Ireland: Recovery underway in Q2

Consumption led recovery driven by vaccine rollout and resilience in incomes

July 2021

Gníomhaireacht Bainistíochta an Chisteáin Náisiúnta
National Treasury Management Agency

Index

Summary

Irish economy has shown remarkable resilience amid Covid shock

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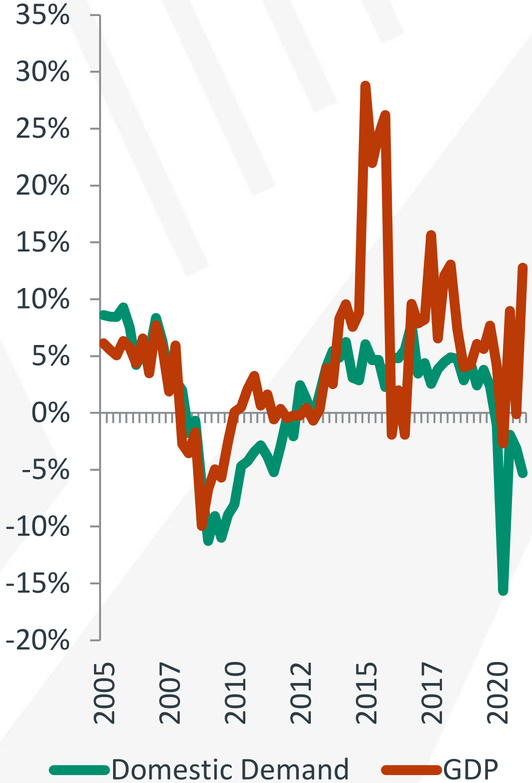
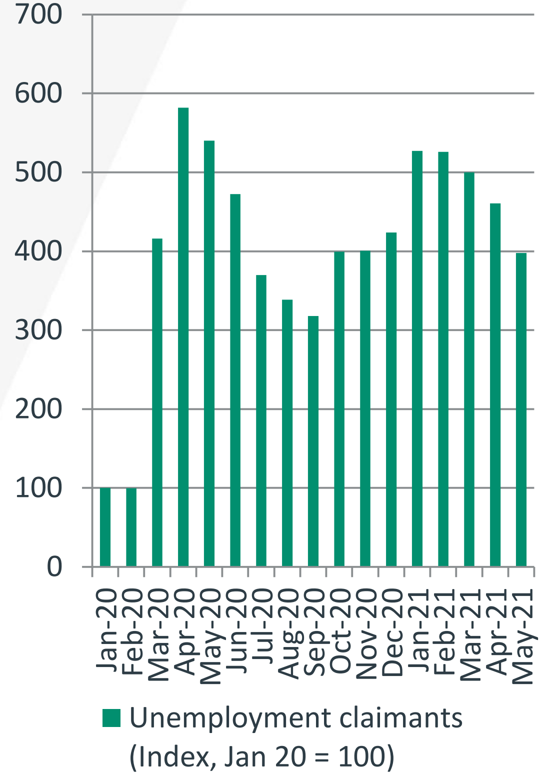
Q1 lockdown hurt economic performance but rebound in Q2 as vaccines rollout meant restrictions were eased

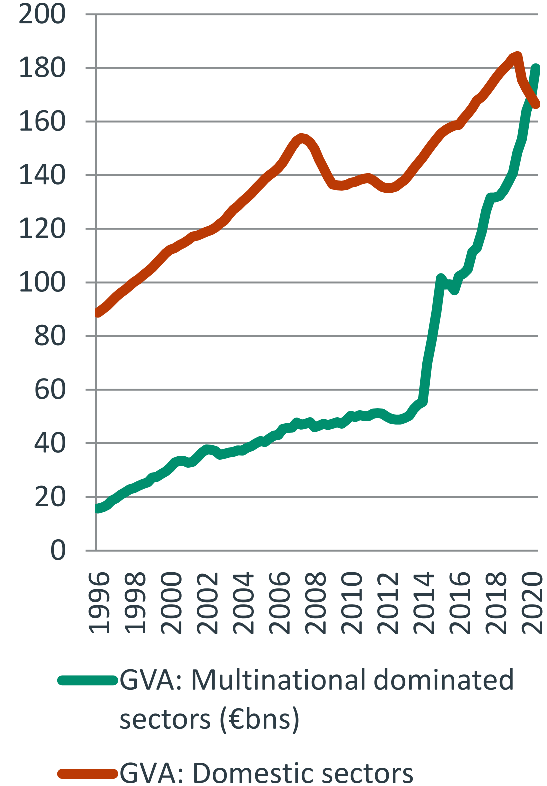
GDP remained positive in Q1 2021 but domestic sectors hit



Unemployment to unwind as economy opens up



Value added from ICT & pharma has given Ireland resilience



Source: CSO

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

*** Whether those on government income supports are unemployed is statistically debatable. Some will have left the labour force, others are just temporarily furloughed.*

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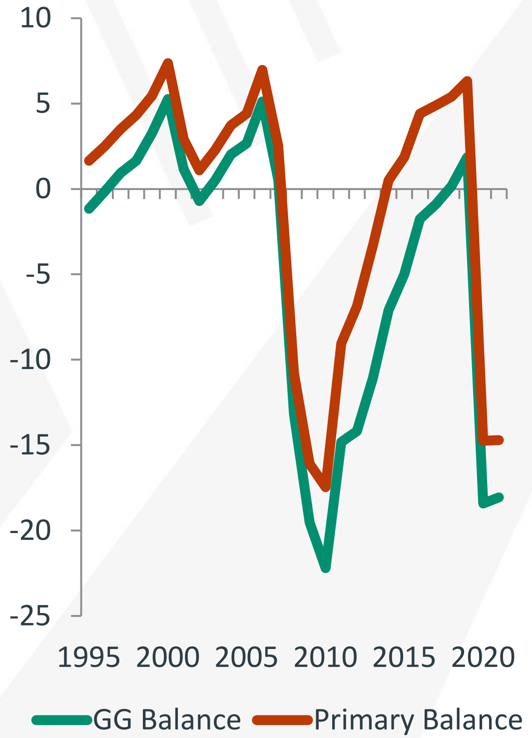
Ireland's debt ratio rise as large fiscal response needed; Govt. looking to narrow deficit in coming years

Run of primary surpluses before Covid induced deficit



Debt position reversed in 2020

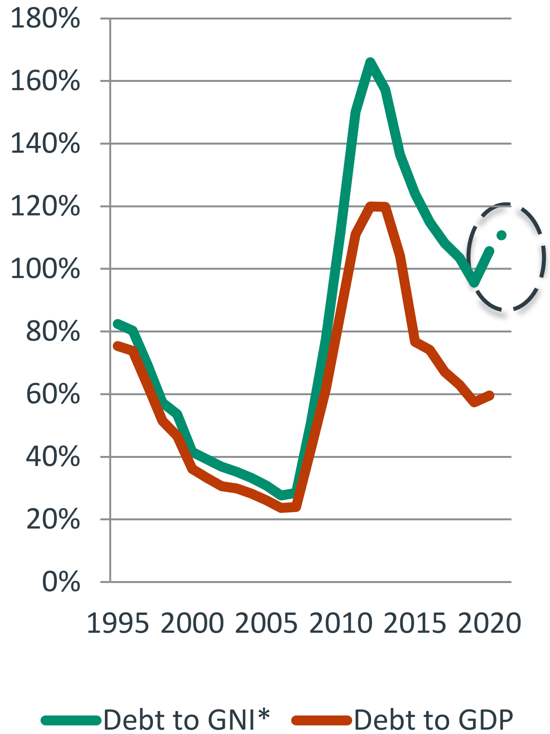
Debt-to-GNI*
(106% 2020f; 95% in 2019)

Debt-to-GG Revenue
(254% 2020; 229% in 2019)

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

Debt-to-GDP
(60% 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
^ due to GDP distortions, Debt to GDP is not representative for Ireland, we suggest using other measures listed.

Medium term economic challenges - Covid recovery, deficit reduction and possible OECD tax reform

Recovery

Lockdown in Q1 gave way to an easing of restrictions in Q2. Vaccine rollout progressing well

Timely labour market and spending data indicate recovery is underway

Policy

Significant stimulus announced equivalent to c. 20% of GNI* over 2020 and 2021

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

Tax

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

Global minimum tax rate hits at Ireland’s FDI proposition to multinationals, possibly reducing future growth

NTMA has indicated a funding range of €16 - €20bn for 2021 €13.25bn already funded in H1

Flexibility

Ireland has large cash balances and a year free of maturing bonds in 2021

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

>10 years

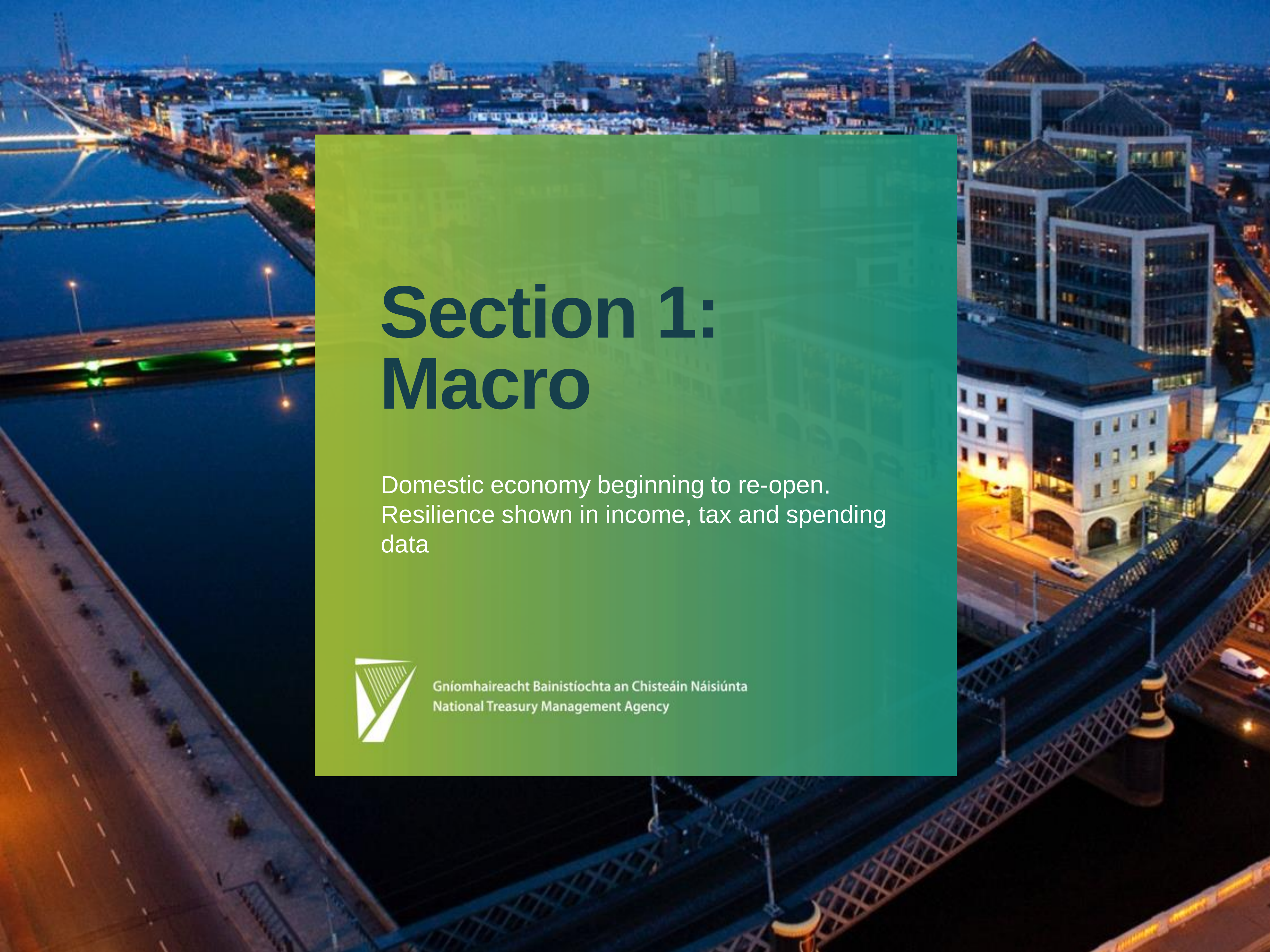
Weighted average maturity of debt one of longest in Europe

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

AA-

Ireland has been affirmed in AA category by S&P

On relative basis, hit to Ireland less than for other countries given multinationals and Ireland's fiscal response



Section 1: Macro

Domestic economy beginning to re-open. Resilience shown in income, tax and spending data

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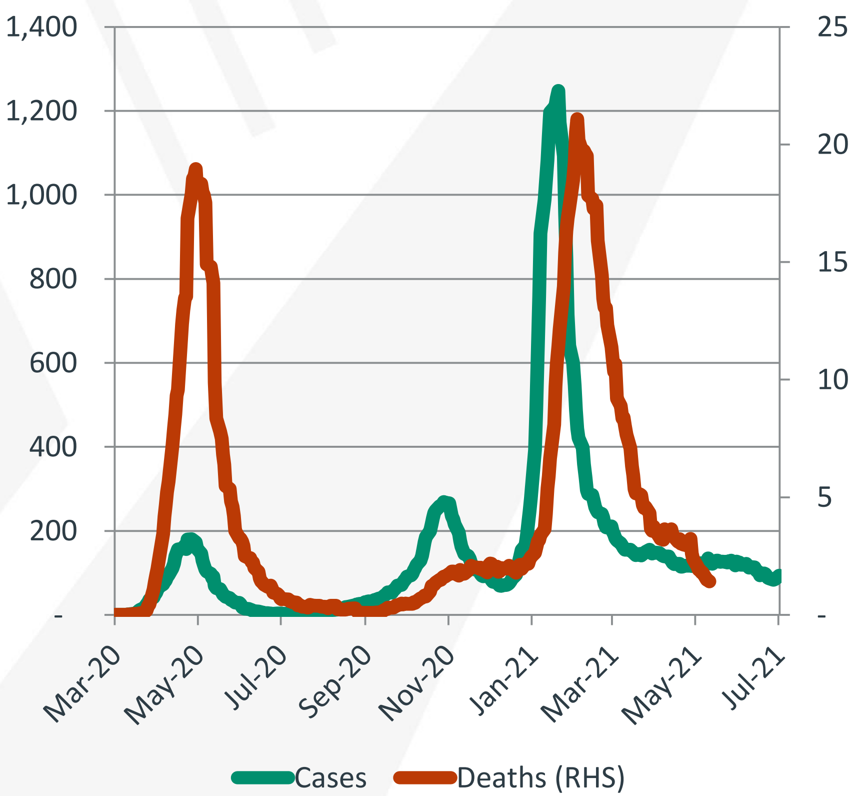
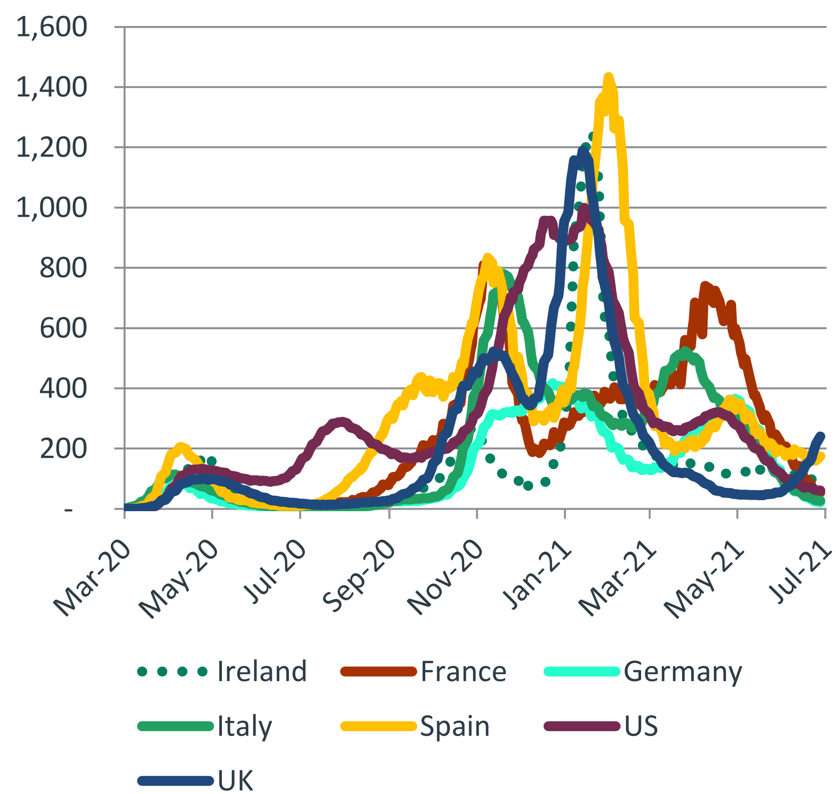
Restrictions on retail and outdoor dining lifted in Q2 – Delta variant has delayed next phase of re-opening

14 day cumulative Covid-19 cases/deaths per 100k of population



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



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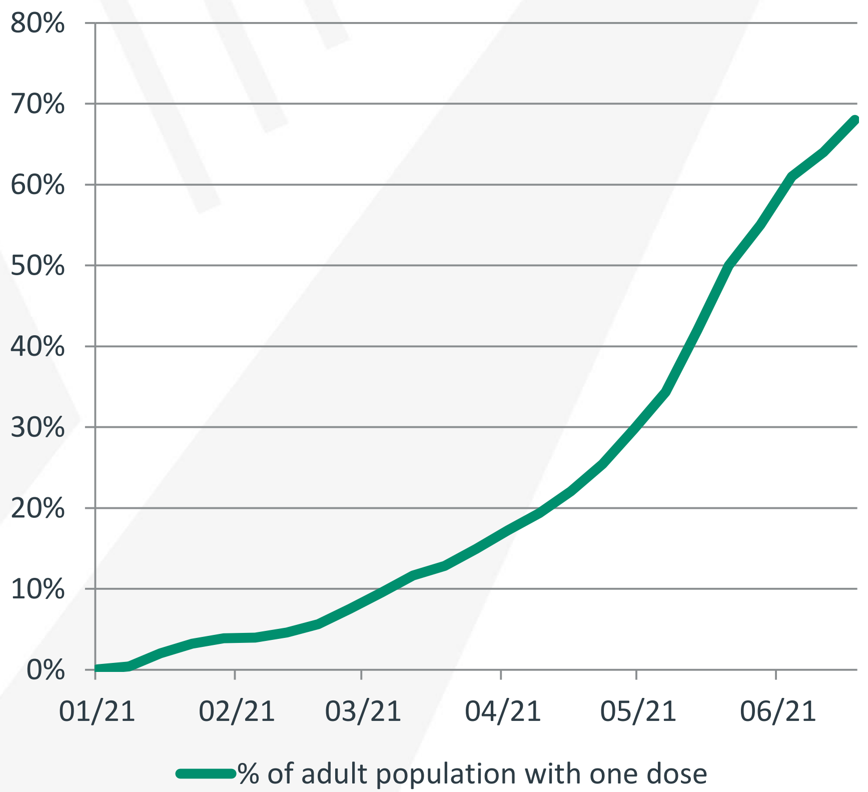
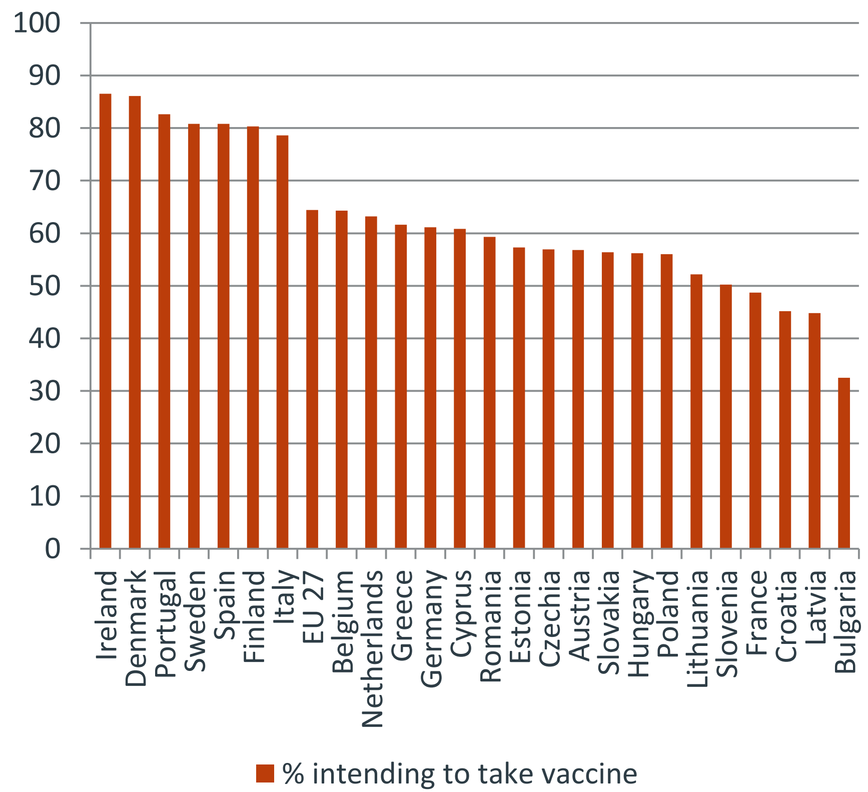
Source: DataStream
Due to cyber security issues data on deaths in Ireland has been significantly delayed – at present 5,000 people have died due to the virus.

Vaccine rollout progressing well – c. 68% with one dose in early July, c. 50% fully vaccinated

Rollout is progressing well - further progress is needed to combat Delta variant



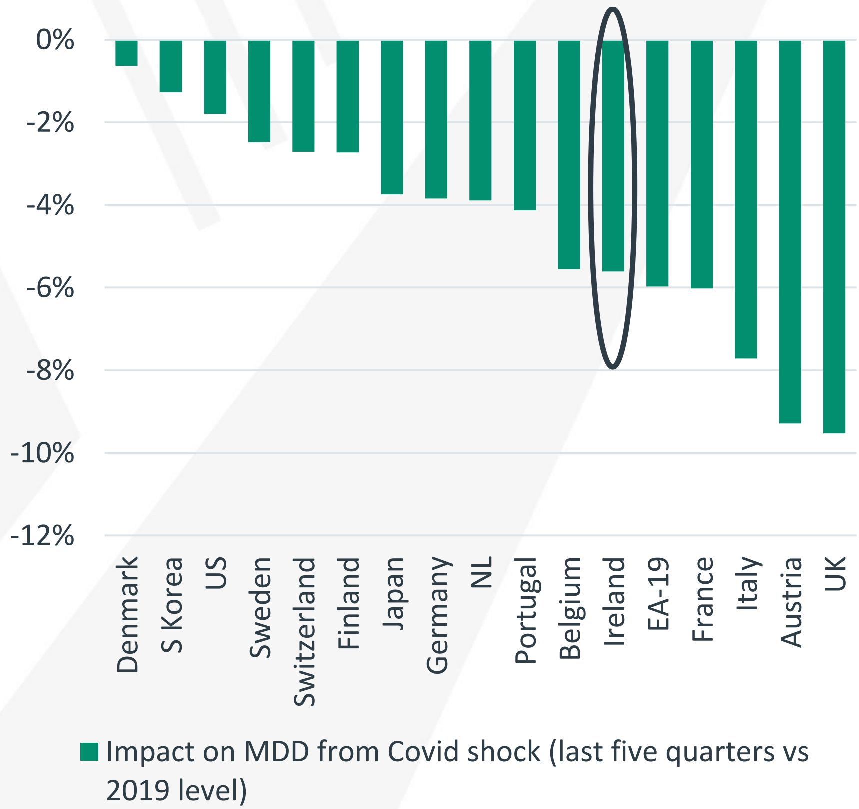
Ireland unlikely to have issues regarding vaccine hesitancy



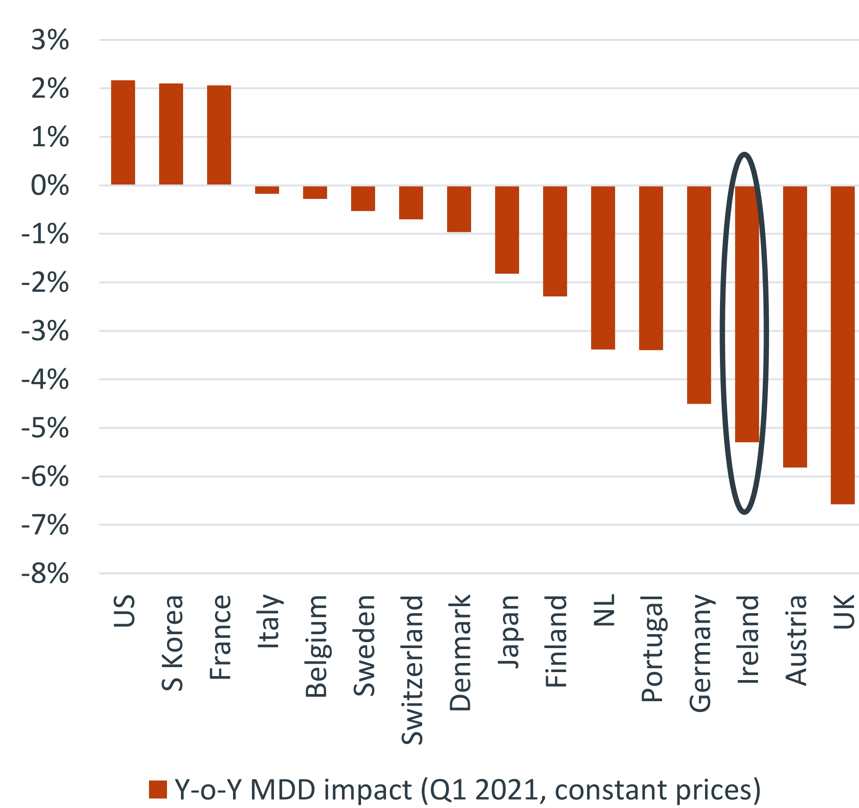
Source: DataStream, Eurofound Survey

On a relative basis Ireland performed well since Covid shock – though Q1 was impacted by lockdown measures

