Ireland: Recovery begins amid vaccine rollout success

NTMA Investor Presentation
September 2021

Gníomhaireacht Bainistíochta an Chisteáin Náisiúnta
National Treasury Management Agency

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Summary

Irish economy has shown remarkable resilience amid Covid shock

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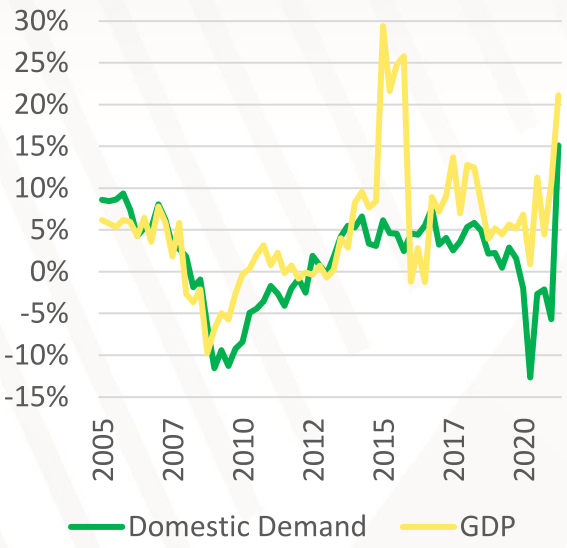
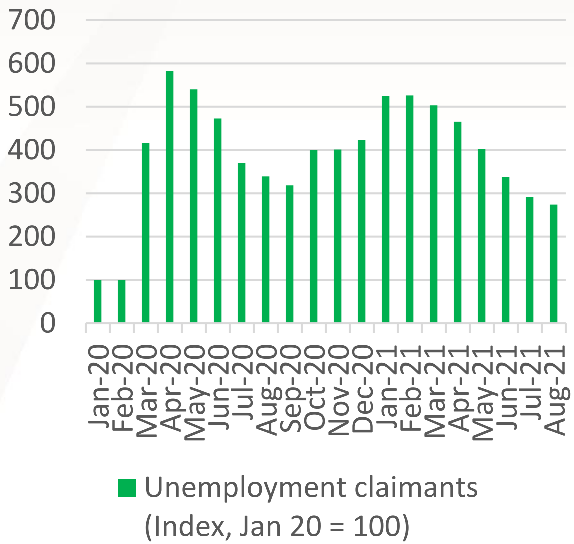
Economic recovery showing promise

Vaccine rollout underpins spending led recovery

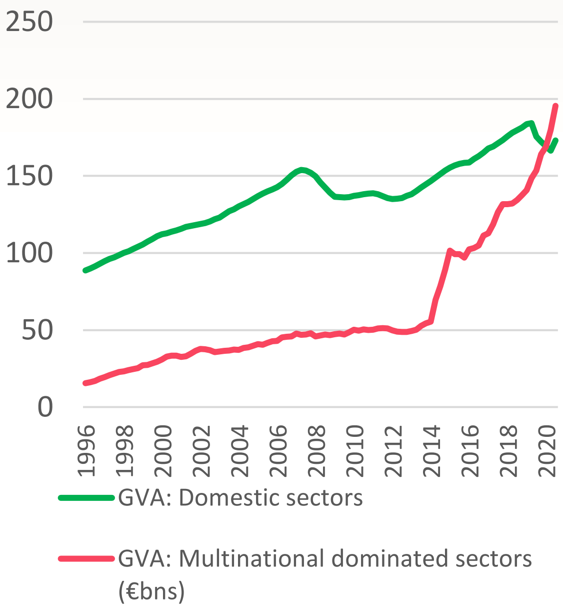
Domestic demand* gives better picture of Covid economic impact



Unemployment steadily falling as economy begins its recovery



Value added from ICT & pharma has given Ireland resilience



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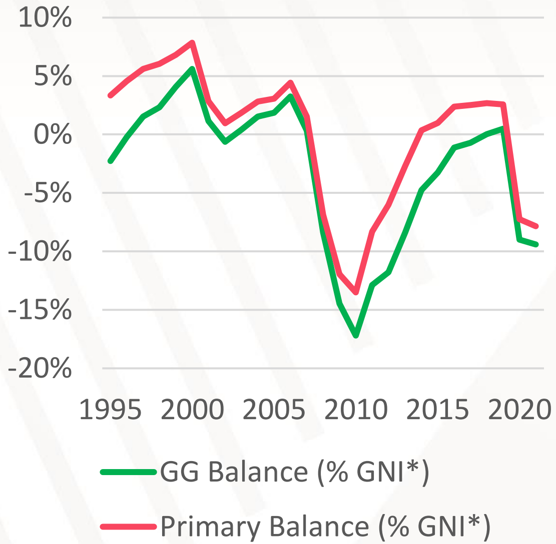
Source: CSO, NTMA Analysis

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

Ireland's debt ratios to rise again in 2021

Large fiscal response required but Govt. will look to narrow deficit after 2021

Run of primary surpluses before '20 GG deficit c. €19bn (9% of GNI*)



Debt position reversed in 2020

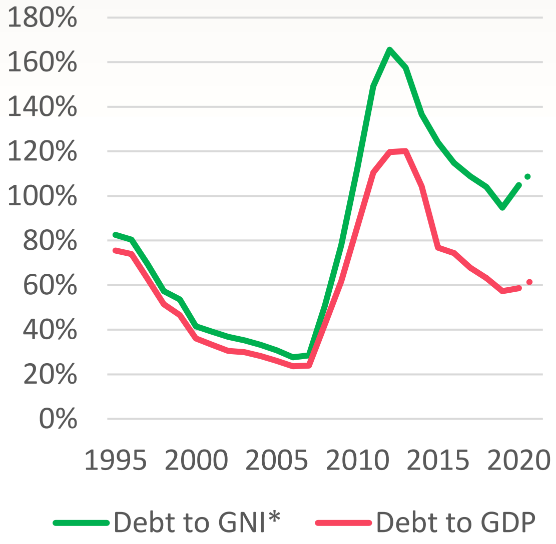
Debt-to-GNI*
(105% 2020; 95% in 2019)

Debt-to-GG Revenue
(258% 2020; 232% in 2019)

Average interest rate
(1.8% 2020, from 2.2% in 2019)

Debt-to-GDP
(58% 2020, from 57% in 2019)

Debt fell from 166% to 95% of national income pre-Covid



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Source: CSO, Department of Finance forecasts

Medium term economic challenges

Covid recovery, deficit reduction and possible OECD tax reform

Recovery

Restrictions have been eased and vaccine rollout a success

Timely labour market and spending data suggest recovery began in Q2 and continues into Q3

Fiscal

Significant stimulus of c.21% of GNI* announced for 2020 and 2021

Deficits are necessary but in time public support to economy to be reduced

Tax

Proposed corporate tax reform led by the OECD may impact Ireland's growth model

Global minimum tax rate challenges Ireland’s offering to multinationals, possibly reducing future growth

NTMA funding range of €18-20bn for 2021

€14.75bn already funded this year

Flexibility

Ireland has large cash balances and no redemptions until March 2022

In addition to bond funding, Ireland received €2.5bn in EU Sure funding in Q1

>10 years

Weighted average maturity of debt one of longest in Europe

The ECB's QE programs have enabled NTMA to extend debt maturities and reduce interest cost.

AA-

Ireland rated in the AA category with S&P

Despite Covid impact both Moody's and DBRS have upgraded the outlook for Ireland to positive highlighting Ireland's resilience and fundamentals

Macro

Rebound in spending and labour
market highlights recovery

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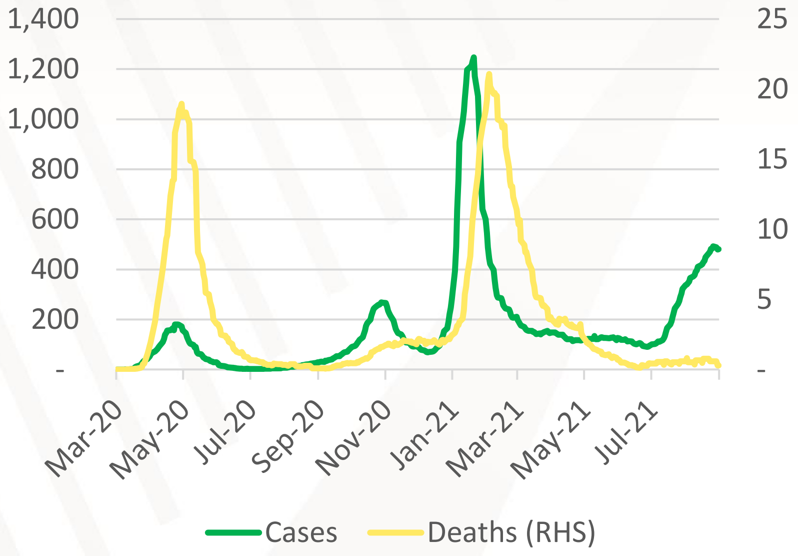
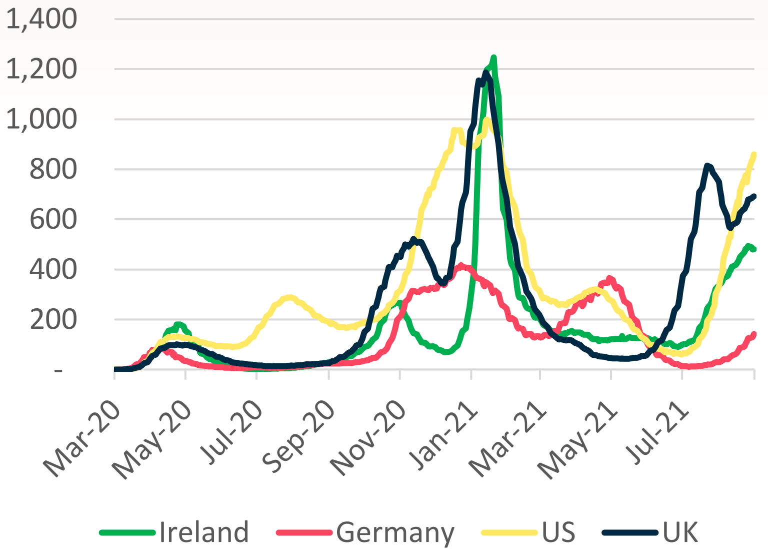
Cases rising on Delta variant

Thankfully severe outcomes like hospitalisation and deaths have been contained

14 day Covid-19 cases/deaths per 100k of population – Delta uptick modest so far



Ireland case numbers versus other countries (per 100k of population)



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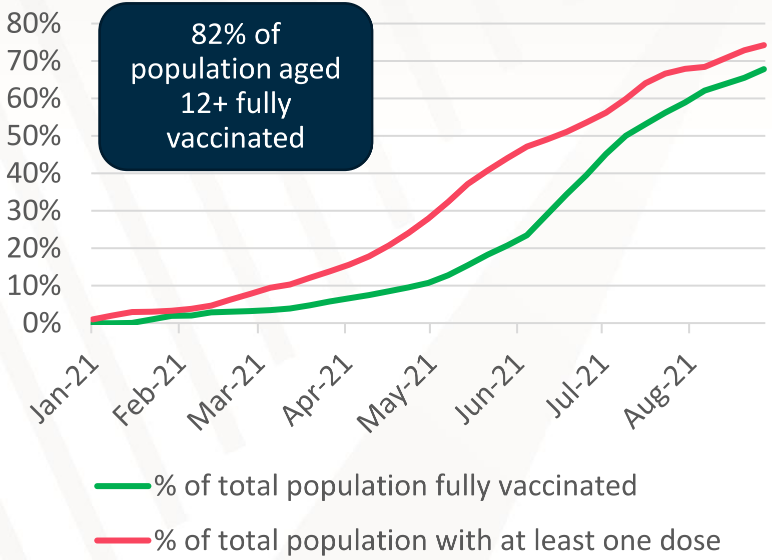
Source: DataStream

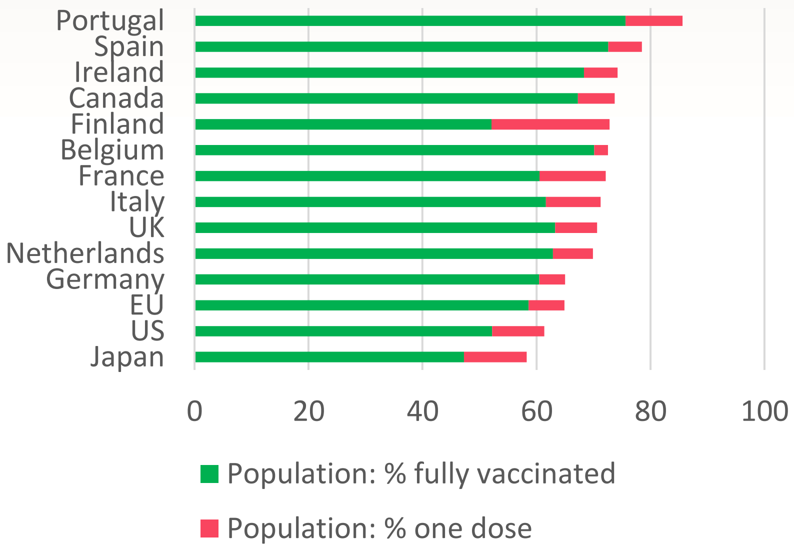
Vaccine rollout has been a success

c. 75% of total population with one dose, 69% fully vaccinated

Rollout progress expected to impact path of Delta variant in coming weeks



Ireland near the top in terms of vaccine rollout in Europe



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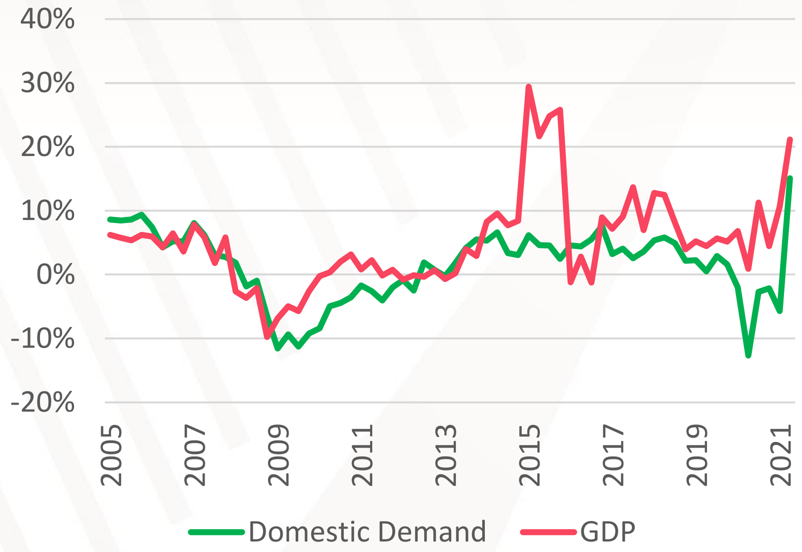
Source: ECDC, DataStream

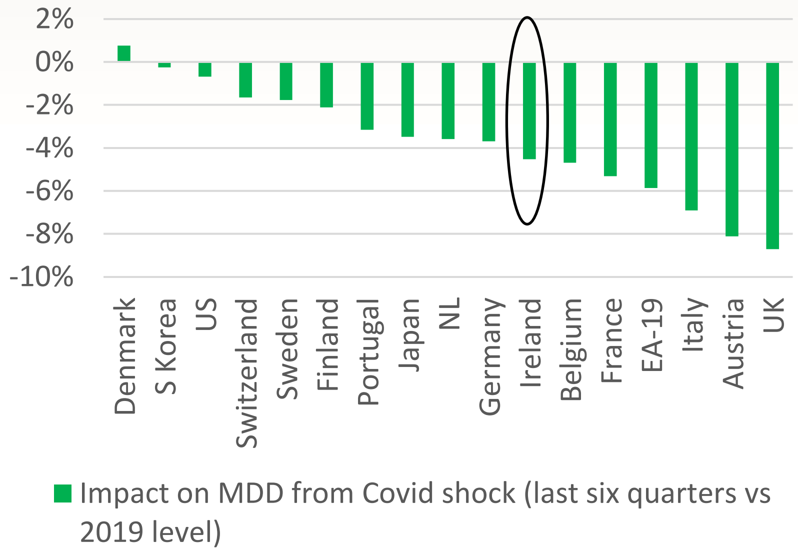
Ireland performed relatively well during Covid

GDP growth does not tell the appropriate story, domestic demand gives the best guide

GDP growing very strongly, modified domestic demand has begun to rebound



Real MDD down 4.5% in Covid period (versus 2019 levels) – better than EA average



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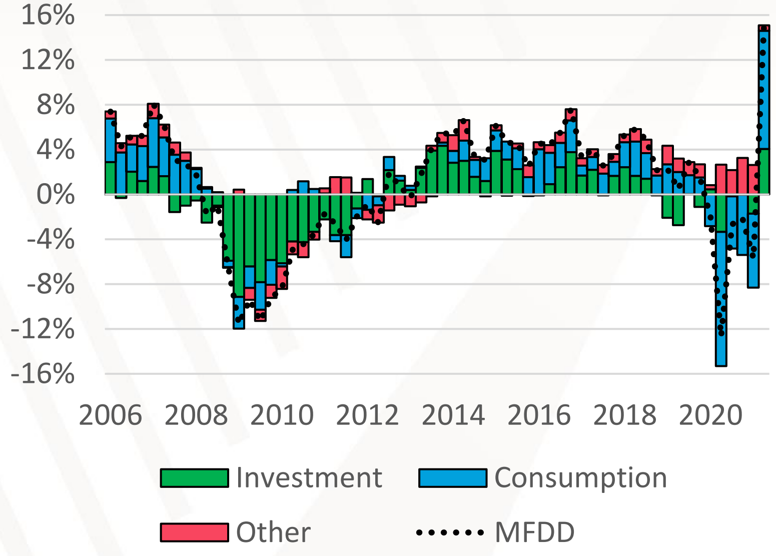
Source: CSO, DataStream

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

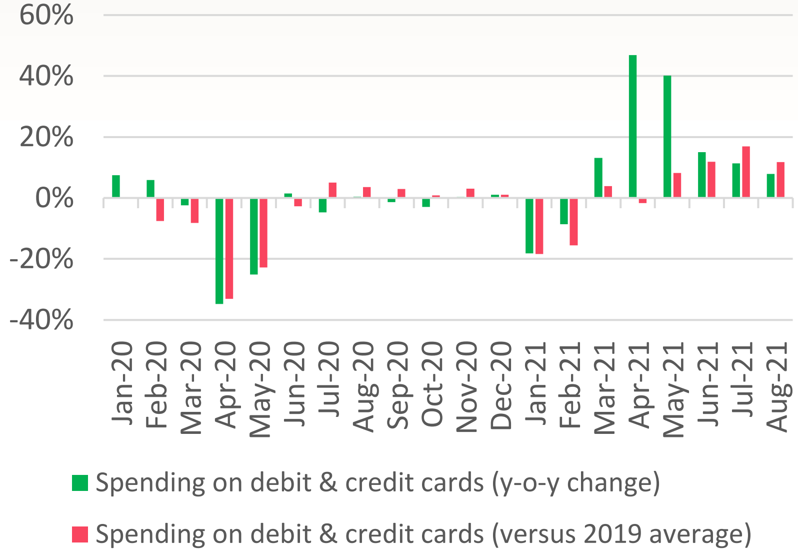
Consumer spending rebounded in Q2

Strong recovery in spending data continues in Q3

Recovery in modified domestic demand in Q2 was driven by spending after restrictions eased (y-o-y growth)



Spending continued into Q3: now four straight months of card spending well in excess of 2019 levels



