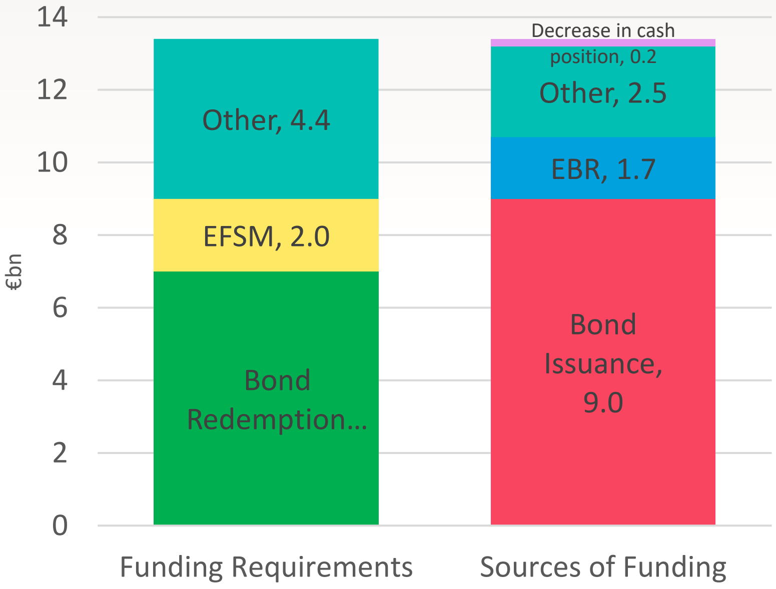
Note: Weighted maturity for Ireland includes Fixed rate benchmark bonds, FRNs, Amortising Bonds, Notes issued under EMTN programme, T-Bills and *ECP Data. It excludes programme loans and retail.*

Funding needs and sources for 2023

Lower borrowing amid expected EBR surplus

- There is one bond redemption in 2023 (€7.0bn). 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 source of funding).
- The NTMA is likely to continue to hold significant cash throughout 2023. The balance at year-end 2022 was c. €23bn.



Source: NTMA

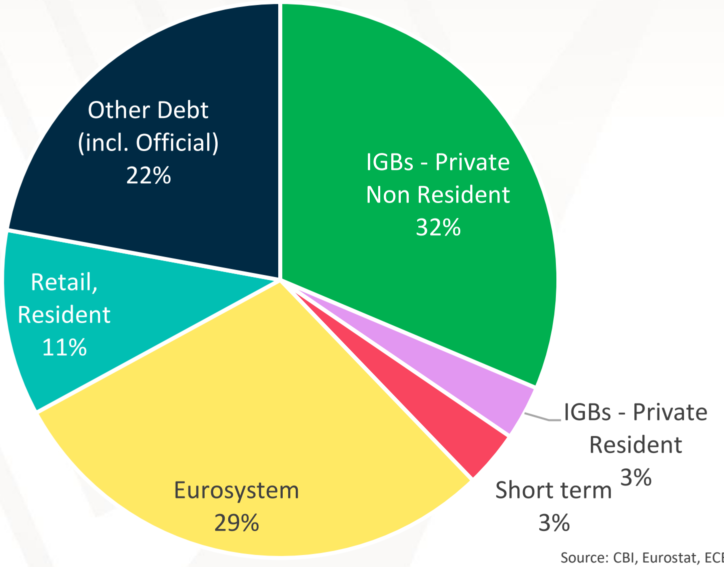
Rounding may affect totals

1. *In December 2022, the NTMA announced there would a funding range of €7-11bn for 2023. The midpoint of €9bn is used as an indicative figure in the chart.*
2. *Other funding needs includes provision for the potential bond/FRN purchases and general contingencies.*
3. *Other funding sources comprises of Short-term paper.*
4. *EBR is the Department of Finance's Budget 2023 estimate of the Exchequer Borrowing Requirement*

Diverse holders of Irish debt

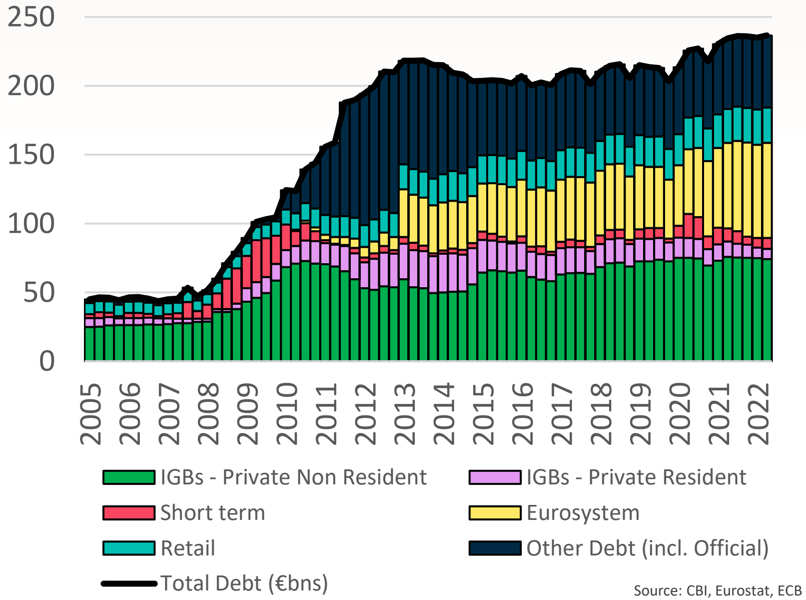
Sticky sources account for c. 60%

Ireland roughly split 85/15 on non-resident versus resident holdings (H1 2022)



Source: CBI, Eurostat, ECB

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



Source: CBI, Eurostat, ECB

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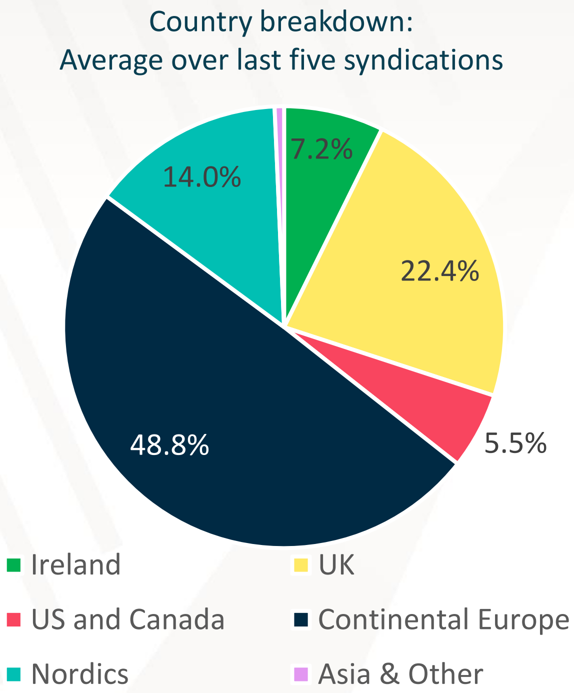
National Treasury Management Agency

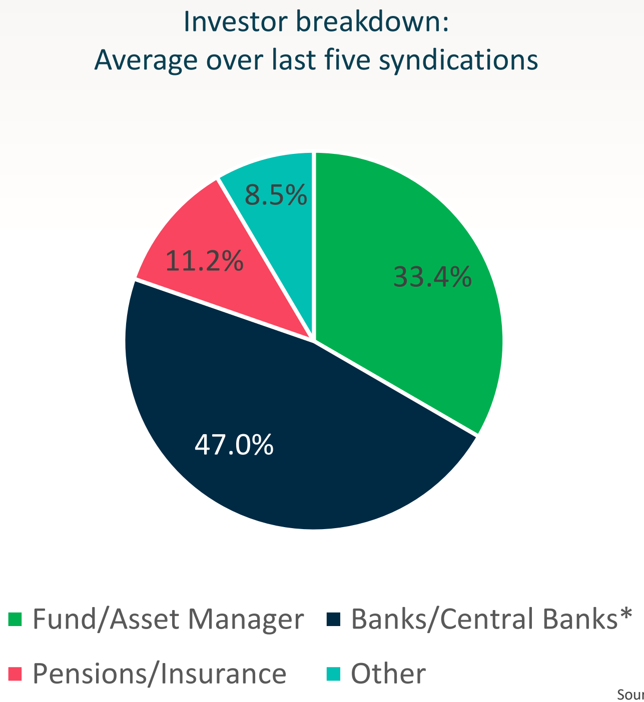
IGBs excludes those held by Eurosystem. Eurosystem holdings include SMP, PSPP, PEPP and CBI holdings of FRNs. Figures do not include ANFA. Other debt has included IMF, EFSF, EFSM, Bilateral as well as IBRC-related liabilities over time. Retail includes State Savings and other currency and deposits. The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

Investor base

Demand for Government bonds is wide and varied



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

Four upgrades in 2022 so far; Ireland rated in “AA” category by majority

Rating Agency	Long-term	Short-term	Outlook/ Trend	Date of last change	Date of next review
Standard & Poor's	AA-	A-1+	Positive	Nov 2019	19th May 2023
Fitch Ratings	AA-	F1+	Stable	Jan 2022	H2 2023
Moody's	A1	P-1	Positive	May 2022	21st April 2023
DBRS Morningstar	AA(low)	R-1 (middle)	Stable	Jan 2022	H2 2023
R&I	AA-	a-1	Stable	Feb 2022	Q1 2023
KBRA	AA-	K1+	Stable	Jan. 2020	26th May 2023
Scope	AA-	S-1+	Stable	May 2021	31st March 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 has decided to appeal to a higher court: the European Court of Justice. This process could still be lengthy. 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.