Real MDD down 5.6% since Covid shock – similar to EA average



Real MDD down 5.3% Y-o-Y in Q1 2021 alone: Ireland's stricter lockdown at play

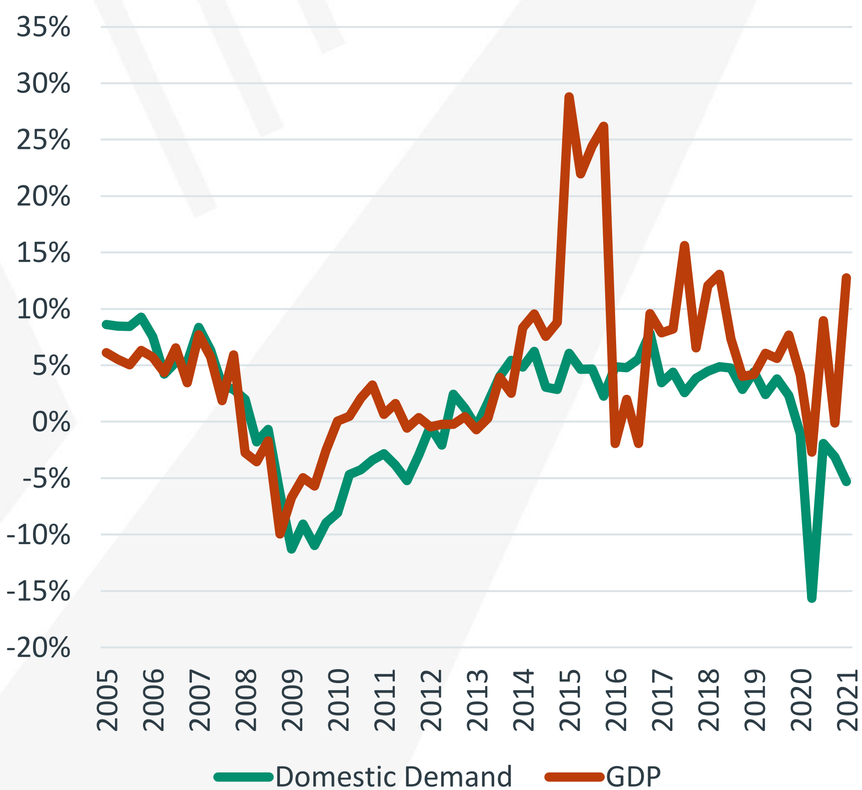


Source: CSO, DataStream

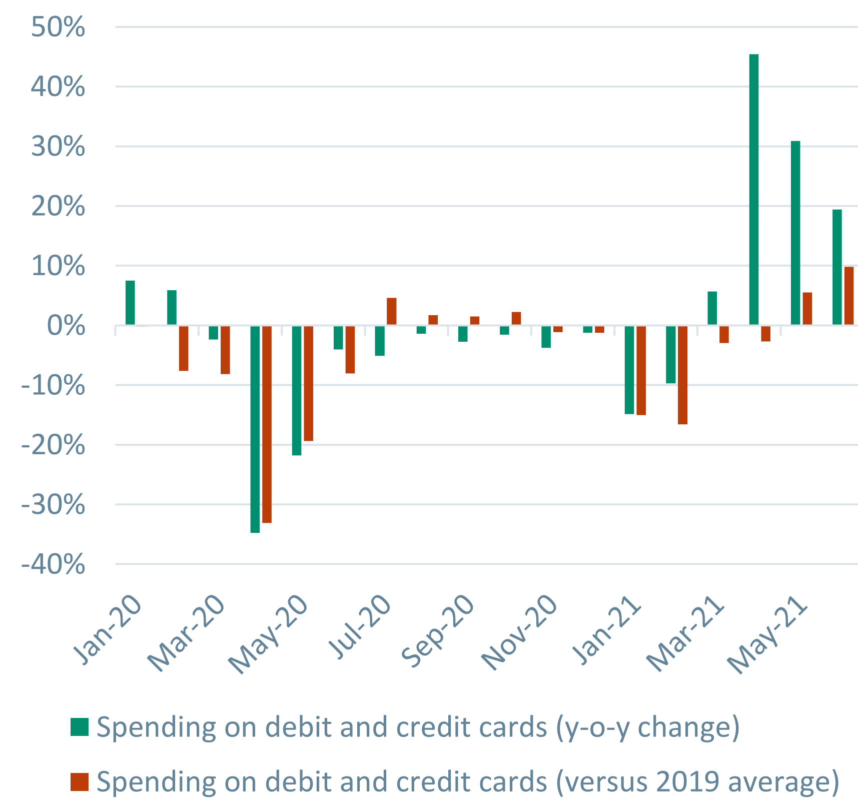
Note: MDD for Ireland is modified for multinational activity by Ireland's Central Statistics Office (CSO). For other countries MDD = Domestic demand = Consumption + Government (current) spending + Investment

Domestic sectors were hit most in Q1 2021 but signs of strong recovery in spending data

GDP remained positive in Q1 2021 but domestic sectors down 5.3% y-o-y

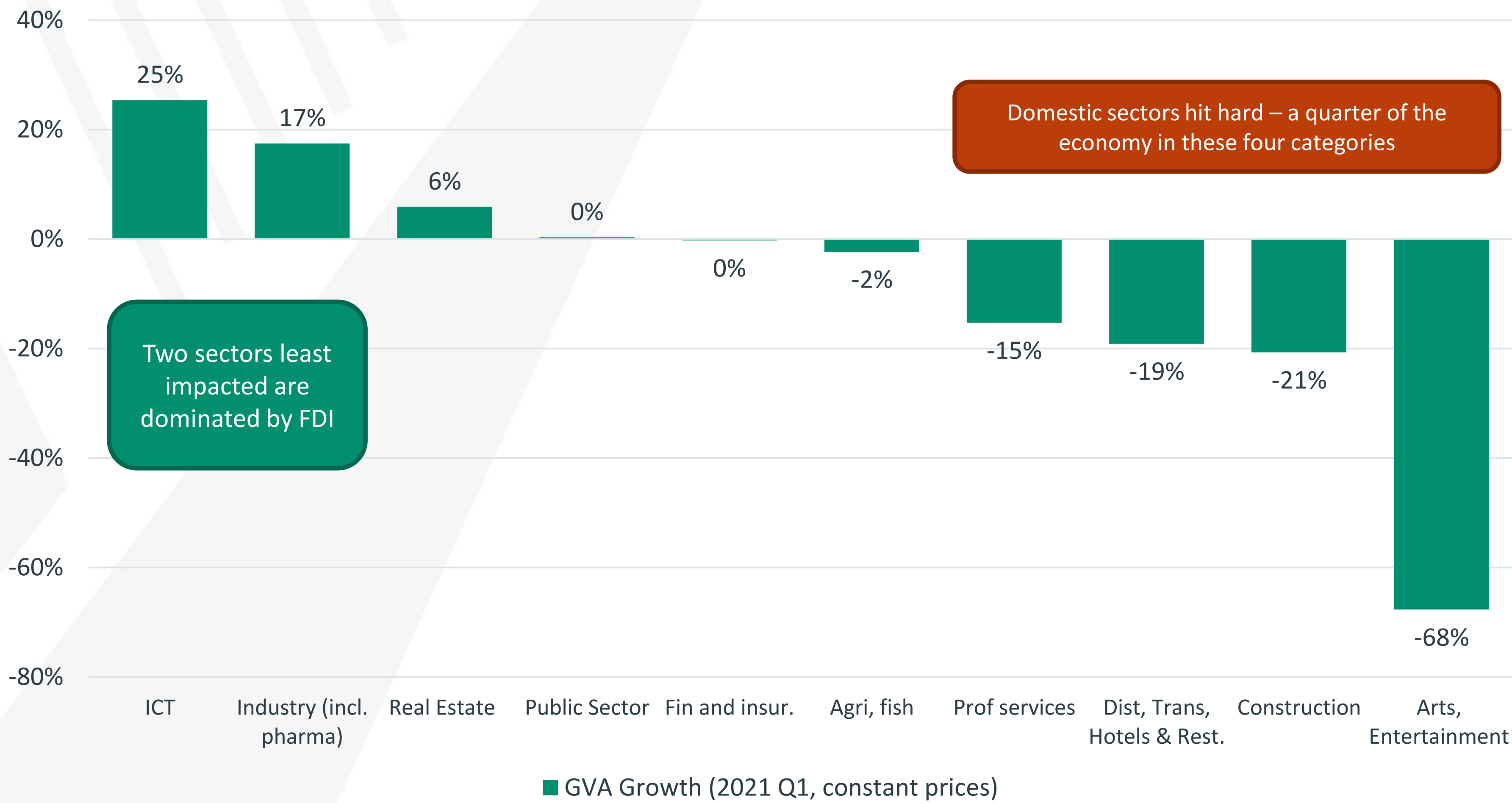


In Q1, spending fell but recovering strongly: H1 spending similar to 2019 levels



Source: CSO, CBI
* Domestic demand series accounts for multinational activity and known as modified final domestic demand (excludes inventories)

Sector breakdown for Q1 2021 – Multinationals continue strong performance, domestic side hit hard



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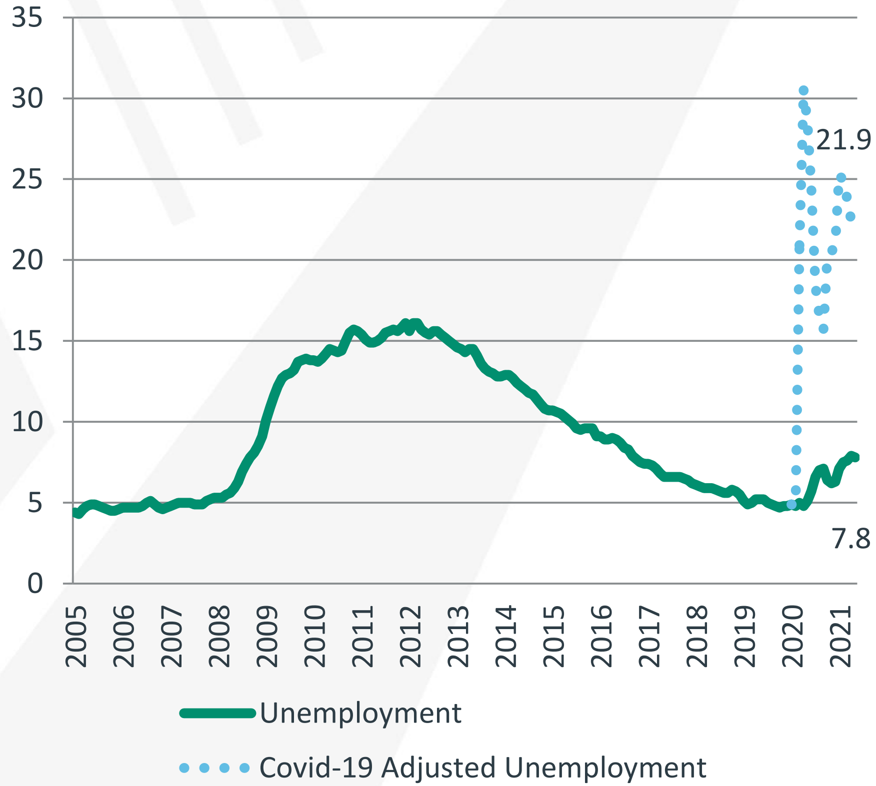
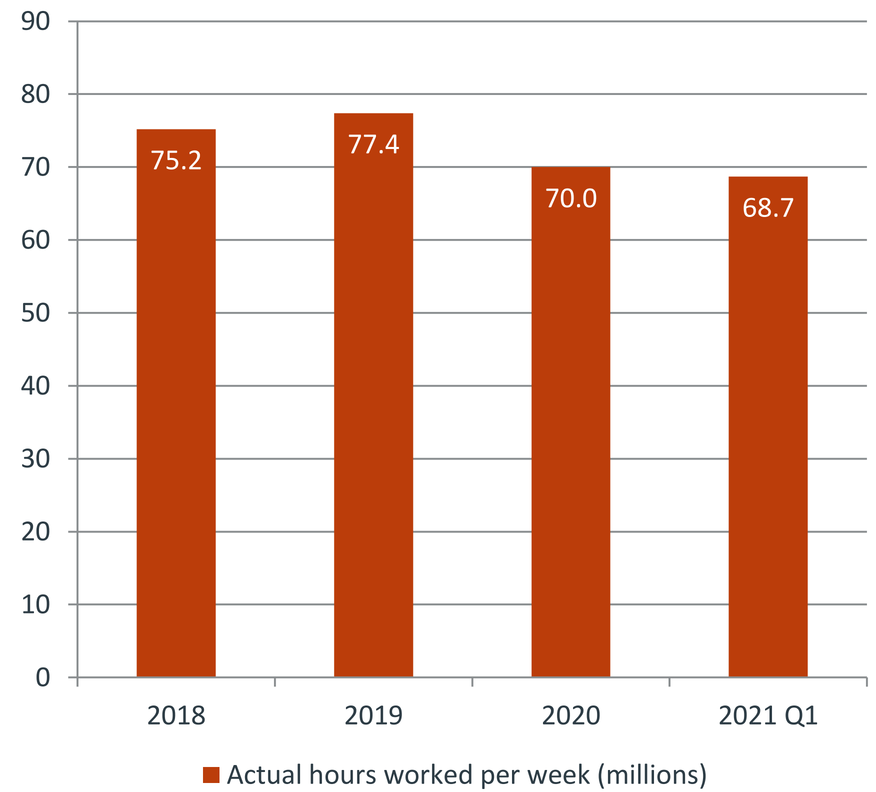
Source: CSO

Labour market data shows stark Covid-19 impact

True unemployment rate is uncertain: Covid-19 adjusted rate 21.9%* in May



10% fall in actual hours worked per week in 2020; MDD fall smaller due to productivity mix



Source: CSO

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

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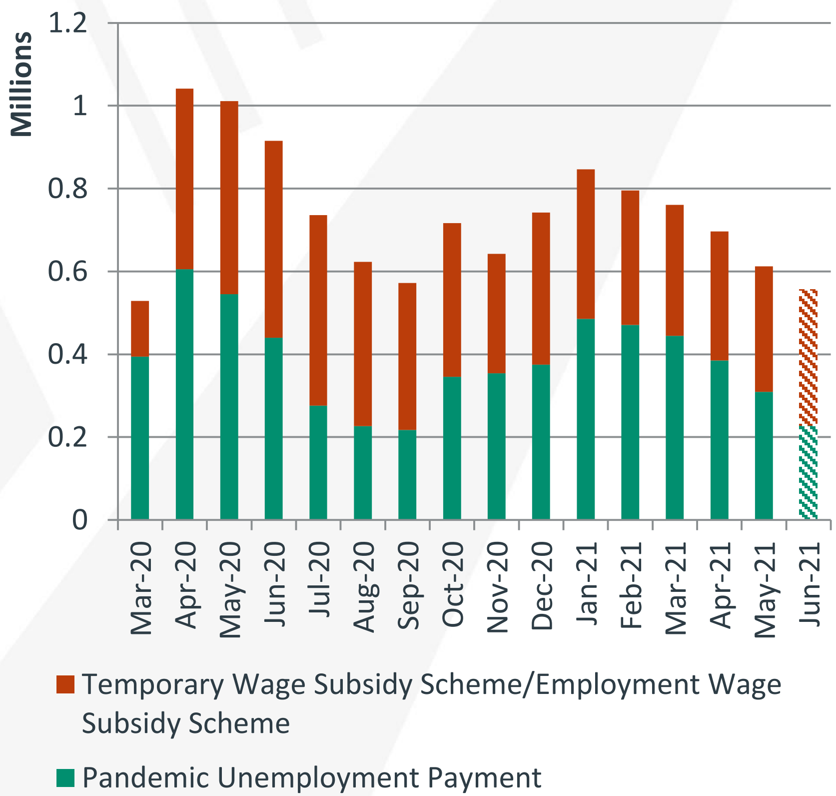
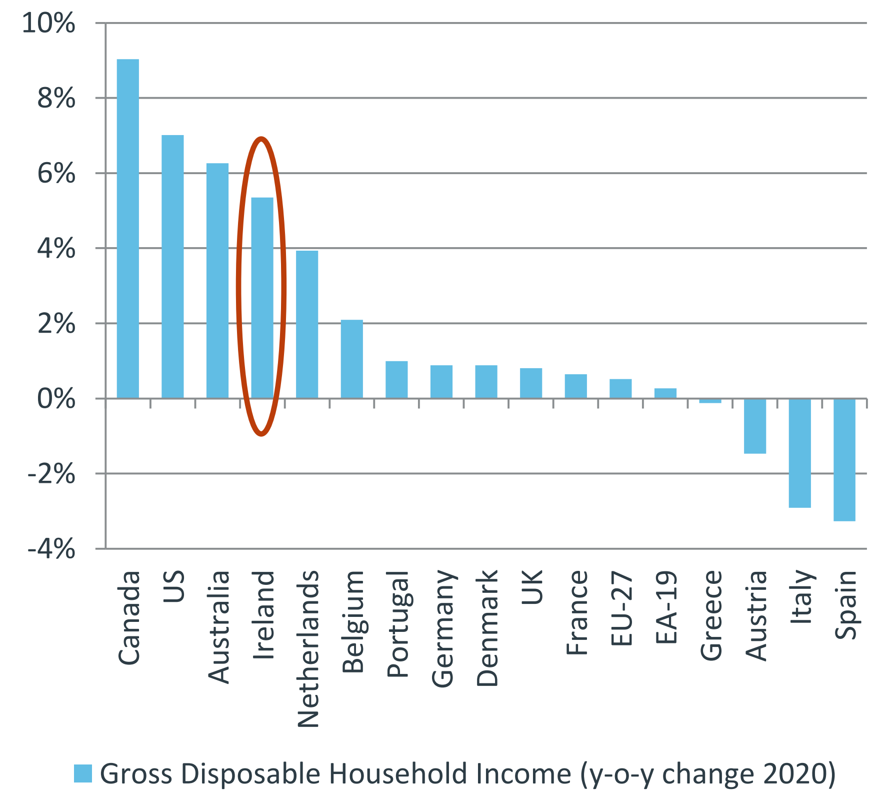
Approx. 550k on income support as lockdown continues to ease

Those on the PUP has halved since start of 2021 but pace likely to slow



Supports mean disposable income grew in 2020 more akin to US than EU



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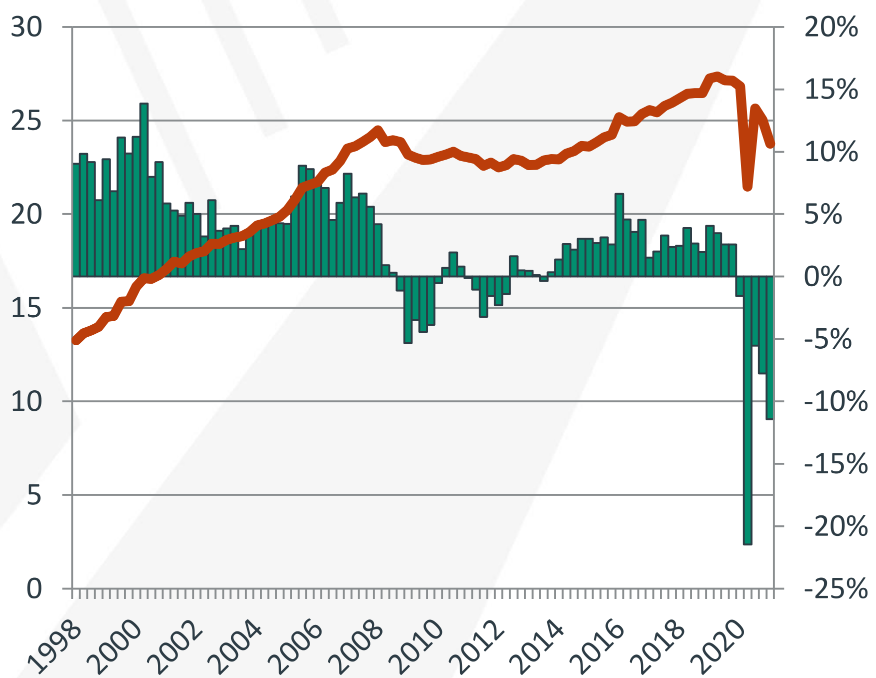
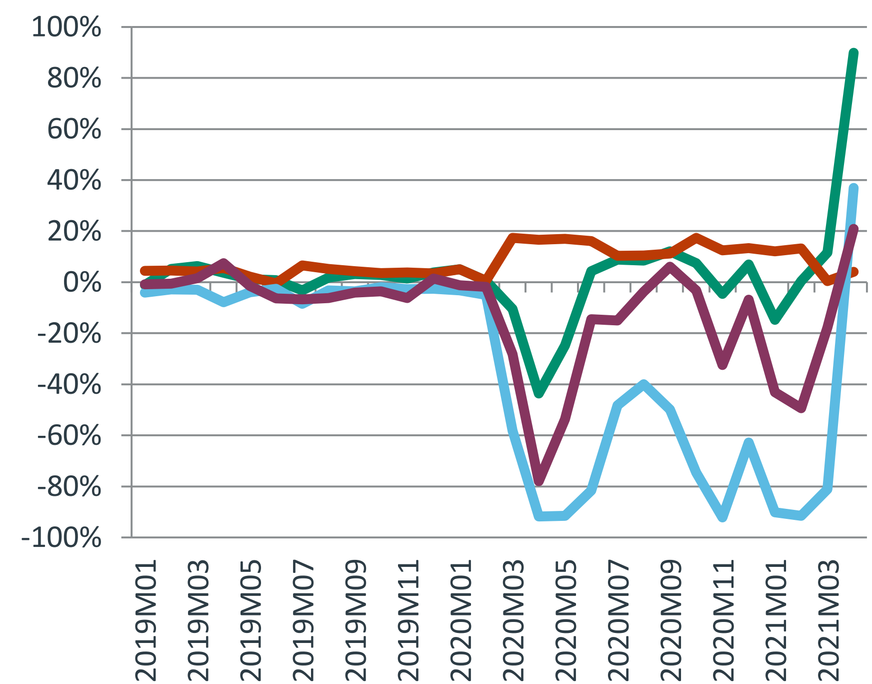
Source: Revenue, DEASP, CSO, Revenue

Consumption fell in Q1– down 11.4% versus 2020 despite incomes being maintained

Consumption hit in Q1 2021, down 11.4% from 2020



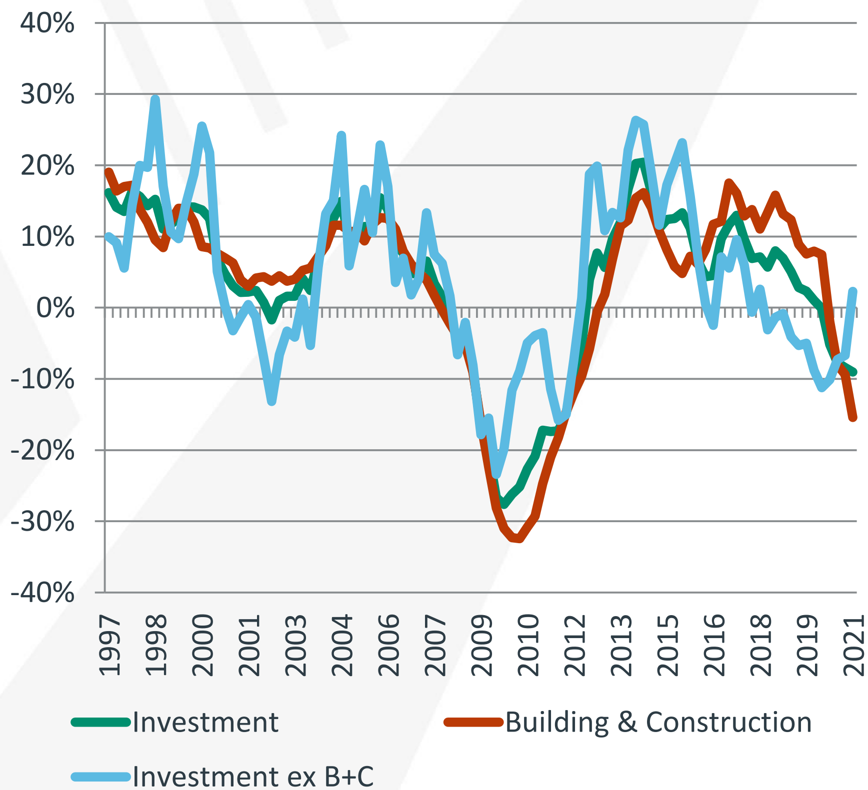
Retail sales numbers should start to rise along with spending as economy re-opens



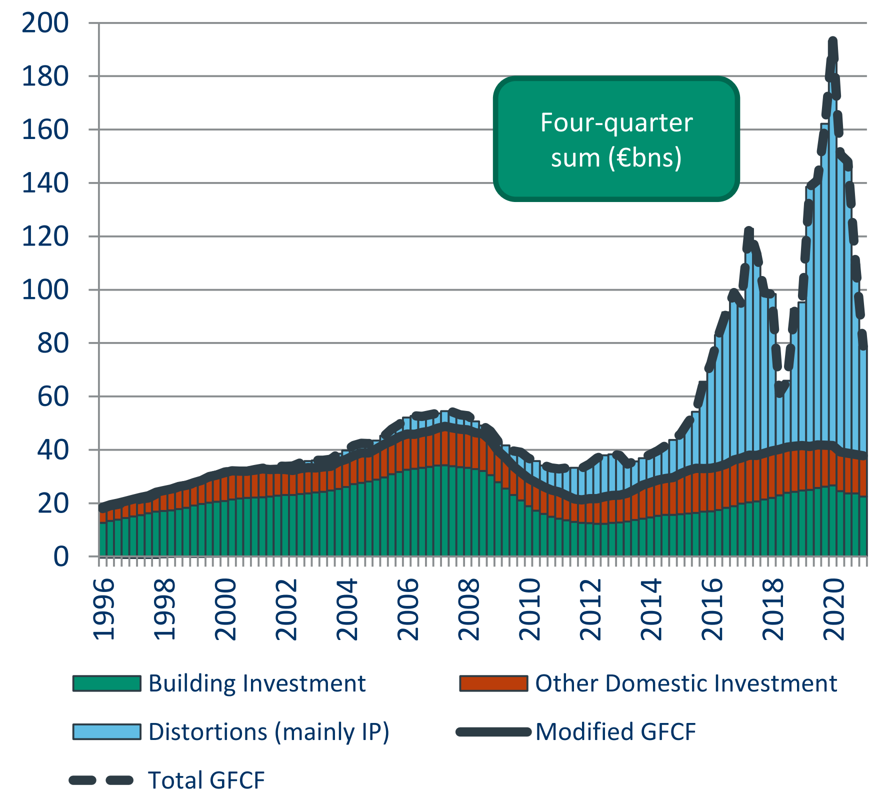
Source: CSO

Investment hit as construction sector has moved in & out of lockdown; closed in Q1 but open in Q2

Investment hit by Q1 lockdown but impact more muted thanks to M+E investment



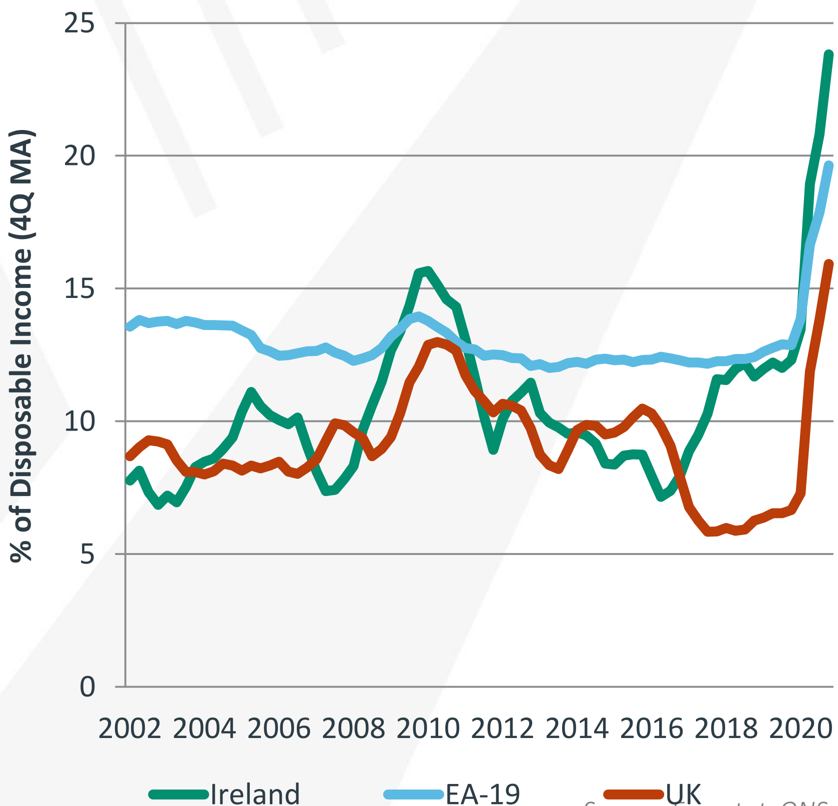
IP distortions less than in previous quarters-



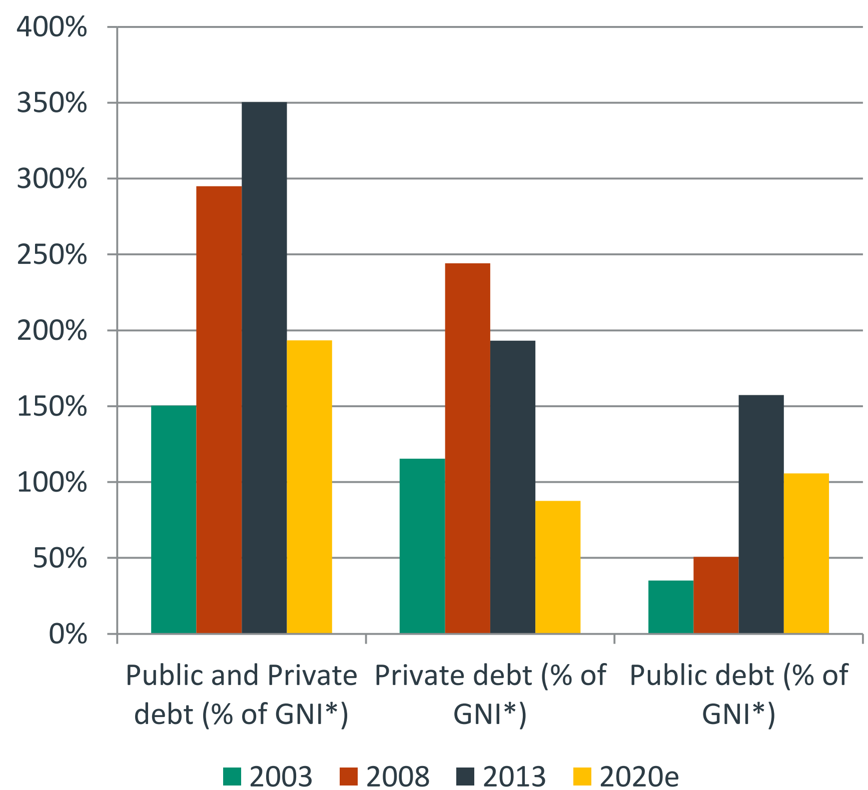
Source: CSO; NTMA calculations

Household balance sheets: debt levels much lower coming into pandemic + new Covid savings

Gross HH saving rates jumped 2020 on back of forced savings – IE larger than most



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



Source: Eurostat, ONS, CSO ; CBI,

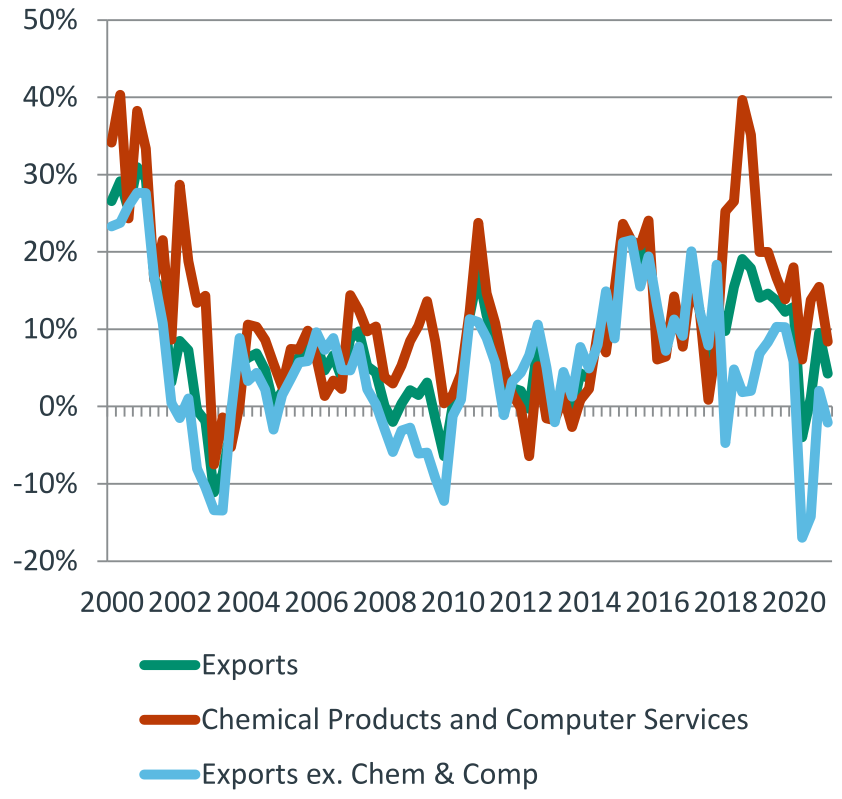
Note: Gross Savings as calculated by the CSO has tended to be a volatile series in the past, some caution is warranted when interpreting this data

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.