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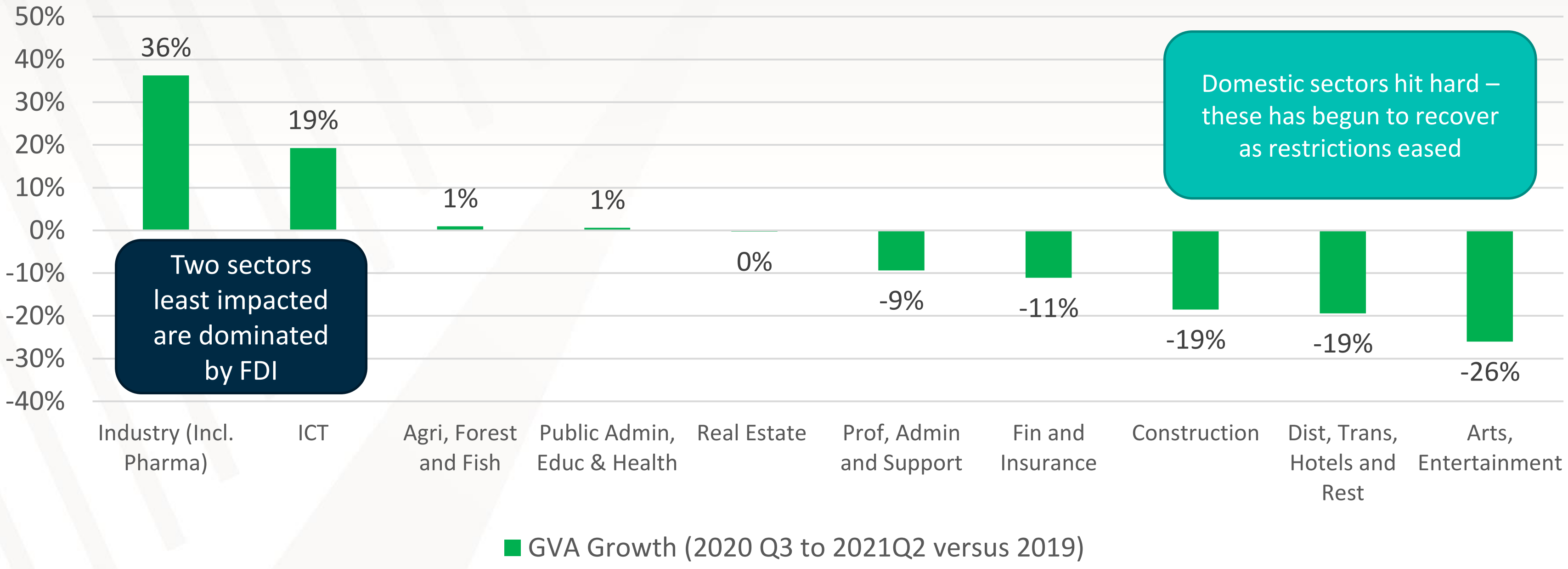
Source: CSO, CBI

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

Sector performance during Covid period

Multinationals strong performance, domestic side hit hard



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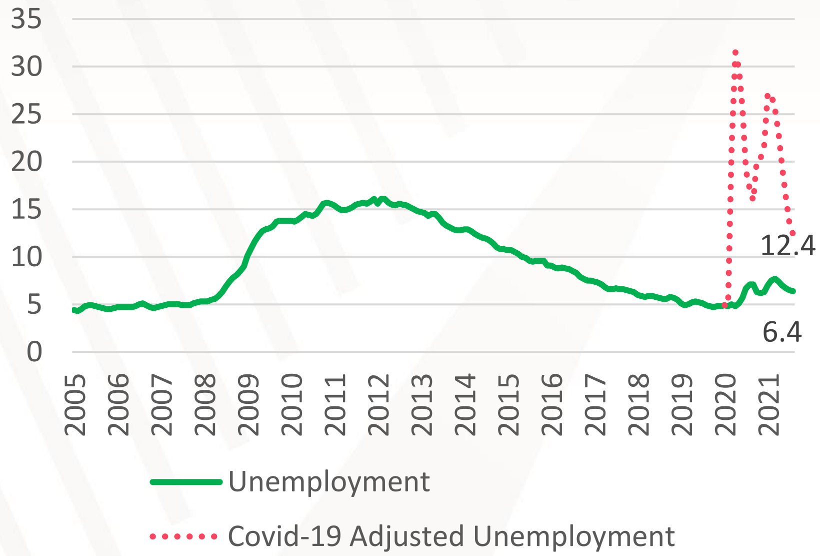
Source: CSO

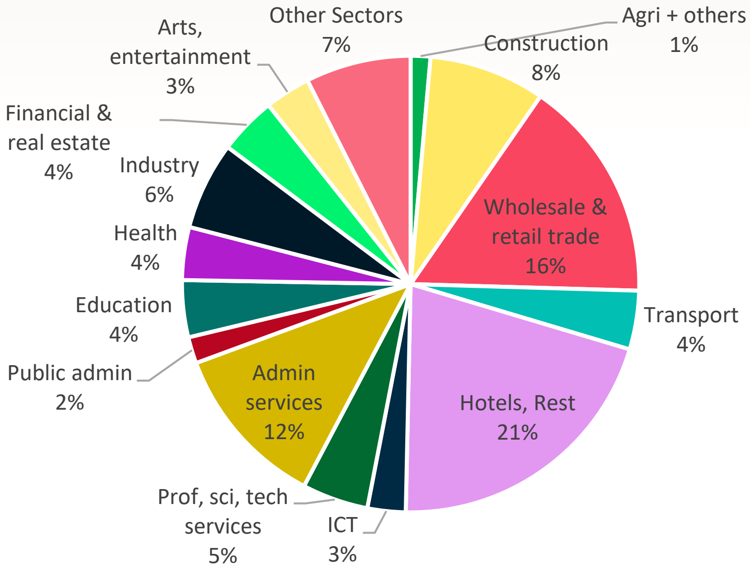
Labour market improving in recent months

Unemployment rate slowly decreasing as workers fall off income support schemes

Covid-19 adjusted unemployment rate* fell to 12.4% in August



Those on the pandemic unemployment payment scheme are spread across all sectors with focus on retail/hospitality



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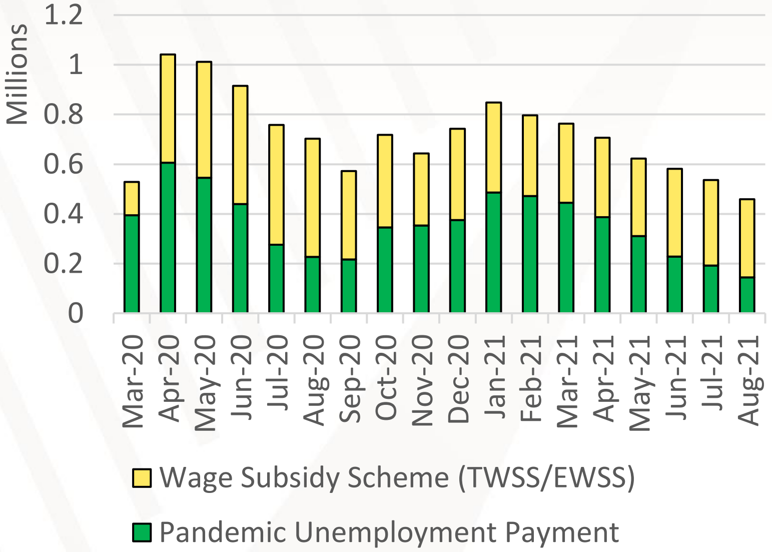
Source: CSO

** The CSO have estimated this as the upper bound of the unemployment rate. The CSO have urged caution around this data given the likelihood of revisions and the unique nature of employment in the pandemic.*

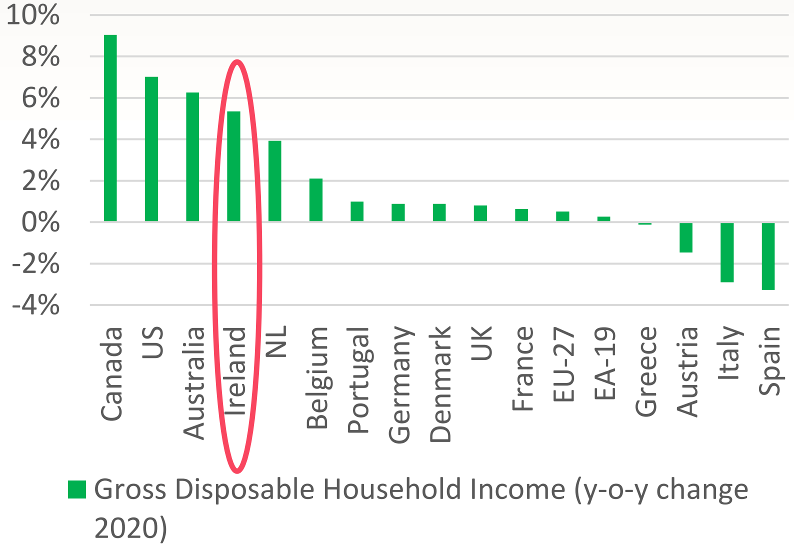
Over 40% fall in those on income support

Approx. 460k on income support; down from above 800k in Q1 2021

Those on the PUP has halved since start of 2021; fall in EWSS number much more gradual



Supports helped disposable income grow in 2020 more akin to US than EU



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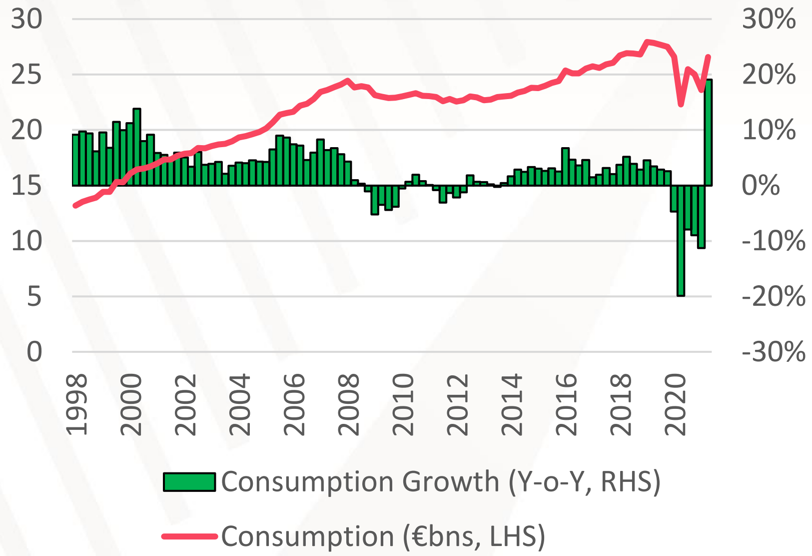
Source: Revenue, DEASP, CSO, Revenue

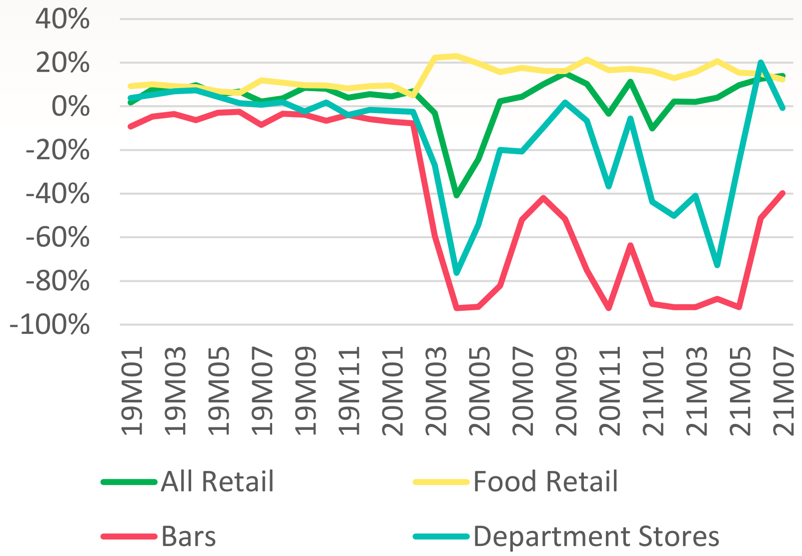
Consumption fell in Q1 but recovering in Q2

Consumption is up 12.6% q-o-q in Q2 2021

Q2 data best since pandemic began, still behind 2019 levels



Retail sales numbers starting to rise along with economy re-opening



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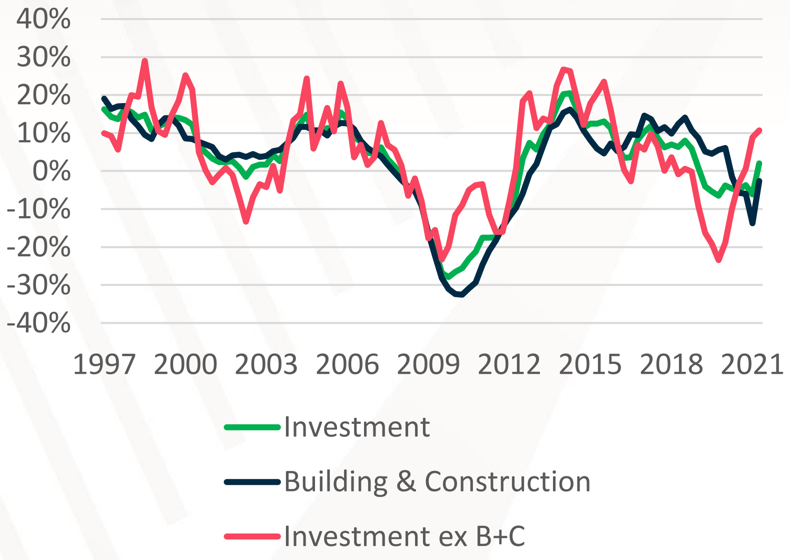
Source: CSO

Note: RHS charts growth rate versus two years previously

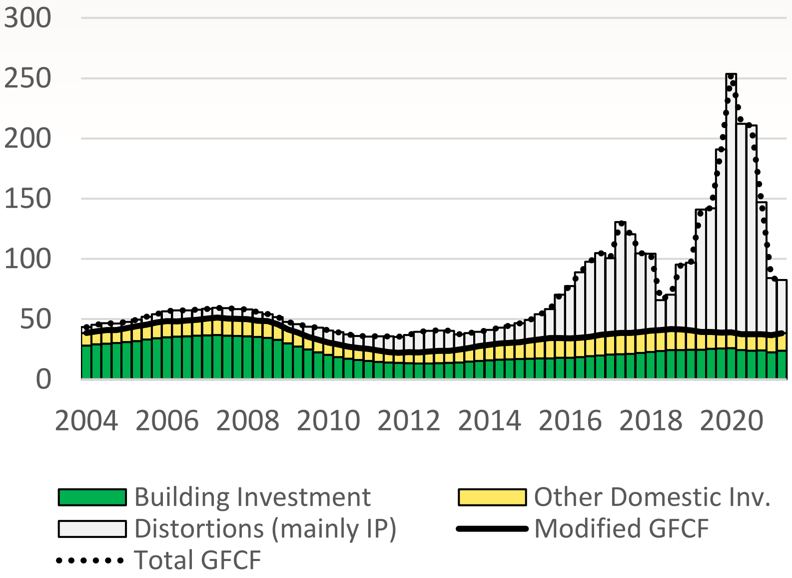
Q1 investment impacted by lockdown

Construction sector has moved in & out of lockdown but now open since April

Investment hit in Q1 but impact more muted thanks to M+E investment (annual change)



IP distortions less than in previous quarters – surge in 2020 likely tax regime related



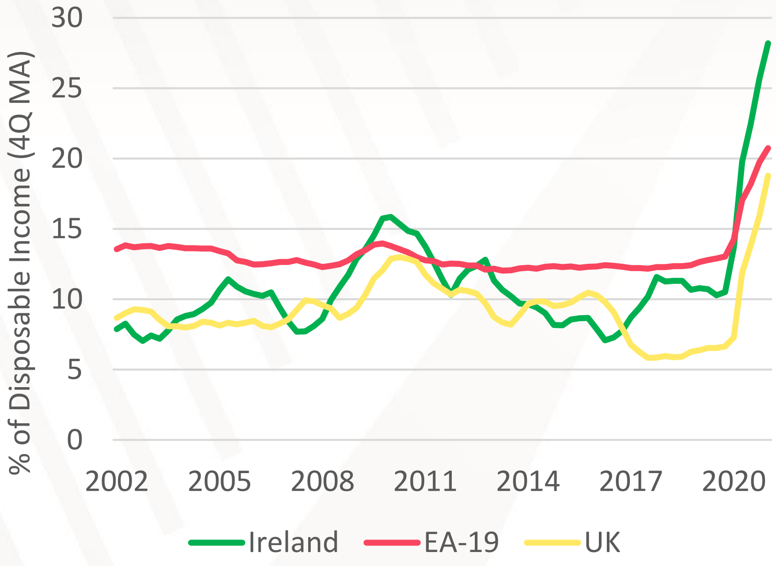
Source: CSO; NTMA calculations

RHS Chart is 4Q sum in Euro billions

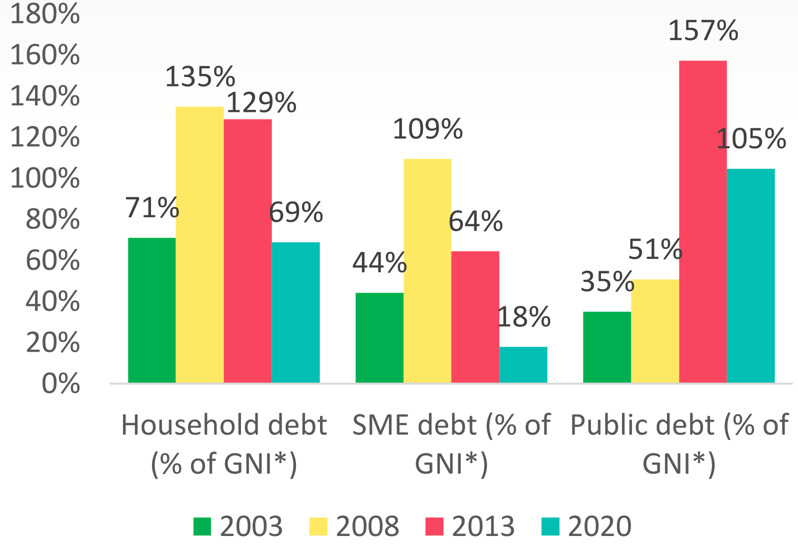
Household balance sheets improving

Debt levels much lower coming into pandemic + new Covid savings

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



Legacy of 2008-12 financial crisis is on Government not private balance sheets



Source: Eurostat, ONS, CSO ; CBI

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

Note: Private debt includes household and Irish-resident enterprises (ex. financial intermediation)

CBI quarterly financial accounts data used for household and CSO data for nominal government liabilities.

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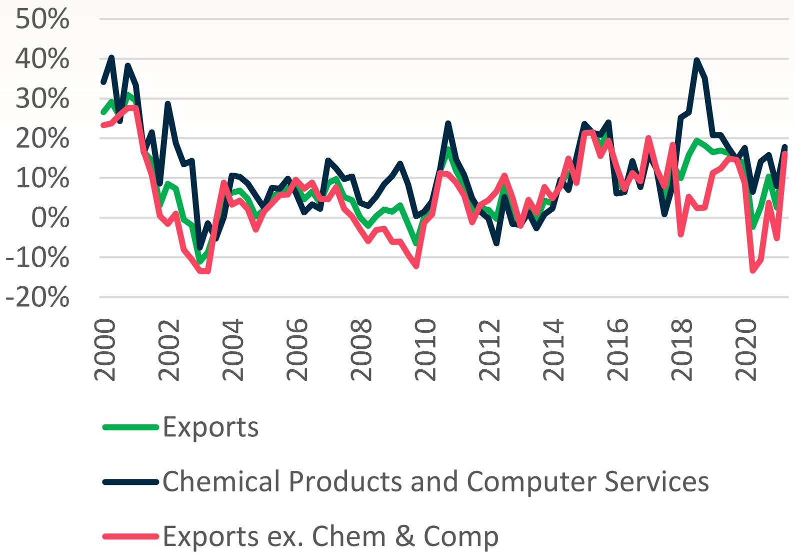
External environment supportive

2021 seeing the global economy rebound given large stimulus & vaccines

	2020	2021
EA Monetary Policy	Maximum accommodative	Maximum accommodative
EU Fiscal Policy	Expansionary	Expansionary
US Monetary Policy	Maximum accommodative	Maximum accommodative
US growth	Covid-19 shock	Rebound
Oil price	Significantly down despite rebound	Rising
UK growth	Covid-19 shock; Brexit unresolved	Brexit resolved; Rebound
Euro Growth	Covid-19 shock	Rebound
Euro currency	Strengthening vs. Dollar	Unclear

Exports driven by demand for multinationals products – Pharma. and Tech



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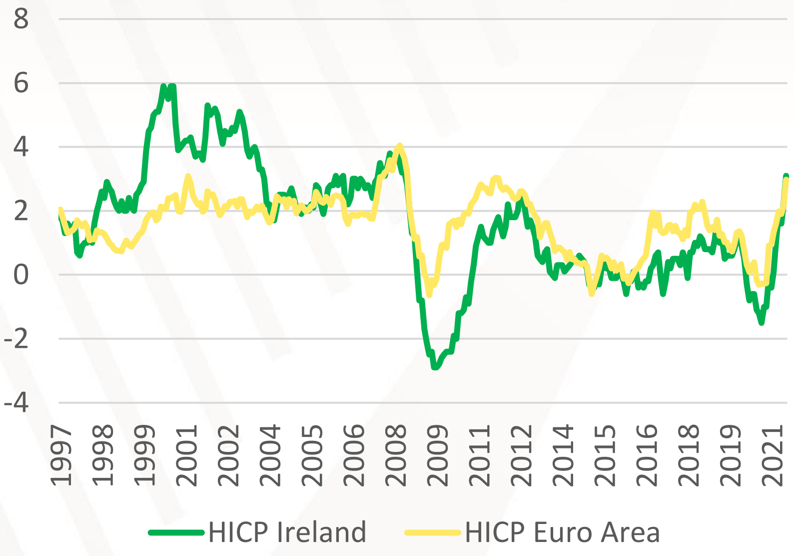
Source: NTMA analysis, DataStream, CSO

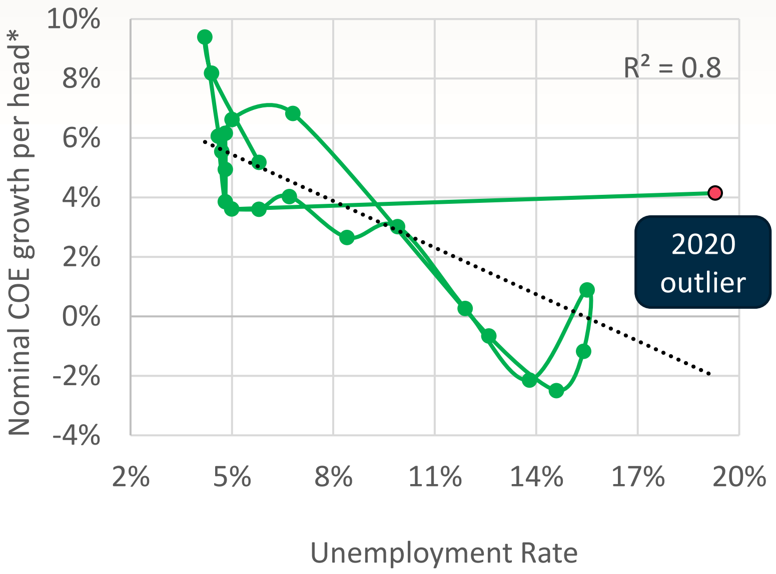
Inflation up to 3.1% in Ireland

But likely transitory as with rest of Euro Area

Inflation has ticked up after subdued decade – current rate likely to be transitory



Philips Curve: Full employment has led to inflation in past but a long way from there currently



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Source: CSO, NTMA analysis;

**Non-Agriculture employment /wage data on yearly basis (1999-2020)*

OECD's BEPS process may impact FDI offering

Ireland broadly supportive but reservations remain on Pillar Two

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 would reduce Ireland's corporation tax base. Some estimates place the hit at up to 20% per annum.
- Ireland has been fully supportive of Pillar One despite the implied cost to the Exchequer.