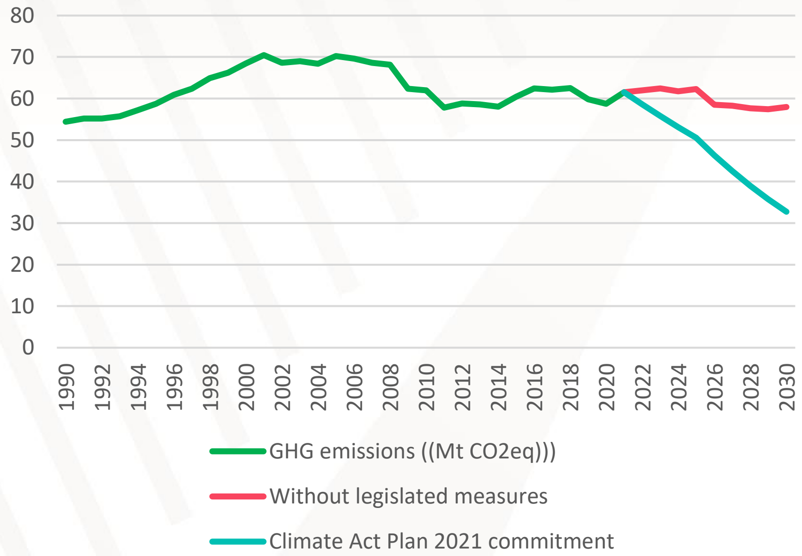
ESG

Issuance & government policy
demonstrate Ireland’s green commitment

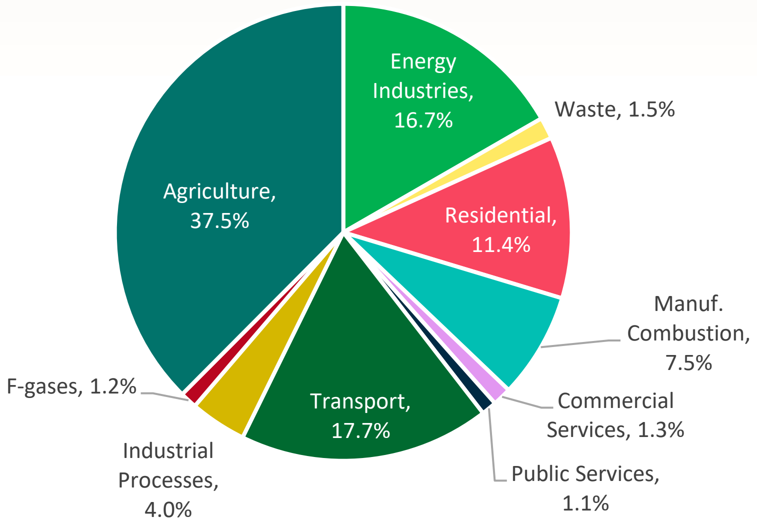
Ireland's Greenhouse Gas emissions

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

Ireland's emissions fell post financial crisis – but significant progress needs to made by end of decade



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



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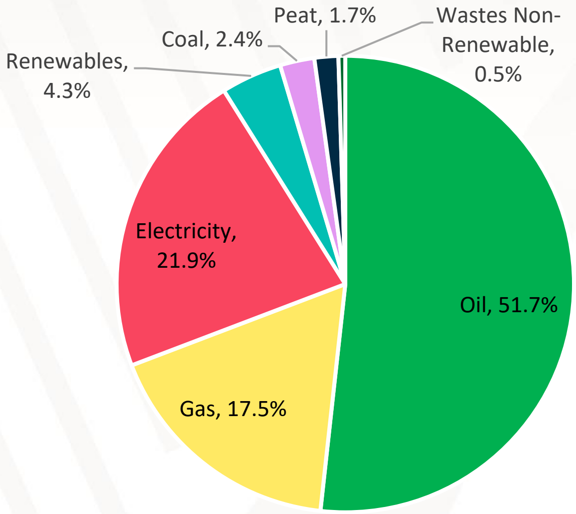
Source: Environment Protection Agency (Ireland) , Climate Action Plan

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

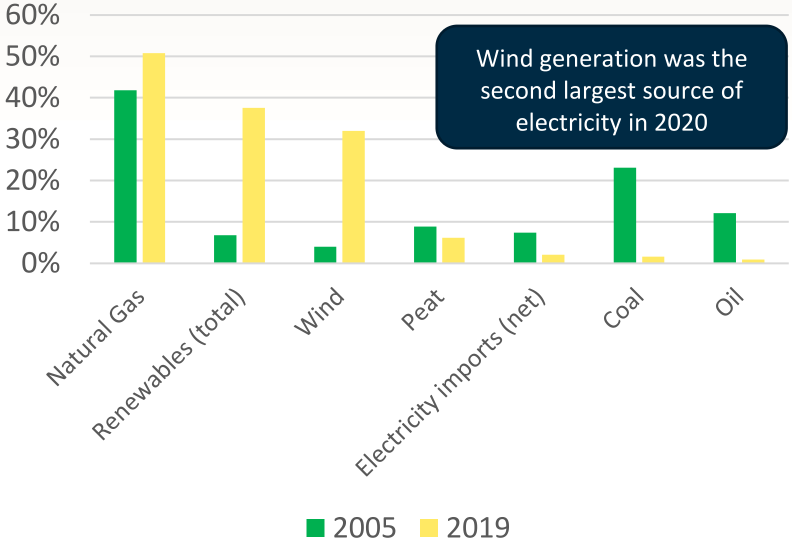
Ireland Energy: Fossil fuels prevalent

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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National Treasury Management Agency

Source: SEAI, Climate Action Plan, EU Renewable Energy Directive

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*

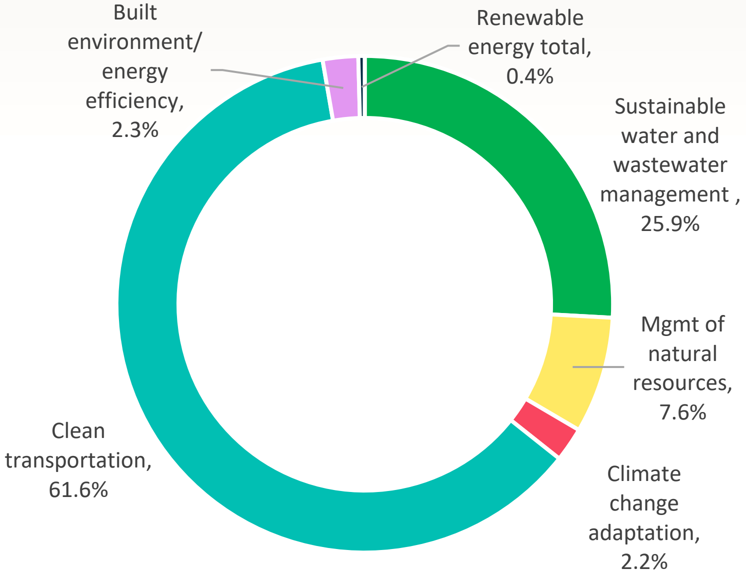
Irish Sovereign Green Bonds (ISGB)

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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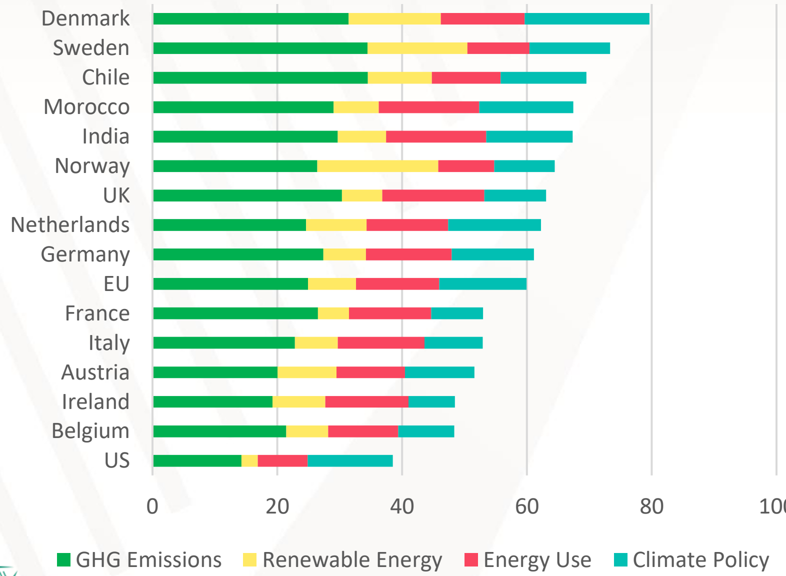
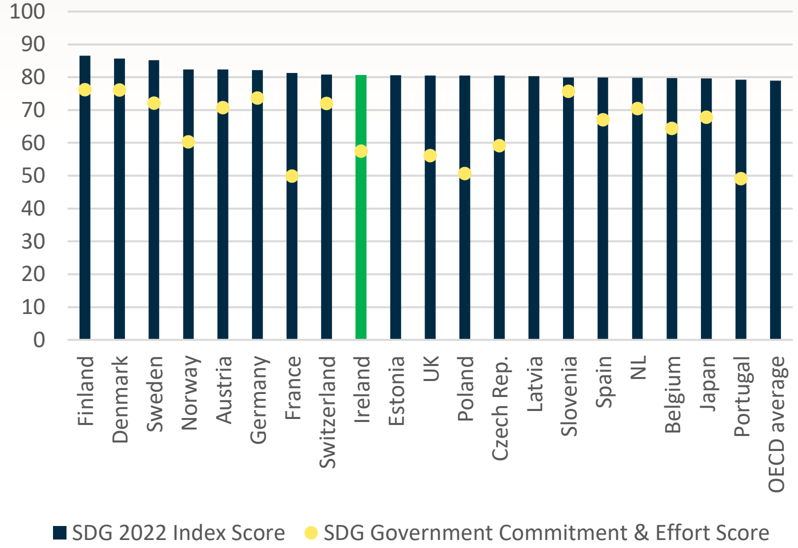
On the "E" of ESG, Ireland is currently behind