External environment supportive – the global economy is rebounding 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	Rebound
Euro Growth	Covid-19 shock	Rebound
Euro currency	Strengthening vs. Dollar	Unclear

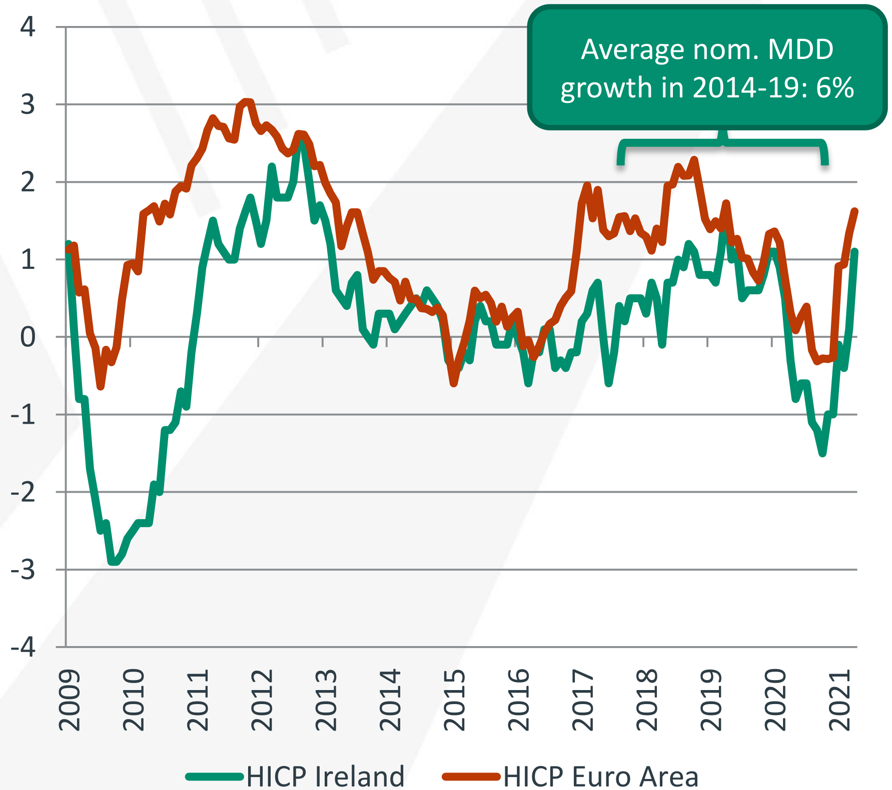
Exports driven by demand for multinationals products – Pharma. and Tech



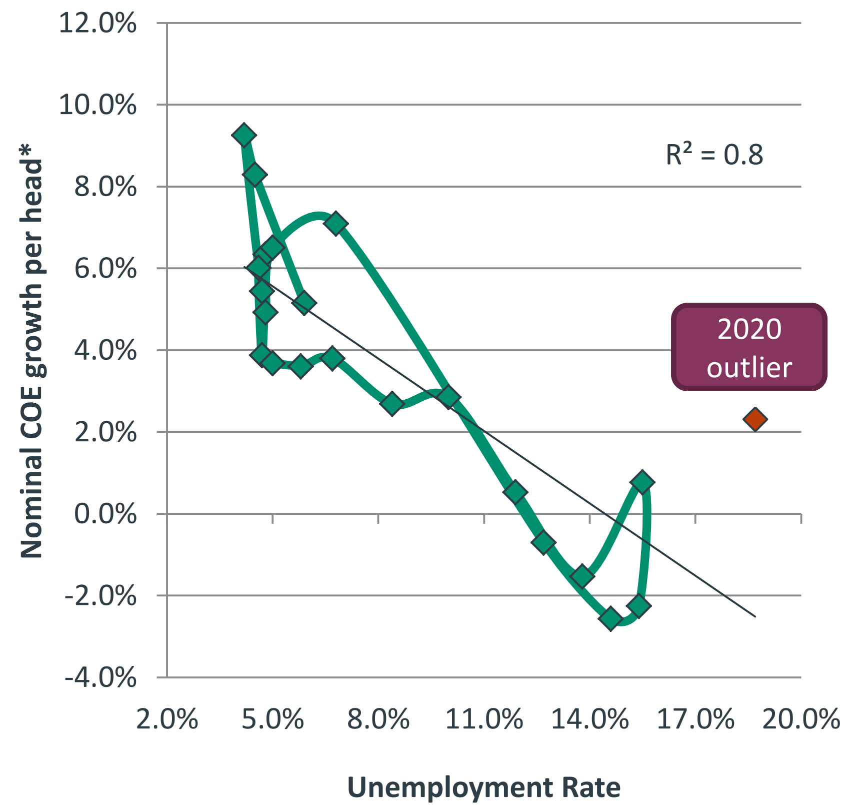
Source: NTMA analysis, DataStream, CSO

Philips curve relationship has held in the past in Ireland but we are some way off full employment

Inflation subdued in Ireland for close to a decade despite strong growth



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



Source: CSO, NTMA analysis;
**Non-Agriculture employment /wage data on yearly basis (1999-2020)*

OECD agreement will change business tax globally – Ireland broadly supportive but reservations remain on P2

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

- 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 muted.
- 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. For now, Ireland has not joined the consensus. 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; talented workforce, English speaking, EU access, and ease of doing business

Section 2: Fiscal

Revenues resilient with deficit expansion mainly Covid 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 c.€40bn over 2020 and 2021 (20% 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 cushion impact on deficit

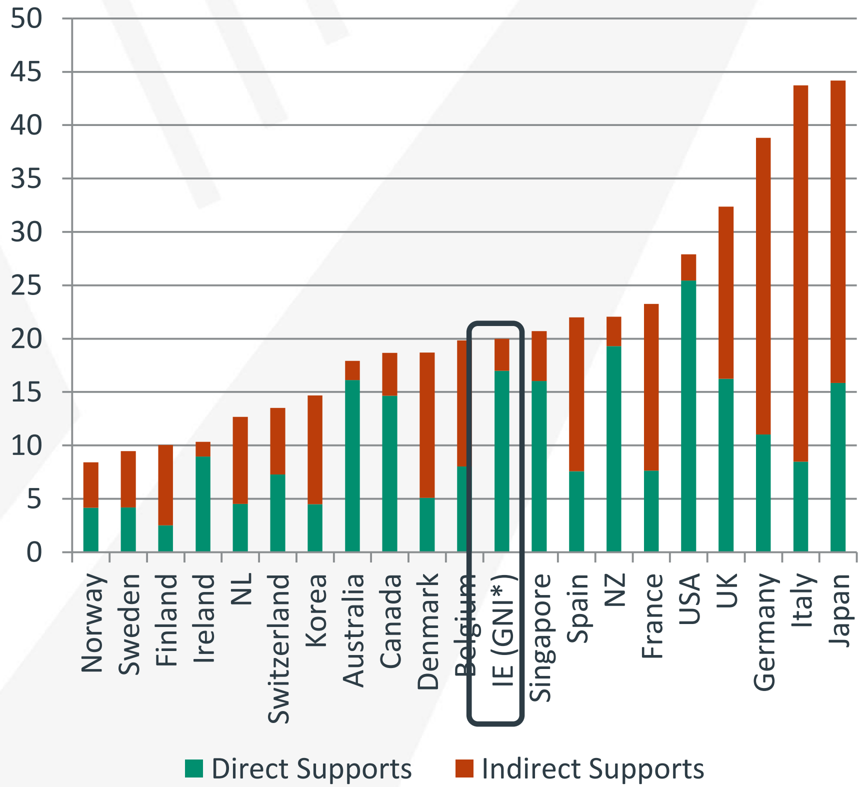
Debt

Debt ratios have reversed due to Covid

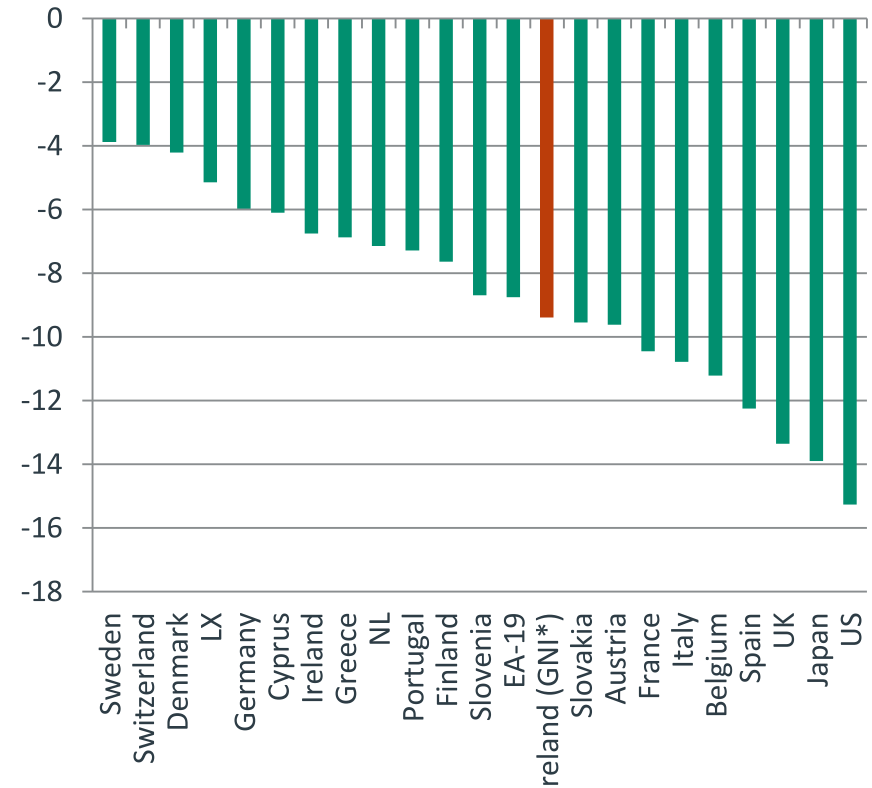
Gross Government debt 57% of GDP at end-2019 but close to 95% of GNI*. Ratios were c.60% and 106% for end-2020

Ireland fiscal response (c. €40bn, 20% of GNI*) highly skewed to direct supports unlike others in EU

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



2020 General Government Balance – Ireland close to Euro Area average (% of GDP)



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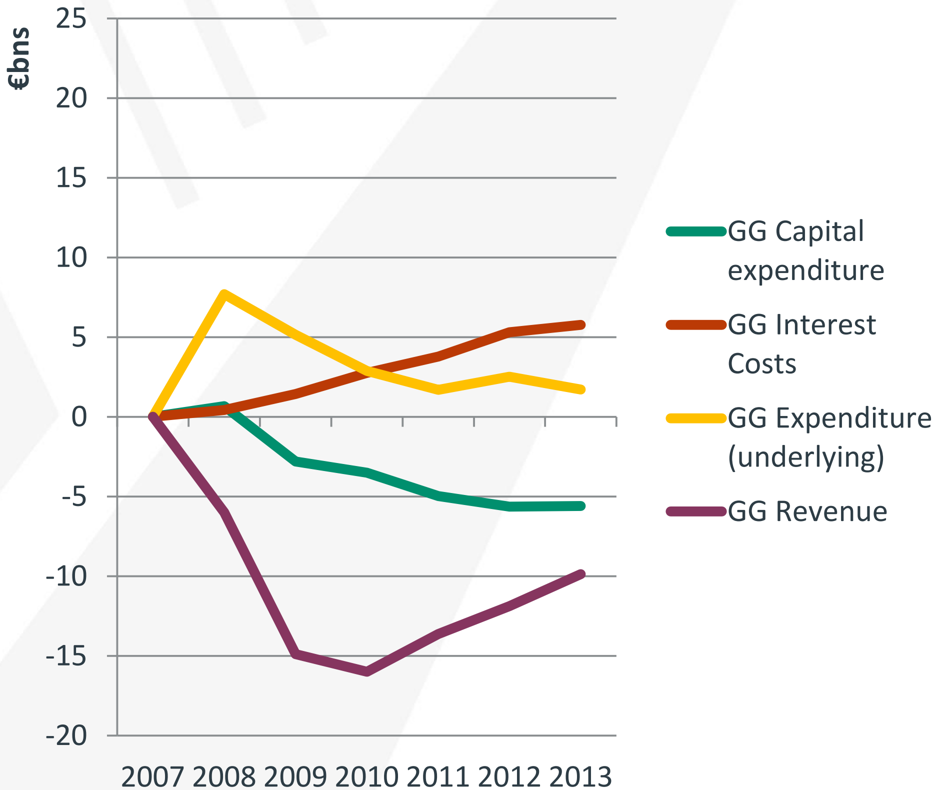
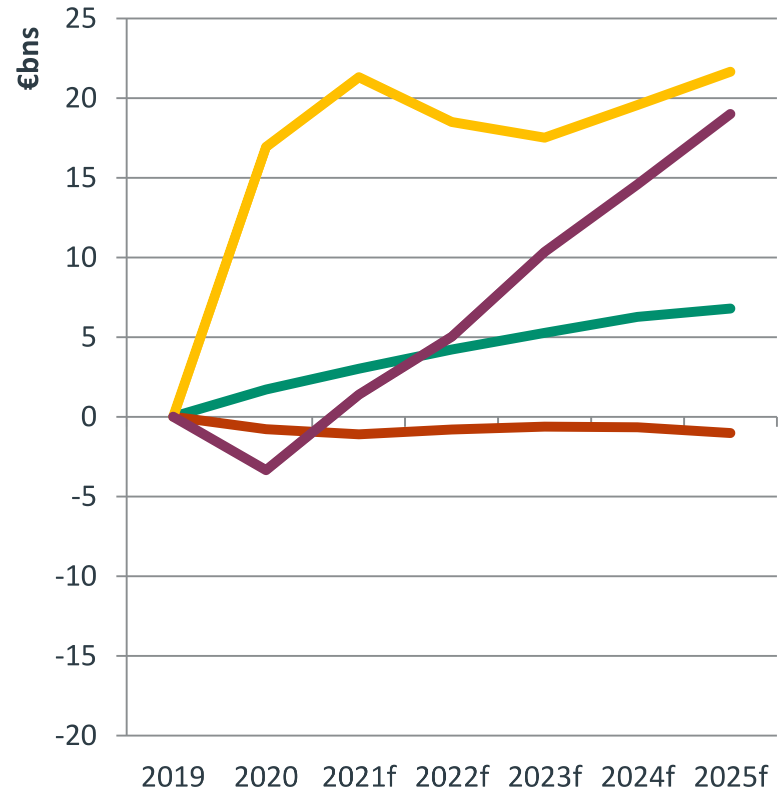
Source: IMF, European Commission, Department of Finance
Direct supports = Additional spending and forgone revenue
Indirect supports = Equity, loans, and guarantees

The fiscal response to Covid is different to the 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…



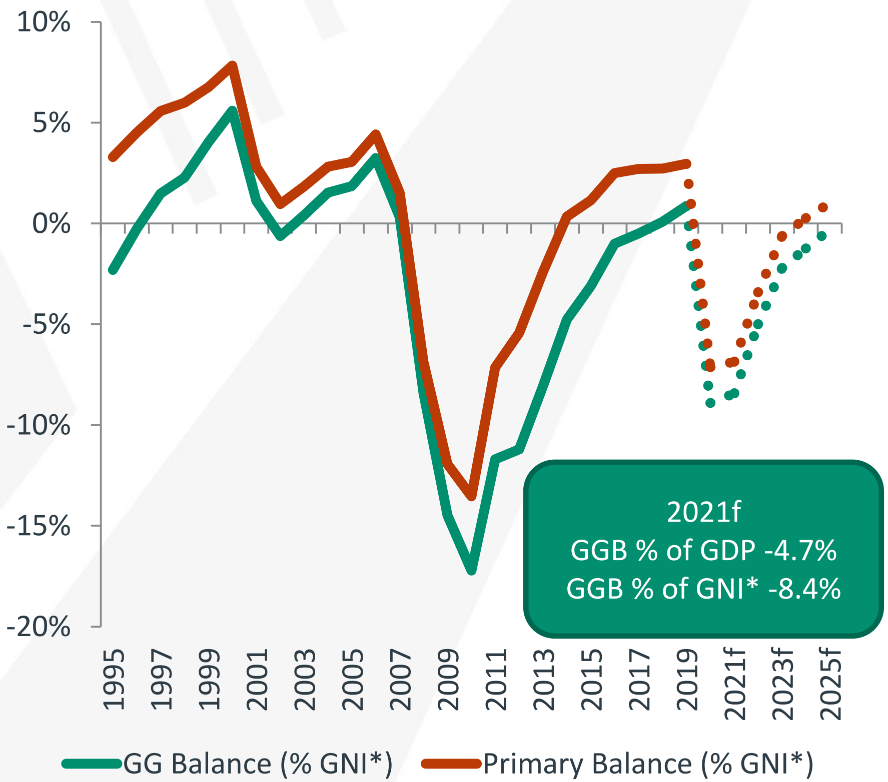
…now revenues are more resilient, spending (incl. inv.) increases, interest bill unchanged



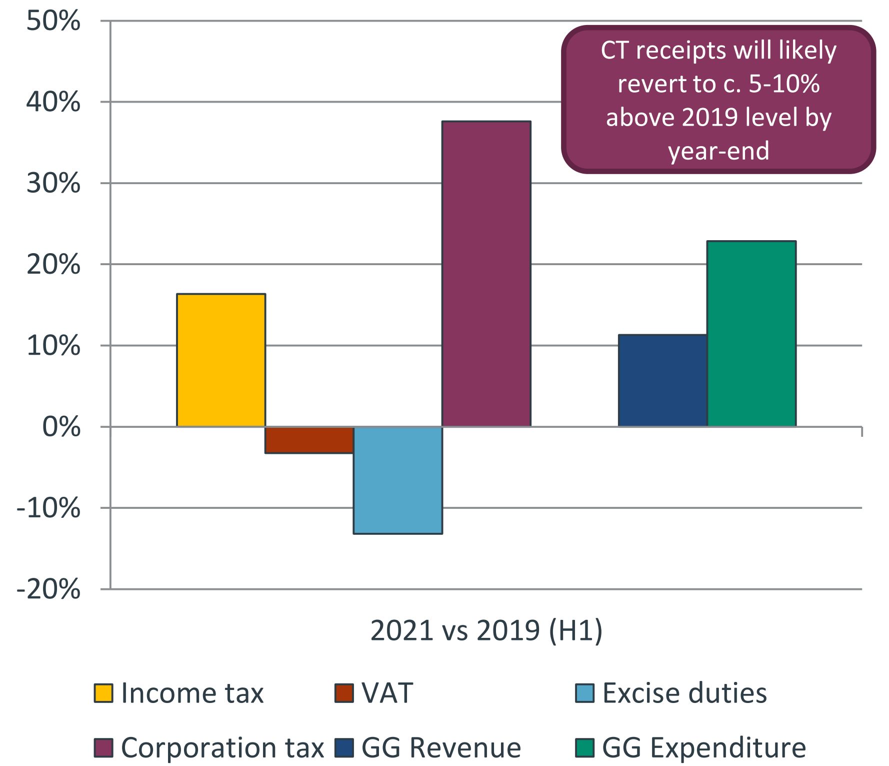
Source: CSO, Department of Finance forecasts
Charts represent the change in billions for selected fiscal variables versus 2007/2019 levels.
Underlying GG expenditure numbers used (excludes banking recapitalisations)

After Covid-19 stimulus, 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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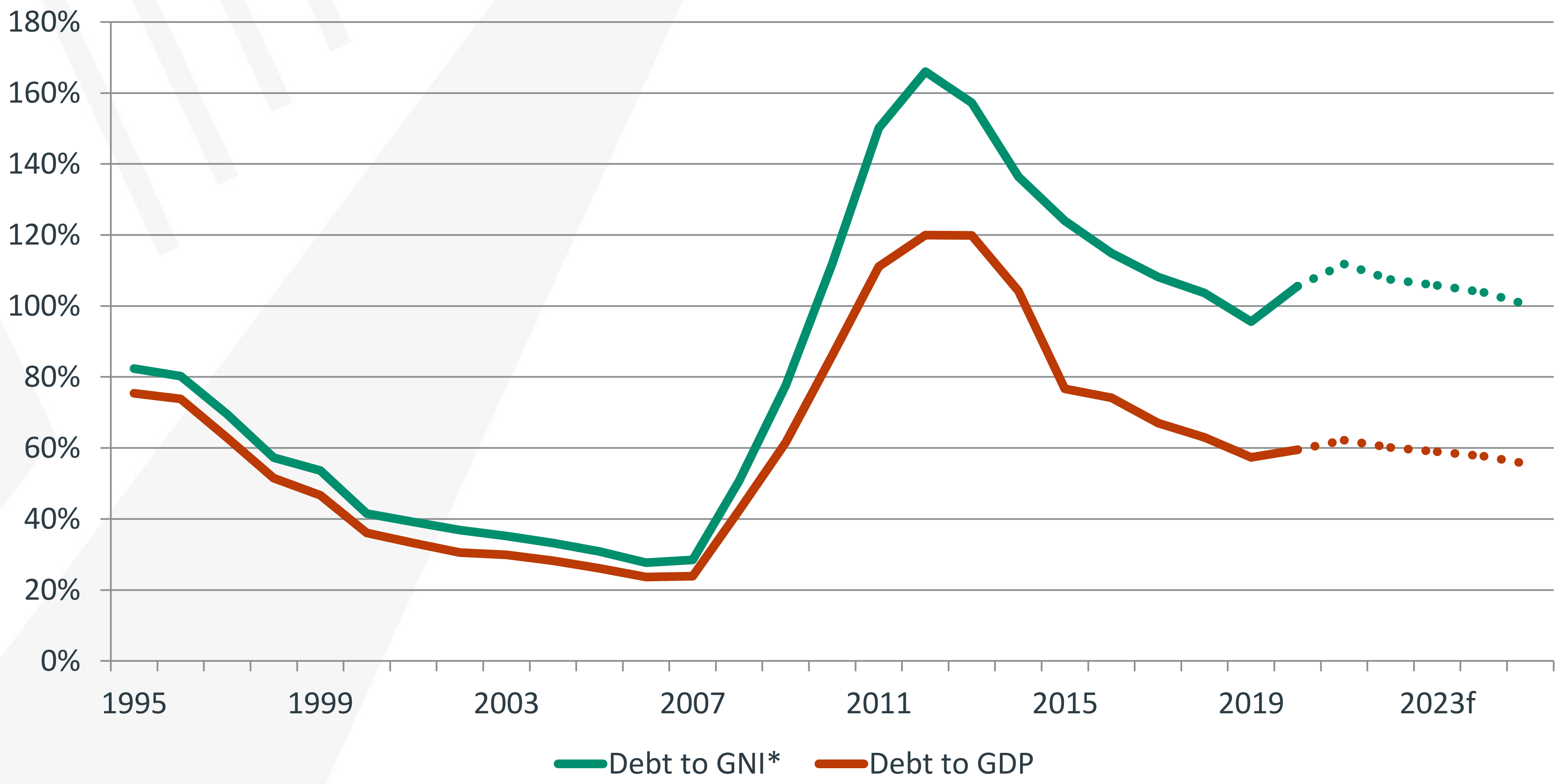
Source: CSO; Department of Finance
^ Underlying GG and primary balance numbers used (excludes banking recapitalisations)
Corporate tax receipts outsized for now, will likely revert to c. 5-10% above 2019 level by year-end