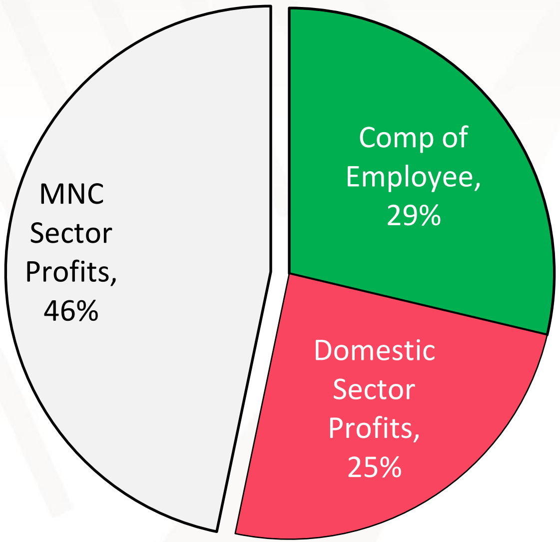
Pillar Two: proposal for minimum effective global tax rate

- Countries will introduce a minimum effective tax rate with the aim of reducing incentives to shift profits. A rate of "at least 15%" has been suggested.
- Where income is not taxed to the minimum level, there would a 'top-up' to achieve the minimum rate of tax.
- Ireland has reservations on the minimum tax rate proposal. Discussions are on-going and should conclude in October.
- If the minimum rate agreed is greater than the 12.5% rate that Ireland levies, it erodes some of Ireland's comparative advantage in attracting FDI.
- Ireland could need to lean on other positives; educated and young workforce, English speaking, EU access, and ease of doing business

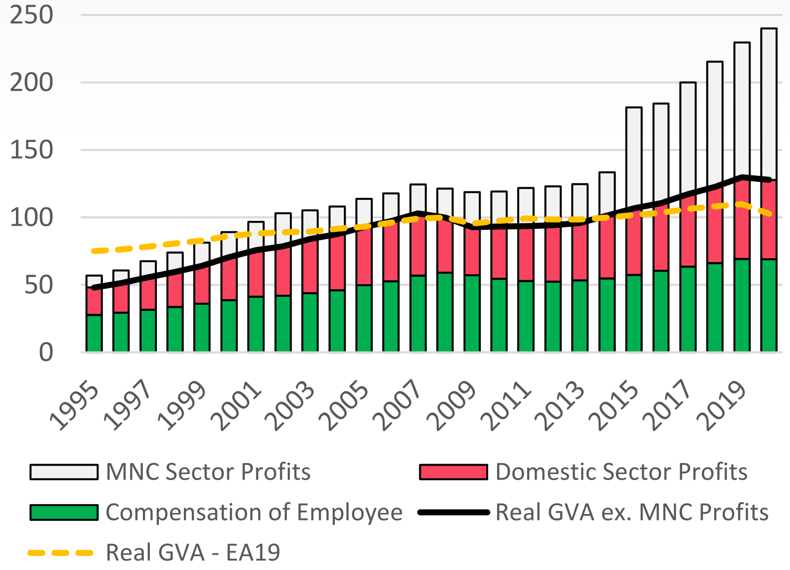
Underlying growth robust pre-Covid

MNCs profits ultimately repatriated but growth obvious after adjusting for distortions

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



Pre-Covid, Ireland had a robust underlying economy; compared favourably to EA (2008 = 100)



Source: CSO, NTMA calculations (Nominal 2020 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.

Fiscal

Revenues have shown remarkable resilience; deficit expansion more spending related

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Fiscal policy response to Covid has been swift

Large deficit expected in 2021 similar to 2020

Response

Total fiscal response of €43bn over 2020 and 2021 (c. 21% of GNI*) is large

Ireland has responded to Covid with first attempt at counter-cyclical fiscal policy in its 100 year history

Revenues

Ireland's economic structure has meant revenues have held up despite Covid-19

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

Debt

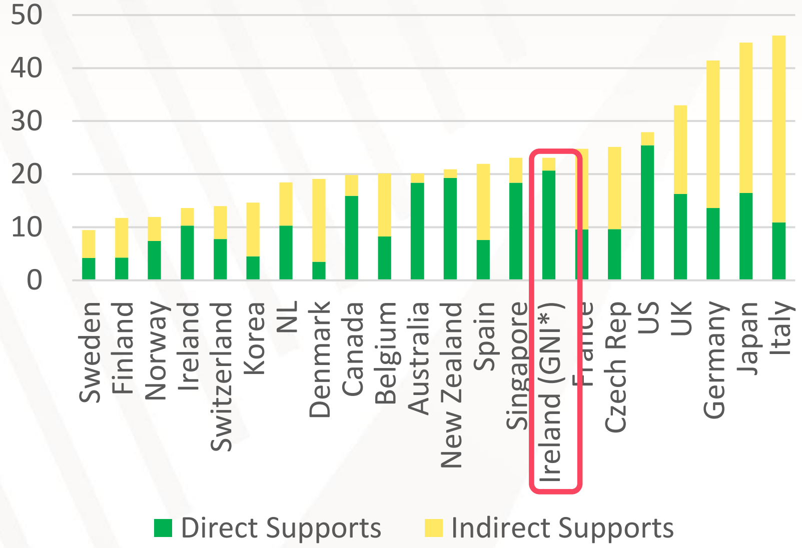
Debt ratios have reversed due to Covid

Gross Government debt 57% of GDP at end-2019 but close to 95% of GNI*. Ratios were c.59% and 105% for end-2020

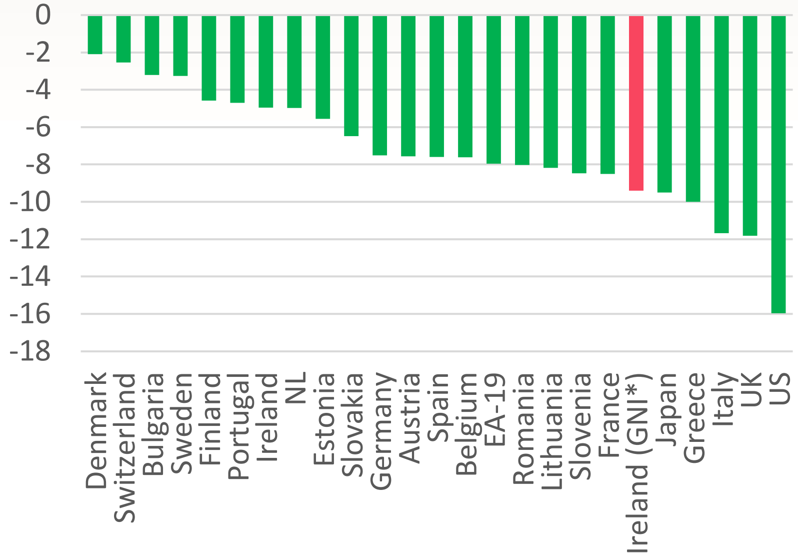
Ireland fiscal response of c. 21% of GNI*

Highly skewed to direct supports unlike others in EU

Combined 2020/21 Covid-19 fiscal response (% of GDP/GNI*)



2021 General Government Balance: Ireland forecasted above Euro Area average (% of GDP)



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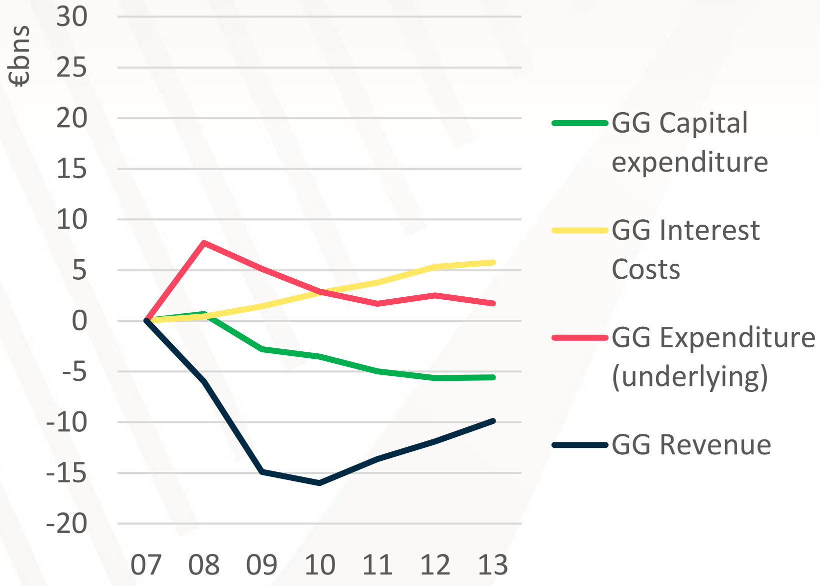
Source: IMF, European Commission, Department of Finance

Direct supports = Additional spending and forgone revenue. Indirect supports = Equity, loans, and guarantees

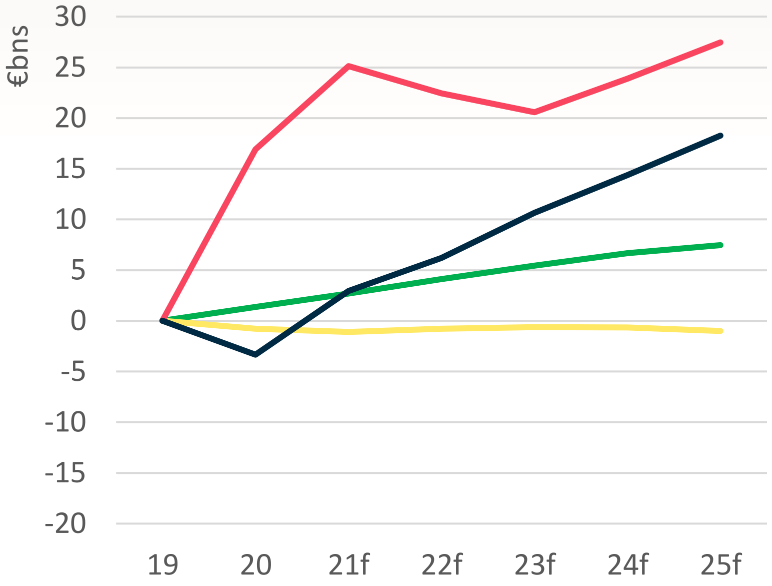
Fiscal response to Covid is opposite of GFC

Interest bill won't balloon and investment set to increase

After global financial crisis, Ireland cut capital spending, paid more interest as taxes fell…



…now revenues are more resilient, spending (incl. inv.) increases, interest bill unchanged



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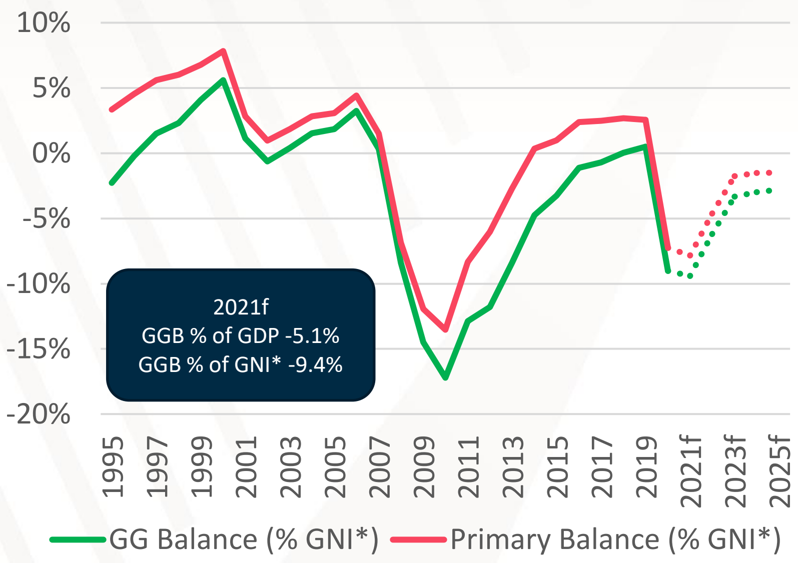
Source: CSO, Department of Finance forecasts. Charts represent the change in billions for selected fiscal variables versus 2007/2019 levels. Underlying GG expenditure numbers used (excludes banking recapitalisations)

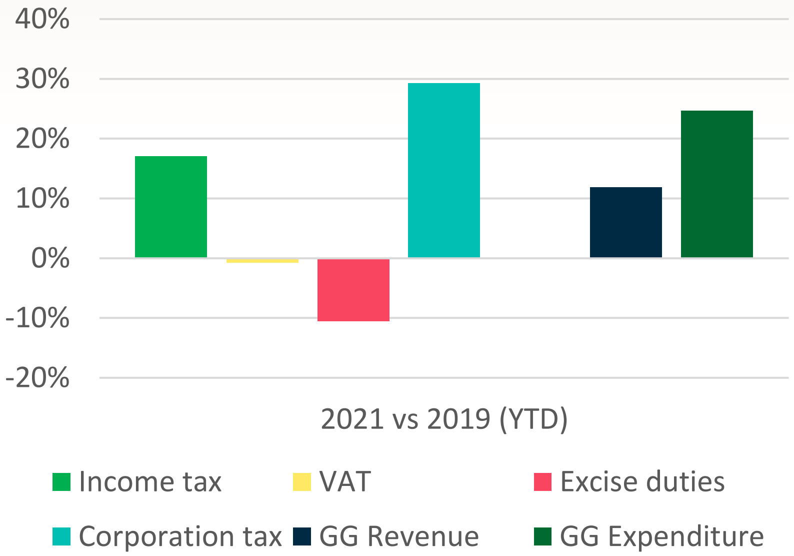
Covid-19 stimulus hits deficit in 2020/21

After 2021 Ireland plans to narrow its deficit again

Gen. Govt. Balance (% of GNI*) will be in significant deficit in 2020/21



Revenues strong in 2021 so far; income tax in particular is impressive given lockdown



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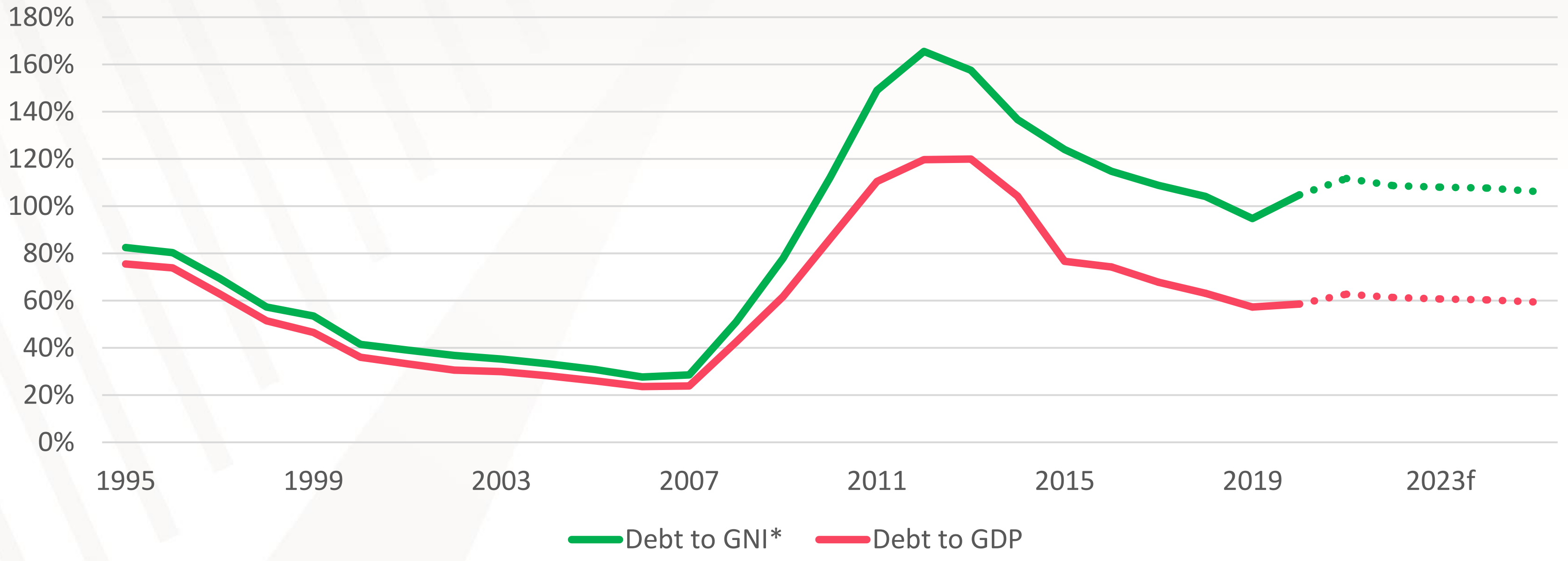
Source: CSO; Department of Finance

^ Underlying GG and primary balance numbers used (excludes banking recapitalisations)

Corporate tax receipts outsized for now, will likely revert to c. 5-10% above 2019 level by year-end

Gross Government debt ratios increase

58.5% of GDP at end-2020 and close to 105% of GNI*



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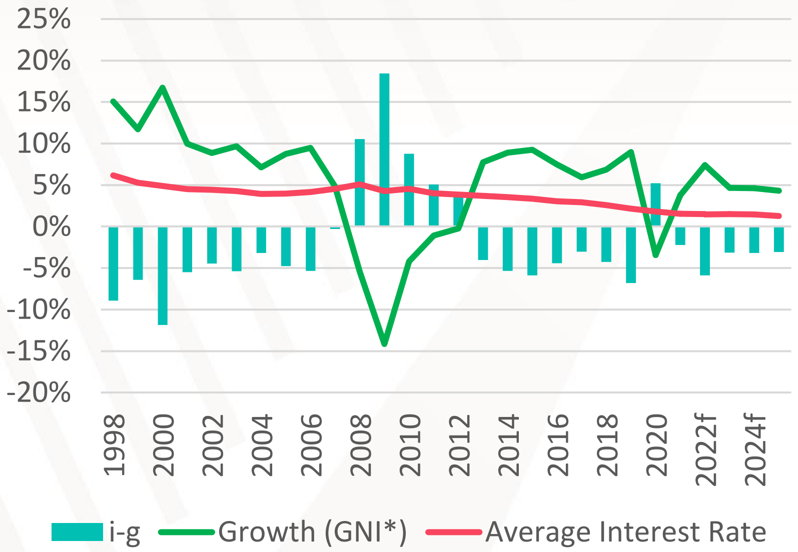
Source: CSO; Department of Finance