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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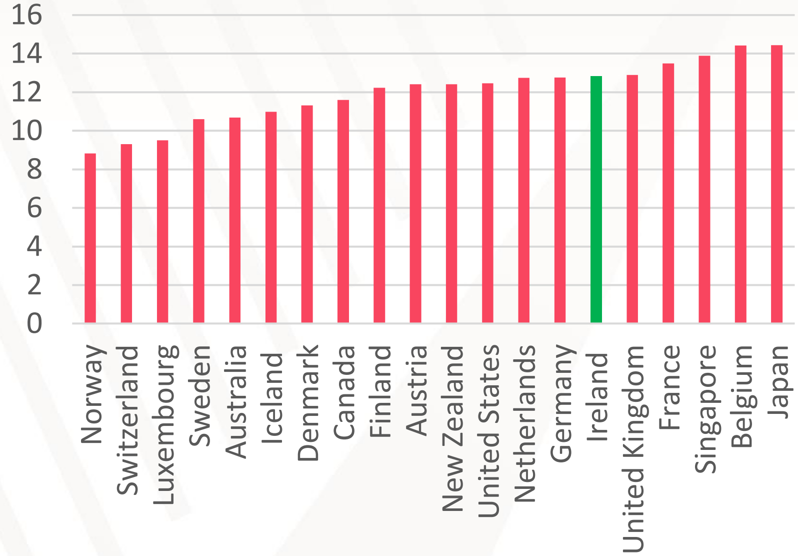
National Treasury Management Agency

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

Ireland in top 20 most sustainable countries

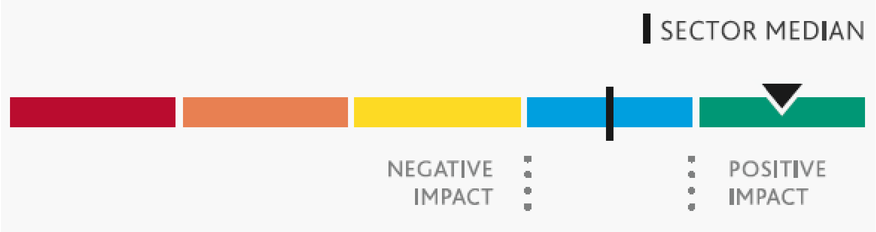
Ireland rated highly by Sustainalytics and rating agencies on ESG

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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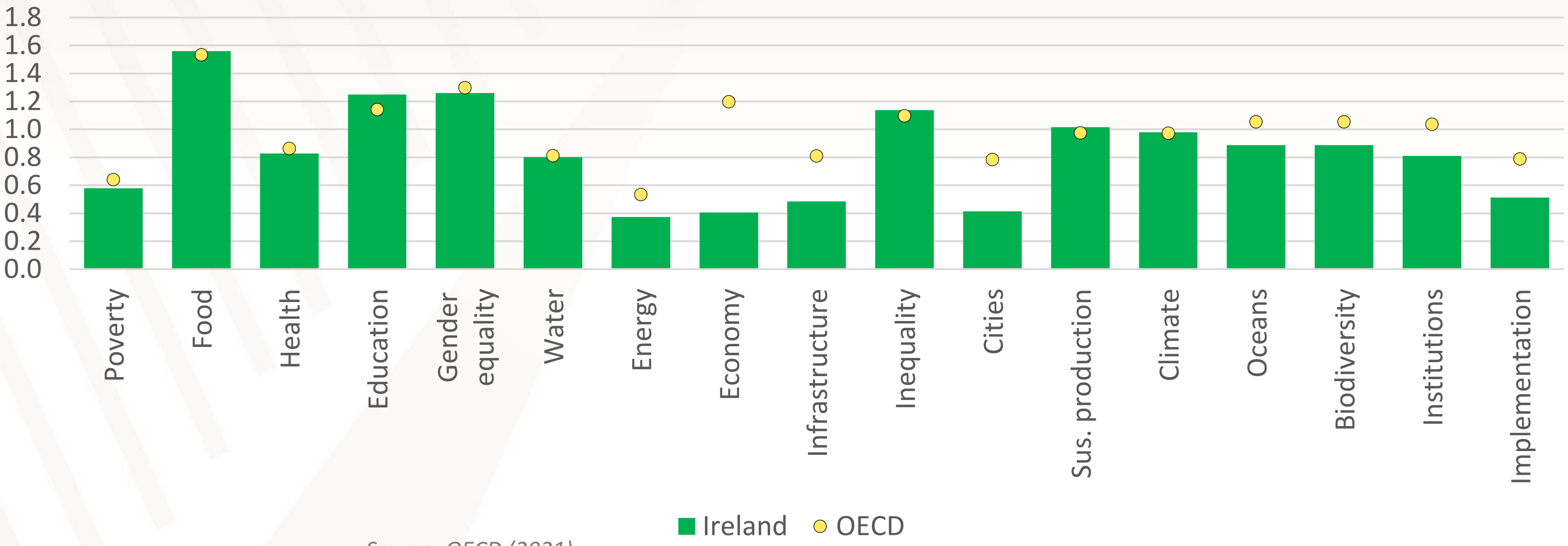
National Treasury Management Agency

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)

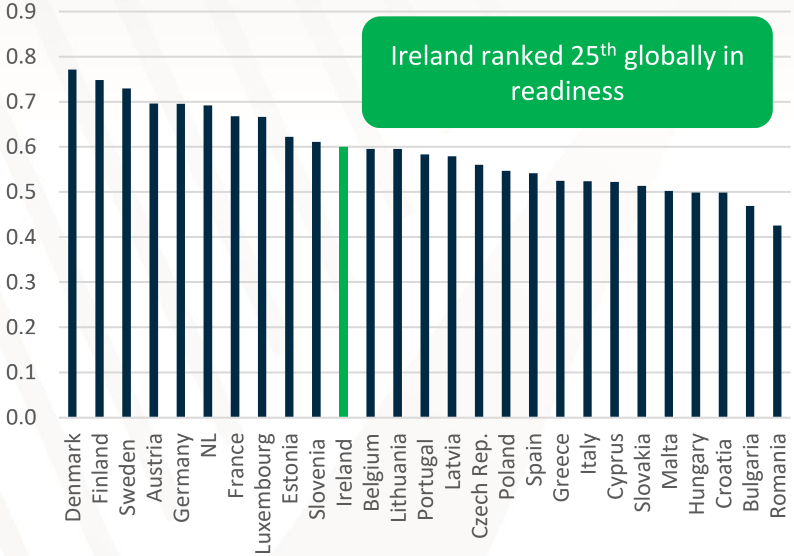
Each bar shows “distance” country needs to travel to reach each SDG. Distances are measured in standardised units with 0 indicating that the level for 2030 has already been attained: and 3 is the distance most OECD countries have already travelled. Bars show the average country performance against all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

Gníomhaireacht Bainistíochta an Chisteáin Náisiúnta
National Treasury Management Agency

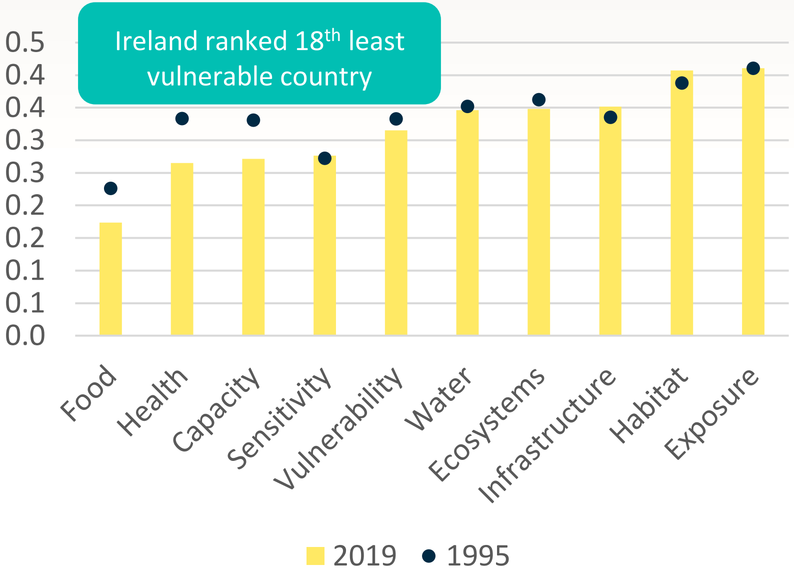
Readiness and vulnerability to climate change