Gross Government debt c. 60% of GDP at end-2020 but close to 106% of GNI*



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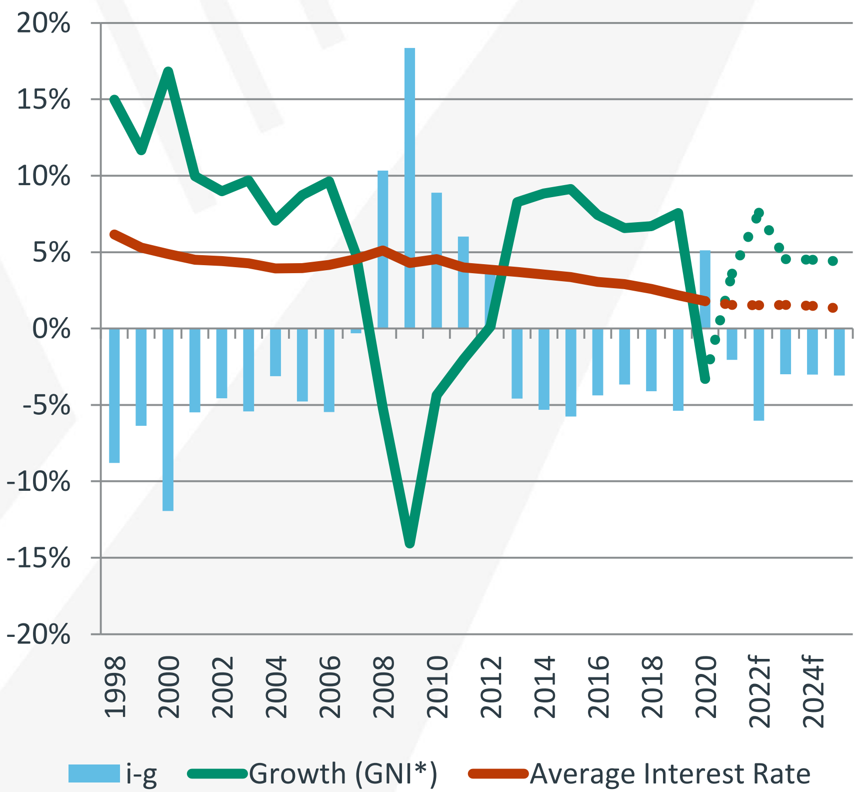
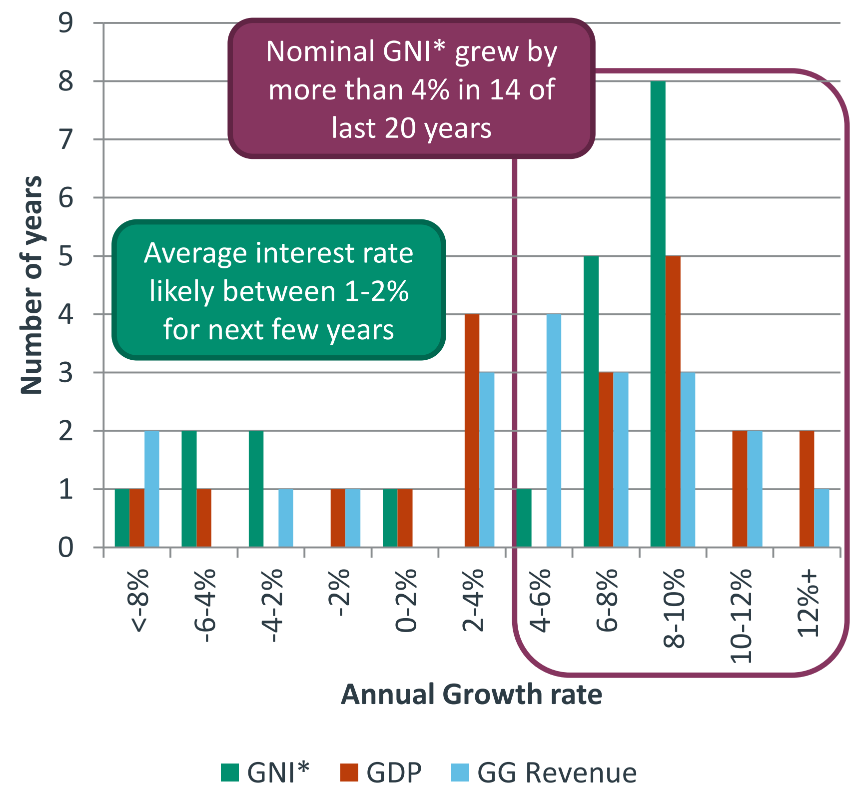
Source: CSO; Department of Finance, NTMA analysis

Low interest rates coupled with reversion to growth may see helpful "i-g" snowball effect on debt ratios

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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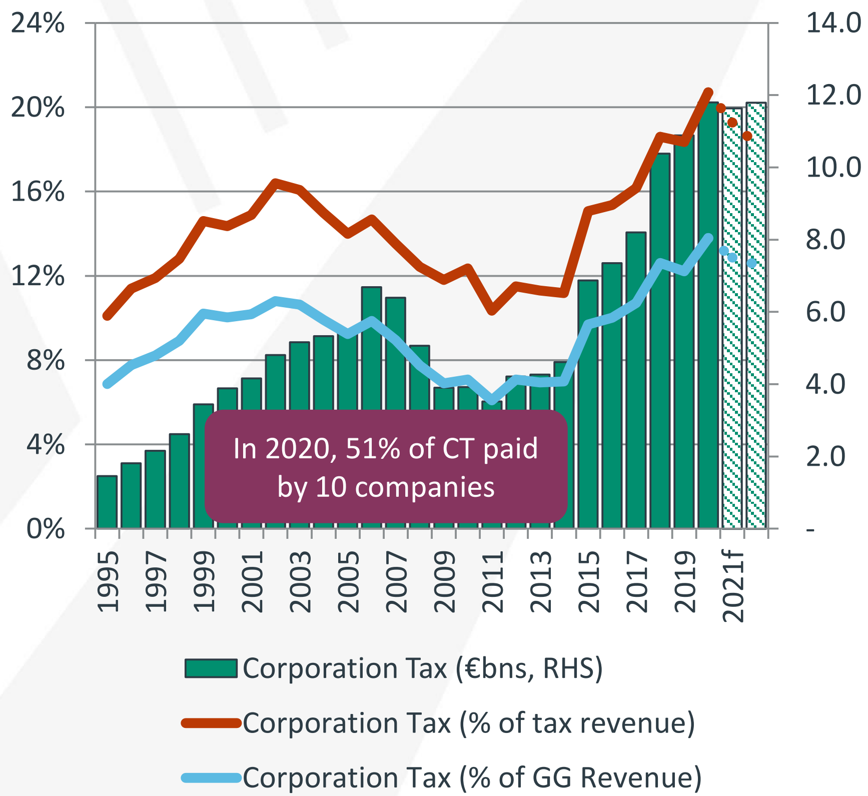
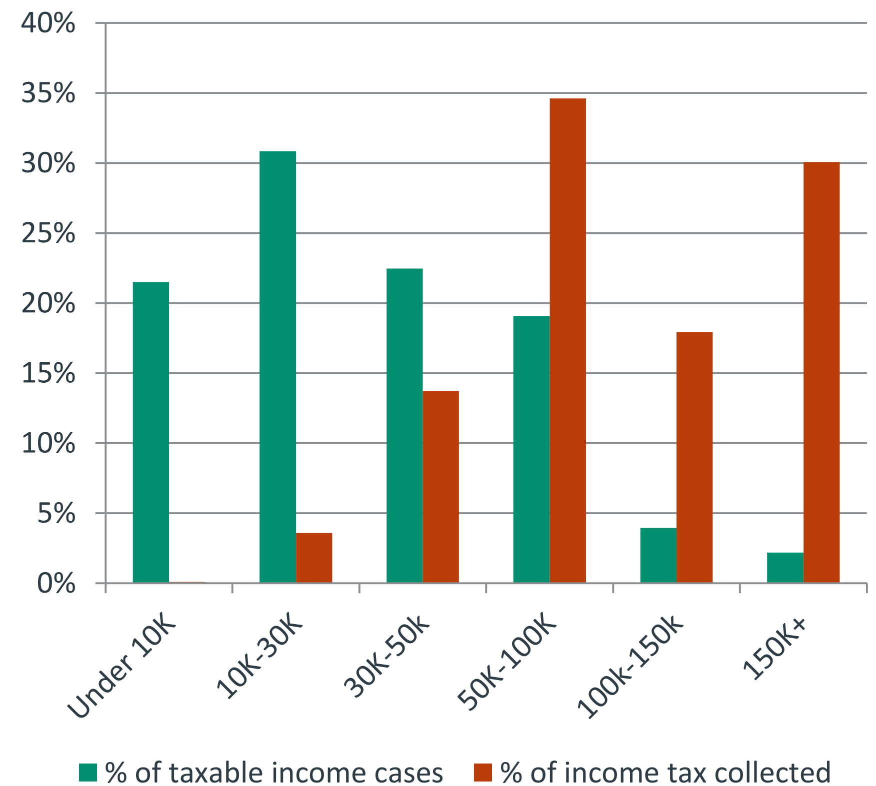
Source: CSO; Department of Finance forecasts, NTMA analysis

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

Corporation tax (CT) receipts continue to rise – have nearly tripled in 6 years



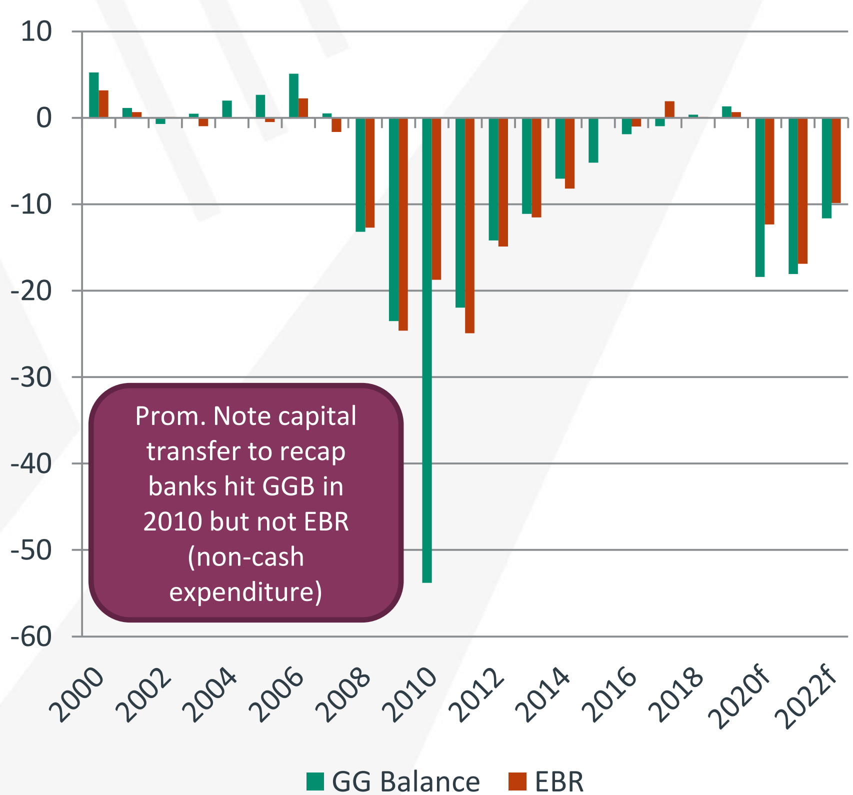
Progressiveness of income tax system and sector mix limits hit to overall receipts



Source: Department of Finance, Revenue, NTMA analysis

NTMA's job is to finance the cash deficit (EBR) but it's best to use accruals-based GGB for comparison to peers

EBR and GGB (€bns) usually minor – gap is larger currently



Methodological Differences	EBR	GGB
Accounting basis	Cash (exchequer)	Accrual
Financial transactions	Included	Excluded
Scope	Subset of Central Govt.	Includes all of Central & Local
Intra-Government Consolidation	No	Yes

	2020	2021		Comments
EBR	**-12.3**	**-16.9**		This is the deficit in cash terms that the NTMA must finance each year
Adjust for Accruals	1.6	1.9		Accruals can relate to interest, taxes, other expenditures
Exclude Equity & Loan Transactions	-2.4	-0.3		Transactions between the Exchequer and NAMA, CBI and other govt. entities: **this benefits funding req.**
Social Insurance Fund	-3.5	-0.6		Archaic funding structure of social insurance in Ireland is outside Exchequer. Consolidated in GGB
Semi State, ISIF, other funds	-1.5	-0.9		Dividends and profits from government entities
Local Govt.	-0.4	-1.3		Local governments fund themselves
GGB	-18.4	-18.1		Most complete metric for fiscal position. Use this for deficit comparison with other nations

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Source: CSO, Department of Finance, NTMA analysis

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	**254.4%**	**4.3%**	**59.5% (106% 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%
Netherlands	124.1%	1.6%	54.5%

Source: EU Commission
Ireland 105.6% Debt to GNI ratio (SPU 2021 Forecast)*

Section 3: NTMA Funding

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

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National Treasury Management Agency

NTMA has indicated a funding range of €16 - €20bn for 2021 €13.25bn already funded in H1

Flexibility

Ireland has large cash balances and a year free of maturing bonds in 2021

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

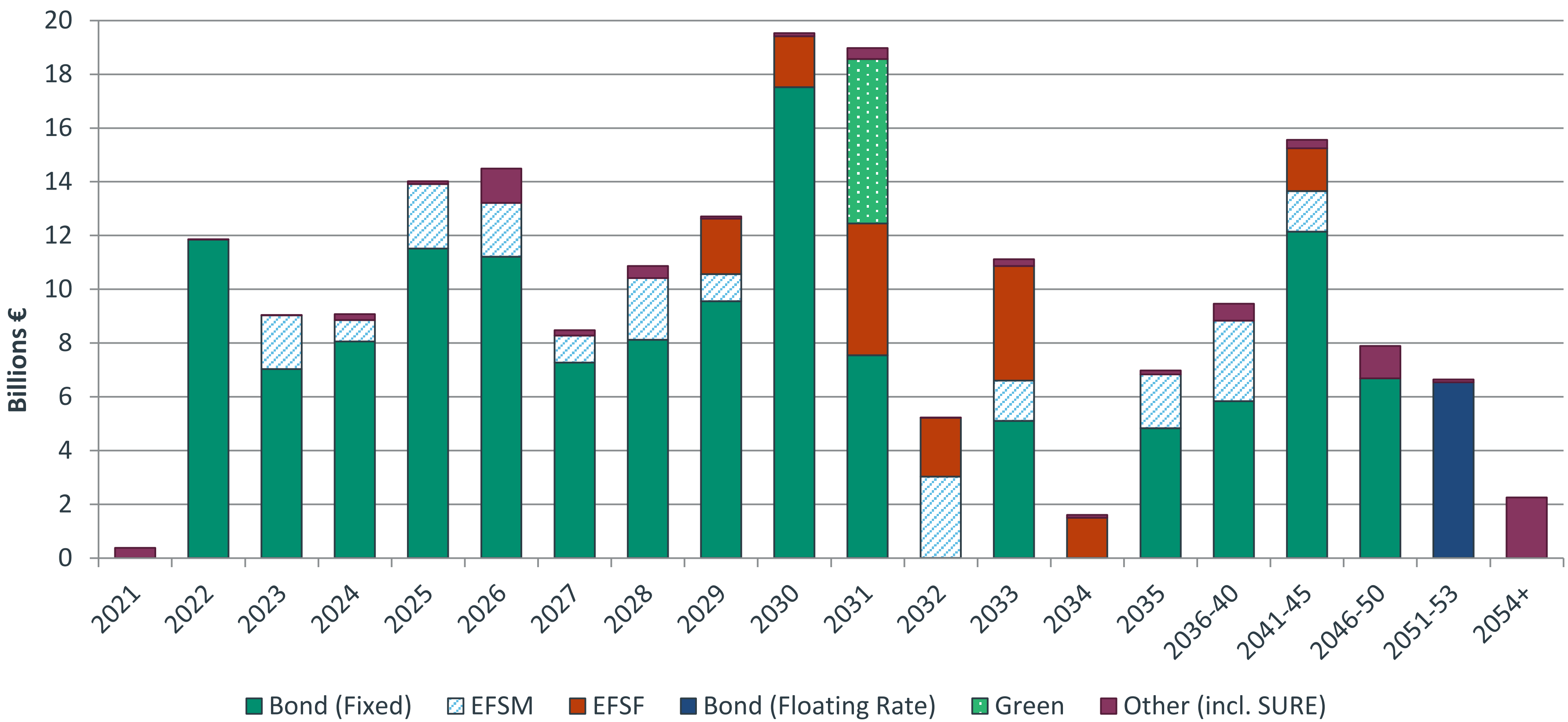
The ECB's first QE program enabled NTMA to extend debt maturities and reduce interest cost. Now ECB buying in large amounts with few limitations

AA-

Ireland has been affirmed in AA category by S&P

On relative basis, hit to Ireland less than for other countries given multinationals, relatively smaller domestic share of economy and tourism

Flexibility helped by smoother maturity profile and no bond redemptions in 2021



Source: [NTMA]

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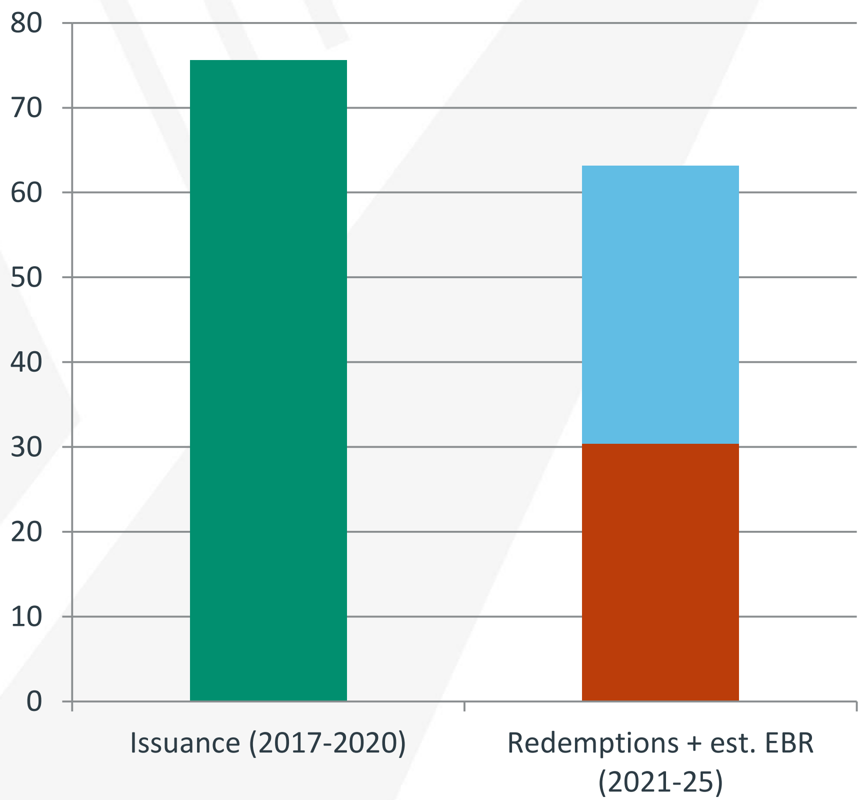
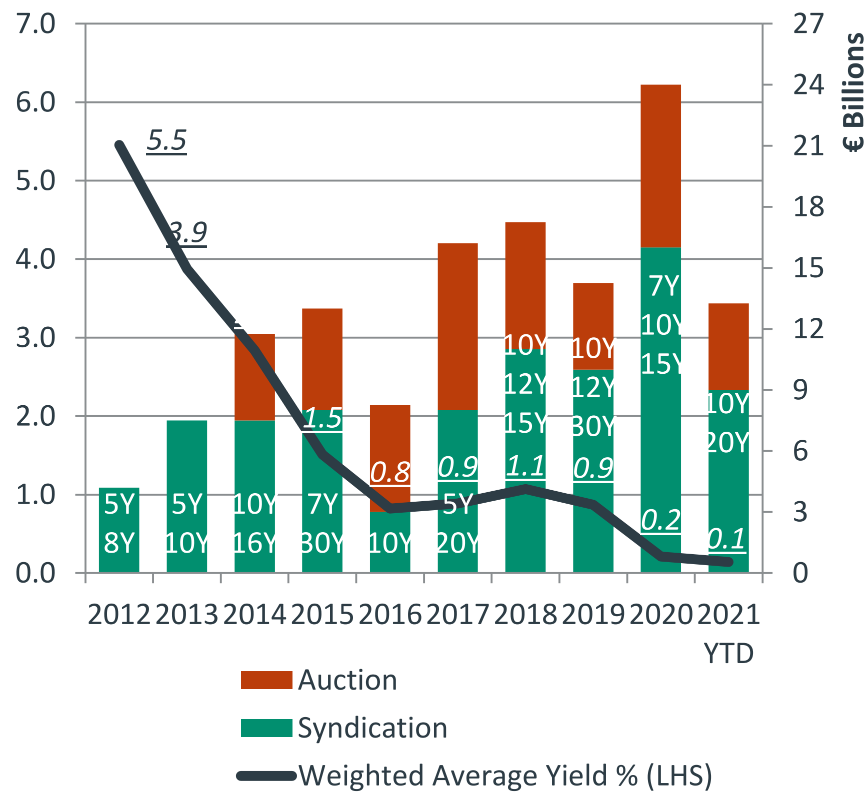
National Treasury Management Agency

Near-term redemptions much lower than last four years; lower borrowing costs have cushioned higher issuance

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



NTMA issued €105.75bn MLT debt since 2015; 13.4 yr. weighted maturity; avg. rate 0.75%



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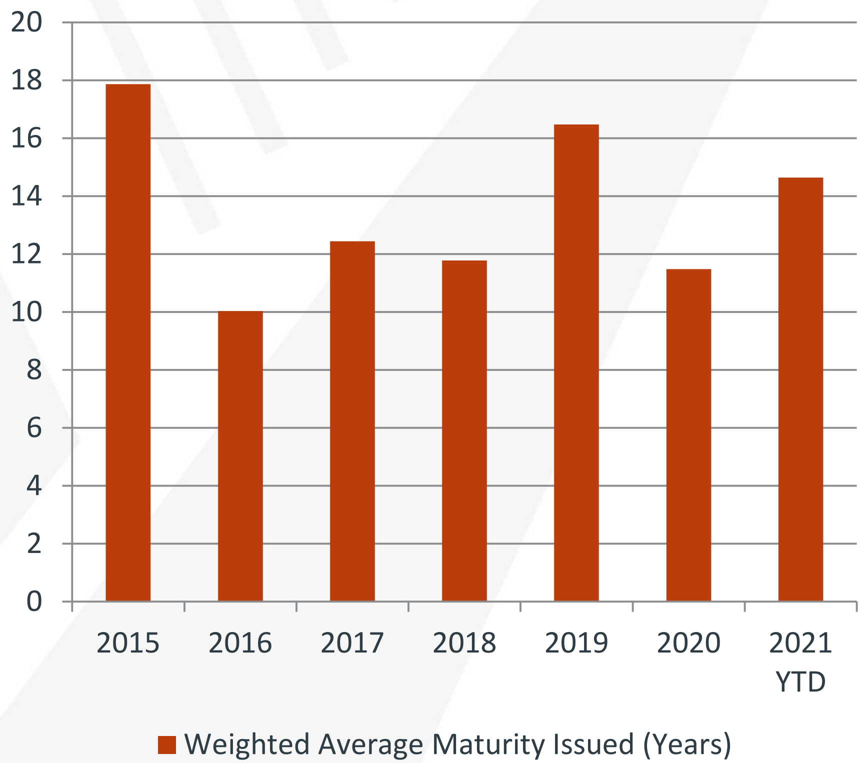
National Treasury Management Agency

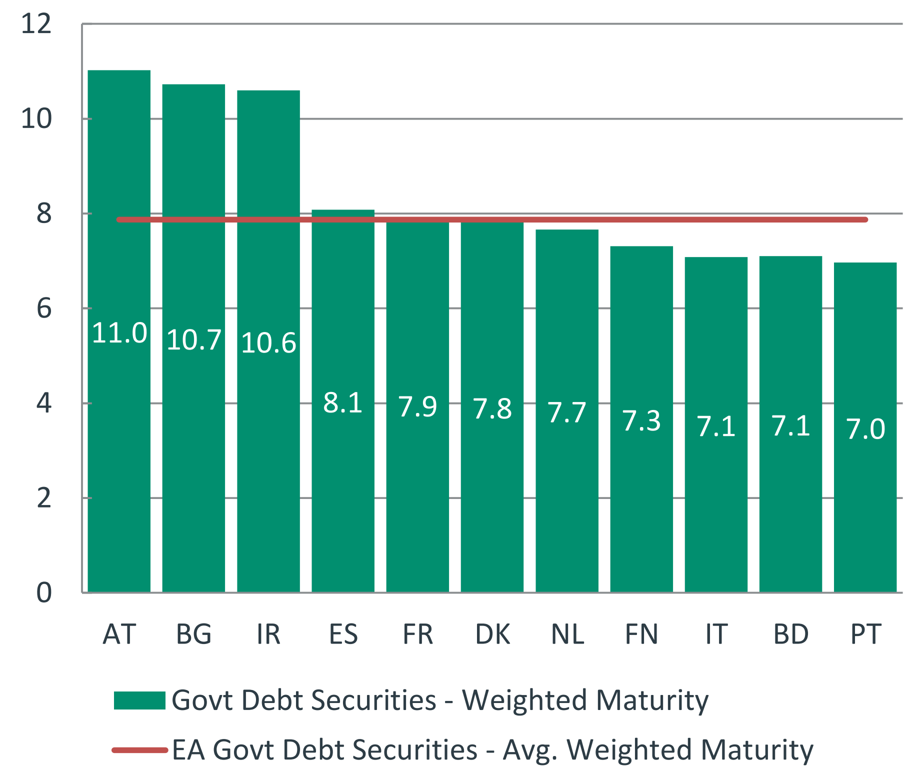
Source: NTMA, Department of Finance
LHS chart showing marketable MLT debt (auctions and syndications). Other issuance such as inflation linked bonds, private placement and amortising bonds occurred but not shown.

The NTMA has taken advantage of QE to extend debt profile since 2015

Various operations have extended the maturity of long term Government debt …



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



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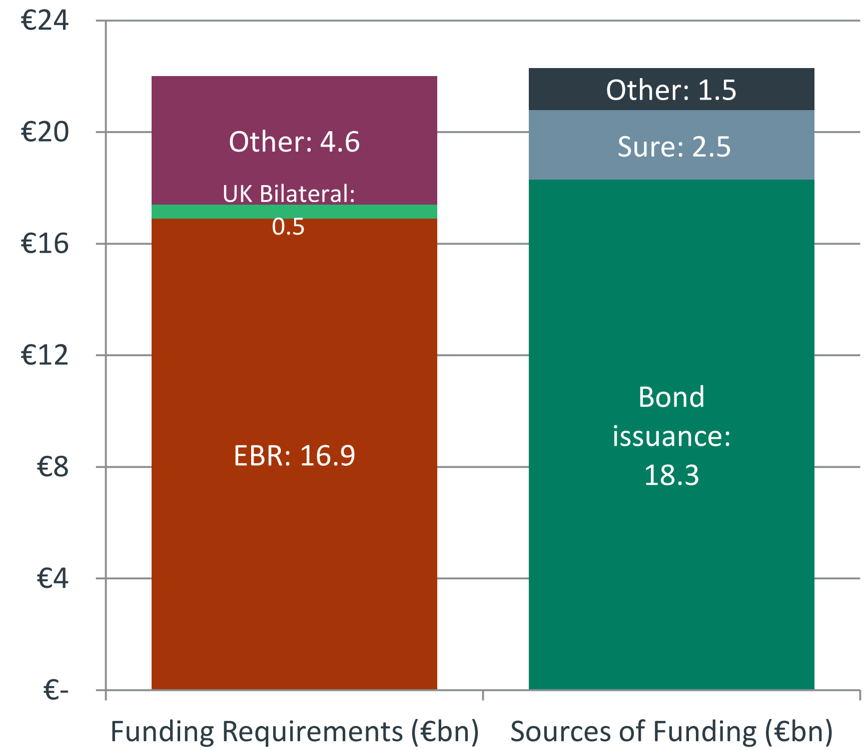
National Treasury Management Agency

Source: NTMA for Ireland data; ECB for other countries
Note: Weighted maturity in LHS chart 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.*

Various sources of funding will be used to meet Covid-19 borrowing requirements: cash balance and flexibility key

- No bonds mature in 2021. The last of the UK bilateral loan matured in Q1 2021.
- 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 close to end-2020.