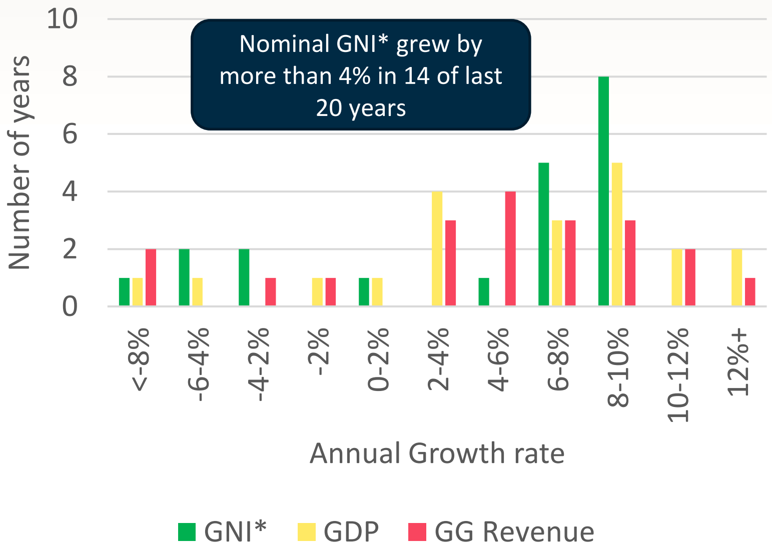
The "i-g" snowball effect to likely swing back

Low interest rates coupled with reversion to growth may be helpful in coming years

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



Histogram of Ireland's recent growth history (2001-2020)



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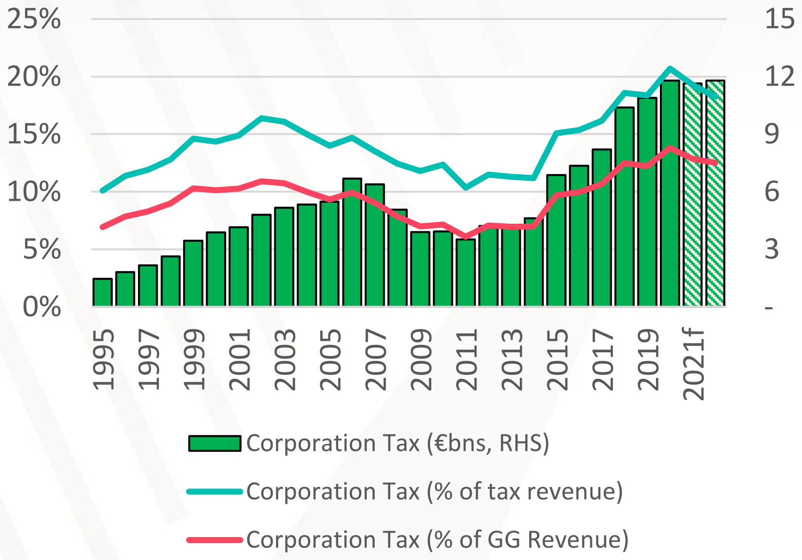
Source: CSO; Department of Finance forecasts, NTMA analysis

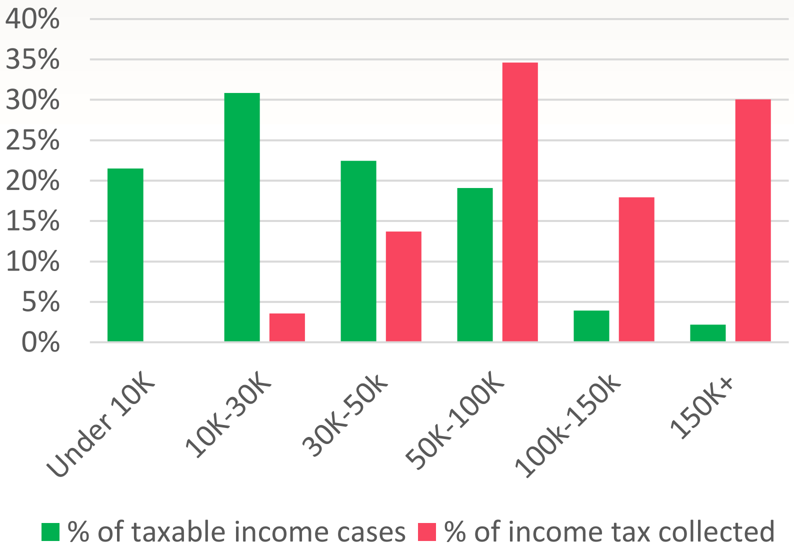
Revenues resilient against Covid

CT revenue cushioned by Pharma and ICT; income tax protected by nature of shock

Corporation tax (CT) receipts to plateau after more than doubling since 2014



Progressiveness of income tax system and sector mix limits hit to overall receipts



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Source: Department of Finance, Revenue, NTMA analysis

Alternative Debt Metrics

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

2020	GG debt to GG revenue %	GG interest to GG rev %	GG debt to GDP %
Greece	403.5%	5.9%	205.6%
Italy	326.0%	7.3%	155.8%
Portugal	312.4%	6.7%	133.6%
Cyprus	291.3%	5.3%	118.2%
Spain	290.4%	5.4%	120.0%
UK	259.8%	5.5%	102.1%
Ireland	258.1%	4.4%	58.5% (105% GNI*)
Belgium	225.6%	3.9%	114.1%
France	218.8%	2.5%	115.7%
EA19	213.5%	3.3%	100.0%
Slovenia	185.5%	3.7%	80.8%
EU28	177.2%	3.5%	79.4%
Austria	171.1%	2.7%	83.9%
Germany	148.8%	1.4%	69.8%
Slovakia	144.8%	3.0%	60.6%
Finland	135.0%	1.3%	69.2%

Source: EU Commission

NTMA Funding

Flexibility in funding strategy due to smooth maturity profile and no 2021 bond redemptions

NTMA funding range of €18-20bn for 2021

€14.75bn already funded this year

Flexibility

Ireland has large cash balances and no redemptions until March 2022

In addition to bond funding, Ireland received €2.5bn in EU Sure funding in Q1

>10 years

Weighted average maturity of debt one of longest in Europe

The ECB’s QE programs have enabled NTMA to extend debt maturities and reduce interest cost.

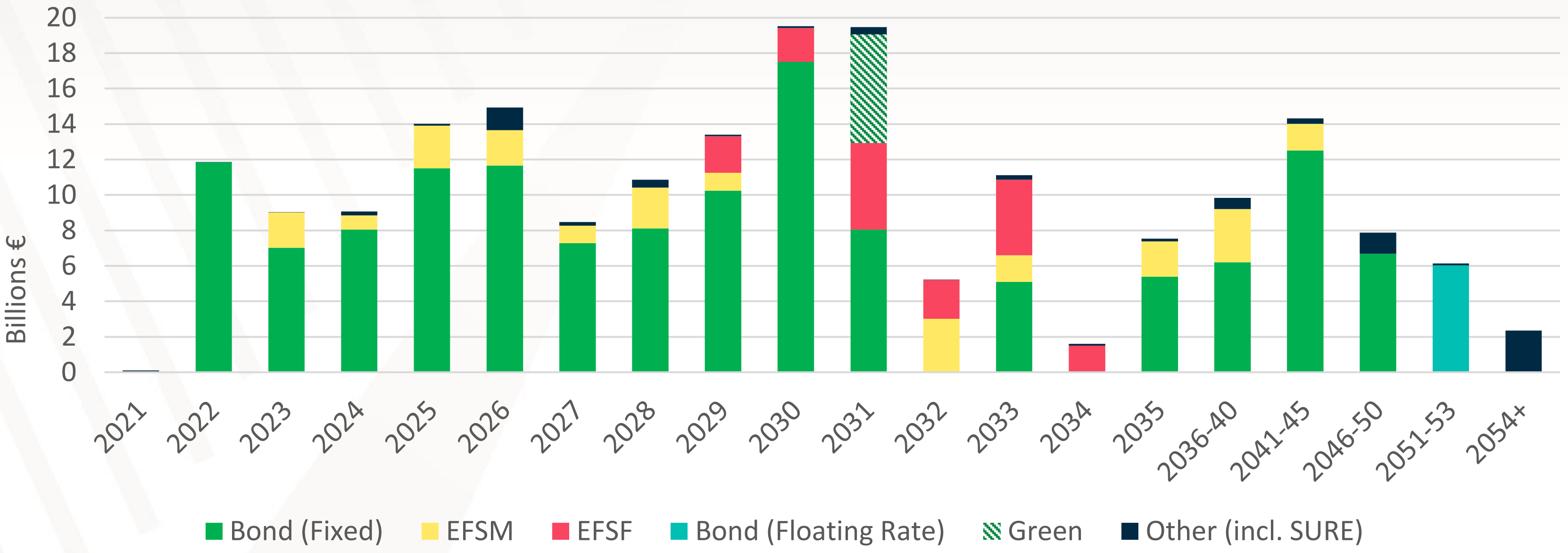
AA-

Ireland rated in the AA category with S&P

Despite Covid impact both Moody’s and DBRS have upgraded the outlook for Ireland to positive highlighting Ireland’s resilience and fundamentals

High level of flexibility in NTMA issuance plans

Helped by smoother maturity profile and no bond redemptions in 2021



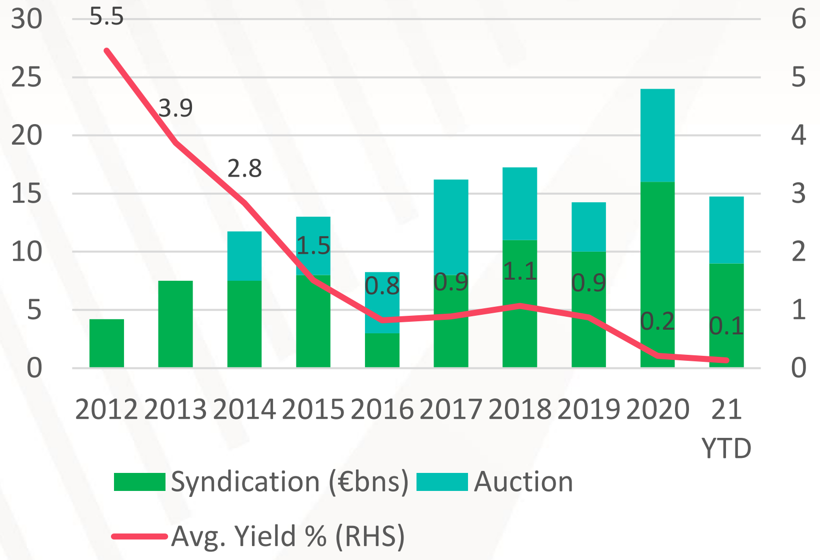
Gníomhaireacht Bainistíochta an Chisteáin Náisiúnta
National Treasury Management Agency

Source: NTMA

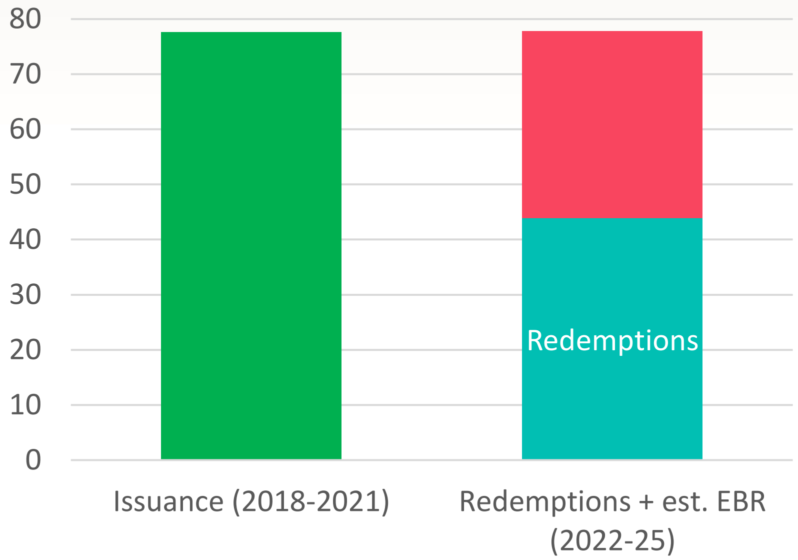
Near-term redemptions lower than recent past

Lower borrowing costs also provides NTMA with flexibility

NTMA issued €104.5bn MLT debt since 2015; 13.4 yr. weighted maturity; avg. rate 0.75%



Even with extra Covid-19 borrowings, NTMA might not exceed supply in 2017-2020 period



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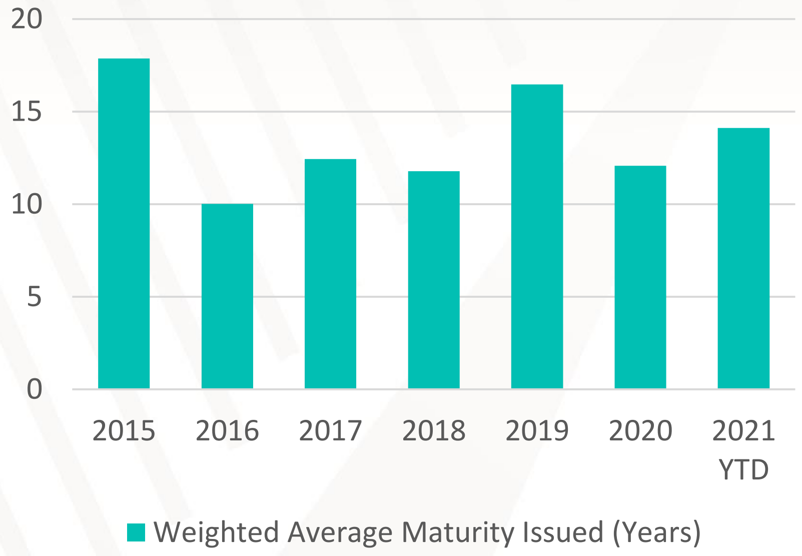
National Treasury Management Agency

Source: NTMA, Department of Finance LHS chart showing marketable MLT debt (auctions and syndications). Other issuance such as inflation linked bonds, private placement and amortising bonds occurred but not shown.

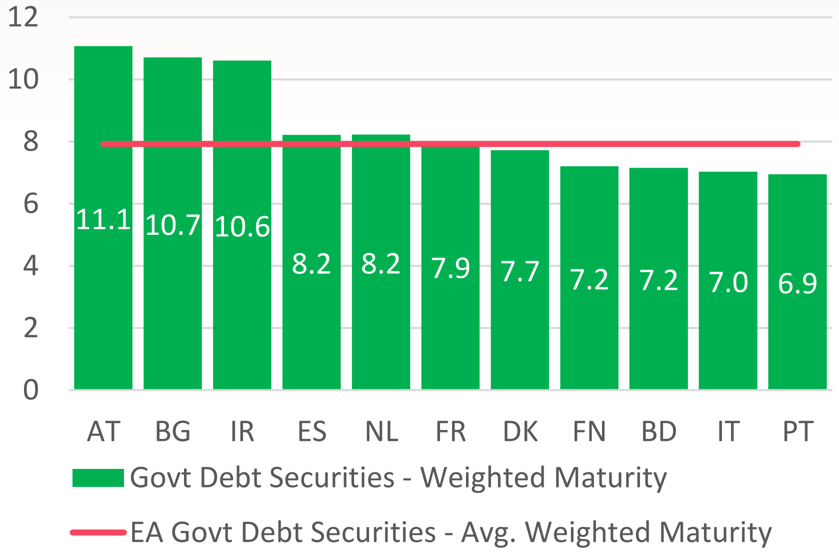
NTMA has lengthened weighted maturity

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

Various operations have extended the maturity of Government debt …



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



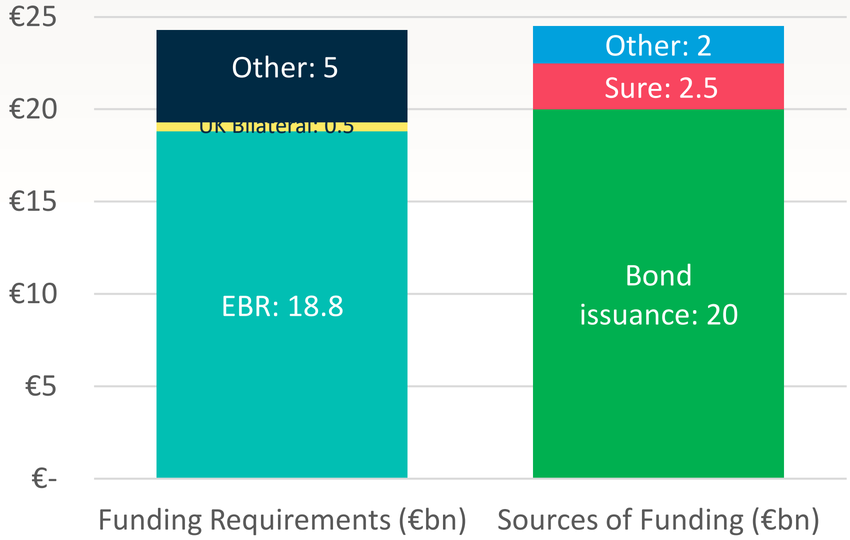
Gníomhaireacht Bainistíochta an Chisteáin Náisiúnta
National Treasury Management Agency

Source: NTMA for Ireland data; ECB for other countries
*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

Various sources of funding will be used to meet Covid-19 borrowing requirements

- No bonds mature in 2021. The next bond redemption is not until March 2022.
- The Exchequer Borrowing Requirement (EBR) for 2020 was lower than expected at €12.3bn. Thus, NTMA entered 2021 with a larger cash balance of €17.4bn.
- NTMA has received monies from the EU SURE scheme. It is a diversified source of funding in 2021 (c. €2.5bn).
- End year cash balances are currently forecasted at levels higher than those of end-2020.



Source: NTMA

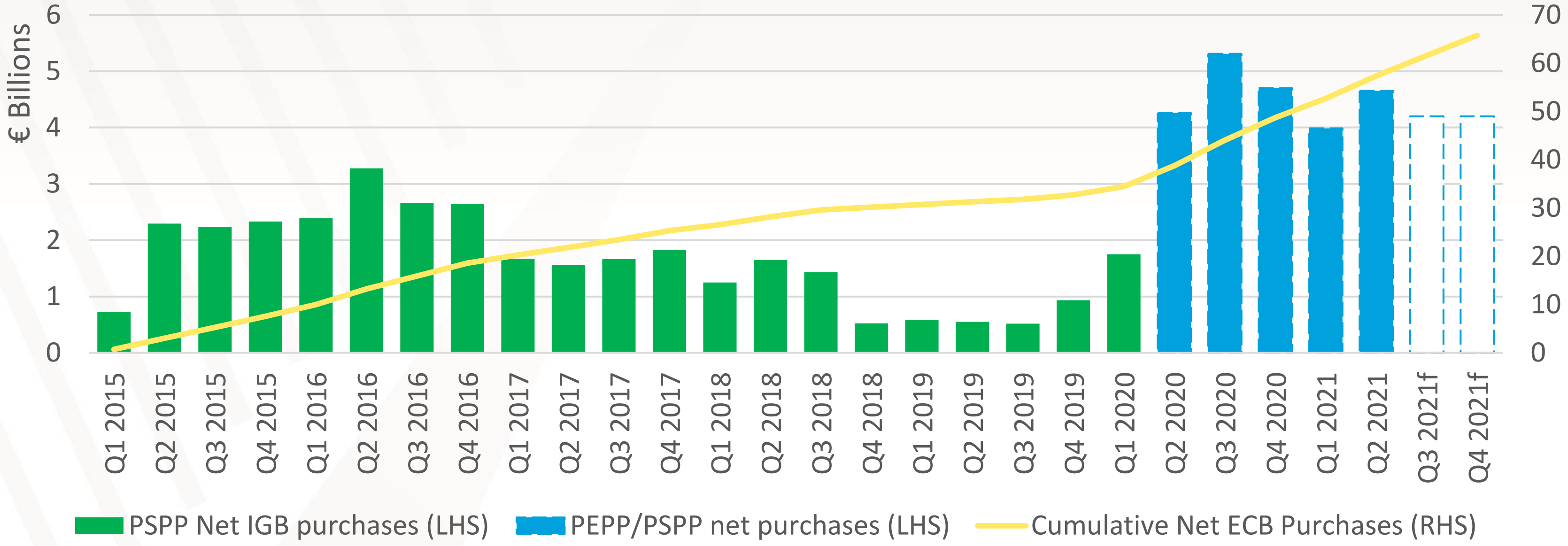
Notes:

Rounding may affect totals as some figures have been rounded up to the nearest €bn.