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 5.3% from 1995-2019



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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.*

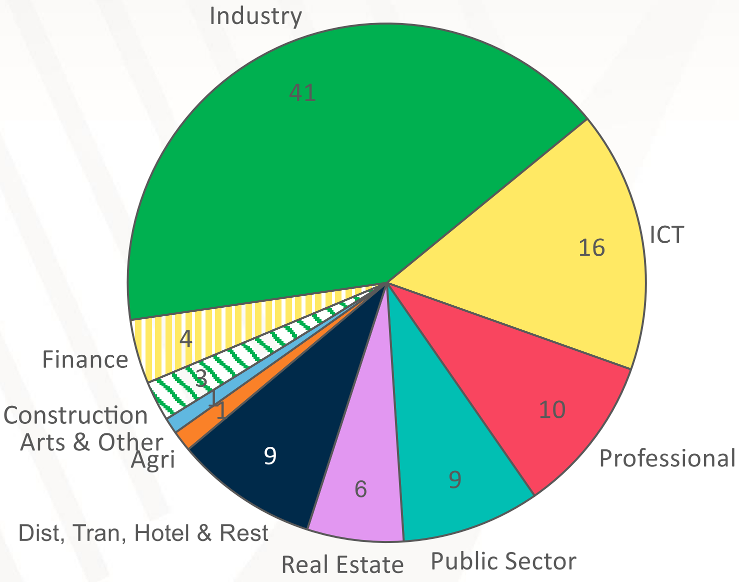
Structure of the Irish Economy

Multinationals distort the “true” economic picture but offer clear benefits of jobs, income, taxes

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	41
ICT (Tech)	7	10	16
Professional	10	14	10
Dist, Tran, Hotel & Rest	24	18	9
Public Sector	30	28	9
Real Estate	0	1	6
Financial	5	8	4
Construction	6	4	3
Agriculture	1	1	1
Arts & Other	4	2	1

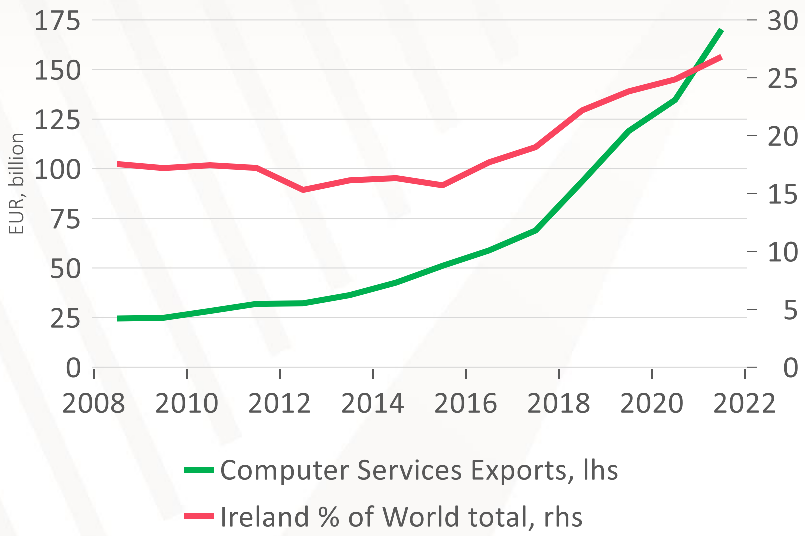
Source: Eurostat

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

€0.67trn of intellectual property into Ireland

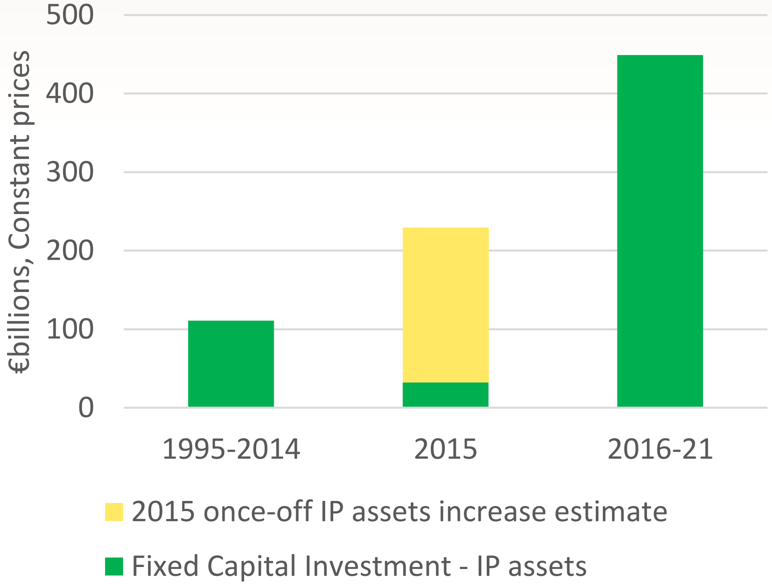
Assets brought here by tech. & pharma. in recent years

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



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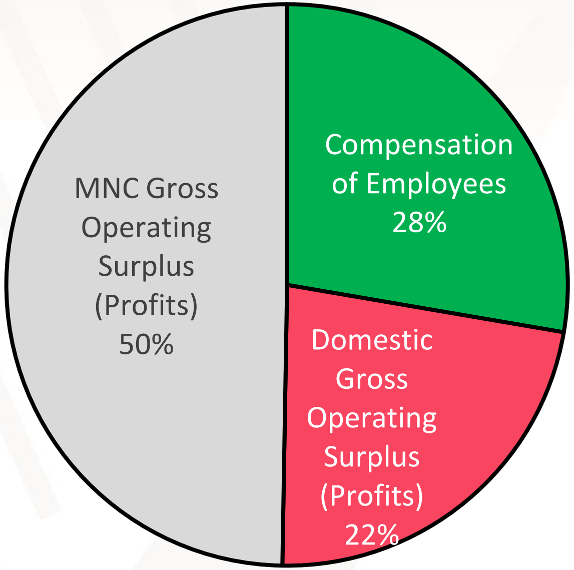
National Treasury Management Agency

Source: CSO and NTMA analysis

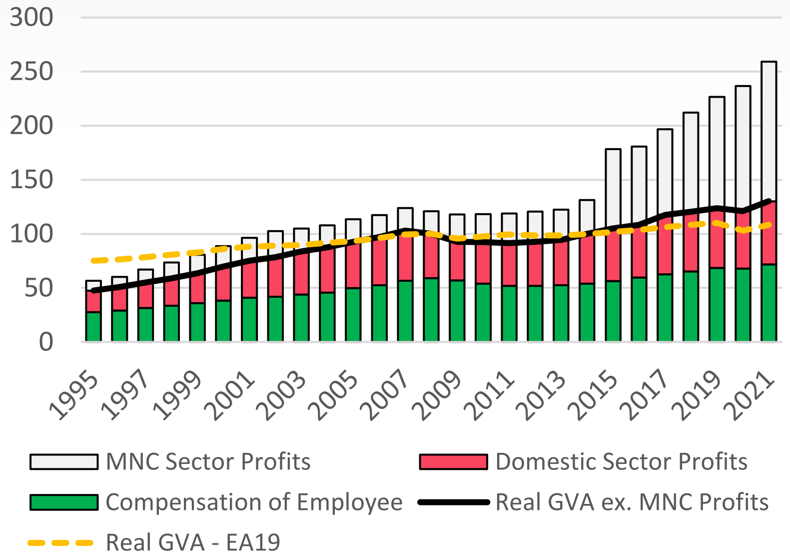
Underlying economy above EA avereage

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)



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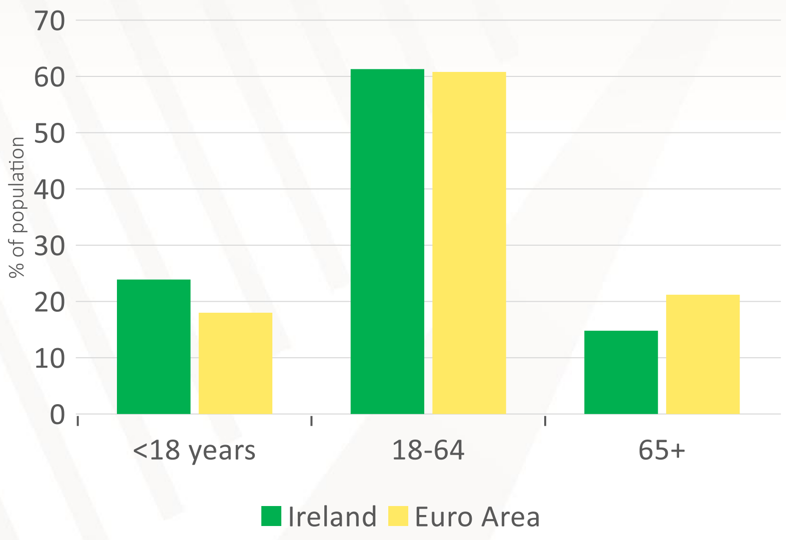
Source: CSO, NTMA calculations (Nominal 2021 data used in left chart)