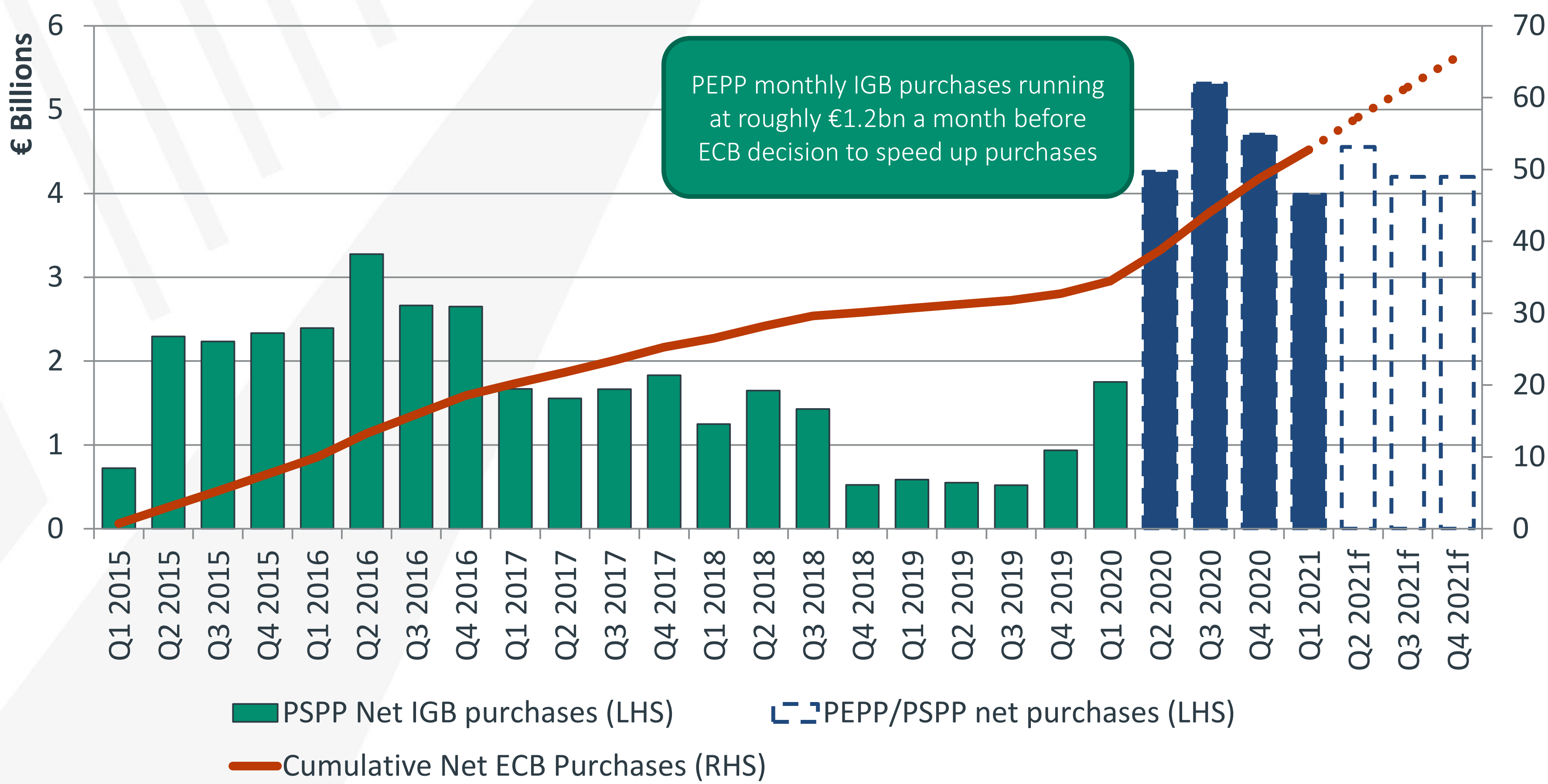


Source: NTMA

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 €16-€20bn. While €18bn is reflected as an indicative estimate in the chart, it also includes cash proceeds from issuance undertaken to end-April.*
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 (April SPU) 2021 estimate of the Exchequer Borrowing Requirement .*

In addition to PSPP, ECB's PEPP with its flexibility (no limits) & size (€1.85trn) is adding further support



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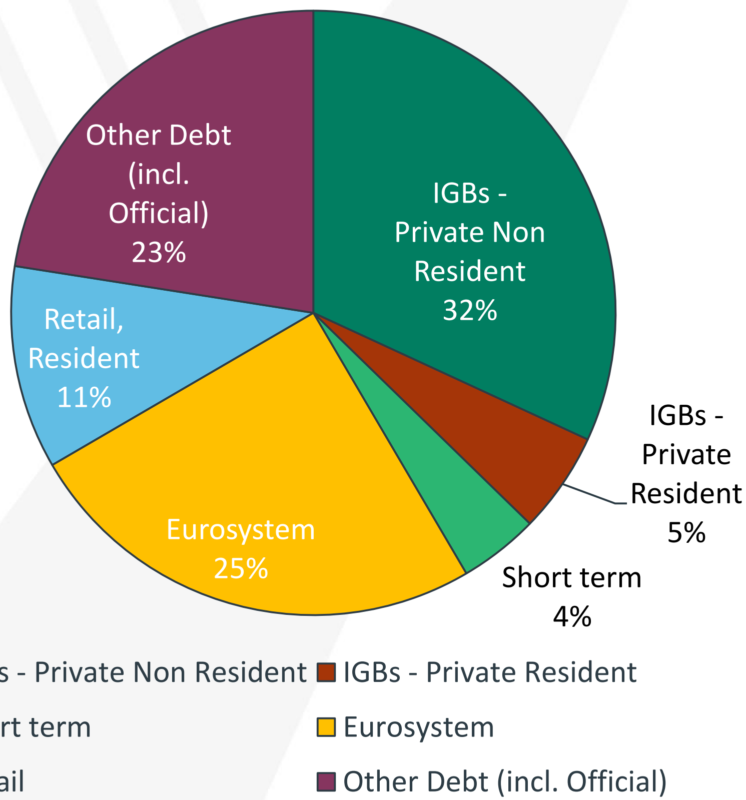
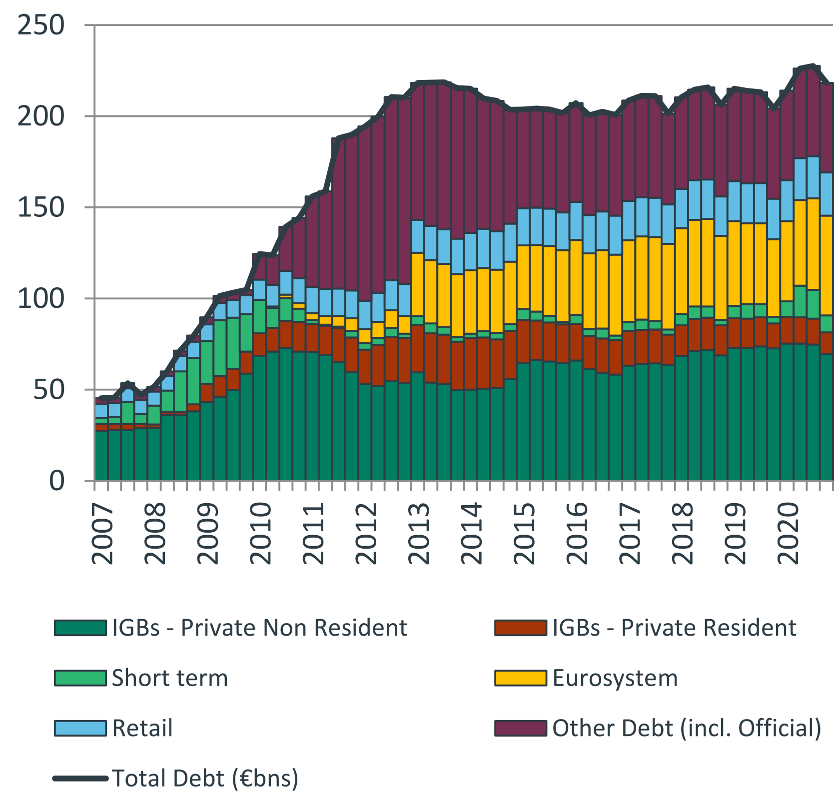
Source: ECB, NTMA Calculations
Notes:
Forecasts sees Ireland's capital key of 1.69% and assumes 90% of new purchases will be for public sector assets with 7% of public sectors assets being supranational issuers.

Diverse holders of Irish debt – sticky sources account for over 55%; increasing further with ECB's PEPP actions

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



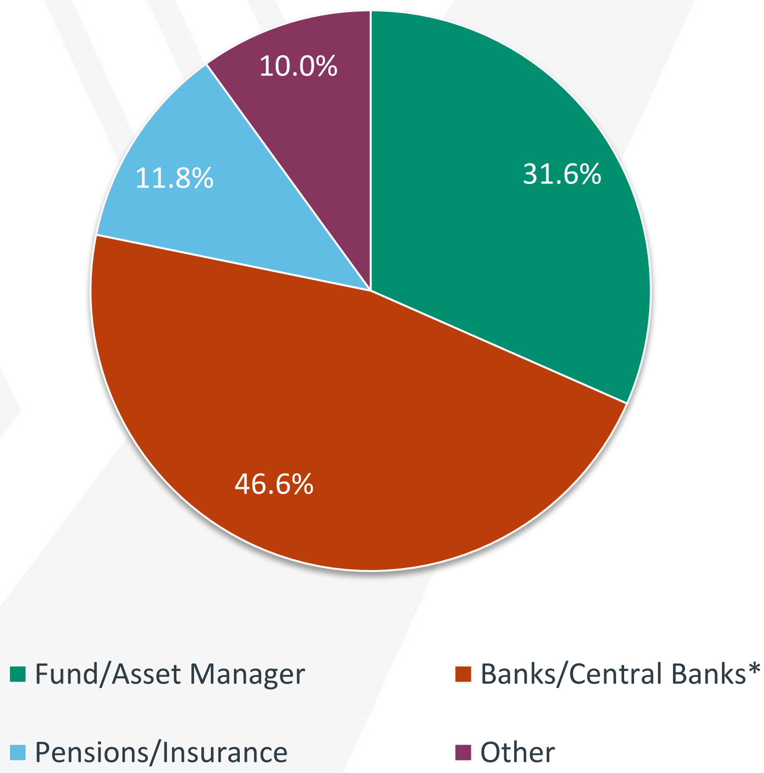
"Sticky" sources - official loans, Eurosystem, retail - make up over 55% of Irish debt



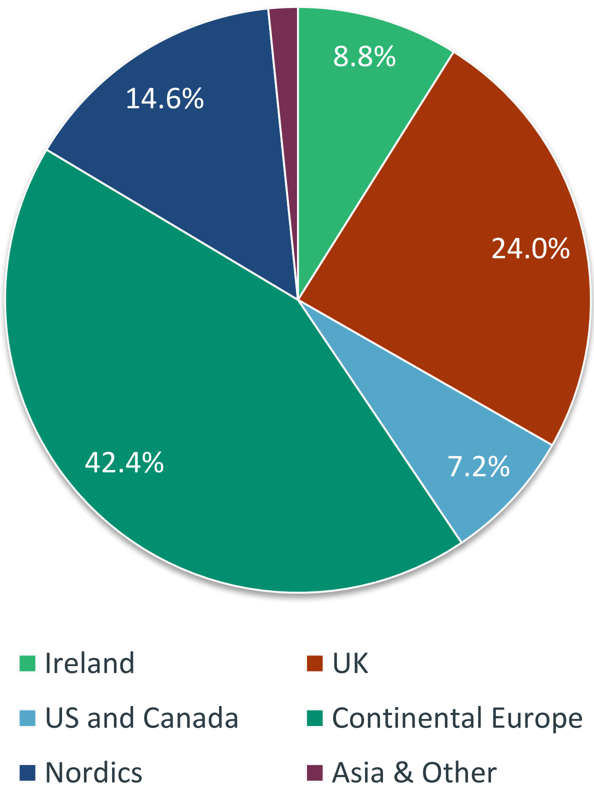
Source: CSO, Eurostat, CBI, ECB, NTMA Analysis
IGBs excludes those held by Eurosystem. Eurosystem holdings include SMP, PSPP and CBI holdings of FRNs. Figures do not include ANFA. Other debt Includes IMF, EFSF, EFSM, Bilateral as well as IBRC-related liabilities. Retail includes State Savings and other currency and deposits. The CSO series has been altered to exclude the impact of IBRC on the data.

Investor base for Government bonds is wide and varied

Investor breakdown: Average over last five syndications



Country breakdown: Average over last five syndications



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Source: NTMA

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

Irish Sovereign Green Bonds (ISGB) - €6.1bn issued with €3.9bn allocated to green projects

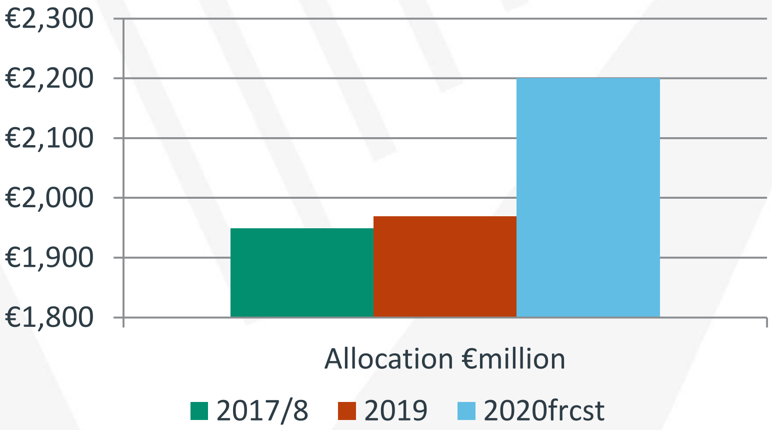
- Launched 2018
- Based on ICMA Green Bond Principles – Use of proceeds model
- Governed by a Working Group of government departments and managed by the NTMA
- Compliance reviews by Sustainalytics

Irish Rail train at Avoca on the Dublin to Rosslare route. Heavy rail was allocated some €400m from ISGBs in 2019

July 2021 Update

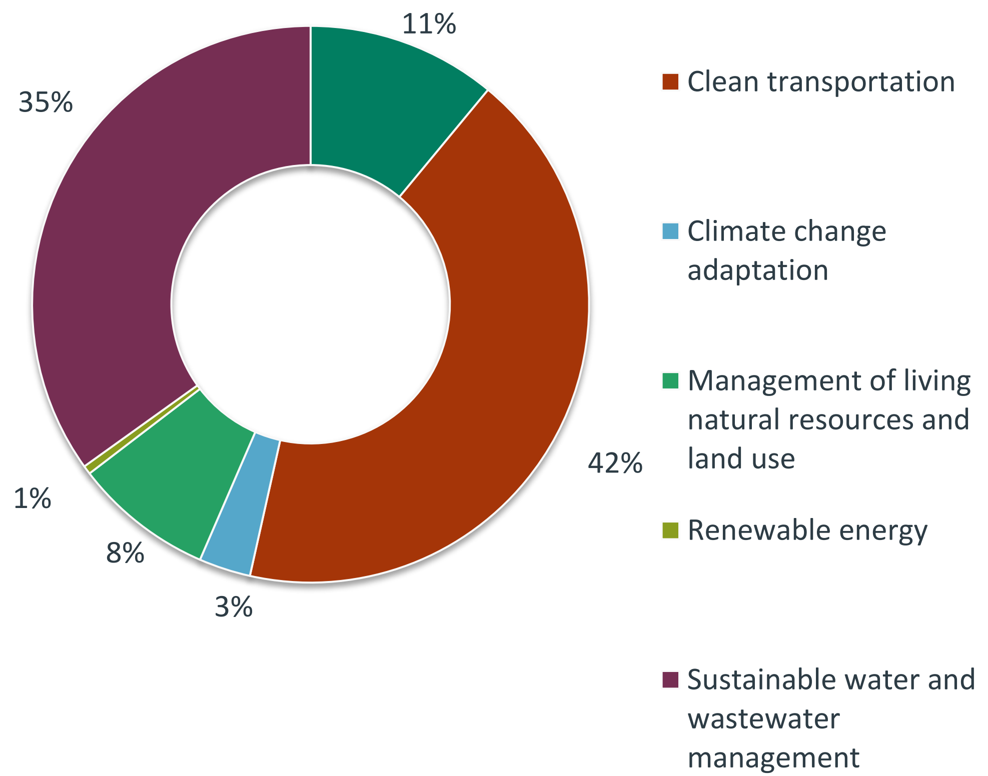
- €6.1bn nominal outstanding (€6.5bn cash equivalent)
- €3.9bn allocated to eligible green projects since inception
- €2.6bn remaining to be allocated to eligible expenditure in 2020
- Issuance through two syndicated sales and one auction
- Pipeline for eligible green expenditure remains strong
- ISGB 2019 Allocation Report
- ISGB 2017/2018 Impact Report
- 2020 Allocation Report and 2019 Impact report to be released in Q3

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



Construction of the new water treatment plant at Vartry (March 2020)

Allocation per eligible green category 2019



Irish Sovereign Green Bond Impact Report 2018: Some 50 Impact measures reported

Some highlights from Report*

- Built Environment/ Energy Efficiency
  - Energy saving (GigaWattHours) : 621.06
  - GHG emissions reduced/ avoided in tonnes of CO_2 : 150.5
  - Number of homes renovated : 27,549
- Clean Transportation
  - Number of public transport passenger journeys : 268.66 million
  - Additional km of cycling infrastructure works (feasibility/ design/ screening phase) : 85km
  - Take-up of Grant Schemes/ Tax foregone provided (number of vehicles) : 15,712
- Climate Change Adaptation (2017 and 2018)
  - Number of properties protecting from flooding on completion : 7,403
  - Amount of damages/ losses avoided on completion : €658 million

Waterford Greenway

**For a more detailed break-down please see the ISGB 2017/ 2018 Impact Report [here](#)*

Irish Sovereign Green Bond Impact Report 2018: Some 50 Impact measures reported (cont.)

Some highlights from Report*

- Environmentally Sustainable Management of Living Natural Resources and Land Use
  - Number of hectares of forest planted : 4,025
  - Number of hectares of peatlands restored : 203
- Renewable Energy
  - Number of companies (including public sector organisations) benefitting from SEAI Research & Innovation programmes as lead, partner or active collaborators : 68
  - Number of SEAI Research & Innovation awards benefitting research institutions : 52
- Sustainable water and wastewater management
  - Water savings (litres of water per day) : 79.1 million
  - New and upgraded water treatment plants : 10
  - New and upgraded wastewater treatment plants: 11
  - Length of water main laid (total) : 416km
  - Length of sewer laid (total) : 74km

Irish peatlands

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National Treasury Management Agency

**For a more detailed break-down please see the ISGB 2017/ 2018 Impact Report here*

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	July 2021
Moody's	A2	P-1	Stable	Sept 2017	Aug 2021
DBRS Morningstar	A(high)	R-1 (middle)	Stable	May 2020	July 2021
R&I	A+	a-1	Stable	Jan. 2021	
KBRA	AA-	K1+	Stable	Jan. 2020	Dec 2021
Scope	AA-	S-1+	Stable	May 2021	Nov 2021

Source: NTMA

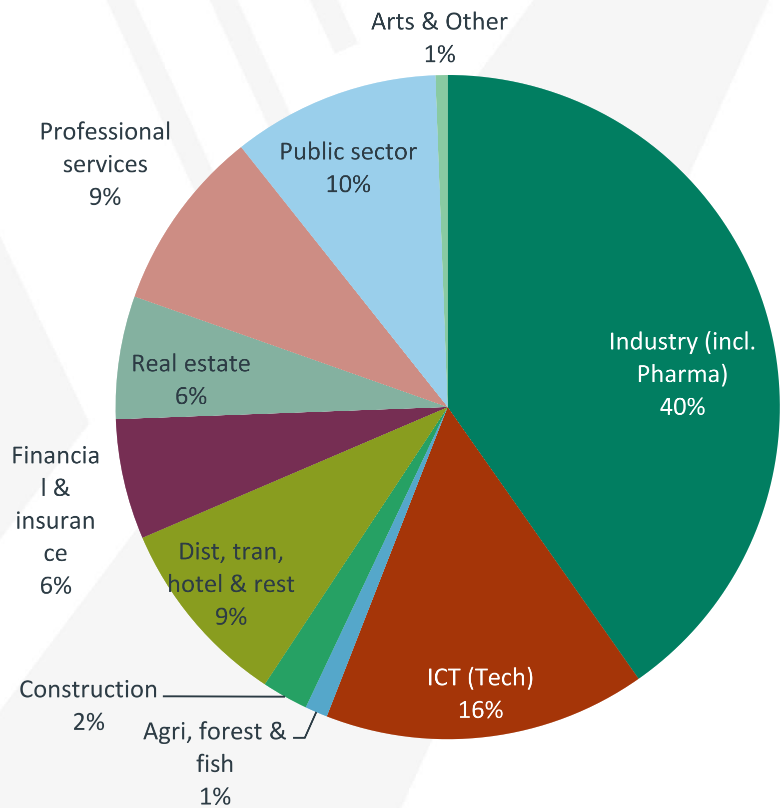
Section 4: Structure of Irish economy

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

Gníomhaireacht Bainistíochta an Chisteáin Náisiúnta
National Treasury Management Agency

Multinational activity has distorted Ireland’s data; notwithstanding those issues, MNCs have real impact

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



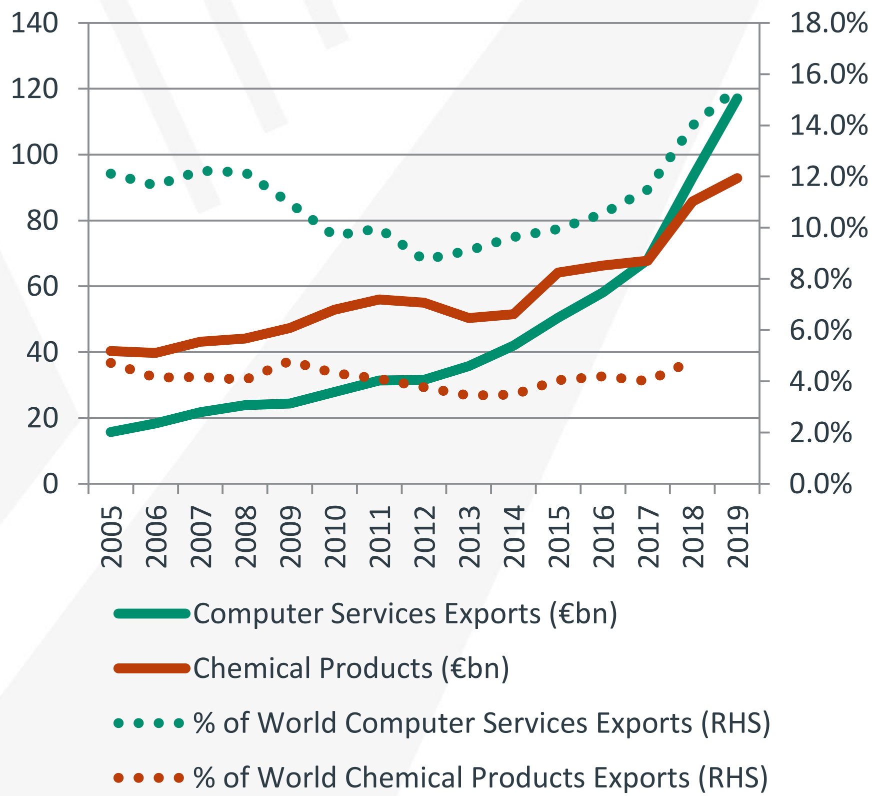
Domestic side of economy adds jobs; MNCs add GVA/high wages

	Share of Employment (2020)	Share of Wage Bill (2019)	Share of GVA (2020)	Gross Weekly Earnings € (Q4 2019)
Agriculture	4.50%	1%	1%	N/A
Industry (incl. Pharma.)	**12.20%**	**15%**	**40%**	**916**
Construction	6.20%	4%	2%	821
Dist., Tran, Hotel & Rest	25.40%	17%	9%	571
ICT (Tech)	**5.40%**	**9%**	**16%**	**1,241**
Financial	4.50%	8%	6%	1,235
Real Estate	0.40%	1%	6%	730
Professional	10.80%	13%	9%	810
Public Sector	25.60%	30%	10%	836
Arts & Other	5%	2%	1%	514

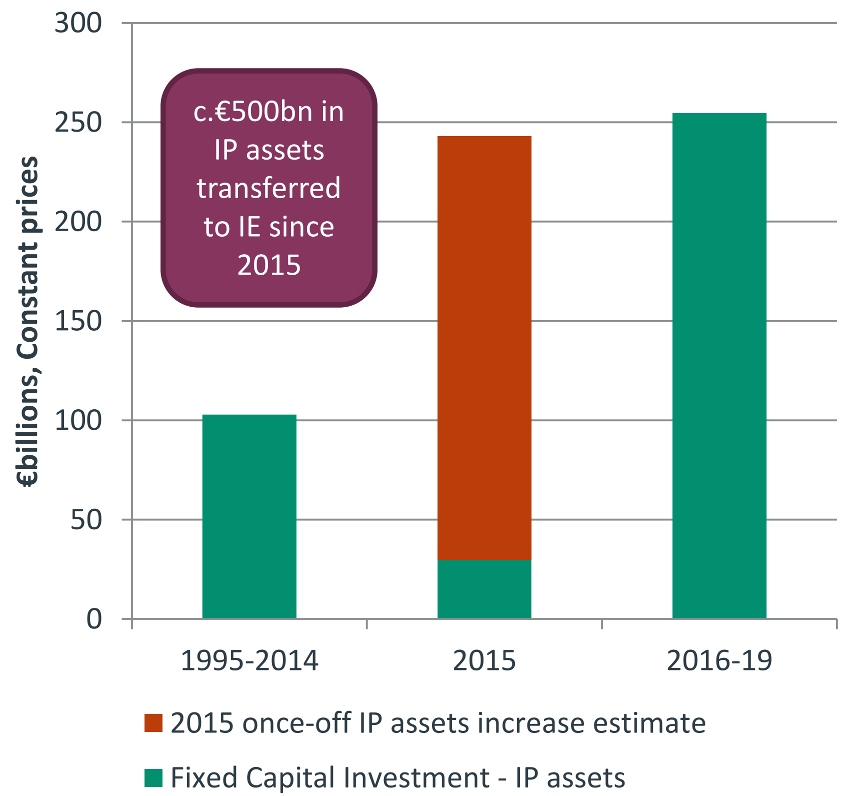
Source: CSO

Sizeable inflows of intellectual property into Ireland by tech. & pharma. in recent years: exports & jobs created

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



Enormous inflows of IP assets into Ireland since 2015 on the back of BEPS reforms