1. *The NTMA bond funding range for 2021 is €18-€20bn. While €19bn is reflected as an indicative estimate in the chart, it also includes cash proceeds from issuance undertaken to end-July.*
2. *Other funding needs includes provision for the potential bond/FRN purchases and general contingencies.*
3. *Other funding sources includes retail (State Savings), private placements and EIB loan drawdowns.*
4. *SURE refers to the European instrument for temporary Support to mitigate Unemployment Risks in an Emergency.*
5. *EBR is the Department of Finance's SES (July 2021) estimate of the Exchequer Borrowing Requirement*

ECB's PEPP & PSPP offering strong support

Flexibility (no limits) & size (€1.85trn) of pandemic purchases is noteworthy



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National Treasury Management Agency

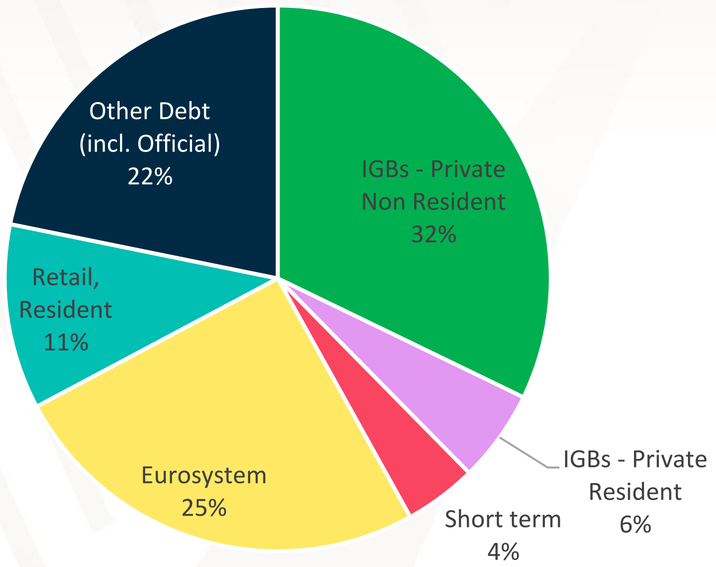
Source: ECB, NTMA Calculations

Notes: Forecasts sees Ireland's capital key of 1.69% and assumes 90% of new purchases will be for public sector assets with 7% of public sectors assets being supranational issuers.

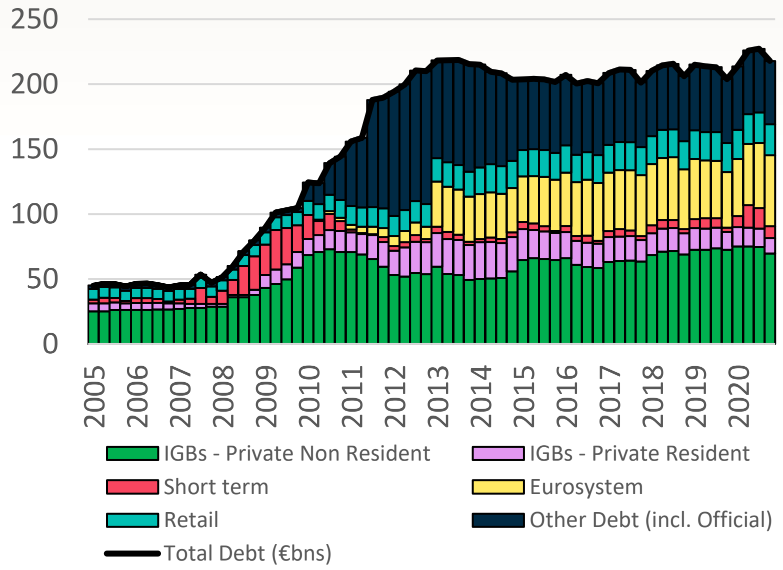
Diverse holders of Irish debt

Sticky sources account for over 55%; will increase further with Eurosystem's PEPP

Ireland roughly split 80/20 on non-resident versus resident holdings (Q4 2020)



"Sticky" sources - official loans, Eurosystem, retail - make up over 55% of Irish debt



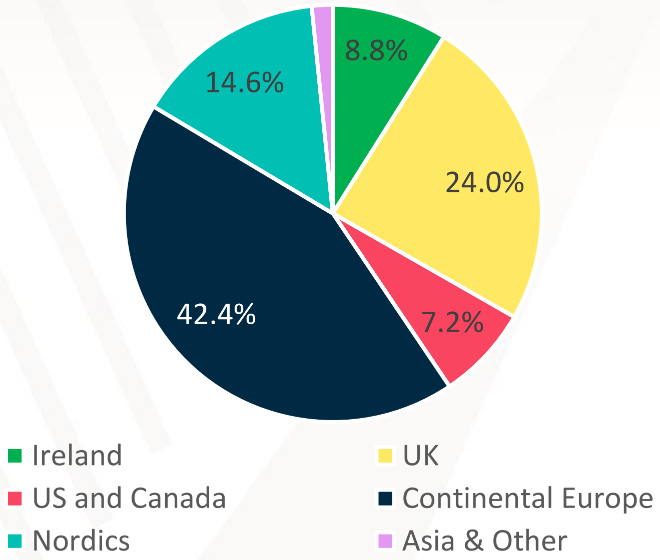
Gníomhaireacht Bainistíochta an Chisteáin Náisiúnta
National Treasury Management Agency

Source: CSO, Eurostat, CBI, ECB, NTMA Analysis
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 on the data.

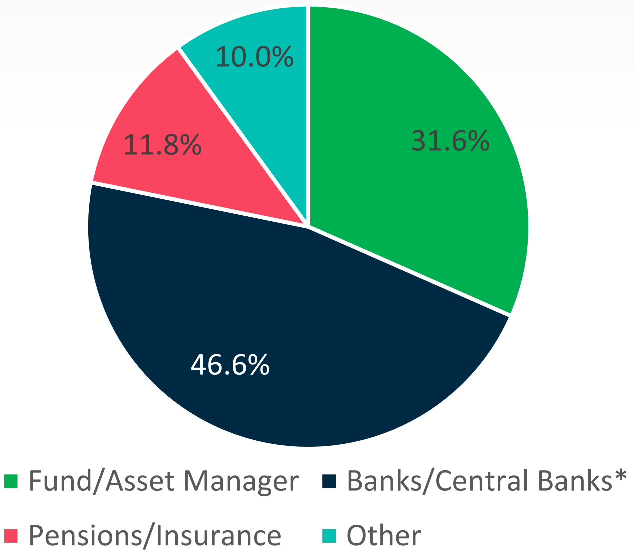
Investor base

Demand for Government bonds is wide and varied

Country breakdown:
Average over last five syndications



Investor breakdown:
Average over last five syndications



Gníomhaireacht Bainistíochta an Chisteáin Náisiúnta
National Treasury Management Agency

Source: NTMA

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

Credit Rating for Ireland

Ireland rated in “AA” category by Standard & Poor's

Rating Agency	Long-term	Short-term	Outlook/ Trend	Date of last change	Date of next review
Standard & Poor's	AA-	A-1+	Stable	Nov 2019	Nov 2021
Fitch Ratings	A+	F1+	Stable	Dec 2017	2022
Moody's	A2	P-1	Positive	Aug 2021	2022
DBRS Morningstar	A(high)	R-1 (middle)	Positive	July 2021	2022
R&I	A+	a-1	Stable	Jan. 2021	2022
KBRA	AA-	K1+	Stable	Jan. 2020	Dec 2021
Scope	AA-	S-1+	Stable	May 2021	Nov 2021

ESG Sustainability

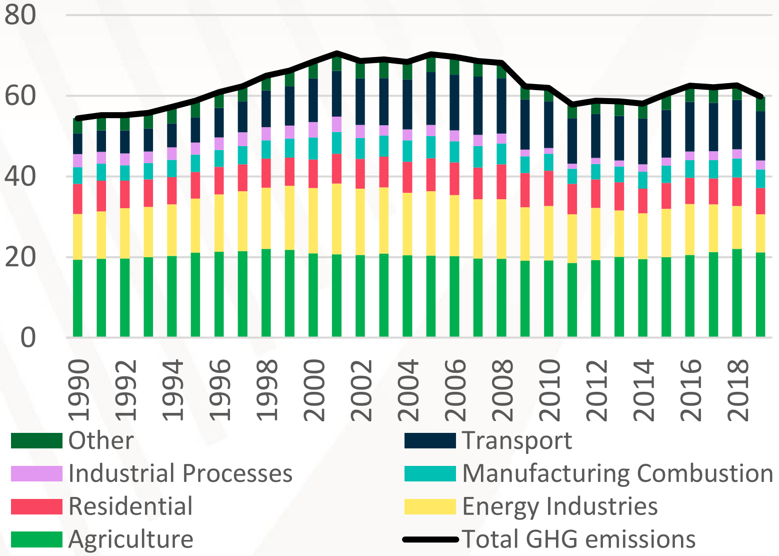
Issuance & government policy
demonstrate Ireland’s green commitment

Gníomhaireacht Bainistíochta an Chisteáin Náisiúnta
National Treasury Management Agency

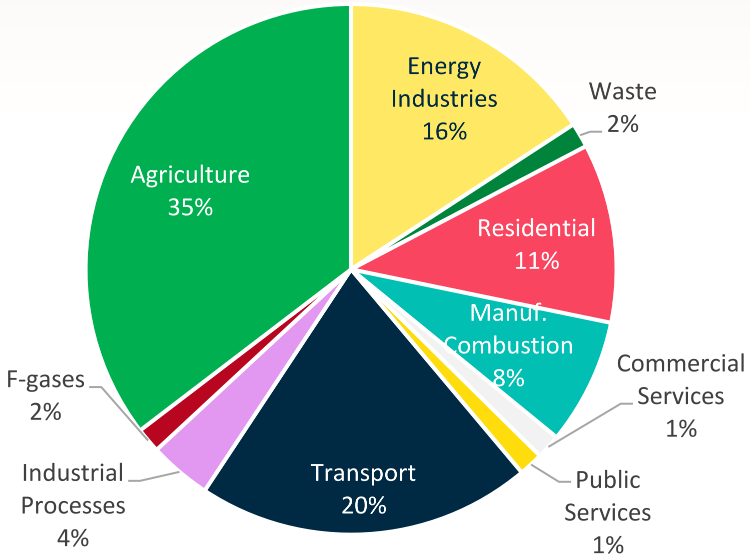
Ireland’s Greenhouse Gas emissions

State of Play

Ireland’s emissions fell post financial crisis – Covid likely meant they fell again in 2020



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



Gníomhaireacht Bainistíochta an Chisteáin Náisiúnta
National Treasury Management Agency

Source: Environment Protection Agency (Ireland)

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

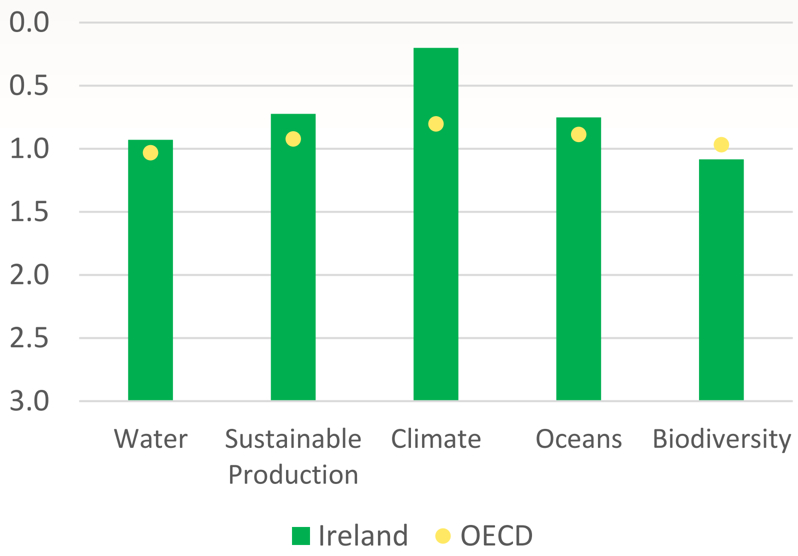
Close to OECD average on progress

But behind some of the leaders in Europe

Ireland similar to OECD but behind others when considering intensity metrics

	GHG emissions per unit of GDP	OECD Ranking (1st = High Intensity)	CO2 emissions per unit of GDP	OECD Ranking (1st = High Intensity)	% Renewable energy supply	OECD Ranking (1st is desirable)
Ireland	0.2	30	0.09	35	11.1	24
Ire (GNI*)	0.3	11	0.14	24		
OECD	0.3	n/a	0.14	n/a		
Australia	0.5	2	0.32	2	7.1	35
Belgium	0.2	19	0.17	14	7.8	32
Canada	0.5	4	0.34	1	16.4	18
France	0.2	33	0.10	34	10.7	26
Germany	0.2	23	0.16	17	14.6	21
Italy	0.2	28	0.13	27	18.2	16
NL	0.2	25	0.16	17	7.2	34
UK	0.2	32	0.12	30	12.5	23
Spain	0.2	27	0.13	27	14.7	20
US	0.4	6	0.24	6	7.9	31

Ireland compares well to the OECD average



Gníomhaireacht Bainistíochta an Chisteáin Náisiúnta
National Treasury Management Agency

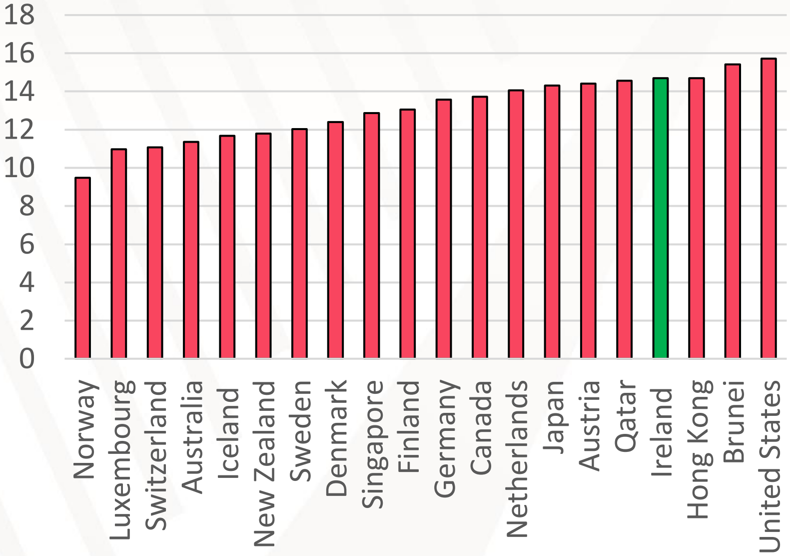
Source: OECD, EPA

RHS shows the average distance the country needs to travel to reach each SDG. 0 indicates 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

Ireland in top 20 most sustainable countries

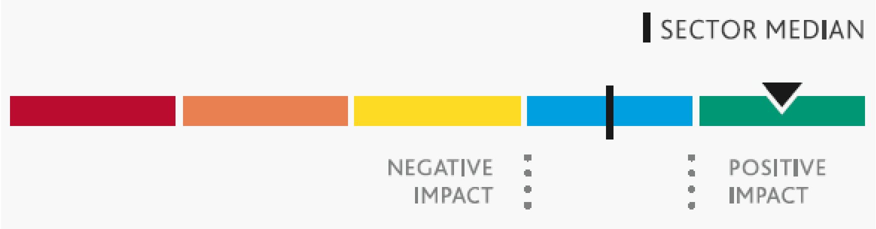
Ireland rated highly by Sustainalytics and rating agencies on ESG

Ireland ranks 17th 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"

Gníomhaireacht Bainistíochta an Chisteáin Náisiúnta
National Treasury Management Agency

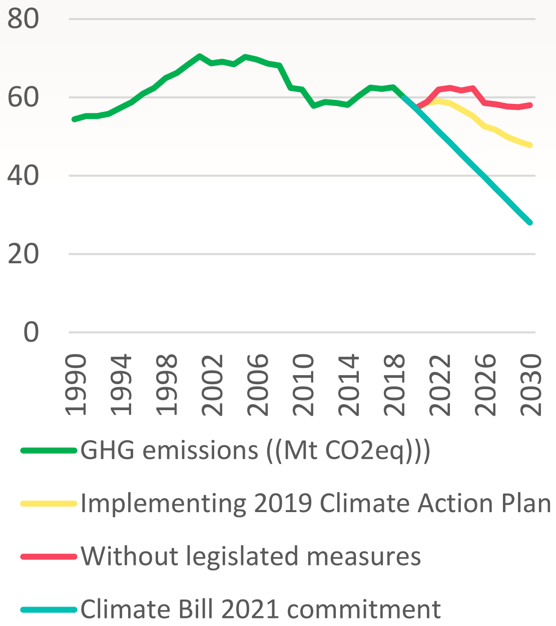
Source: Sustainalytics, Moody's

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

Climate Action Legislation

The Climate Action & Low Carbon Development Bill 2021 supports transition to Net Zero by 2050

- **Carbon Budgeting:** The Bill embeds the process of carbon budgeting into law. It requires Government to adopt a series of economy-wide-five-year carbon budgets.
- **Sectoral Action Plans:** Actions for each sector will be detailed in the Climate Action Plan, updated annually.
- **Climate Action Strategy:** A national plan will be prepared every five years.
- **Legally binding targets:** Govt. Ministers responsible for achieving targets for their sector.
- **51% reduction:** First carbon budgets will aim for a reduction of 51% of emissions by 2030.
- **All of Government approach:** Local Authorities is required to prepare a Climate Action Plan and public bodies obliged to conduct their functions in line with the national plan.
- **Gas Exploration:** Government approved draft amendments to end the issuance of new licenses for the exploration and extraction of gas.



Source: Department of the Environment, Climate and Communications, EPA, NTMA Economics analysis

Irish Sovereign Green Bonds (ISGB)

Cumulative €6.3bn allocated to green projects following third year

- €6.1bn nominal outstanding (€6.5bn cash equivalent)
- Circa €200mn remains to be allocated to eligible expenditure in 2021
- Issuance through two syndicated sales and one auction
- Pipeline for eligible green expenditure remains strong
- The Climate Action and Low Carbon Development (Amendment) Bill 2021 will support Ireland's transition to Net Zero
- ISGB 2020 Allocation Report
- ISGB 2019 Impact Report

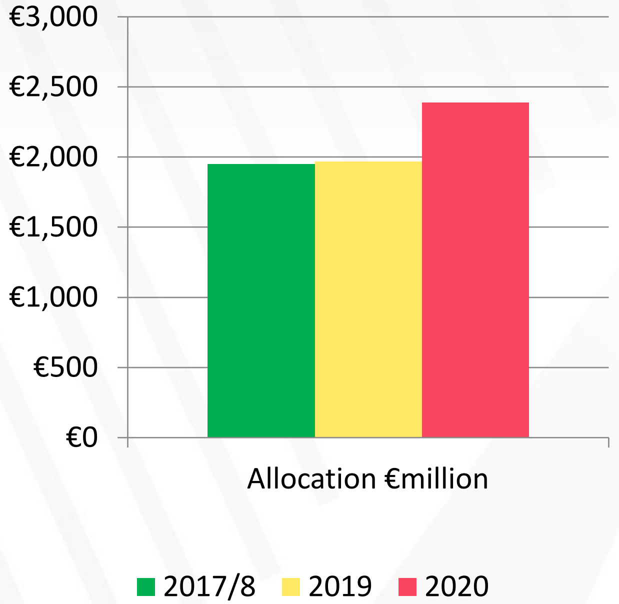
- Launched 2018 and based on ICMA Green Bond Principles – Use of proceeds model
- Governed by a Working Group of government departments and managed by the NTMA
- Compliance reviews by Sustainalytics

Top 10 Issuers Globally	Amount Outstanding (US$bn equiv.)	% of Total Debt
France	42	1.4%
Germany	21	0.8%
Belgium	13	2.1%
Netherlands	12	2.3%
Chile	12	
Italy	10	0.3%
Indonesia	8	
Ireland	7	2.7%
Hong Kong	7	
Sweden	5	0.2%

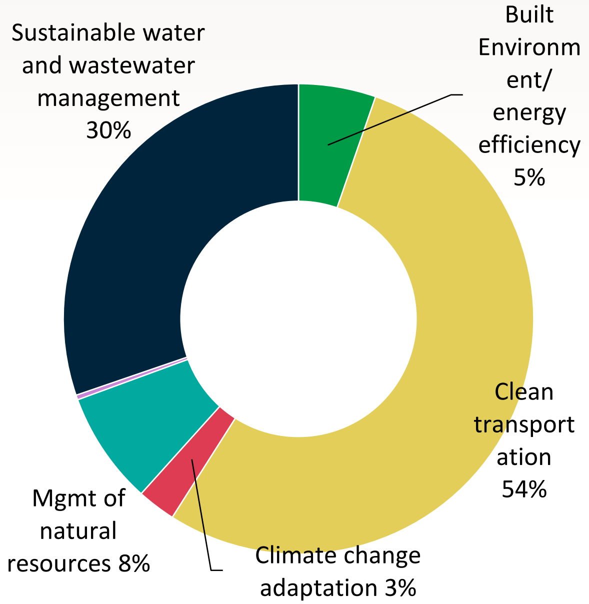
Source: Bank of America, bonddata.org

Irish Sovereign Green Bonds (ISGB)

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



Tidal defences and public space enhancement; Clonakilty Flood Relief Scheme



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National Treasury Management Agency

Irish Sovereign Green Bonds (ISGB)

Irish Sovereign Green Bond Impact Report 2019: sample impacts

Some highlights from Report*

- **Built Environment/ Energy Efficiency**
  - Energy saving (GigaWattHours) : 621.06
  - Number of homes renovated : 24,777
  - EV home charger grants provided: 2,548
- **Clean Transportation**
  - Number of public transport passenger journeys : 294.6 million
  - Greenway users: 1,196,428**
  - Take-up of Grant Schemes/ Tax foregone provided (number of vehicles) : 24,122
- **Climate Change Adaptation**
  - 13 major Flood relief projects at planning, development or construction phase.
  - 6,685 properties protected on completion

Rediscovery Centre Ballymun; A-rated retrofitted sustainability and reuse centre

**For a more detailed break-down please see the ISGB 2019 Impact Report*
*** Raw count from 3 longest Greenways- Waterford, Old Rail Trail, Royal Canal Greenway*

Irish Sovereign Green Bonds (ISGB)

Irish Sovereign Green Bond Impact Report 2019: sample impacts cont.