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

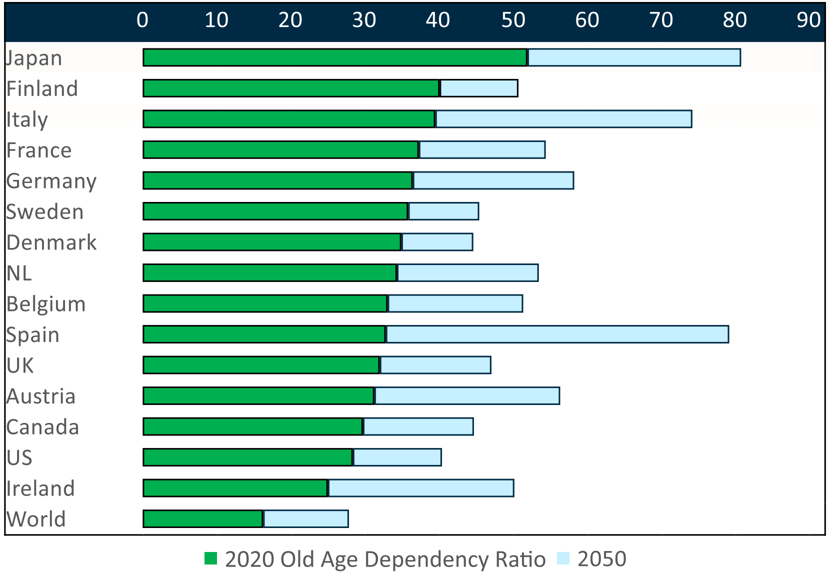
Age profile younger than the EU average but won’t outrun aging demographics

Ireland’s population at 5.12m 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

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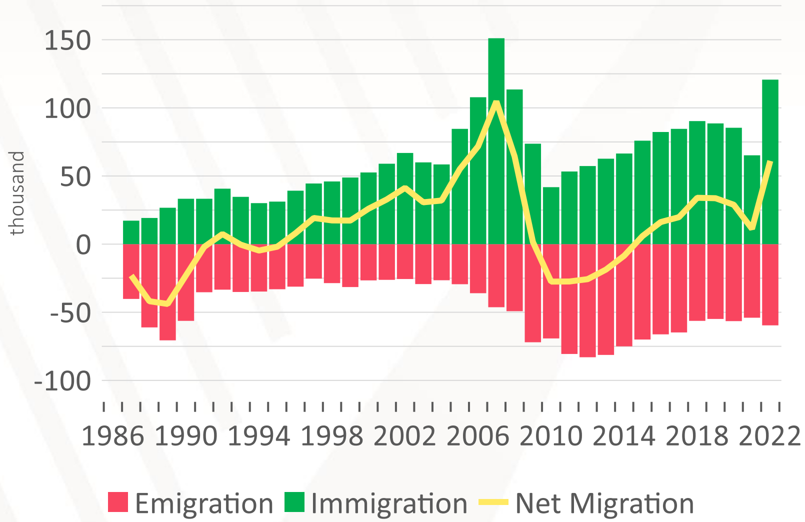
Migration improves Ireland’s human capital

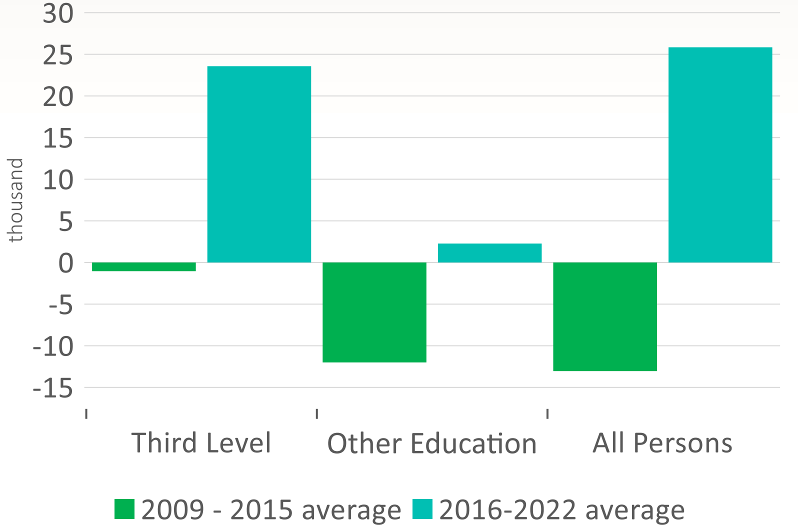
Ireland’s net migration has swung back and forth on economic performance

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

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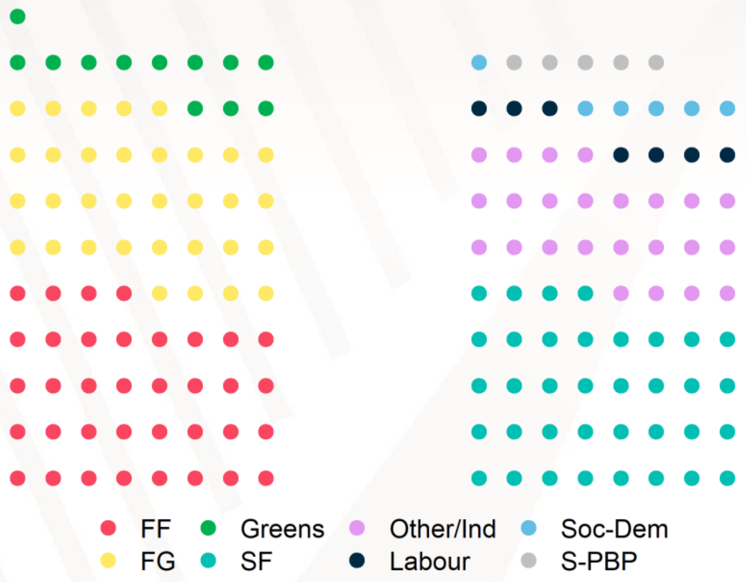
Migration figures based on year to April

Ireland’s Government

The composition of the Dáil Éireann is evenly balanced between Government and Opposition



Key information on the 33rd Dáil Éireann

- Leadership
  - Taoiseach: : Leo Varadkar (Fine Gael)
  - Tánaiste: Micheál Martin (Fianna Fail) – (Martin and Varadkar swapped roles in Dec 2022)
  - Leader of the Opposition: Mary Lou McDonald (Sinn Fein)
- Political groups
  - Government (81 seats)
    - Fianna Fáil (36), Fine Gael (33), Green Party (12)
  - Opposition (78 seats)
    - Sinn Féin (36), Other/Independent (24), Labour Party (7), Social Democrats (6), Socialist – People Before Profit (5)
- Voting system: Proportional representation - Single transferable vote
- Last election: 8 February 2020
- Next election: No later than 20 February 2025

Source: Houses of the Oireachtas (as of February 2023)

Brexit

Free trade agreement has re-routed trade patterns

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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, and extra paperwork is expected to cause disruptions.
  - 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.

Withdrawal Agreement signed in 2019

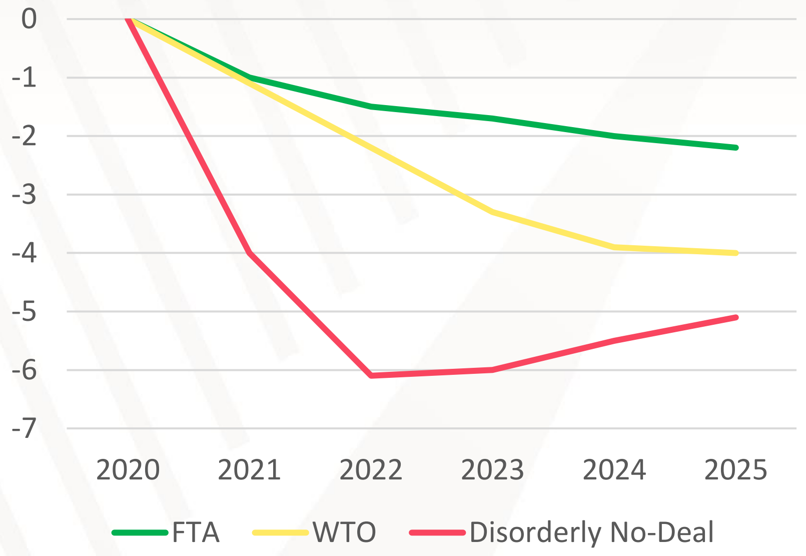
Northern Ireland protocol within Withdrawal Agreement resolves many but not all of the land border issues

- The withdrawal agreement is a legally binding international treaty which works in tandem with the free trade agreement.
- Northern Ireland will remain 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: the customs border is "in the Irish sea". Goods crossing from Republic of Ireland to Northern Ireland will not require checks, but goods that are continuing on to the UK mainland will.
- Complex arrangements will be necessary to differentiate between goods going to NI and those travelling through NI to UK or vice versa. On-going technical negotiations are making some progress on implement of this but nothing fully agreed.