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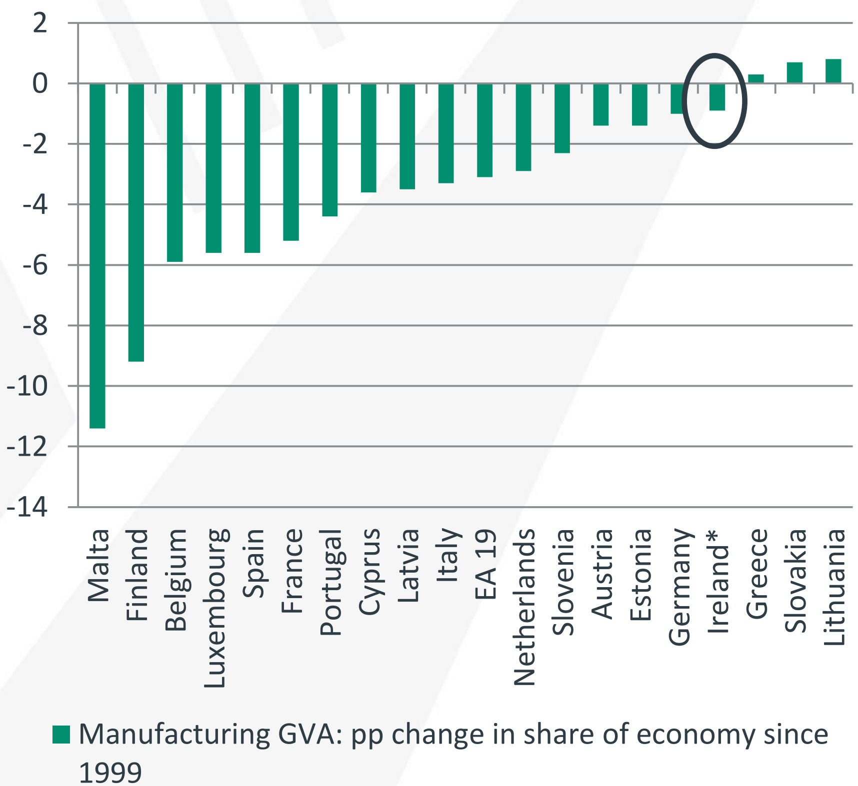
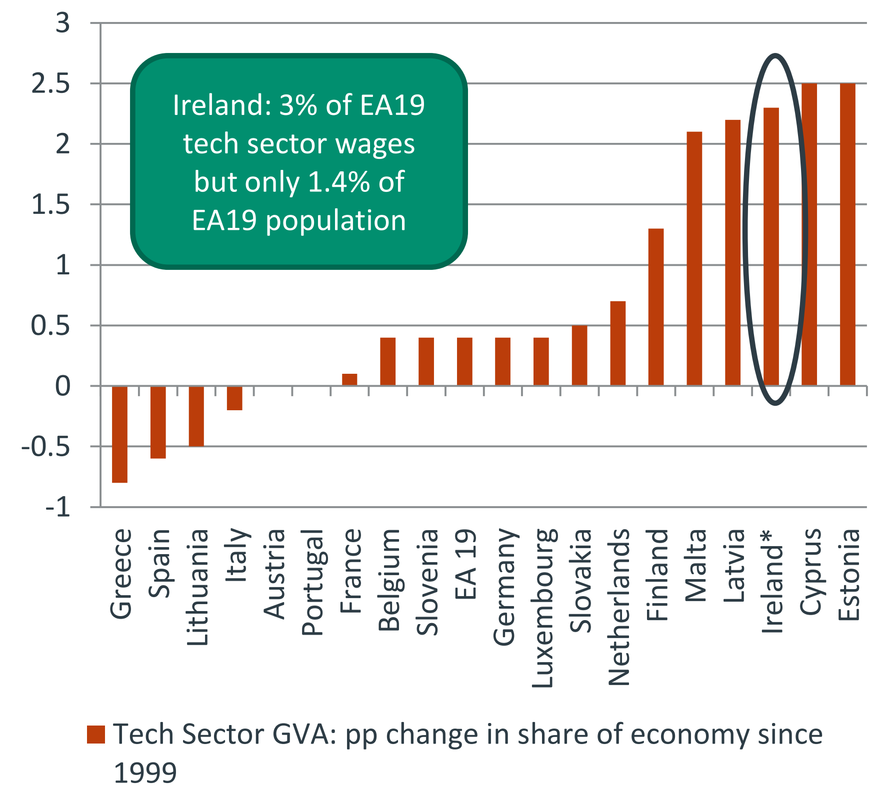
Source: IMF, UN Comtrade, CSO, NTMA Economics Calculations

Ireland has deftly navigated the changing global economy this century (adjusted GVA for Ireland)

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

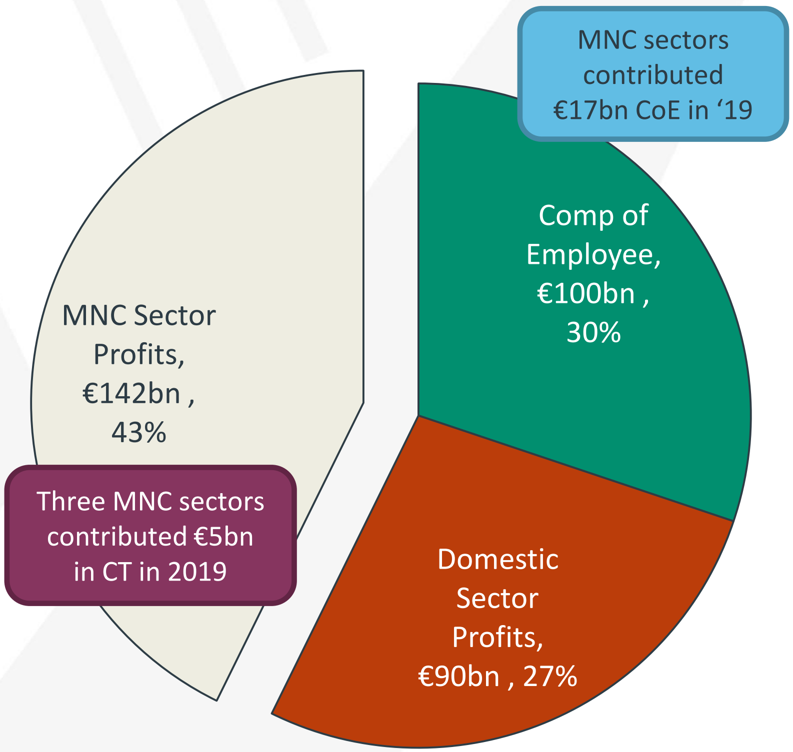


Source: Eurostat, NTMA calculations (1999-2019 data)
** Ireland's GVA data has been adjusted to strip out the distortionary effects of some of the multinational activity that occurs in Ireland. Specifically a profit proxy is removed from the GVA data for the sectors in which MNCs dominate (parts of Manufacturing, ICT, and renting and leasing services). Unadjusted Ireland's figures are +7.1pp (manufacturing) and +6.5pp (tech sector).*

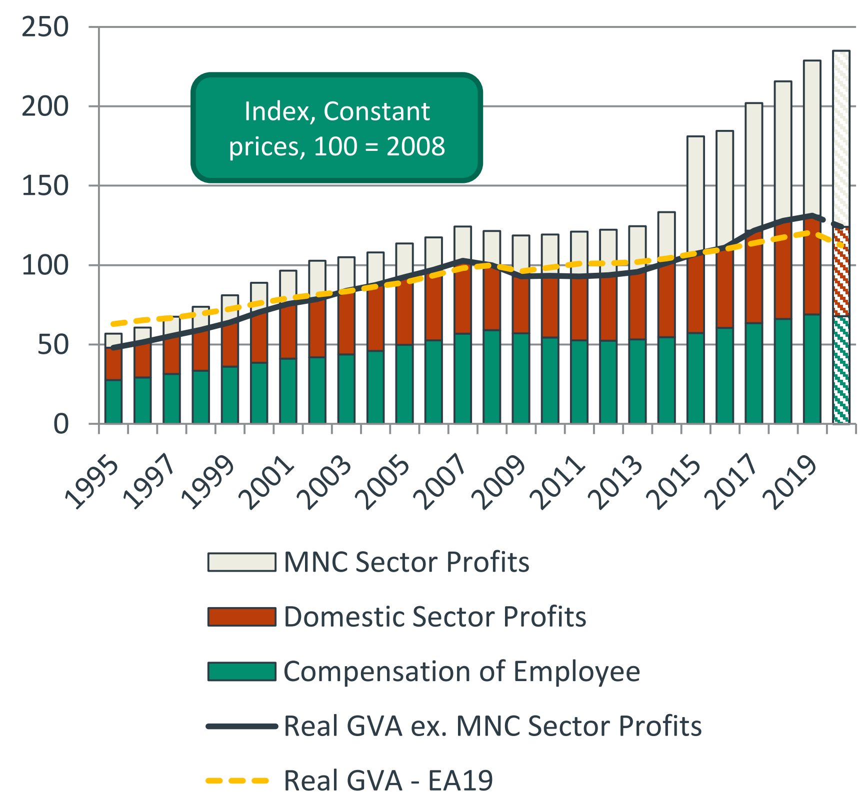
Gníomhaireacht Bainistíochta an Chisteáin Náisiúnta
National Treasury Management Agency

Adjusting for MNC profits, 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

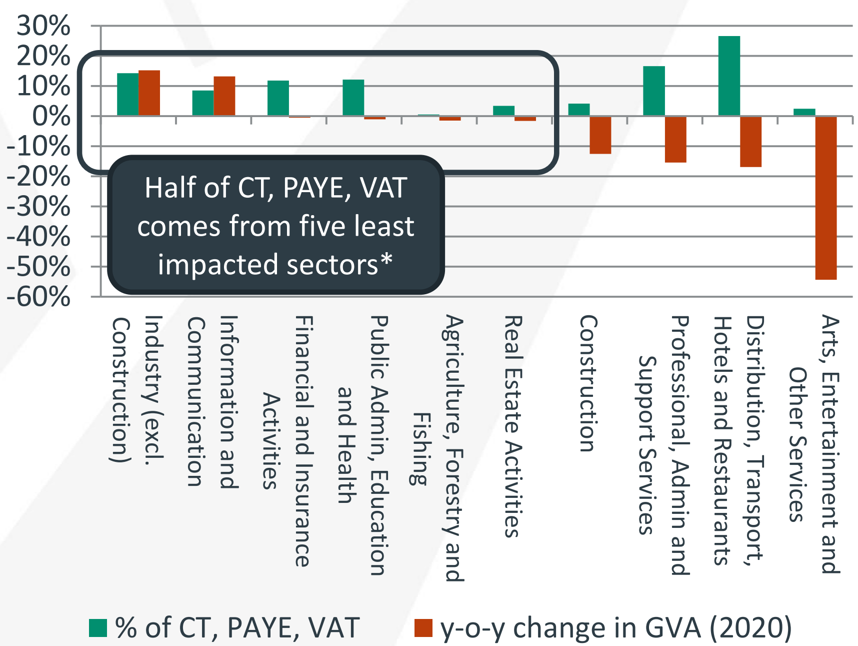


Source: CSO, NTMA calculations (Nominal 2019 data used in left chart)
Ireland's GVA data has been adjusted to strip out the distortionary effects of some of the multinational activity that occurs in Ireland. Specifically a profit proxy is estimated for the sectors in which MNCs dominate (MNC sectors = part of Manufacturing, ICT, and renting and leasing services).

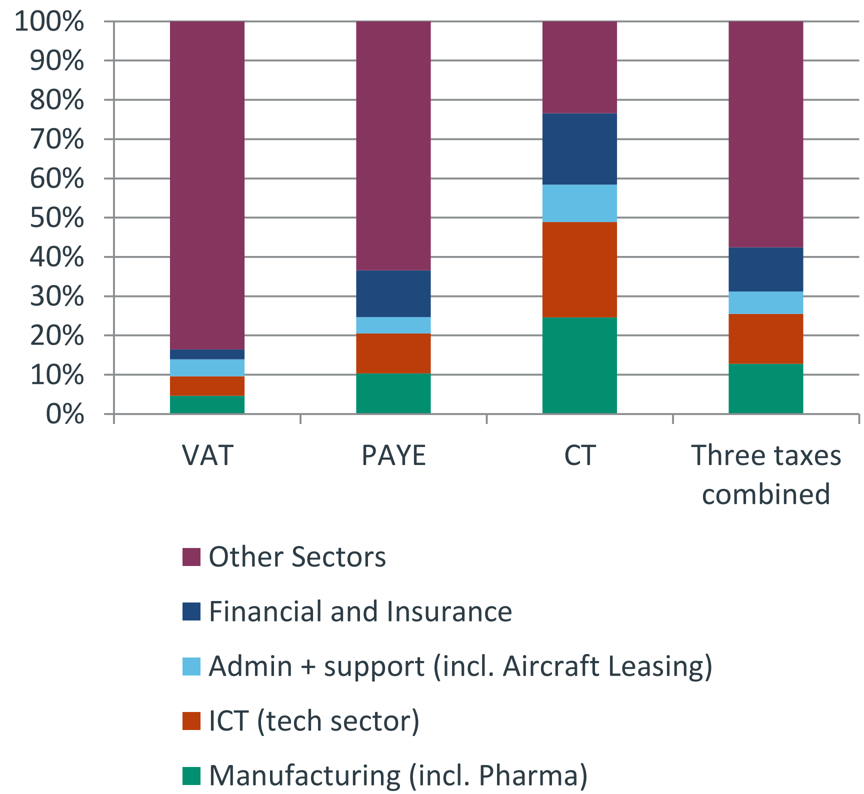
The result of such high value MNC activity in Ireland: Ireland less impacted by Covid - in particular the tax base

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

Elasticity	GG Revenue	Income Tax	Corporate Tax	Revenue Ex. CT
MDD	0.96	0.93	2.26	0.86
GDP	1.08	1.03	1.33	1.05



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



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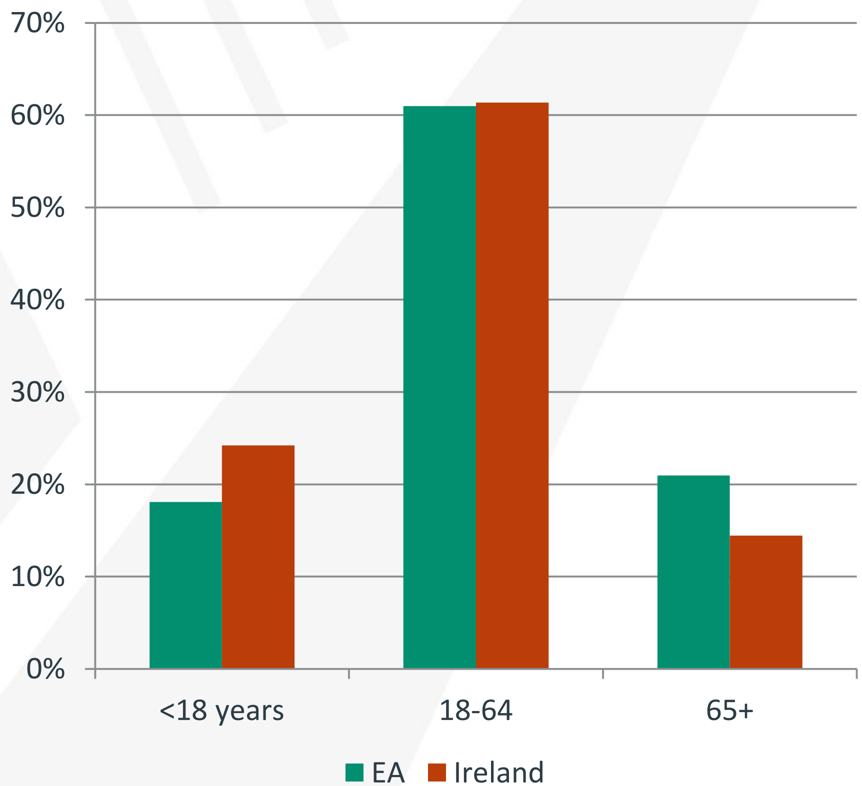
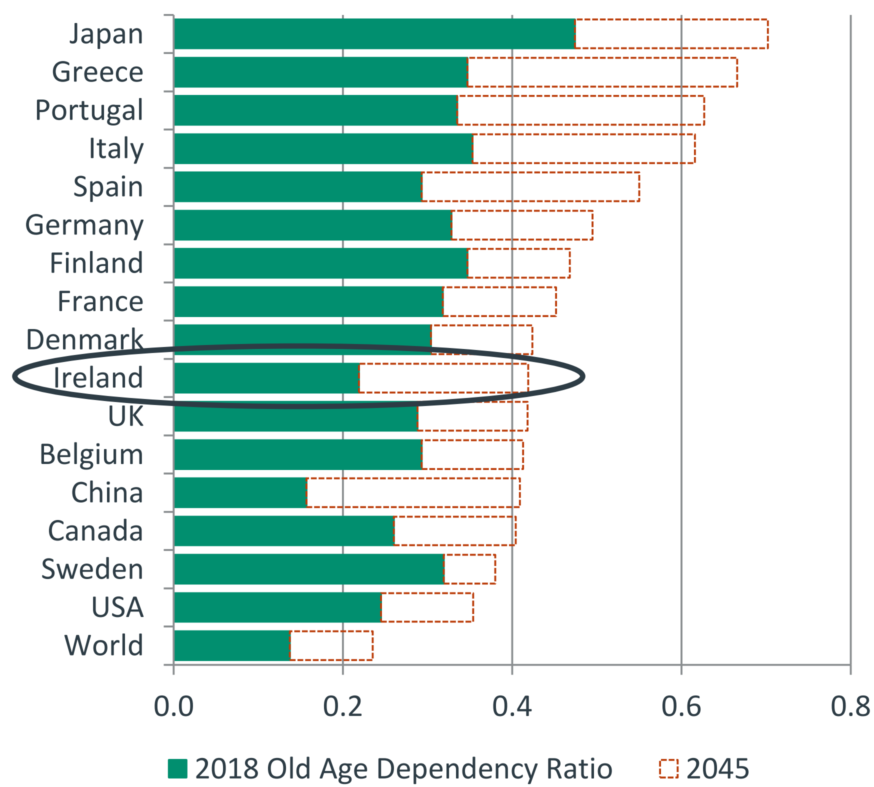
Source: CSO, Revenue, NTMA Calculations
** Agriculture sector pays minimal tax*
Elasticity based on 1995-2019 data.
E = (annual % change in tax)/(annual % change in growth variable)

Outside of sector makeup, Ireland's population helps growth potential: Age profile younger than the EU average

Ireland's population estimated at 4.98m in 2020: younger population than EU



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



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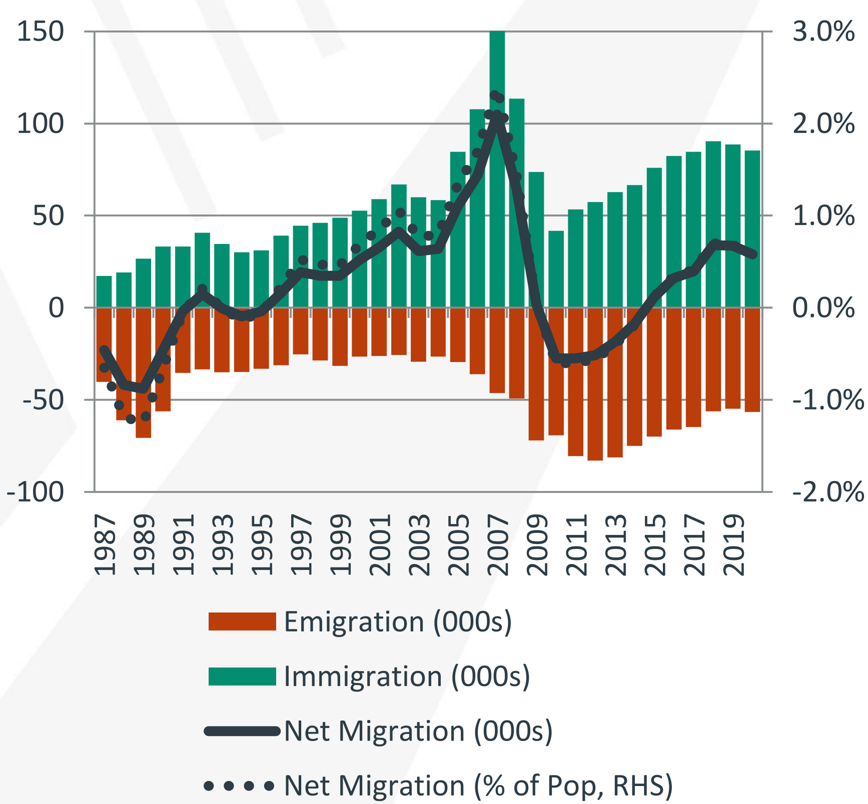
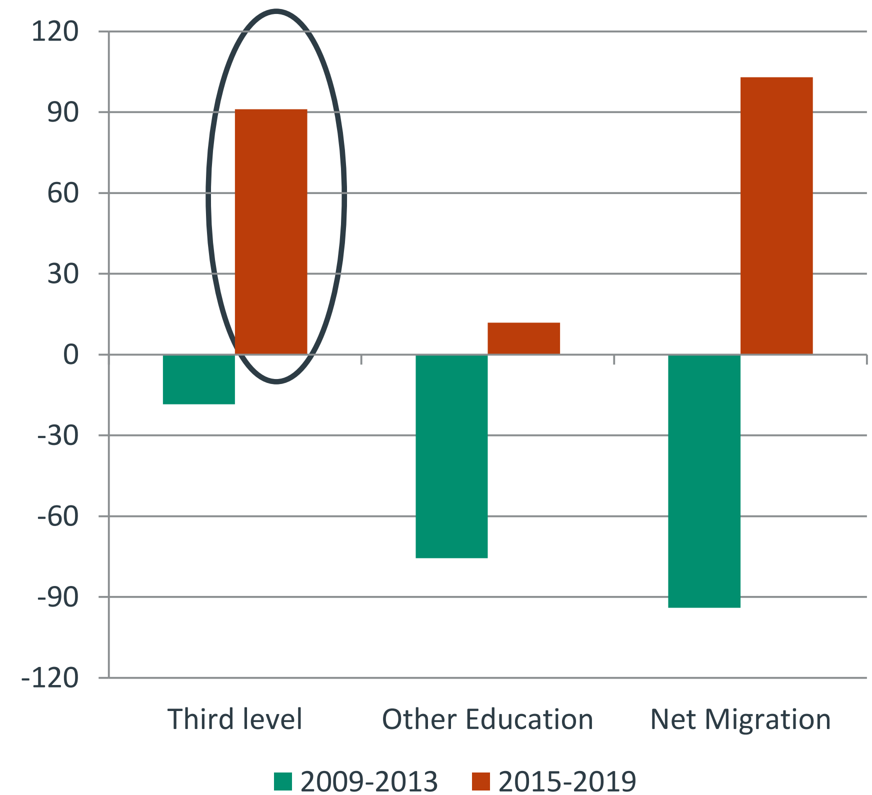
Source: Eurostat (2020) CSO; OECD

Migration has improved Ireland's human capital; post-Covid migration to be closer to zero given travel bans

Latest Census data show net migration positive since 2015 – mirroring economy



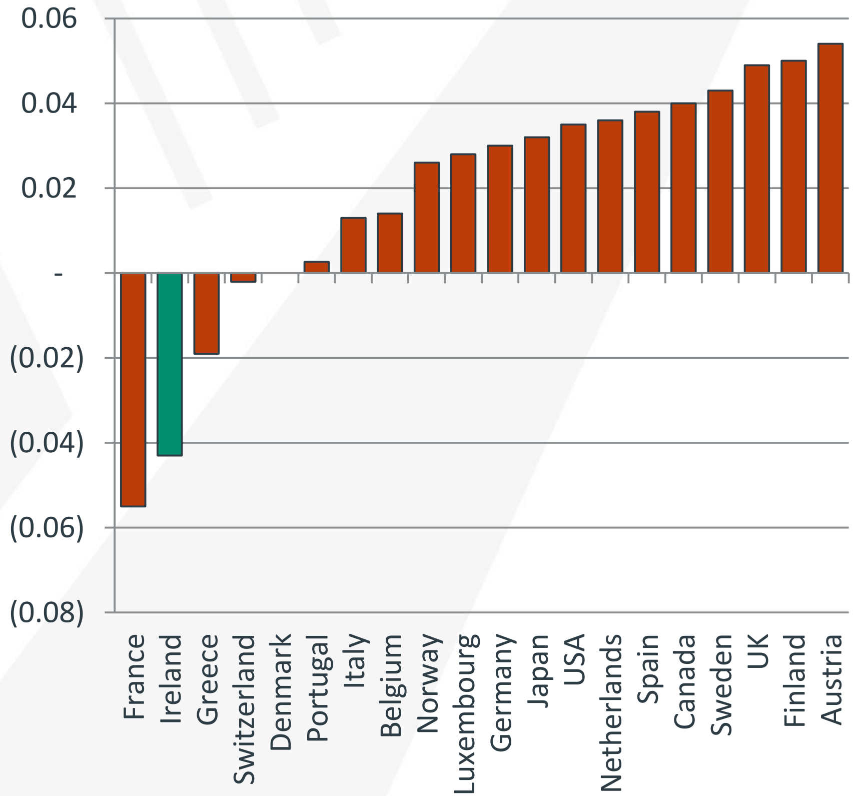
Migration inflow particularly strong in highly educated cohort – work in MNCs attractive



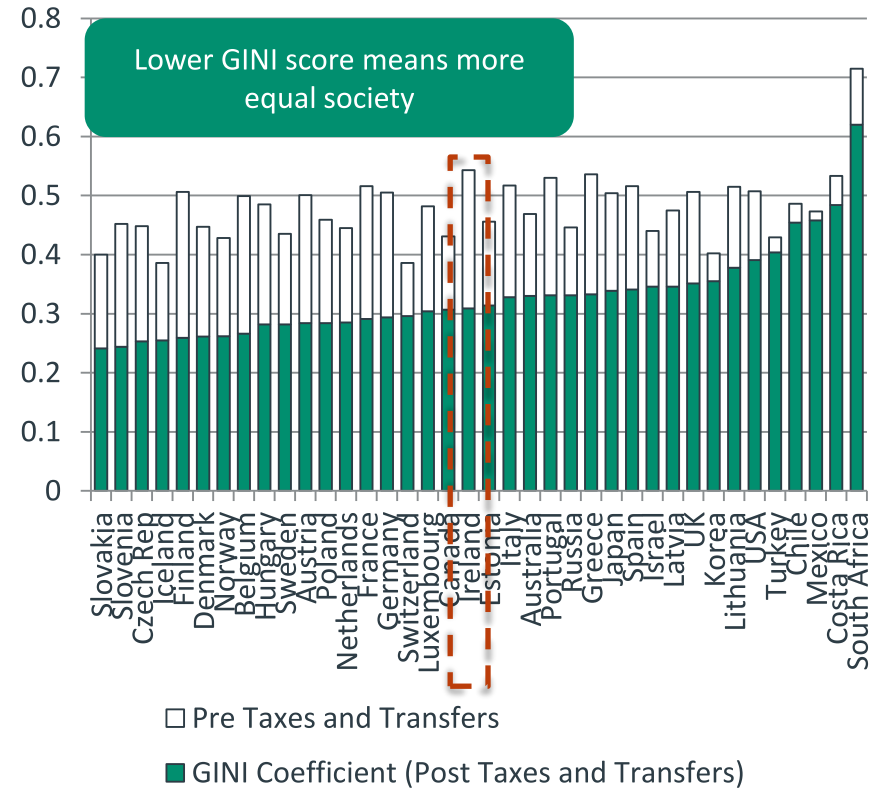
Source: CSO

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

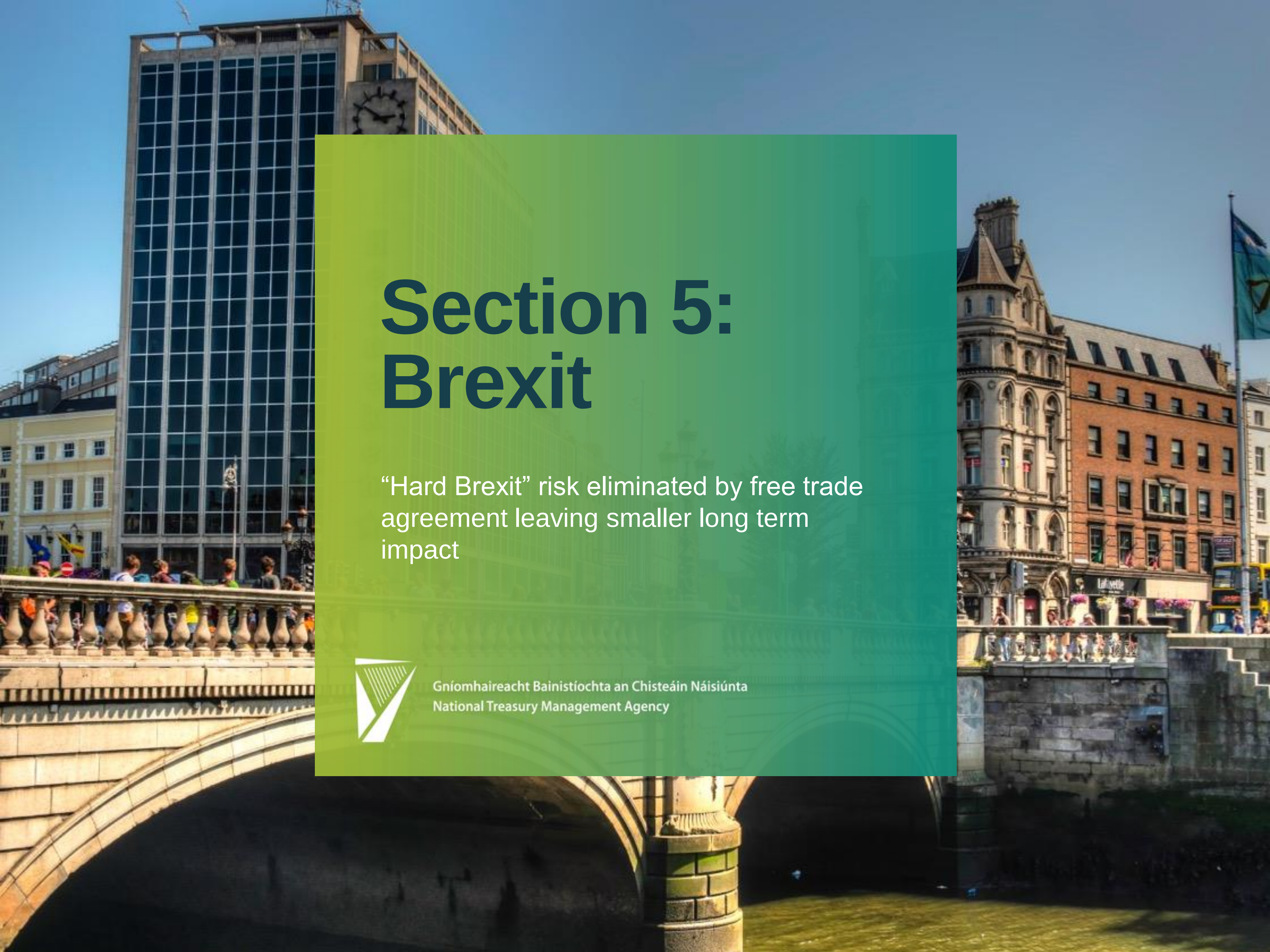


Progressive system means Ireland is around the OECD average for GINI after tax



Gníomhaireacht Bainistíochta an Chisteáin Náisiúnta
National Treasury Management Agency

Source: IMF, OECD



Section 5: Brexit

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

Gníomhaireacht Bainistíochta an Chisteáin Náisiúnta
National Treasury Management Agency

Following intense negotiations, a Free Trade Agreement was agreed in December 2020 allowing for tariff free trade

Main points of FTA

- From January 1, the UK becomes 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.