Some highlights from Report*

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

  Number of hectares of forest planted : 3,550

  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 : 36

  SEAI Research & Innovation awards: 46

- **Sustainable water and wastewater management**

  Water savings (litres of water per day) : 160 million

  New and upgraded water and wastewater treatment plants : 14

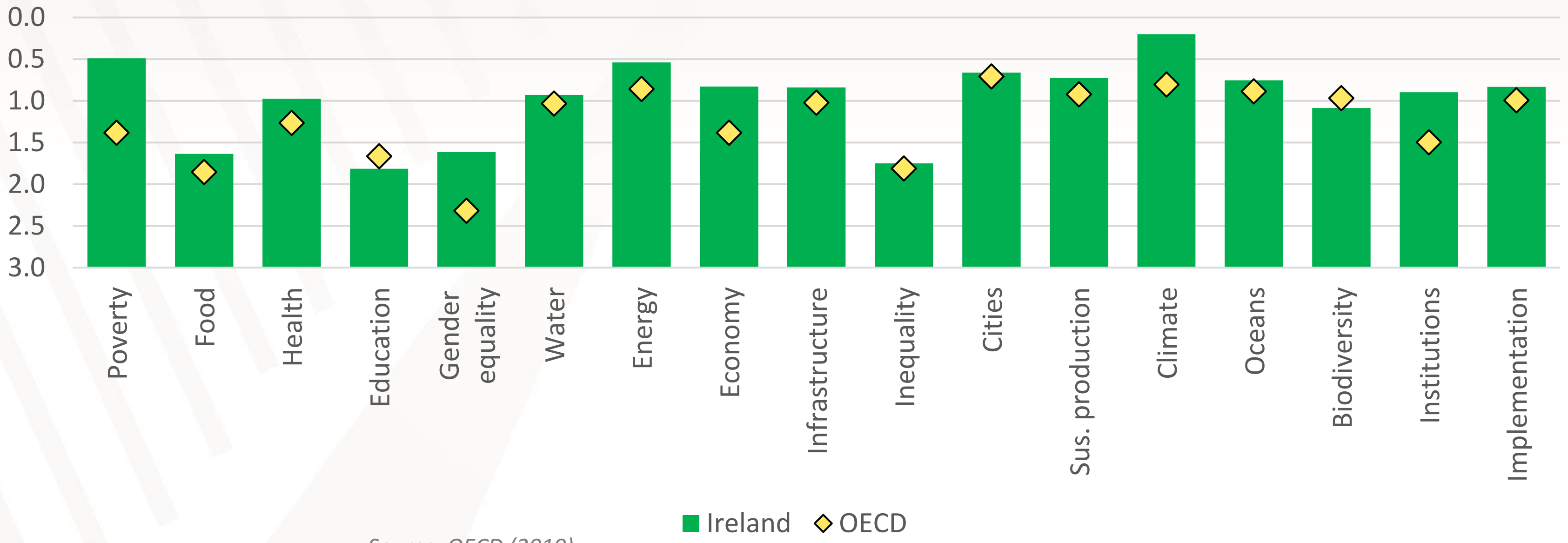
  Length of water main laid (total) : 393km

Irish peatlands; Clara Boardwalk

**For a more detailed break-down please see the ISGB 2019 Impact Report*

Ireland compares well to OECD on "S&G"

Based on the 17 Sustainability and Development Goals of the UN



Source: OECD (2019)

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.

NTMA Best Practice

NTMA aiming to be a domestic leader in ESG

NTMA-wide

- Objective of making the NTMA the most sustainable public service workplace in Ireland - Strategy goal of becoming an environmentally sustainable and net zero emissions organisation by 2030.
- Our office building has achieved an A3 BER rating and LEED Platinum certification.
- Working on collating agency wide data as we seek to baseline our current emissions ahead of delivering Net Zero commitment
- Established a NTMA Sustainability Group which supports the delivery of climate initiatives across the NTMAs mandates and drives the NTMA's Climate Action Strategy.

ISIF

- Goal to reduce carbon intensity of the global portfolio by 50% by 2025.
- In the Irish portfolio the strategy is two-fold;
  - help Ireland meet its emissions targets by 2030 by investing in sustainable infrastructure
  - achieve Net Zero by 2050 or earlier by investing in new technologies and business models that will underpin this transition

NDFA

- Advising State Authorities on a number of climate related capital projects

New Era

- Continues to progress a Climate Framework for the commercial semi-states

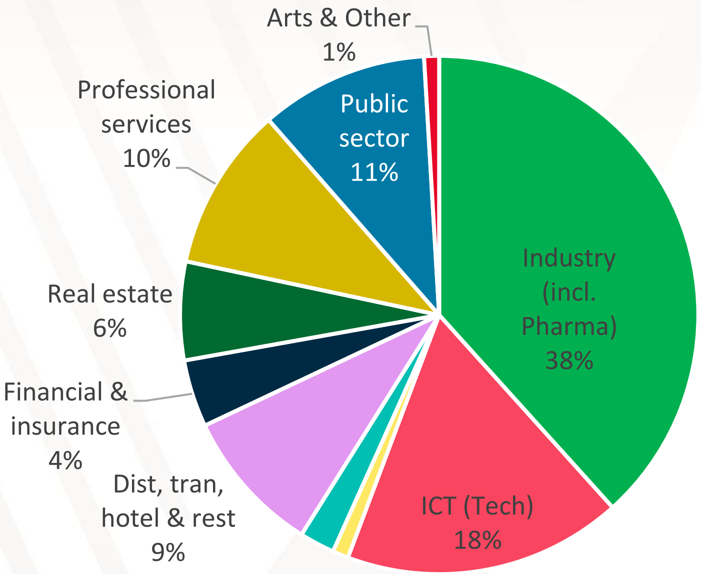
Structure of the Irish Economy

Multinationals distort the “true” economic picture but have added resilience during Covid-19

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



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

	Share of Employment (2020)	Share of Wage Bill (2019)	Share of GVA (2020)	Gross Weekly Earnings € (Q4 2019)
Agriculture	4.5%	1%	1%	N/A
Industry (incl. Pharma.)	12.2%	15%	38%	916
Construction	6.2%	4%	2%	821
Dist., Tran, Hotel & Rest	25.4%	17%	9%	571
ICT (Tech)	5.4%	9%	17%	1,241
Financial	4.5%	8%	4%	1,235
Real Estate	0.4%	1%	6%	730
Professional	10.8%	13%	10%	810
Public Sector	25.6%	30%	11%	836
Arts & Other	5%	2%	1%	514

Gníomhaireacht Bainistíochta an Chisteáin Náisiúnta
National Treasury Management Agency

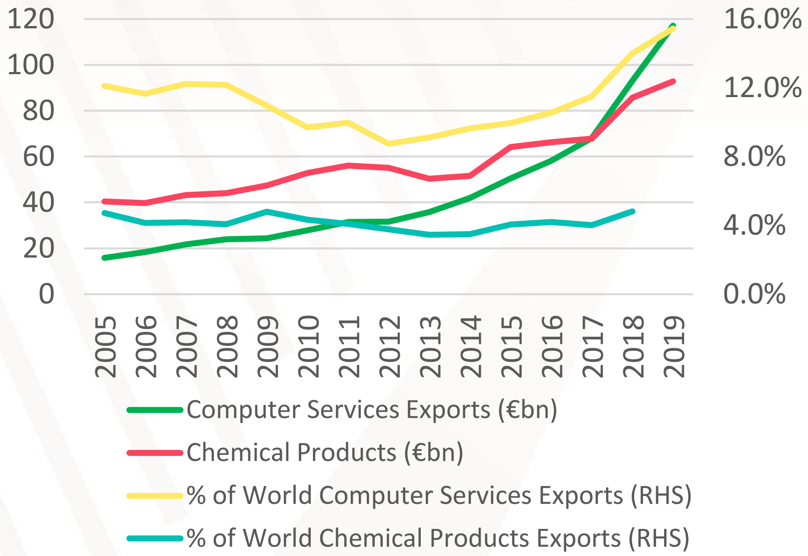
Source: CSO

2020 Nominal GVA used

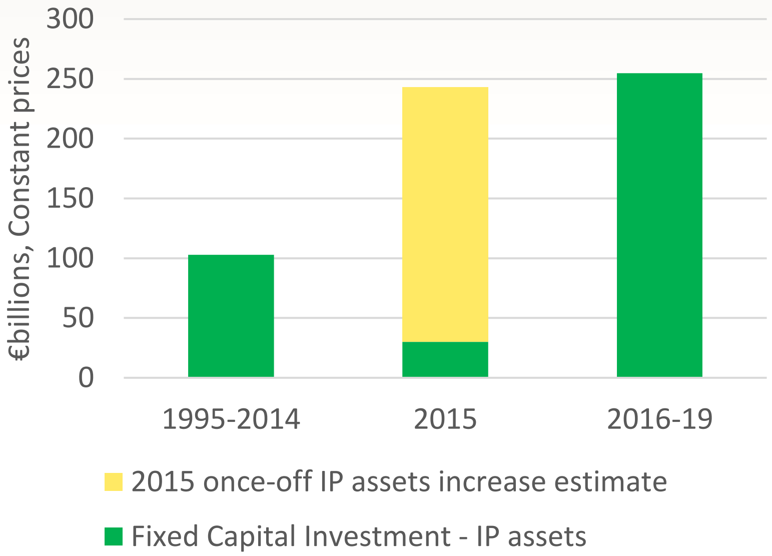
€0.5trn of intellectual property into Ireland

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

Ireland is now a leader in Computer Services; Exports have trebled since 2014



Enormous inflows (c. €0.5trn) of IP assets into Ireland since 2015 on the back of BEPS reforms



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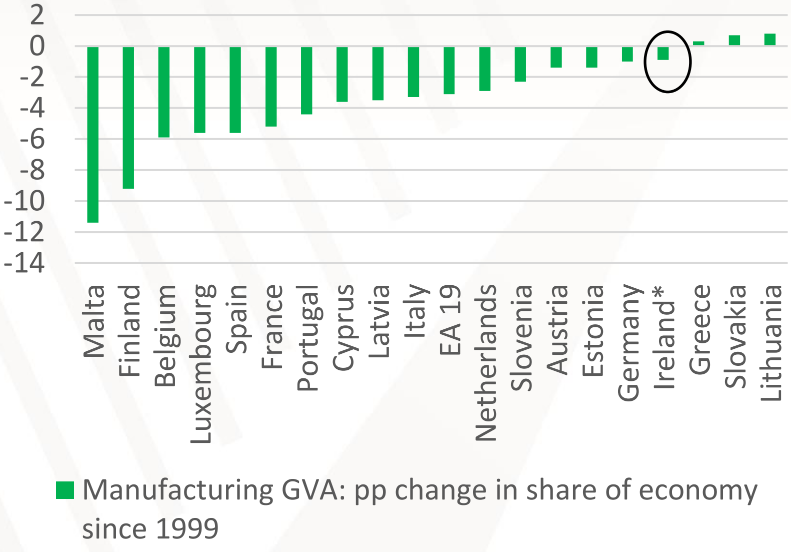
National Treasury Management Agency

Source: IMF, UN Comtrade, CSO, NTMA Economics Calculations

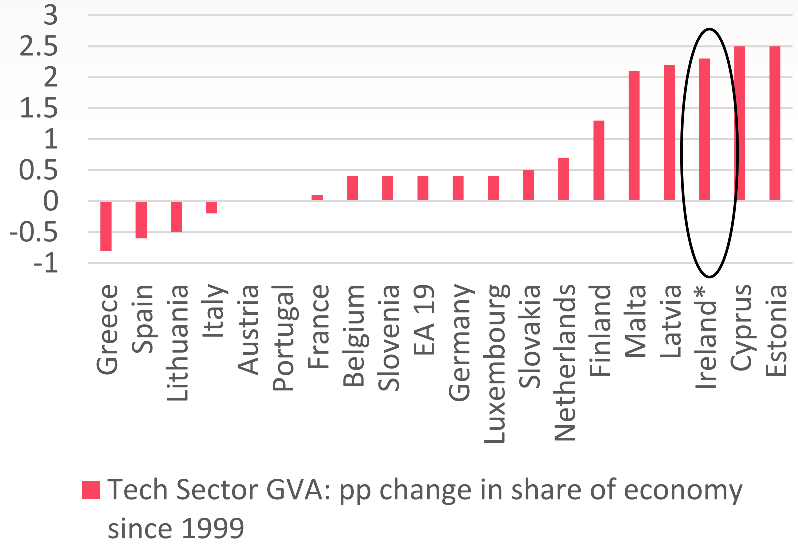
Ireland has navigated global economy

Ireland has moved with trends this century (even after adjusting GVA)

Euro Area manufacturing base hollowed out over time: Ireland less impacted than most



The digitalisation of the economy: Ireland able to grow its tech sector in recent years



Source: Eurostat, NTMA calculations (1999-2019 data)

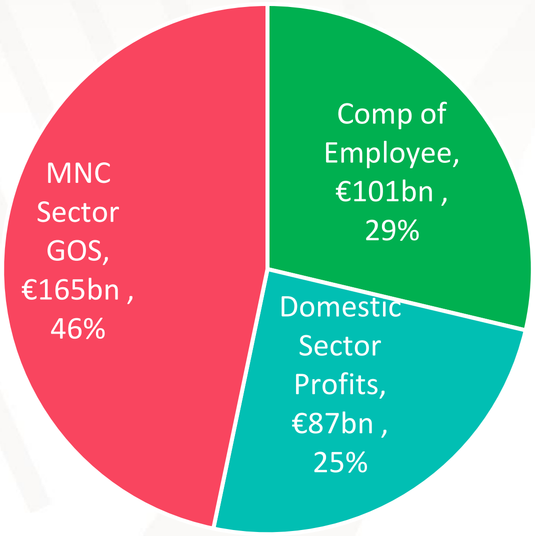
** Ireland's GVA data has been adjusted to strip out the distortionary effects of some of the multinationals activity. A profit proxy is removed from the GVA data for the sectors in which MNCs dominate (parts of Manufacturing, ICT, and renting and leasing services). Unadjusted Ireland's figures are +7.1pp (manufacturing) and +6.5pp (tech sector).*

Gníomhaireacht Bainistíochta an Chisteáin Náisiúnta
National Treasury Management Agency

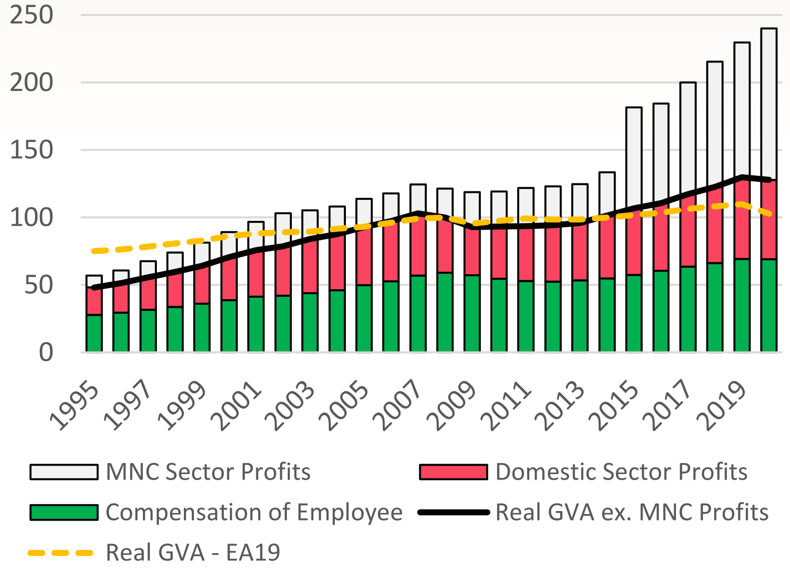
Underlying economy was robust pre-Covid

MNCs add real substance to IE economy

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



Pre-Covid, Ireland had a robust underlying economy; compared favourably to EA (2008 = 100)



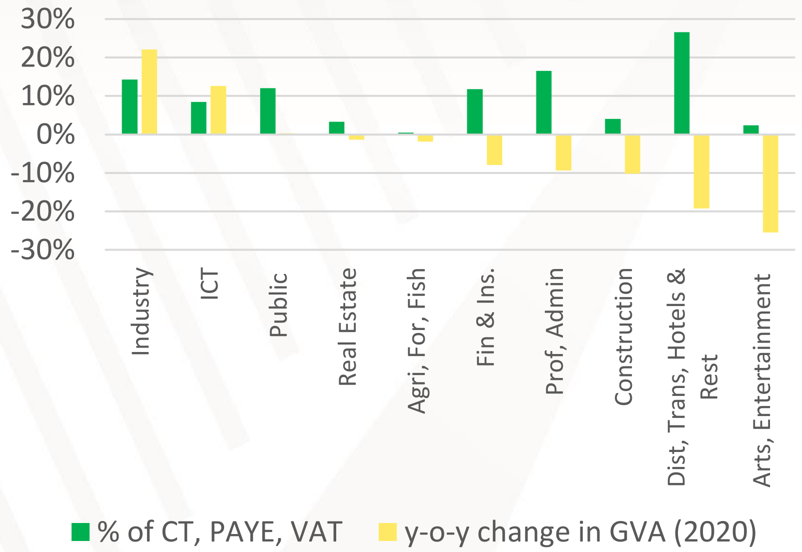
Source: CSO, NTMA calculations (Nominal 2020 data used in left chart)

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.