Impact of Brexit on Ireland likely net negative

Deal means the shock is smaller & spread over longer horizon

Modelled impact on output (in % of growth) versus No Brexit baseline: FTA reduces impact significantly



IE trading partners: UK important for good imports (land bridge) & services exports

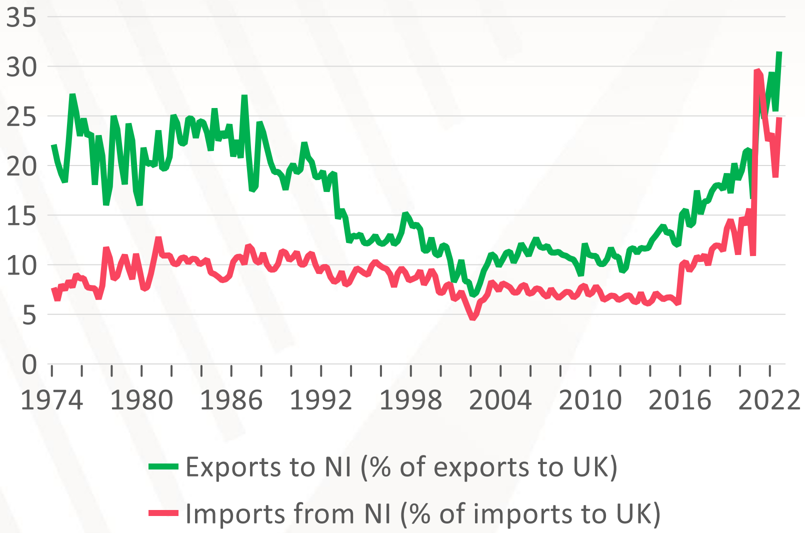
% of total	Goods (2020)		Services (2020)		Total (2020)	
	Exp.	Imp.	Exp.	Imp.	Exp.	Imp.
US	31.2	15.5	13.5	35.0	20.6	30.7
UK	9.1	23.1	14.4	6.6	12.0	10.0
EU-27	39.6	34.9	30.6	11.7	34.2	16.8
China	6.8	7.6	2.9	1.6	4.4	3.0
Other	13.3	18.9	38.6	45.1	28.5	39.3

Source: CBI, NTMA analysis

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

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Modest benefit: FDI inflows into Ireland

The UK (City of London) has lost degree of access to EU market

FDI: Ireland benefitting already

- Ireland could be a beneficiary from displaced FDI. The chief areas of interest are
  - Financial services
  - Business services
  - IT/ new media.
- Dublin is primarily competing with Frankfurt, Paris, Luxembourg and Amsterdam for financial services.
- The UK (City of London) has lost significant degree of access to EU market so there may be more opportunities in time.
- 2019 figures from the IDA have shown that at least 70 investments into Ireland have been approved since the announcement of Brexit.

Companies that have indicated jobs have or will be moved to Ireland

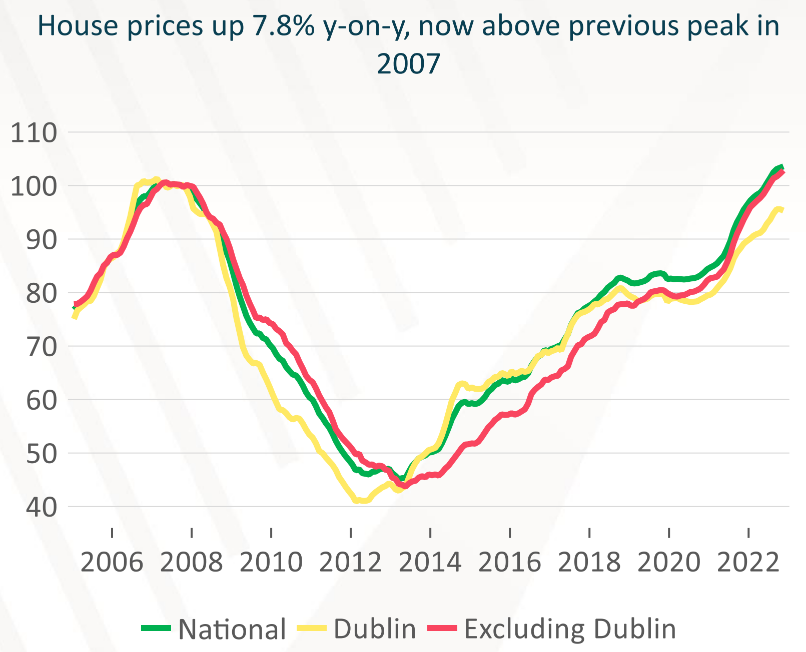
BARCLAYS
Morgan Stanley
citi
J.P.Morgan
Goldman Sachs
TD
Bank of America Merrill Lynch
LEGG MASON GLOBAL ASSET MANAGEMENT
S&P Global Ratings
BARINGS

Property & Banks

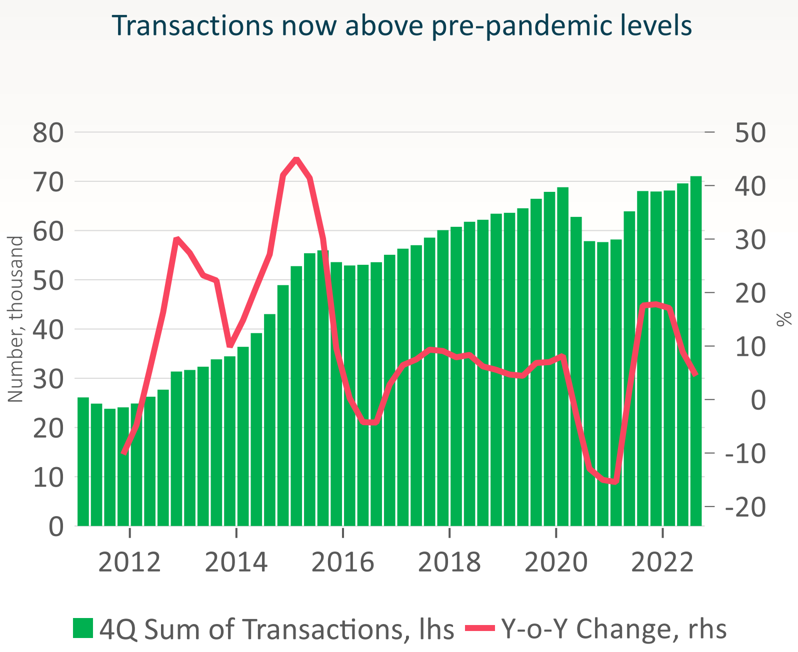
Significant price pressures resulting from
a lack of supply and strong demand

Prices have risen since Covid

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



Source: CSO



Source: CSO

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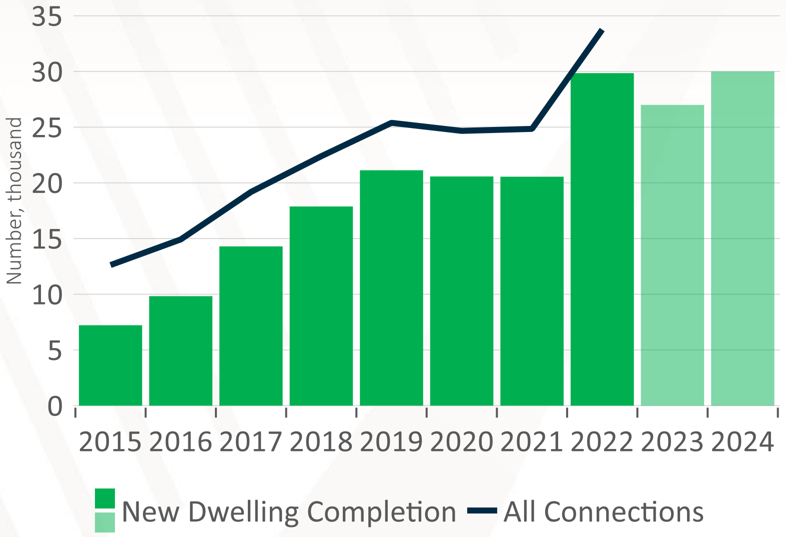
* Some estimates have put housing needs as high as 60,000 a year over the coming decades

Supply outlook uncertain

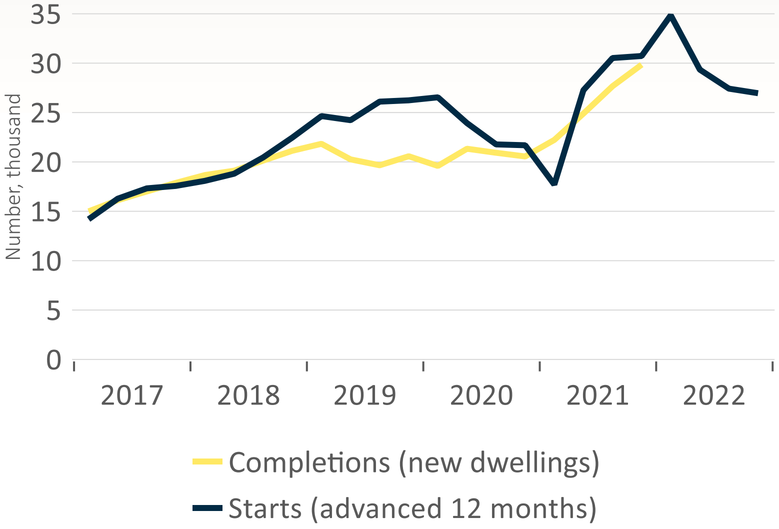
Stronger supply in 2022 but 2023 supply to be impacted by costs & higher interest rates

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, Irish 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