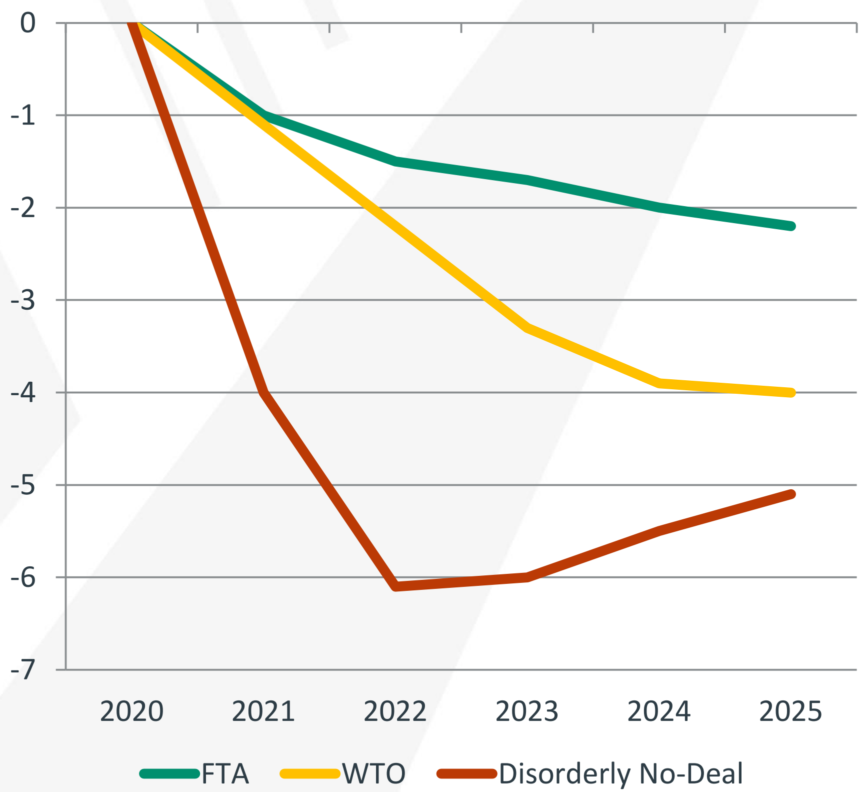
Withdrawal Agreement in 2019 solves Northern Ireland land border issues

Main points of Withdrawal Agreement

- 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.
- All of this is backed by a layered consent mechanism, which allows Stormont to opt-out under simple majority at certain times.

Impact of Brexit on Ireland will be net negative but 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

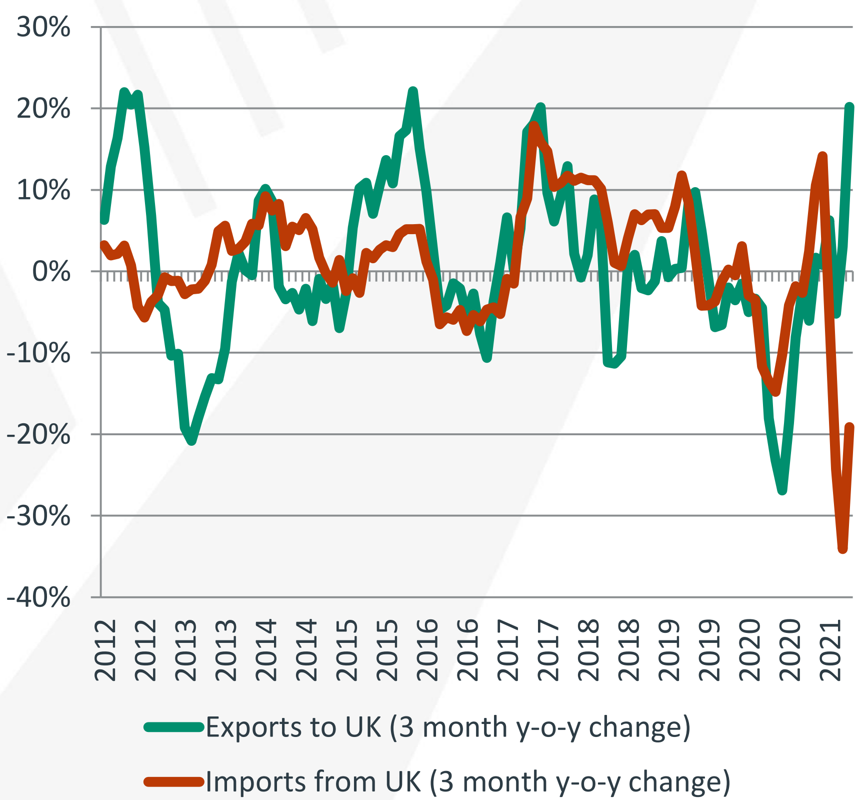
% of total	Goods (2019)		Services (2019)		Total (2019)	
	Exp.	Imp.	Exp.	Imp.	Exp.	Imp.
US	30.8	15.5	15.8	18.6	21.9	17.9
UK (ex NI)	8.9	20.6	15.8	6.9	13.5	10.6
NI	1.4	1.9	n/a	n/a	n/a	n/a
EU-27	37.1	36.7	29.8	19.8	32.8	23.8
China	5.9	5.8	2.8	1.3	4.0	2.3
Other	15.9	19.4	35.9	53.4	27.8	45.5

Gníomhaireacht Bainistíochta an Chisteáin Náisiúnta
National Treasury Management Agency

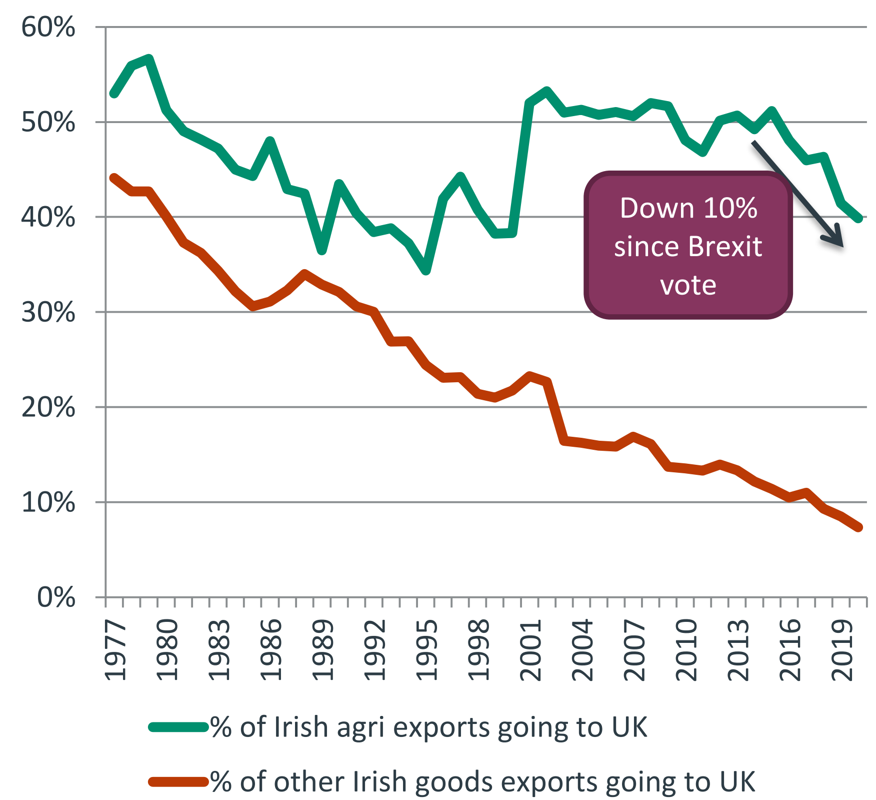
Source: CBI, NTMA analysis

Imports more affected than exports in early 2021 by new trading arrangements

Imports from UK fell sharply post-Brexit – trade with NI jumped in Q1



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



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National Treasury Management Agency

Source: CSO

One possible offset to Brexit impact is FDI inflows into IE; service suppliers in UK may need to re-establish in EU

FDI: Ireland benefitting already

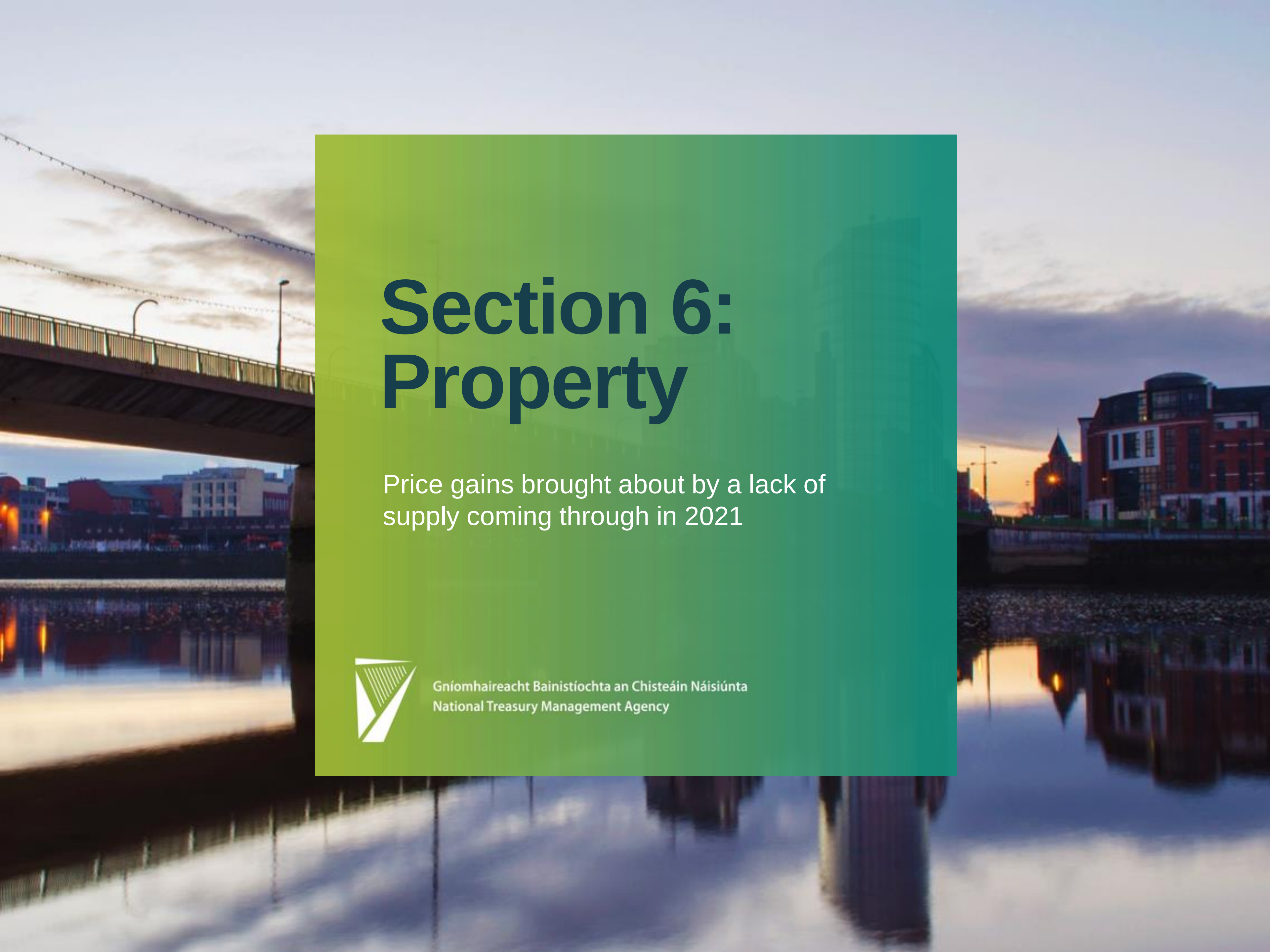
- Ireland could be a beneficiary from displaced FDI. The chief areas of interest are
    - Financial services
    - Business services
    - IT/ new media.

- 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



Section 6: Property

Price gains brought about by a lack of supply coming through in 2021

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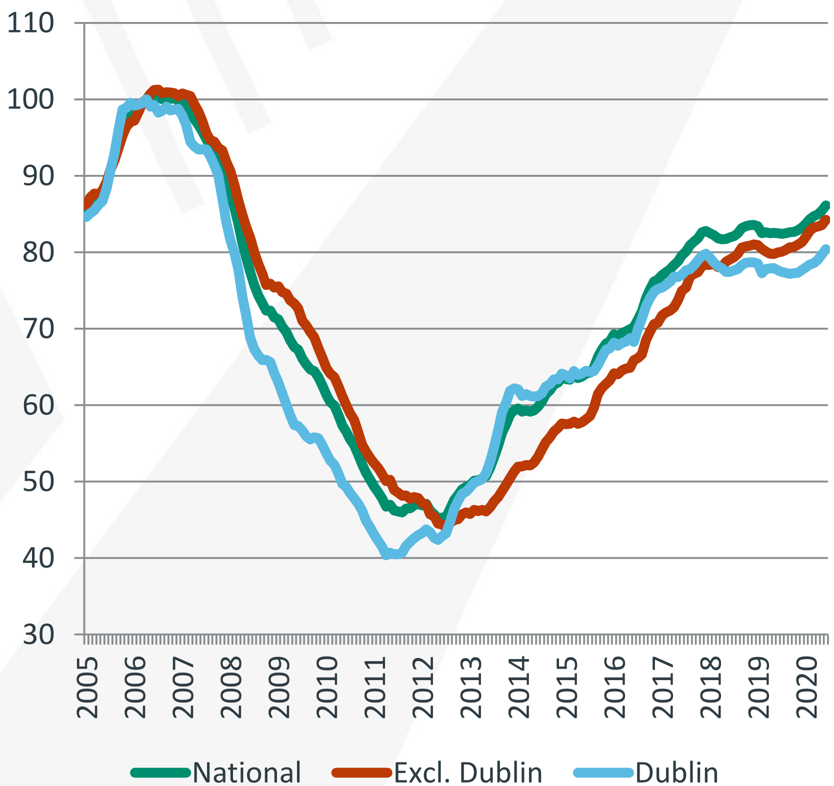
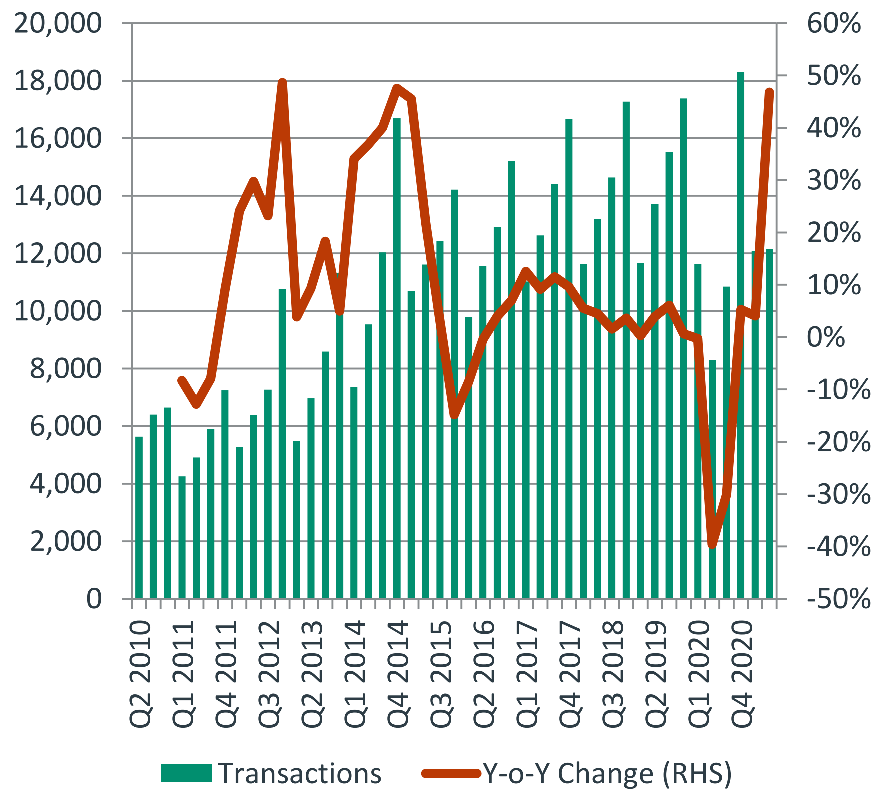
House prices had plateaued before the virus arrived; with supply hampered, price increases seen in 2021 so far

House prices 14% off previous peak in 2007



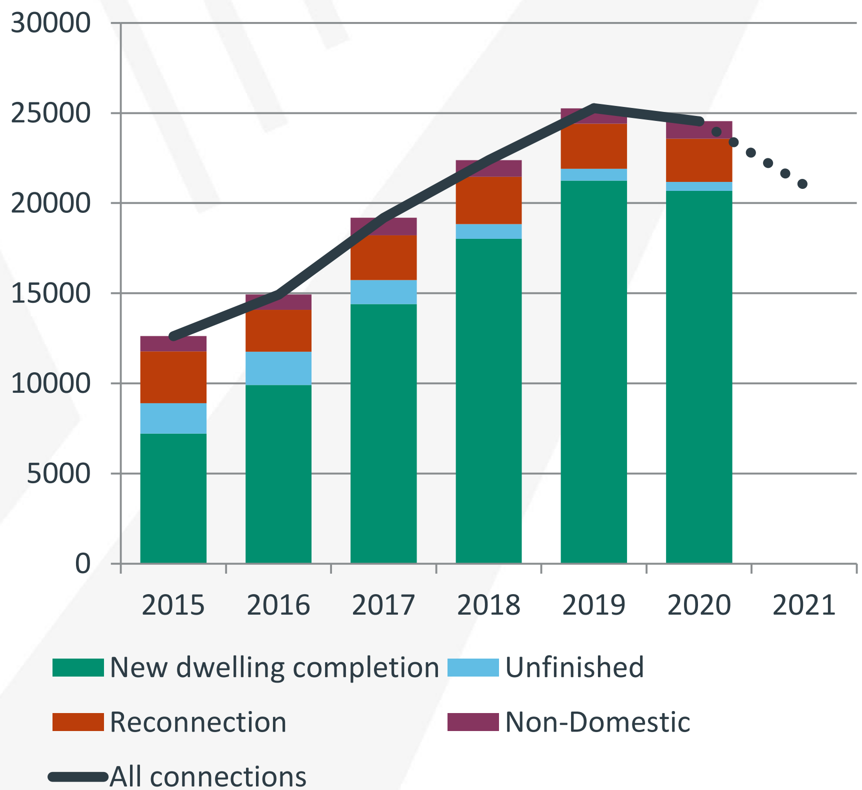
Transactions returning after Covid impact and will improve as year progresses



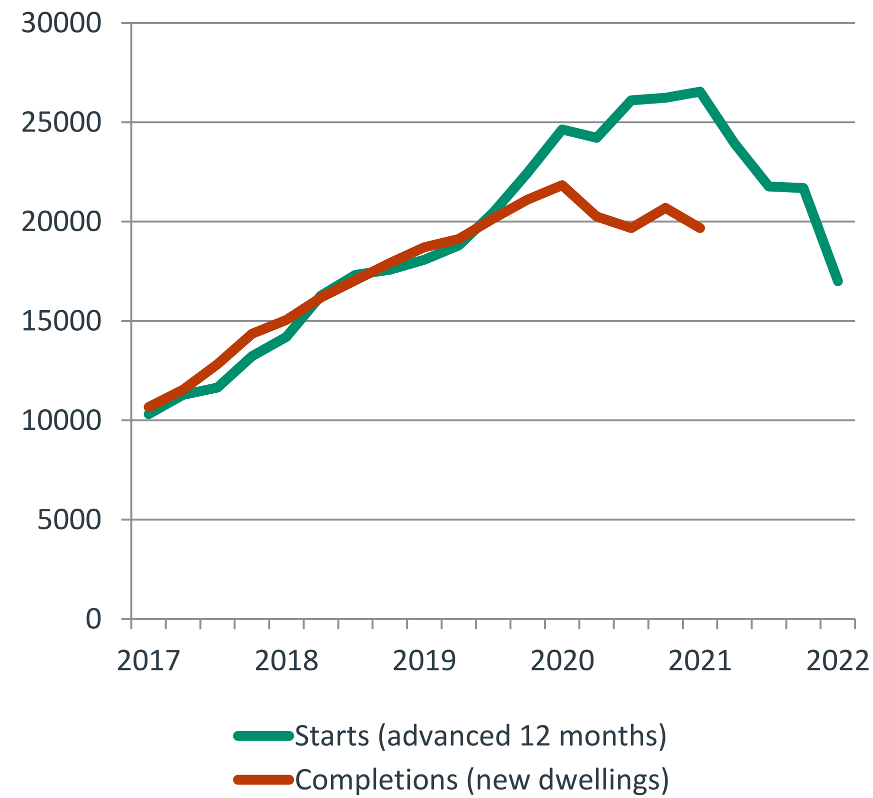
Source: CSO; BPFI, PPR, Department of Housing

Covid-19 has 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



Housing supply picked up pre-Covid: coronavirus to hamper supply for 2020-22



Source: DoHPCLG, CSO, NTMA Calculations

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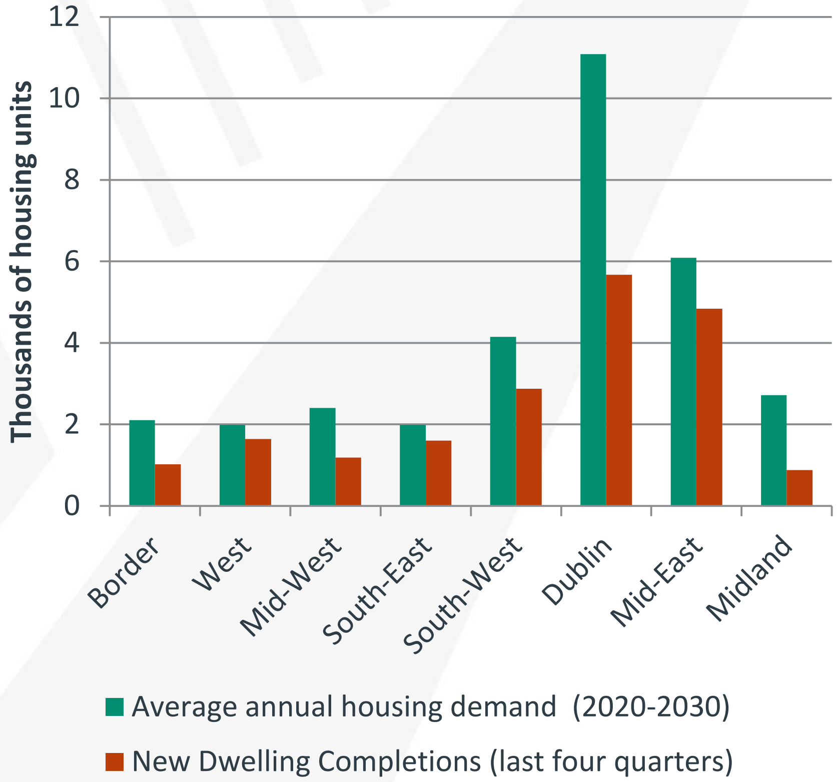
* Housing completions derived from electrical grid connection data for a property. Reconnections of old houses or connections from “ghost estates” overstate the annual run rate of new building.
**2021 completions forecasted down 10-20% on 2020 based on market estimates

Medium-term driver - Housing supply still below demand; supply was catching up before Covid-19



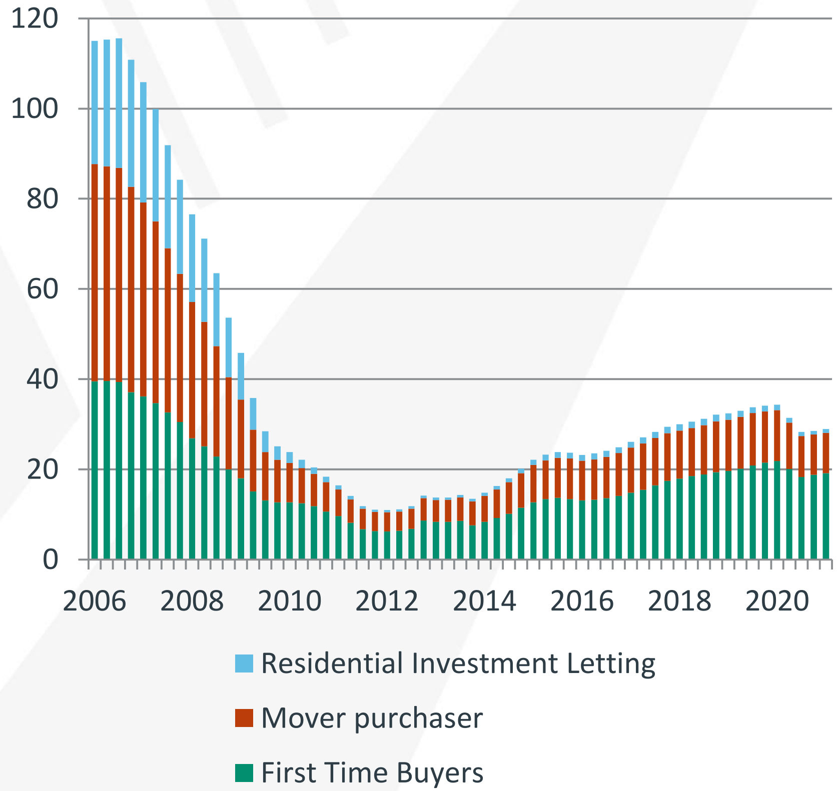
	Average annual housing demand (2020-2030)	New Dwelling Completions (last four quarters)
State	33.6	19.7
GDA	17.2	10.5
Ex-GDA	16.5	9.2