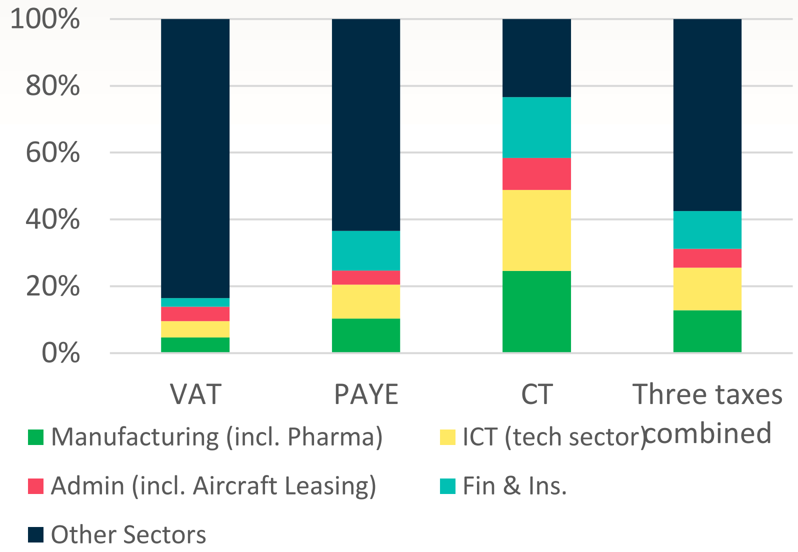
High value MNC activity adds to tax base

Ireland revenue less impacted by Covid

GDP overstates Ireland's progress but is still a good barometer for Revenue, in particular CT and IT



Multinational sectors critical for Income tax and Corporation tax (2020 data)



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National Treasury Management Agency

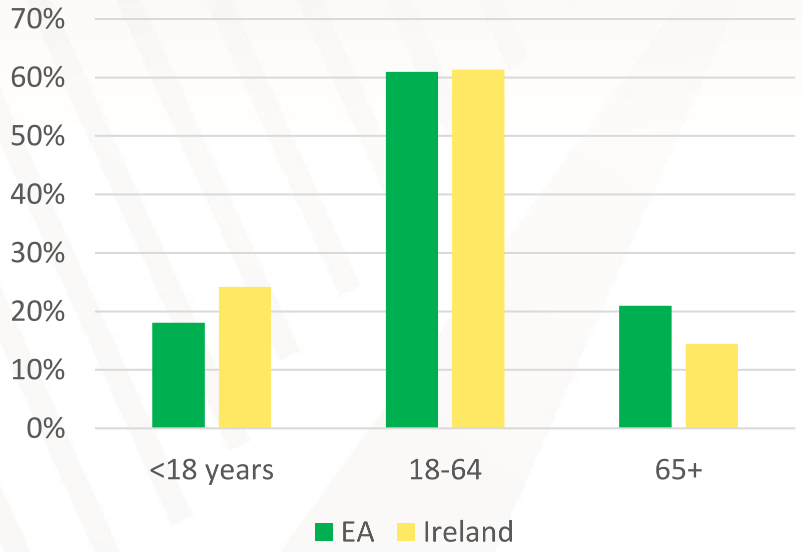
Source: CSO, Revenue, NTMA Calculations

Elasticity based on 1995-2019 data. E = (annual % change in tax)/(annual % change in growth variable

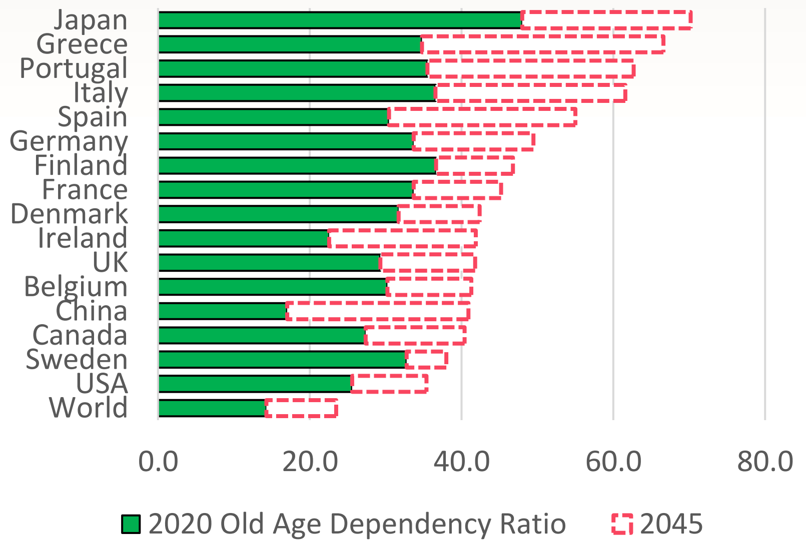
Ireland’s population helps growth potential

Age profile younger than the EU average

Ireland’s population estimated at 5.01m in 2021: younger population than EU



Ireland’s population will remain younger than most of its EA counterparts



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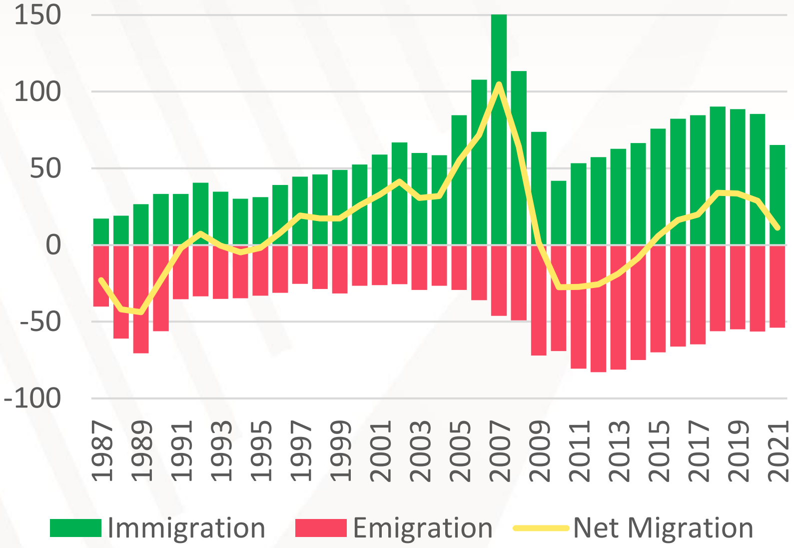
Source: Eurostat (2020) CSO; OECD

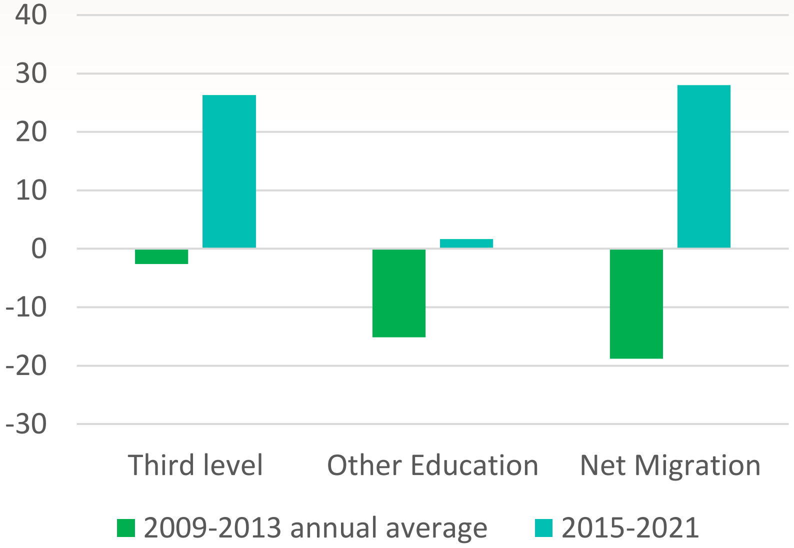
Migration improves Ireland's human capital

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

Latest Census data show net migration positive since 2015 – recent slowdown due to Covid



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



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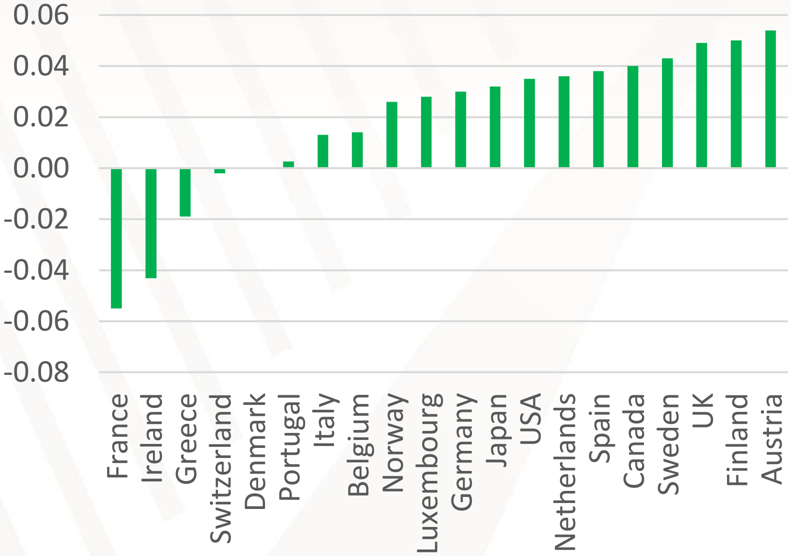
Source: CSO

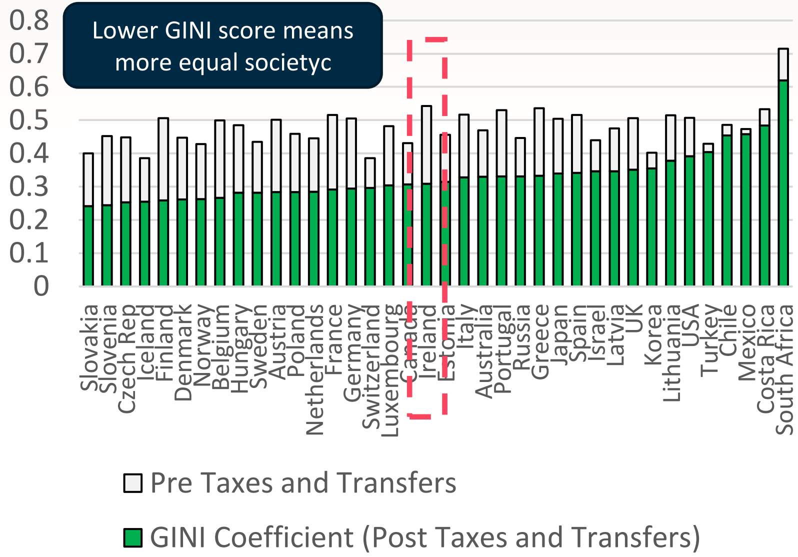
Income equality has improved

Ireland's progressive system the main driver and cushioned the economy in 2020

Lower inequality (1985-2015): economic rise reduced GINI coefficient unlike others



Progressive system means Ireland is around the OECD average for GINI after tax



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Source: IMF, OECD

Brexit

“Hard Brexit” risk eliminated by free trade agreement leaving smaller long term impact

Brexit - Free Trade Agreement reached

Allows for tariff free trade but non-tariff barriers will increase

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 be subject to tariffs and quotas.
- Under the deal, goods trade between the two blocs will 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 has been averted and the economic impact to Ireland will be more modest.

Withdrawal Agreement signed in 2019

Northern Ireland protocol within Withdrawal Agreement resolves many 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 will be "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. Customs checks at ports, VAT and tariff rebates and alignment of regulations will be needed.

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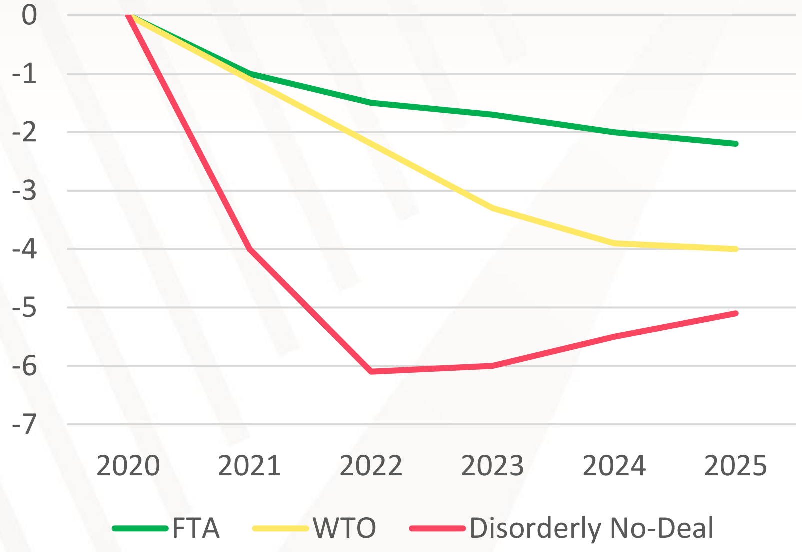
Impact of Brexit on Ireland likely net negative

Deal means the shock is smaller & spread over longer horizon

Modelled impact on output versus No Brexit baseline: FTA reduces impact significantly



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

% of total	Goods (2019)		Services (2019)		Total (2019)	
	Exp.	Imp.	Exp.	Imp.	Exp.	Imp.
US	30.8	15.5	15.8	18.6	21.9	17.9
UK (ex NI)	8.9	20.6	15.8	6.9	13.5	10.6
NI	1.4	1.9	n/a	n/a	n/a	n/a
EU-27	37.1	36.7	29.8	19.8	32.8	23.8
China	5.9	5.8	2.8	1.3	4.0	2.3
Other	15.9	19.4	35.9	53.4	27.8	45.5

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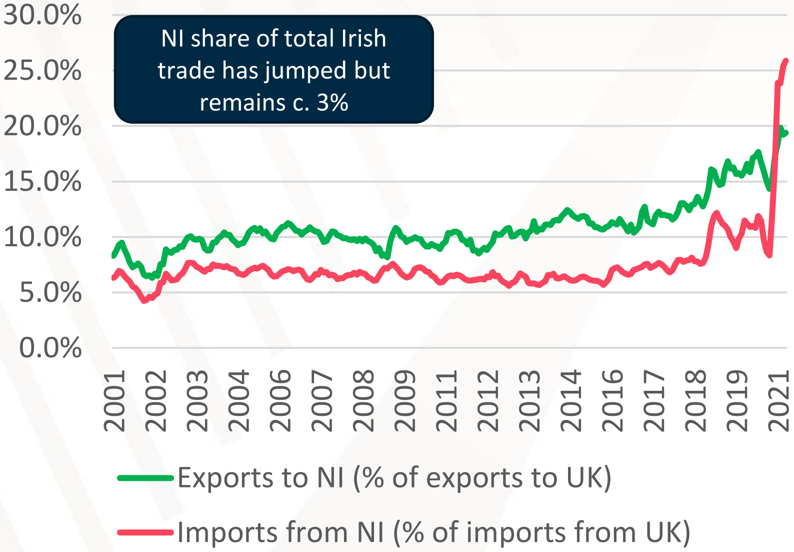
Source: CBI, NTMA analysis

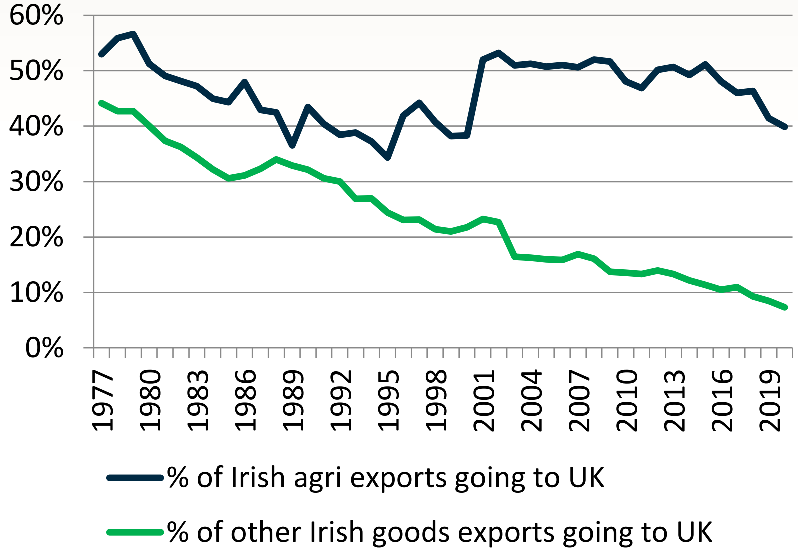
Trading flows are changing after FTA

NI imports and exports have jumped in H1 2021

NI trading route more important than ever for IE-UK trade – special trade status of NI a factor



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



Source: CSO

Possible benefit: FDI inflows into Ireland

Service suppliers in UK may need to re-establish in EU

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

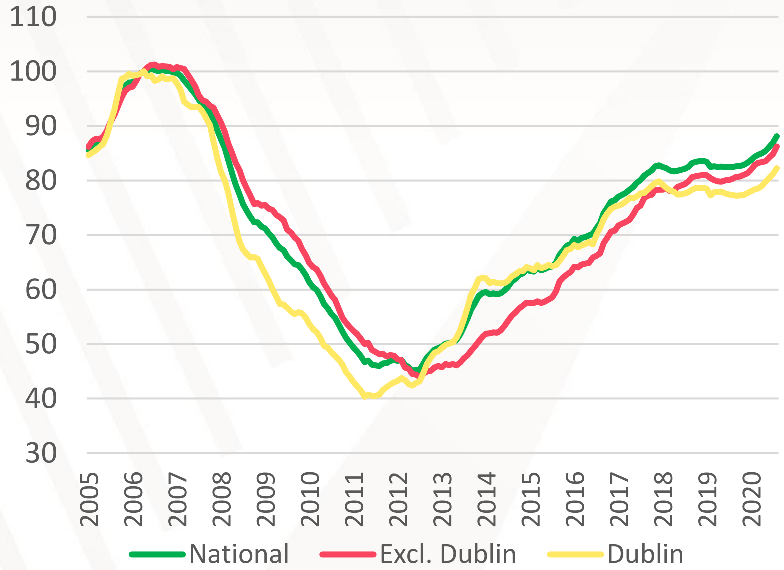
Property

Price gains in 2021 brought about by a lack of supply and unchanged demand

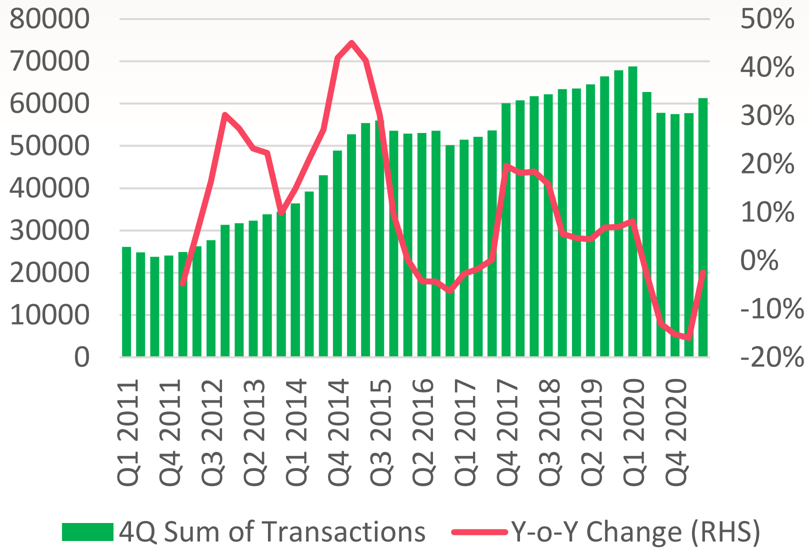
With supply hampered, prices have risen

House prices plateaued before the virus hit but since have increased

House prices 12% off previous peak in 2007 but up 6.9% year-on-year



Transactions have begun to increase again after Covid lockdowns



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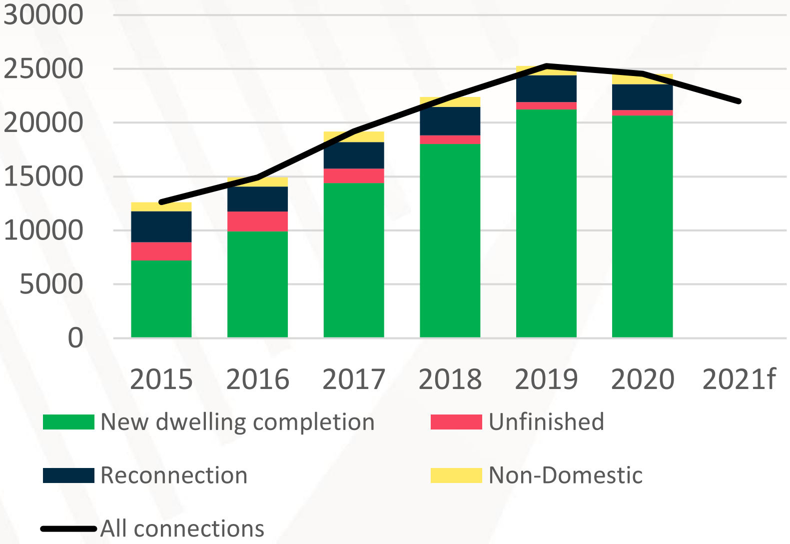
Source: CSO;

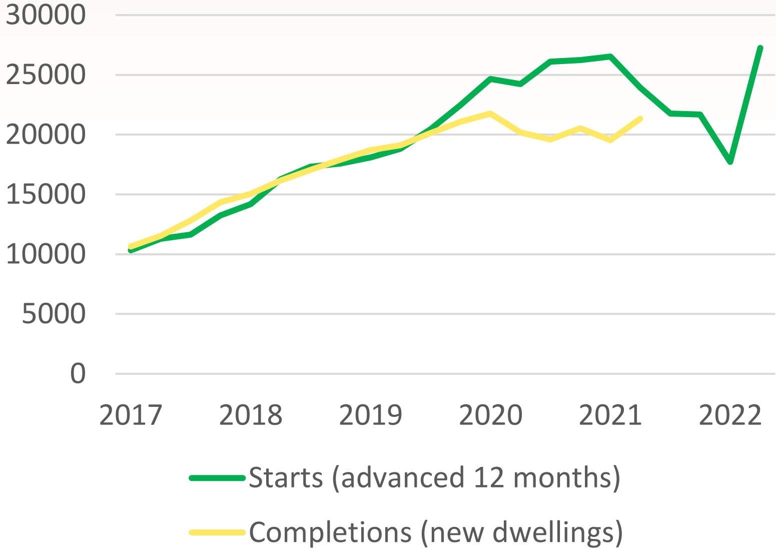
Covid-19 impacted supply for 2020 and 2021

Q1 supply impacted by lockdown

Housing Completions* close to 25,000 in 2020; 20,000+ in new dwelling completions in 2021



Covid hampering supply for 2020-21 but recent housing starts show supply is responding



Source: DoHPCLG, CSO, NTMA Calculations

* Housing completions derived from electrical grid connection data for a property. Reconnections of old houses or connections from "ghost estates" overstate the annual run rate of new building.