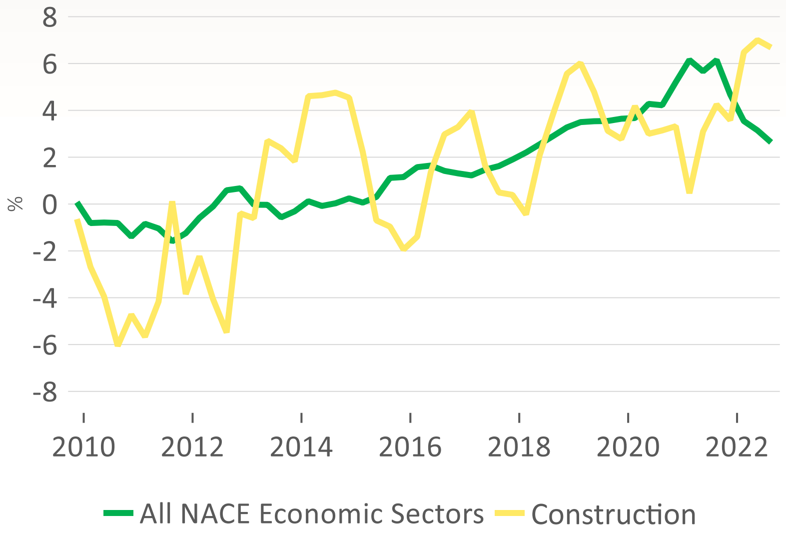
Inflation clear in construction sector

Increased material costs obvious along with large increases in labour costs

Materials up 16% year-on-year in December – may impede new development but inflation may have peaked

Source: CSO

Labour costs are rising, up 5% y-on-y in Q3 2022 vs. 3% for all sectors



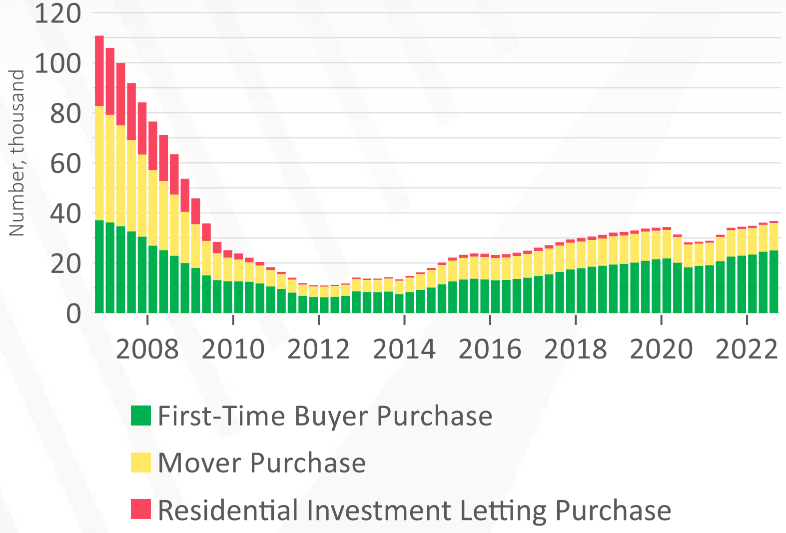
Source: CSO

RHS = weekly earnings on a 4Q yearly growth rate

Demand is strong, drawdowns increasing

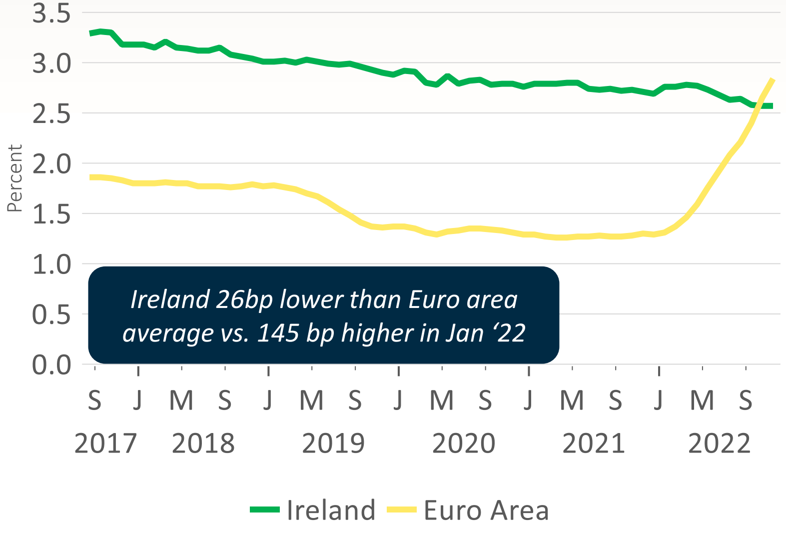
Amended CBI rules may increase demand; rates on new lending haven’t risen yet

Mortgage drawdowns* continue to increase fuelled by strong demand



Source: BPFI

After years of higher priced mortgages, Irish rates** have moved toward EA average since January



Source: ECB

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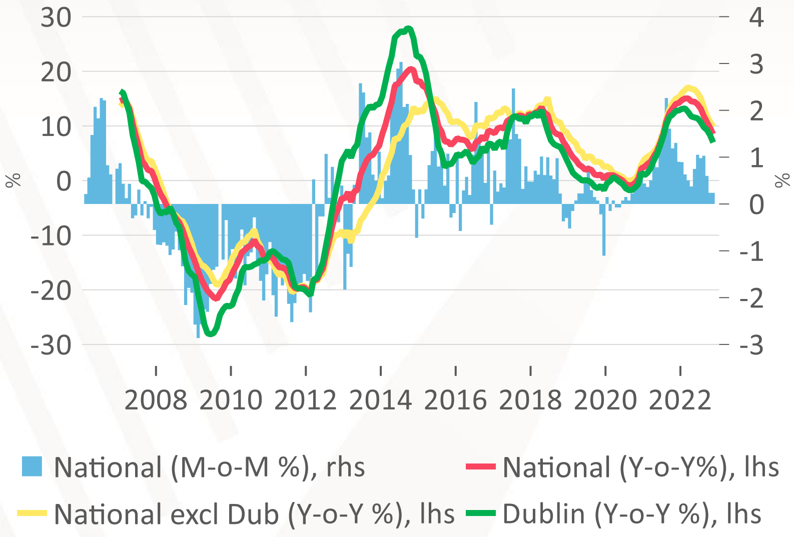
*4 quarter sum used (LHS)

** Mortgage interest rate on new lending for house purchase excl. revolving loans and others

House prices continue to rise

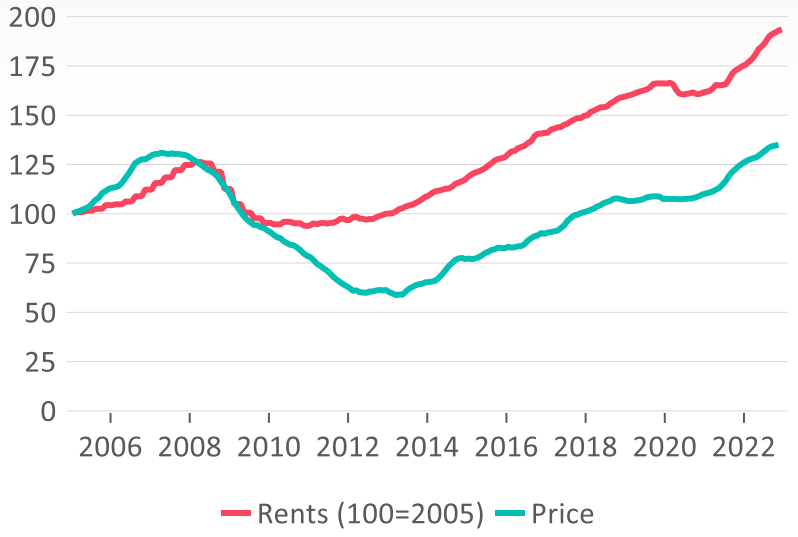
Inflation driven by strong demand, labour shortages and increased supply prices

House prices up 7.8% in the year to December 2022 with monthly growth still robust



Source: CSO

Rents pressures strong with a y-on-y increase of 10.6% in December



Source: CSO

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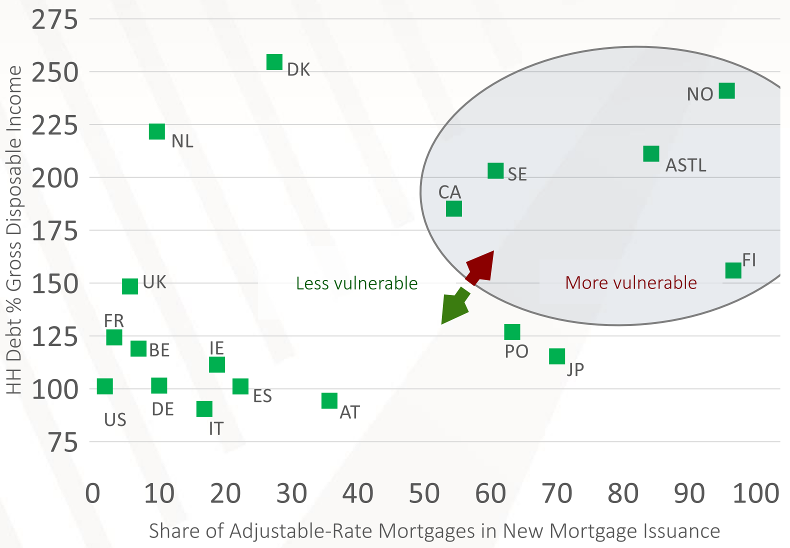
Ireland less vulnerable to rising interest rates