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

Source: CSO; NTMA analysis

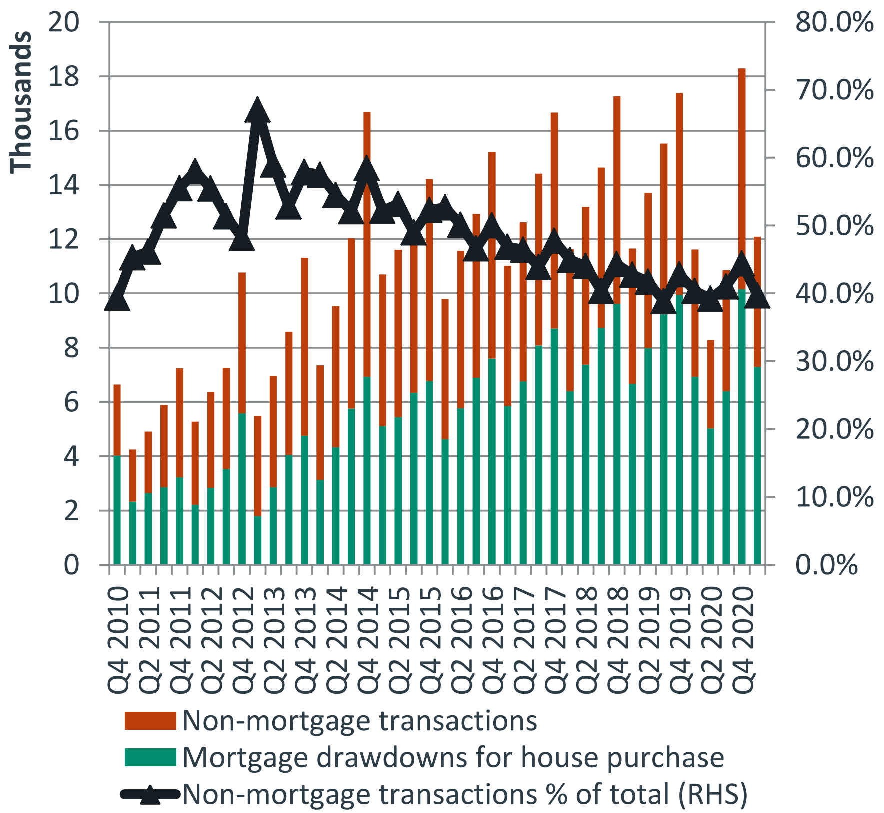
Mortgage drawdowns fell off given Covid restrictions but have begun to increase since initial trough

Mortgage drawdowns (000s) rose from deep trough before Covid-19 impact



Source: BPFI (4 quarter sum used)

Non-mortgage transactions still important



Source: BPFI; Residential Property Price Register

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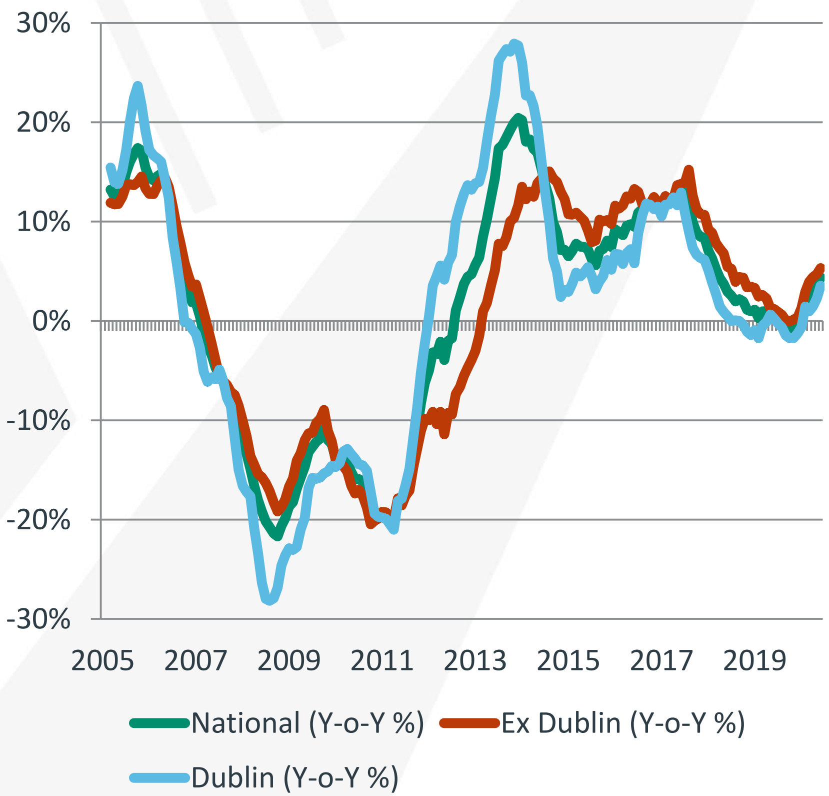
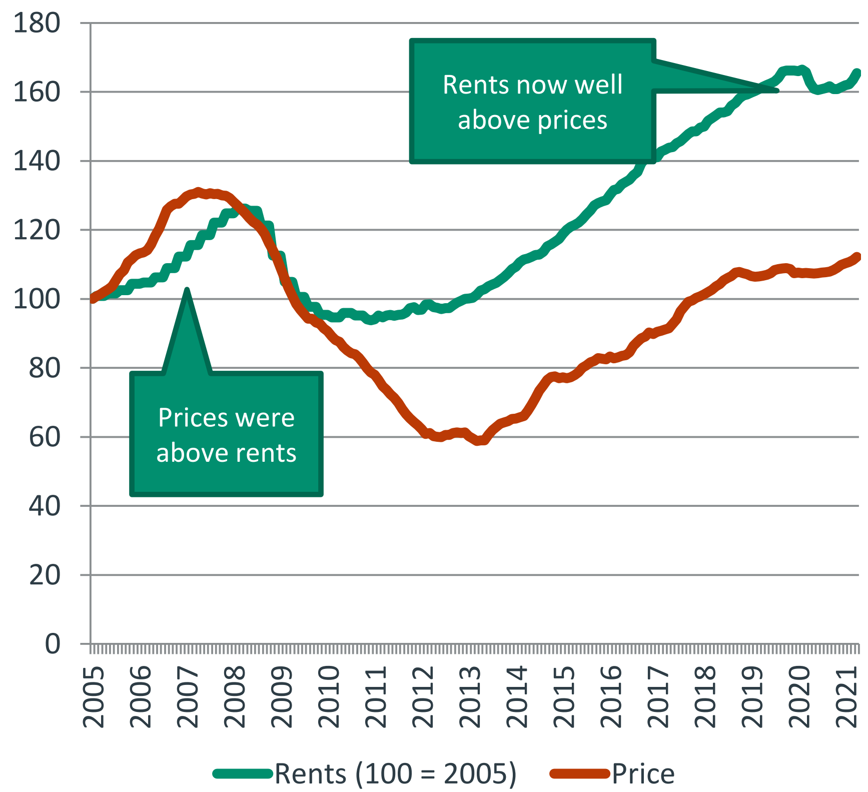
Covid-19 impact on prices coming through with inflation starting to show and rents pressure back

House prices up 4.4% in the year to April 2021



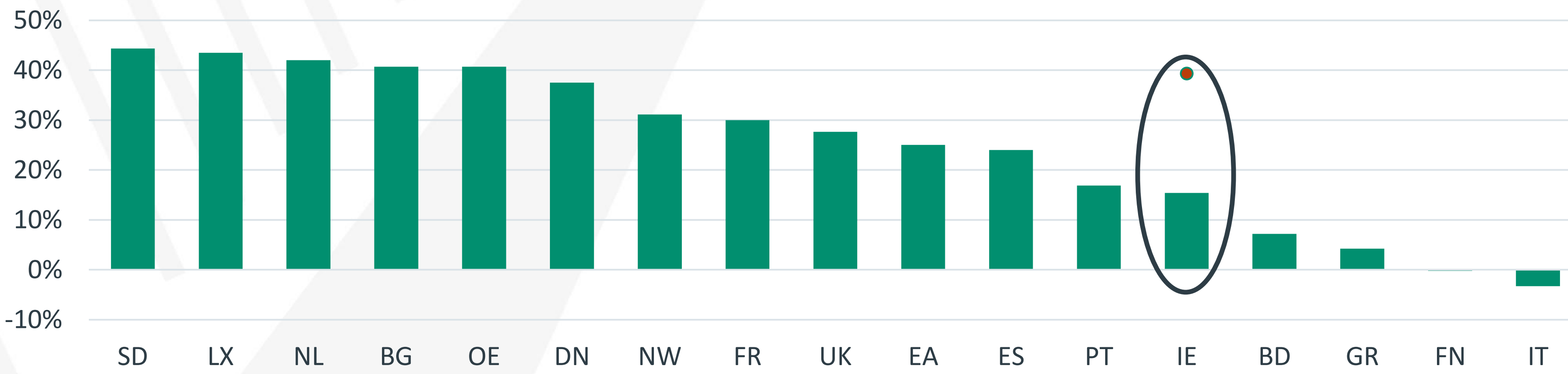
Rents pressures returning - more so in the regions rather than Dublin



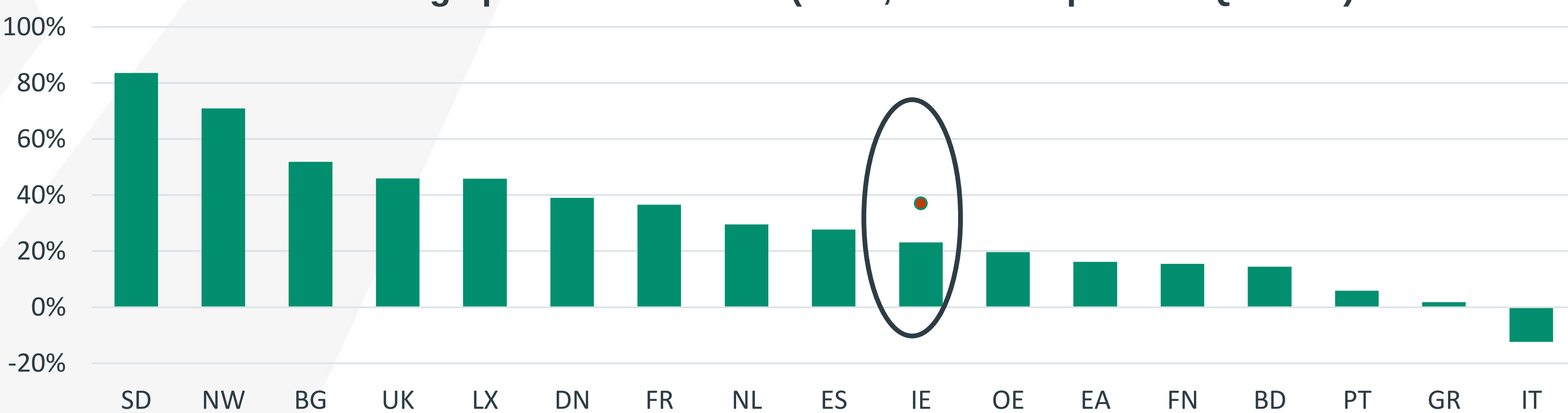
Source: CSO; RTB

Irish house price valuation metrics remain well below 2008 levels

Deviation from average price-to-income ratio (2020, red dot represent Q1 2008)



Deviation from average price-to-rent ratio (2020, red dot represent Q1 2008)



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Source: OECD, NTMA Workings

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

Section 7: Banks & other

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

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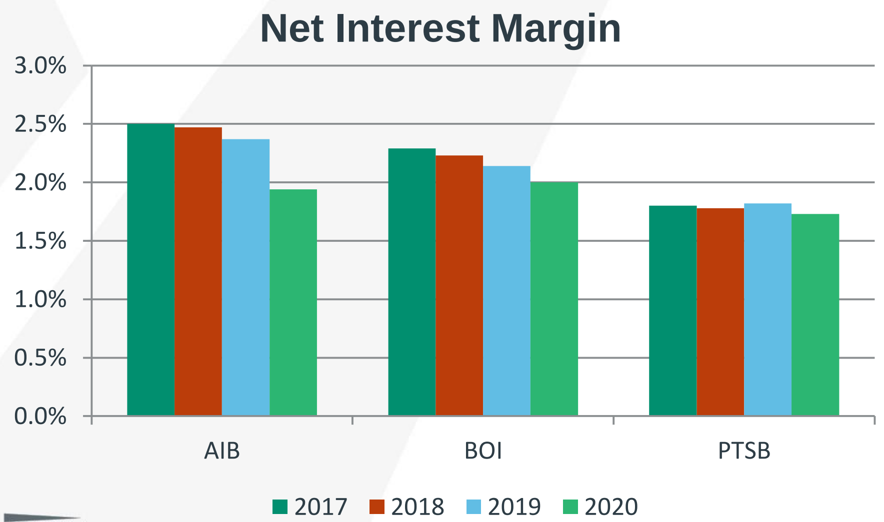
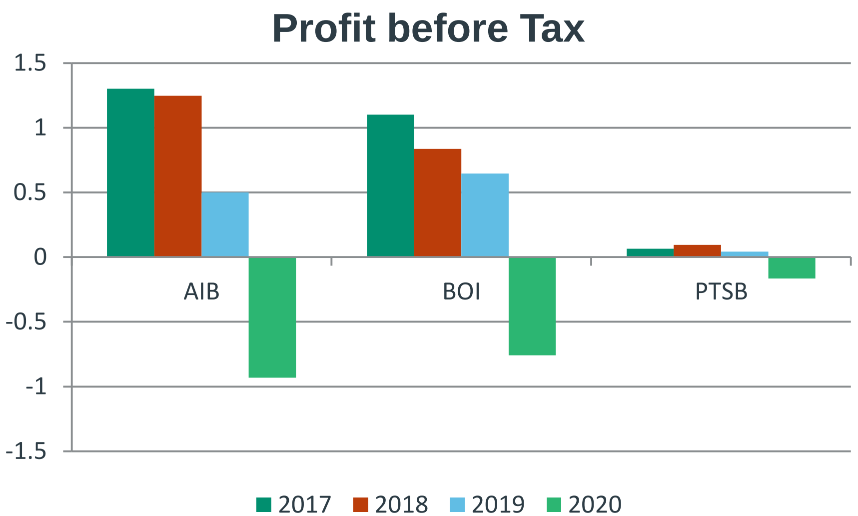
Ireland’s Banking Sector Overview – less competition possible

- Banks profitable before Covid-19: income, cost and balance sheet metrics much improved.
- Interest rates on mortgages and to SMEs are still high compared to EU thanks to legacy issues and the slow judicial process in accessing collateral.
- Ulster Bank and KBC (no govt. ownership) has 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 the next 6 months. The pace of shares sold will depend on market conditions. Shares not to be sold below a certain level.
- An IPO of AIB stock (28.8%) occurred in June 2017. This returned c. €3.4bn to the Irish Exchequer: used for debt reduction. Further disposal of banking assets unlikely in the short term given low valuations





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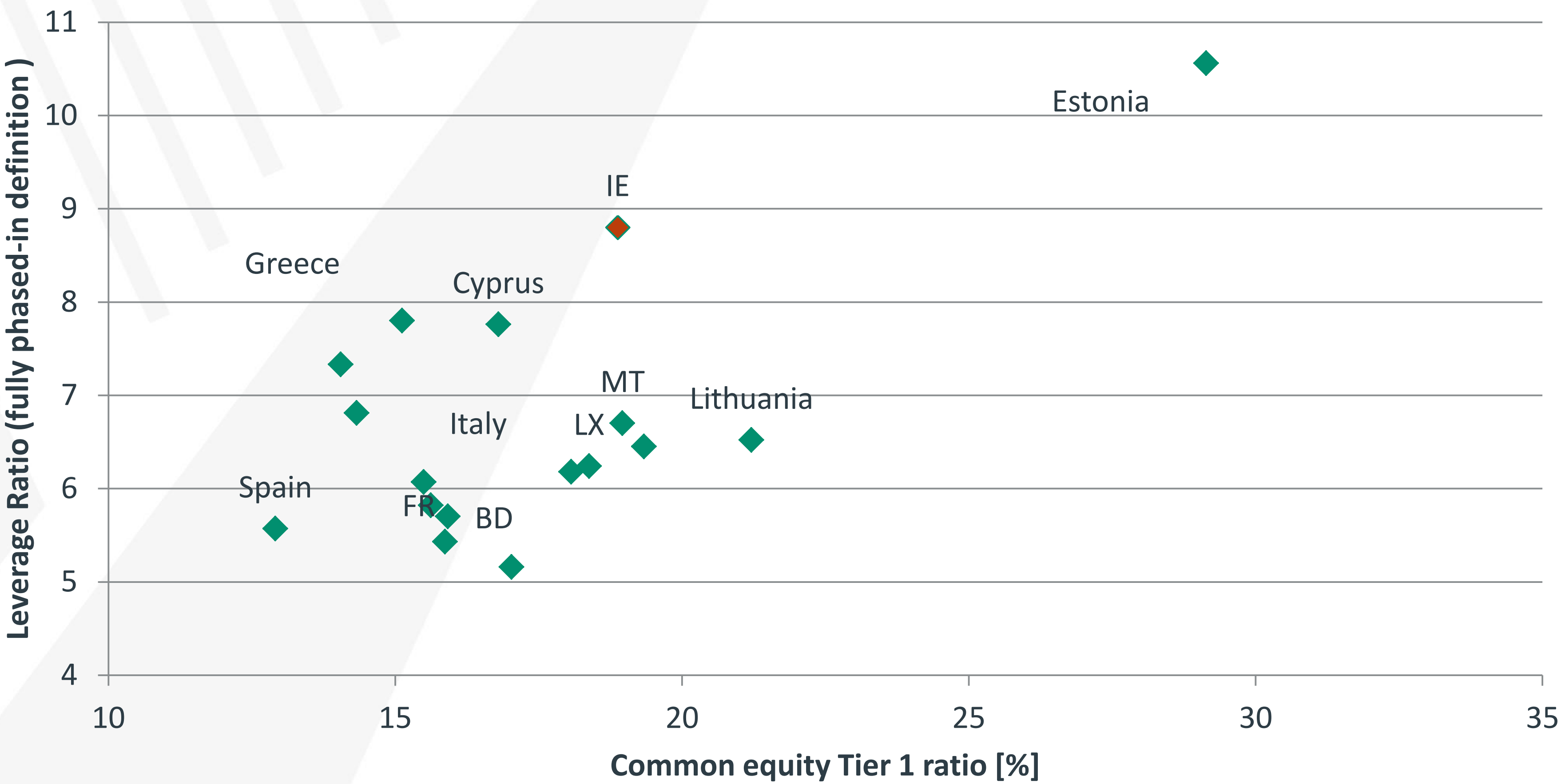
Source: Annual reports of banks - BOI, AIB, PTSB

Ireland's banks are among the best capitalised in Europe

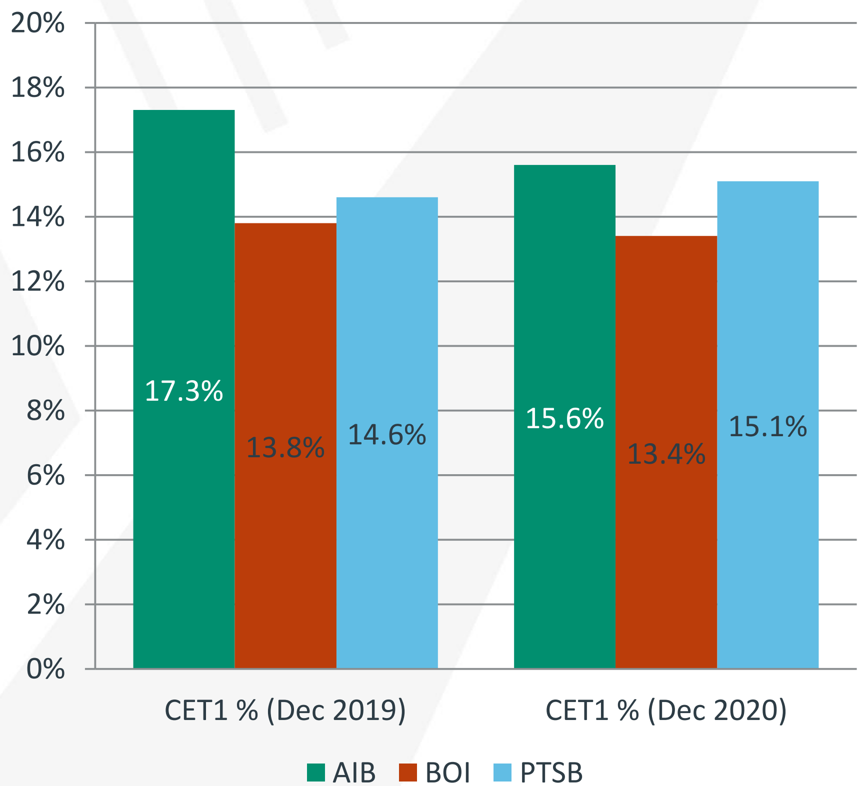


Source: ECB consolidated banking data (Q4 2020)

Note: Leverage Ratio = Tier 1 capital/Total leverage exposure; CET1 = Common tier 1 capital/total risk exposures. "Fully loaded" refers to the actual Basel III basis for CET1 ratios.

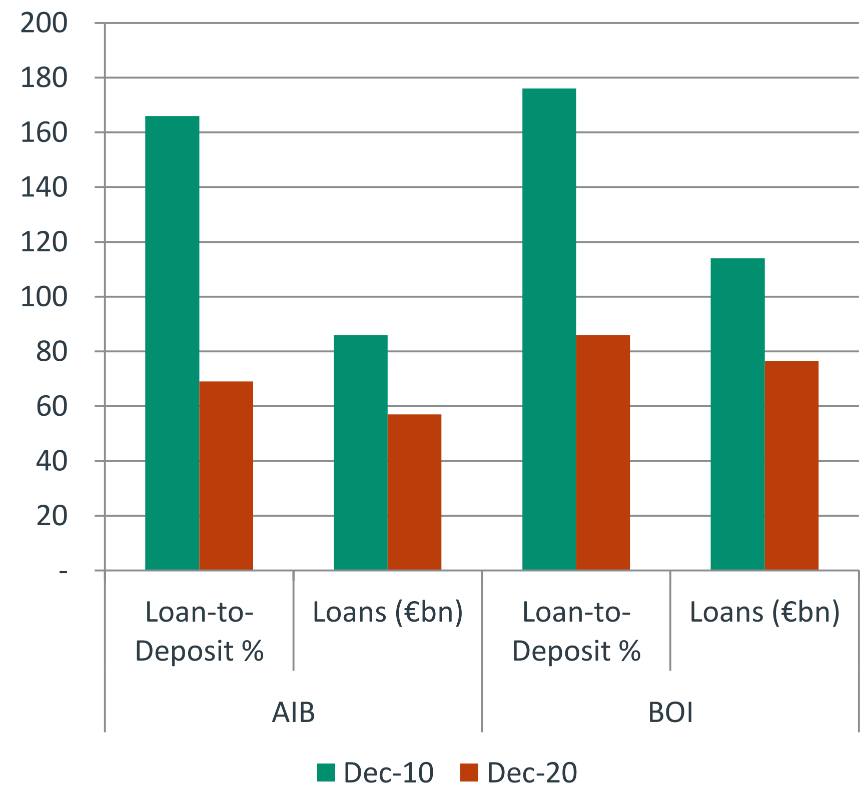
Capital ratios strengthened as banks balance sheets contracted and consolidated in last ten years

CET 1 capital ratios allow for ample forbearance in 2020



Source: Published bank accounts

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



Source: Published bank accounts

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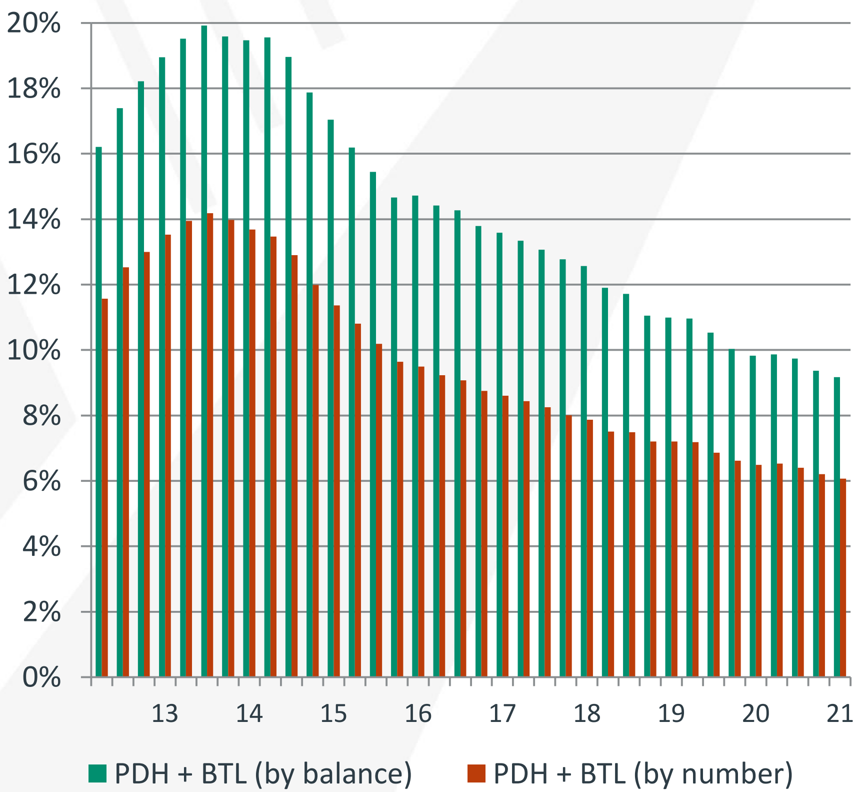
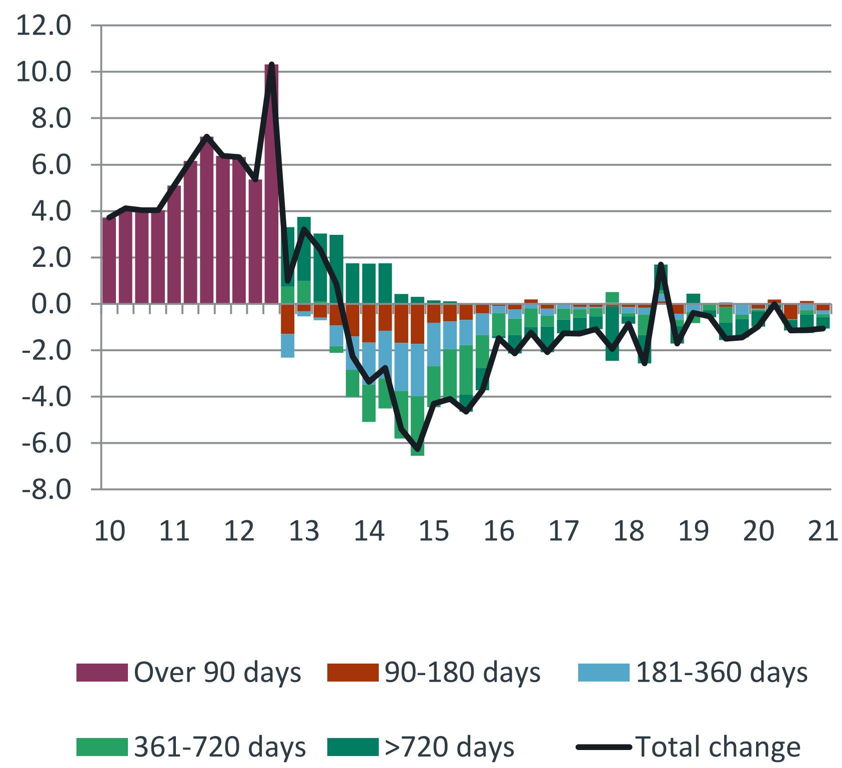
Note:
"Fully loaded" CET1 ratios used. Refers to the actual Basel III basis for CET1 ratios.

Mortgage arrears have not reversed course yet but we will know more on asset quality as economy re-opens

Mortgage arrears (90+ days)



Principal Dwelling Mortgage arrears (thousands)



Source: CBI

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The European Commission's ruling on Apple annulled in court; further appeal by EC means case continues

- Back in 2016, the EC 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. <u>The General Court granted the appeal in July, annulling the EC's ruling.</u>
- 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. <u>The General Court has judged no such advantage occurred.</u>
- 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. <u>There is no need to adjust funding plans given the decision by the General Court in July or by the Commission's decision to appeal.</u>

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