**2021 completions forecasted down 10-20% on 2020 based on market estimates

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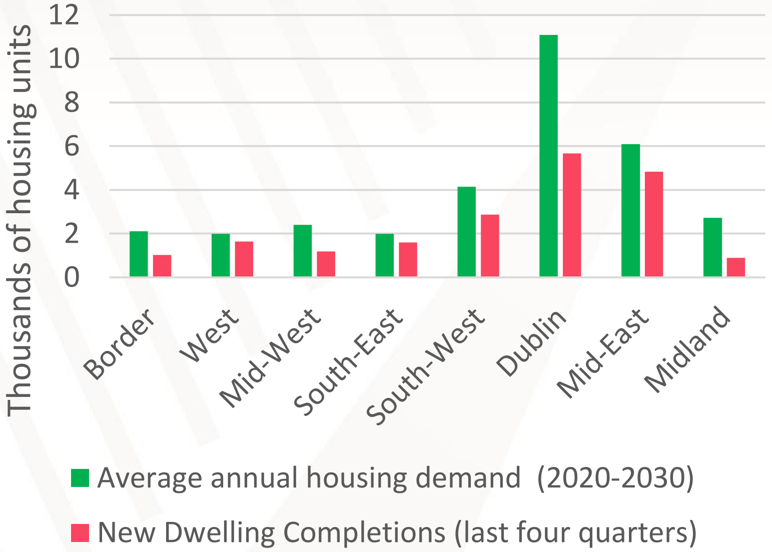
Underlying supply demand mismatch

Housing supply still well below demand – est. need at least 33K units a year



	Average annual housing demand (2020-2030)	New Dwelling Completions (last four quarters)
State	33.6	19.7
GDA	17.2	10.5
Ex-GDA	16.5	9.2

Greater Dublin Area (Dublin + Mid East) requires the majority of needed dwellings.

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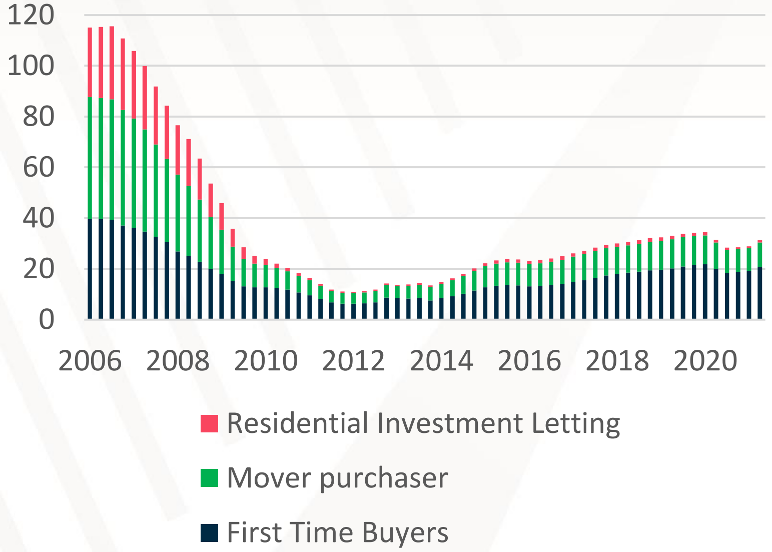
Source: CSO; NTMA analysis

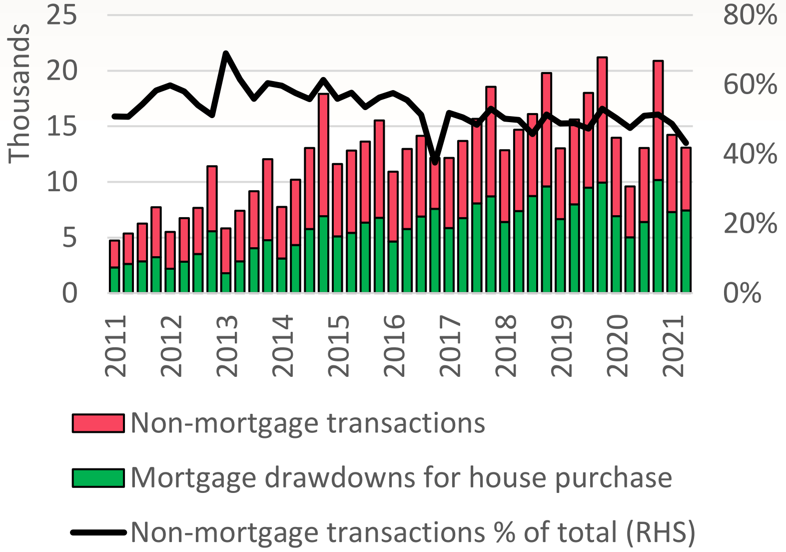
Mortgage drawdowns affected by Covid

Restrictions impacted drawdowns but have begun to increase since initial trough

Mortgage drawdowns* (000s) rose in recent quarters after Covid-19 impact



Non-mortgage transactions still important – c.40% of all transactions



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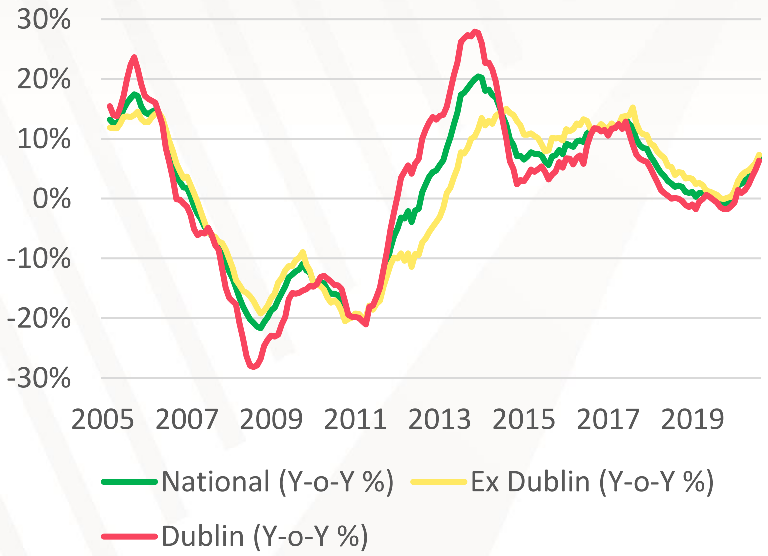
Source: BPFI; CSO

**4 quarter sum used (LHS)*

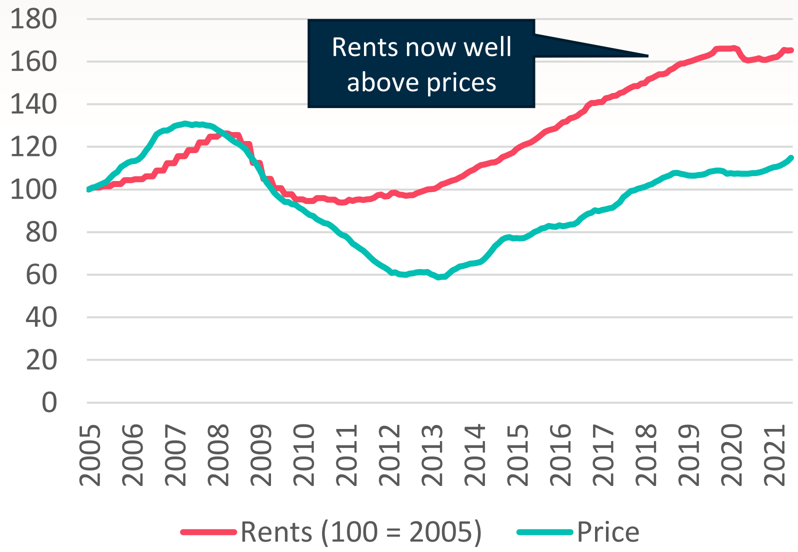
Covid-19 impact on prices coming through

Inflation starting to show and rents pressure back

House prices up 6.9% in the year to June 2021



Rents pressures returning after initial Covid related softening



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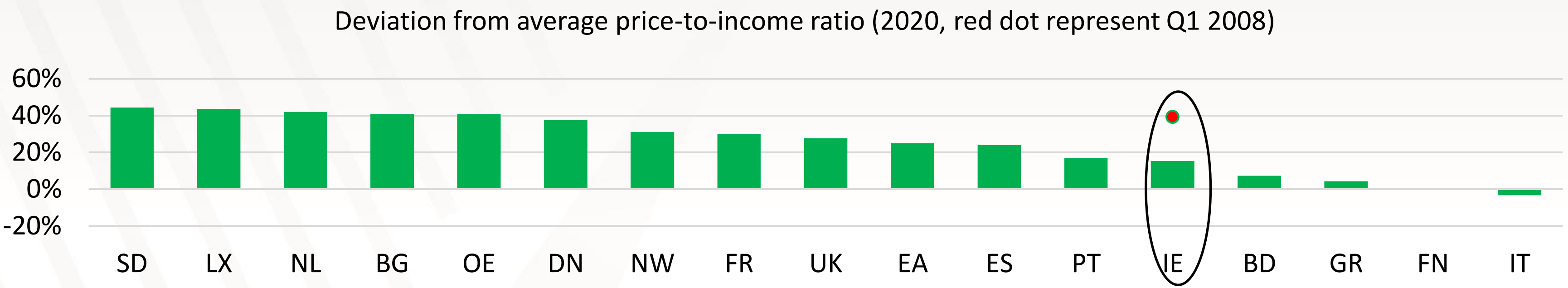
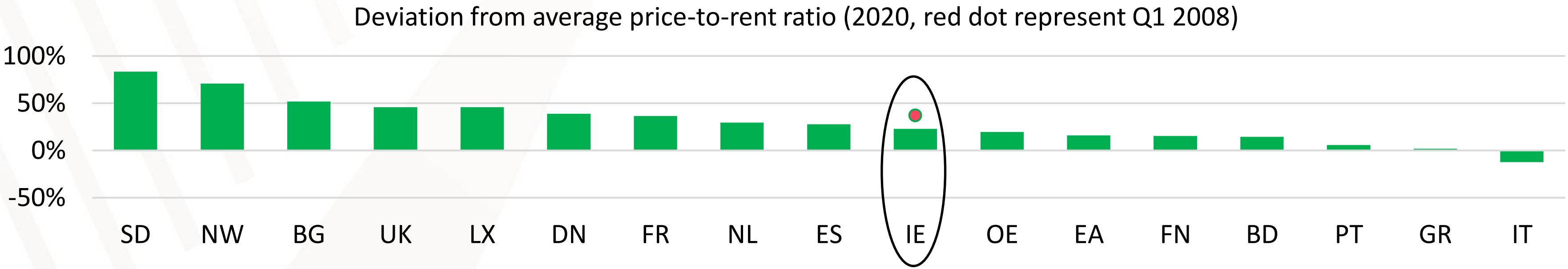
Source: CSO; RTB

Price valuation metrics well below 2008 level





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Source: OECD, NTMA Workings

Note: Measured as % over or under valuation relative to long term averages since 1980.

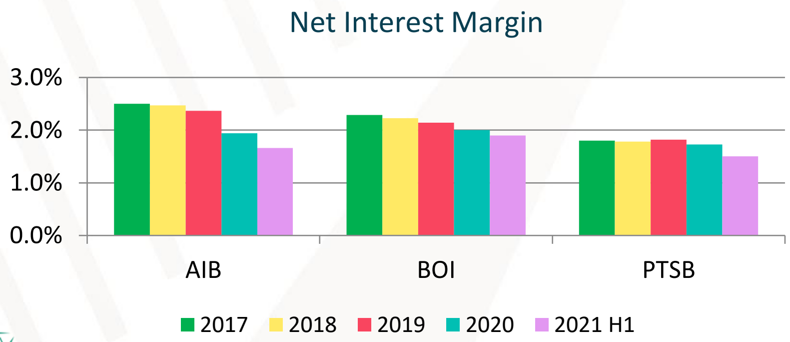
Banks & other

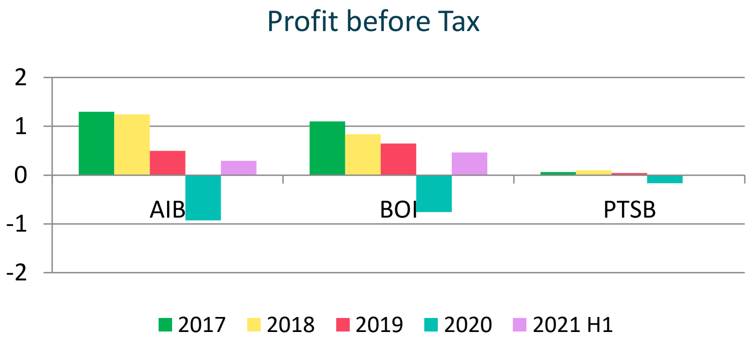
Ireland’s banks among best capitalised in Europe – complete reverse of late 2000s

Ireland’s Banking Sector Overview

Less competition possible

- Banks profitable before Covid-19: income, cost and balance sheet metrics much improved.
- Covid impact on asset quality has been muted so far – will need to see how market sits after fiscal policy fades
- 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 intends to sell part of its 13.9% share in BOI over rest of 2021. The pace of shares sold will depend on market conditions. Shares are not to be sold below a certain level. Will leave just AIB and PTSB with government involvement.
- An IPO of AIB stock (28.8%) occurred in June 2017. This returned c. €3.4bn to the Irish Exchequer. It was used for debt reduction.





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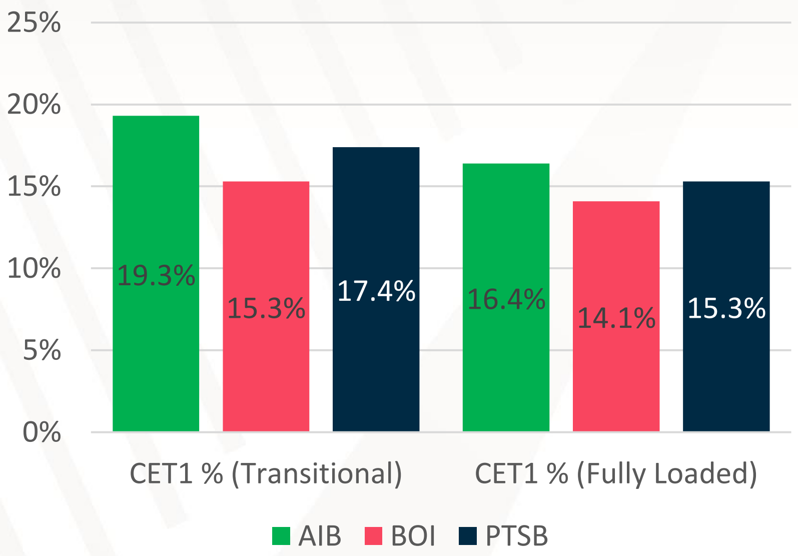
Source: Annual reports of banks - BOI, AIB, PTSB

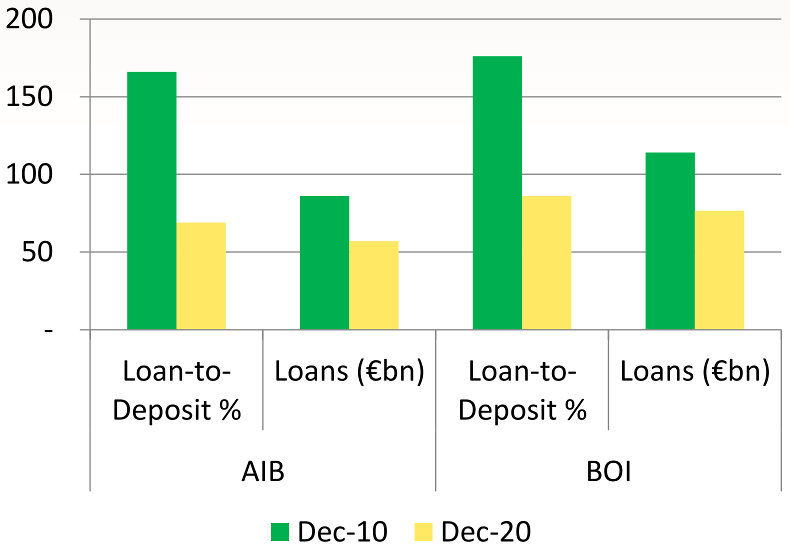
Capital ratios strengthened in last 10 years

Bank's balance sheets contracted and consolidated since GFC

CET 1 capital ratios allow for ample forbearance in 2021/22



Loan-to-deposit ratios have fallen significantly as loan books were slashed



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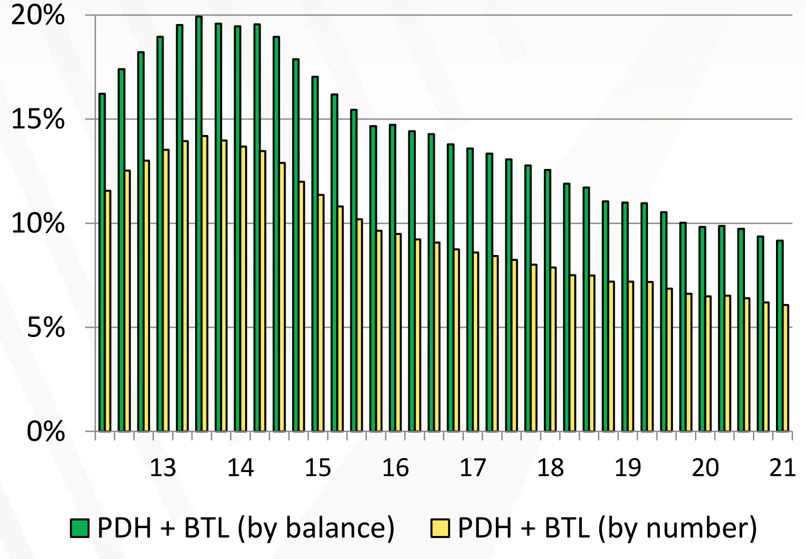
Source: Published bank accounts

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

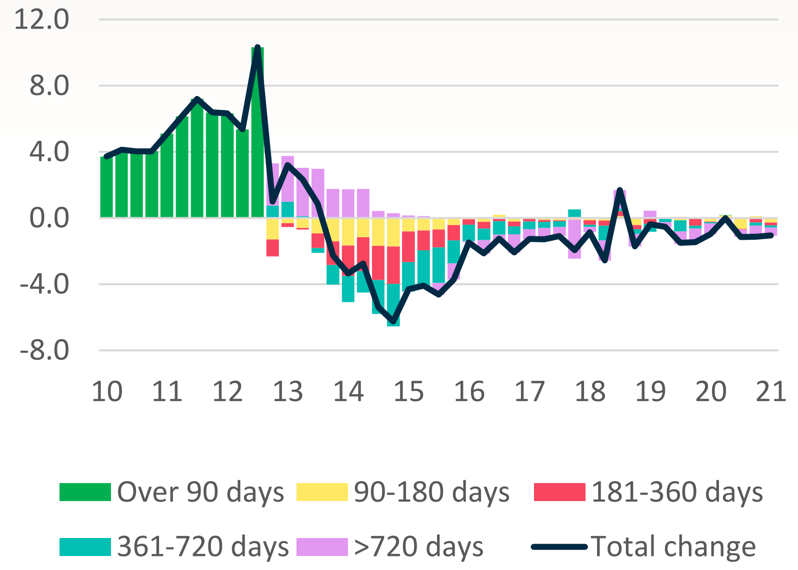
Mortgage arrears have not reversed course

We will know more on asset quality as economy fully re-opens

Mortgage arrears (90+ days) have steadily declined with no noticeable Covid impact



Principal Dwelling Mortgage arrears (thousands)



Commission's ruling on Apple annulled

Further appeal by EC means case continues

- In 2016, the European Commission had ruled that Ireland illegally provided State aid of up to €13bn, plus interest to Apple. This figure is 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 made no allowance for these funds in any of its planning throughout the whole process. **There is no need to adjust funding plans given the decision by the General Court or by the Commission's decision to appeal.**

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