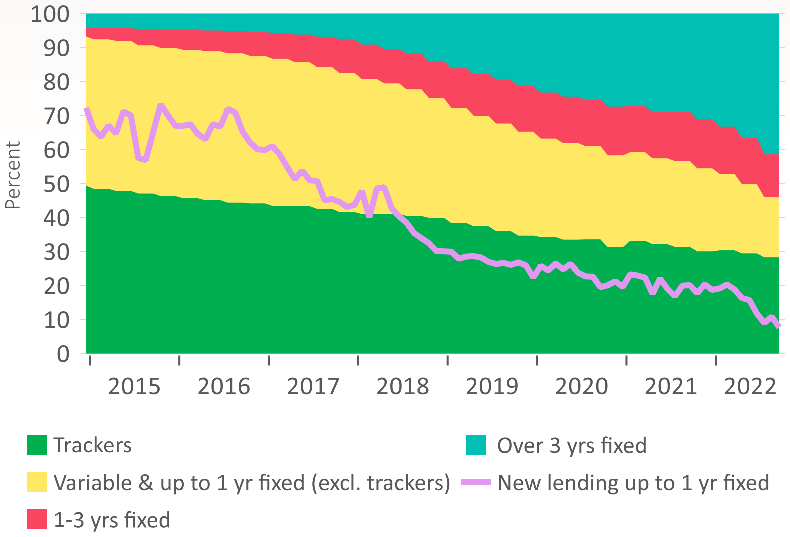
But could pose a greater threat in the medium term

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

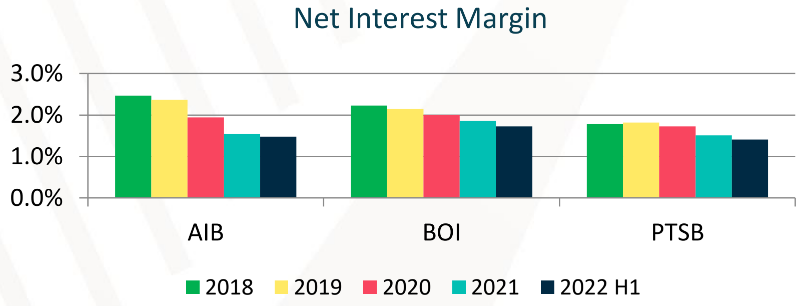


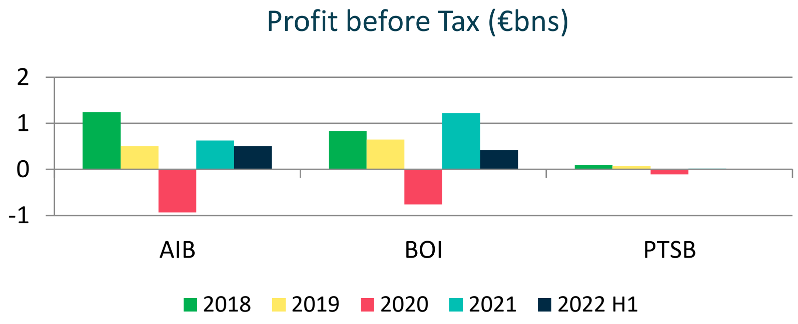
Source: Central Bank of Ireland

Ireland’s Banking Sector Overview

Less competition possible in decade to come

- Banks profitable before Covid-19: income, cost and balance sheet metrics much improved.
- 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.
- A further tranche of AIB shares worth €396m were sold in Q4 2022. The Government owned approx. 56% of AIB at that stage. Sales are ongoing and government is expected to hold a minority stake soon.





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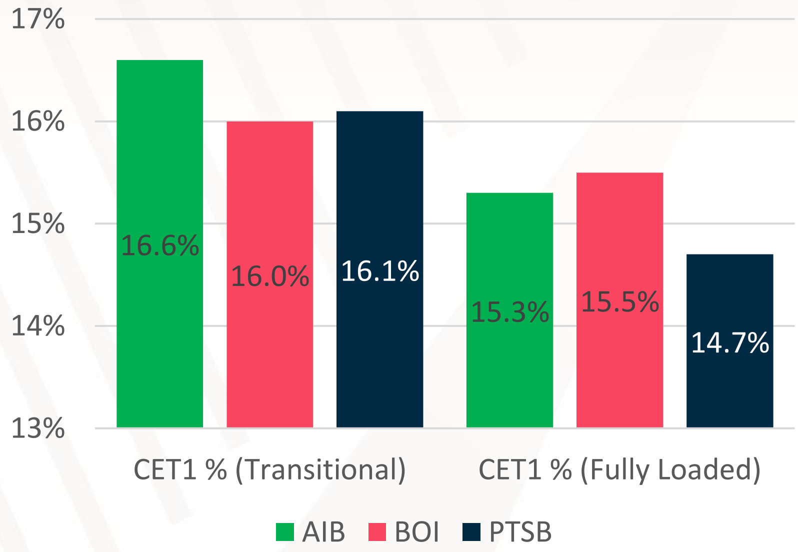
Source: Annual reports of banks - BOI, AIB, PTSB

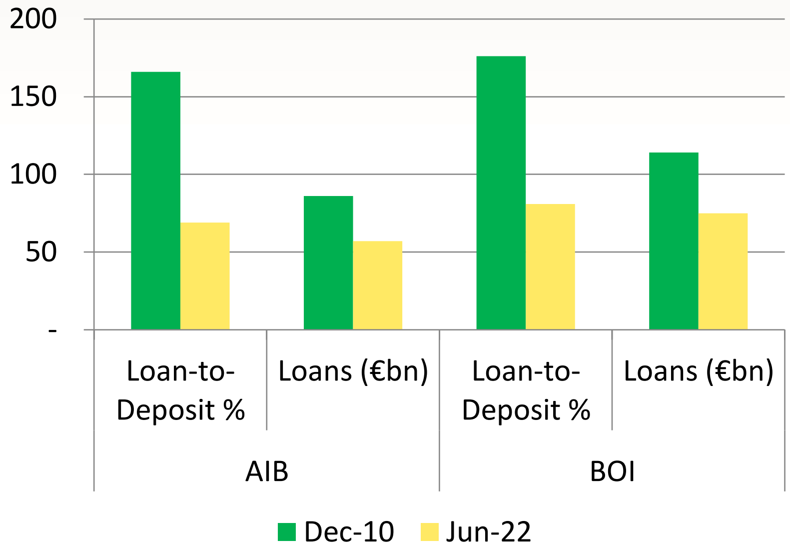
Capital ratios strengthened in last 10 years

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



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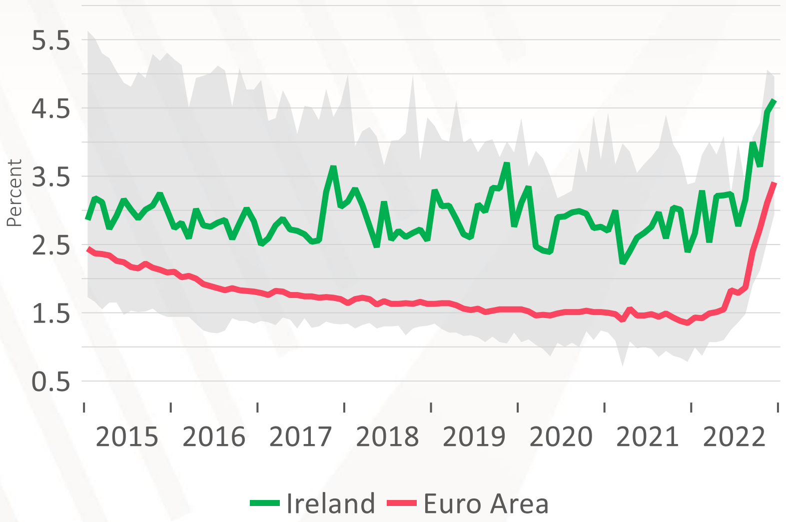
Source: Published bank accounts

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

Banks passing on rate hikes to businesses

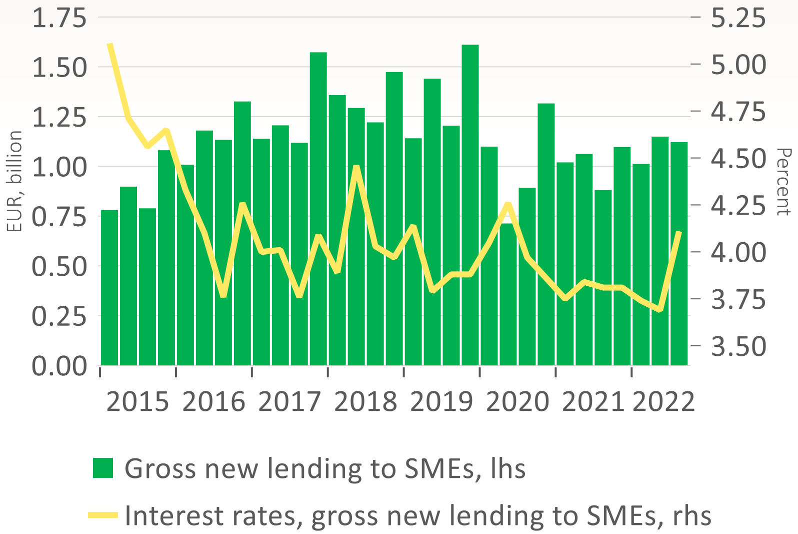
Rates on new lending to corporates moving faster than mortgage rates

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

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