Ireland: Still growing fast but cyclical risks ahead

2018 sees lower unemployment, modest wage increases and another primary surplus

October 2018

Gníomhaireacht Bainistíochta an Chisteáin Náisiúnta
National Treasury Management Agency

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Summary

Growth continues and debt dynamics improving debt sustainability

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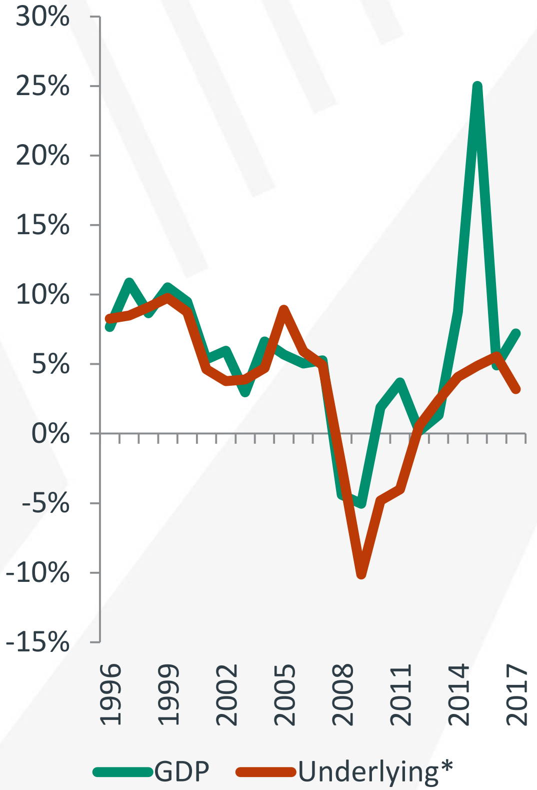
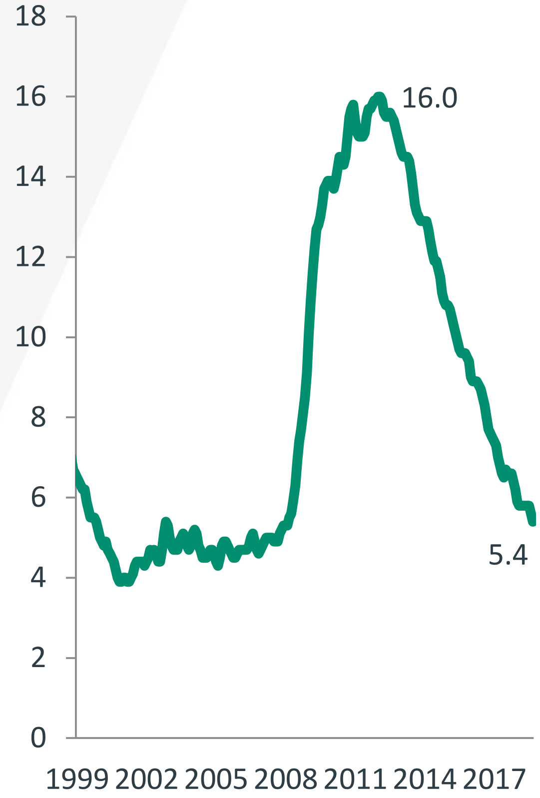
Macro picture is positive: Averaging five per cent growth in 2014-17; little sign of inflation

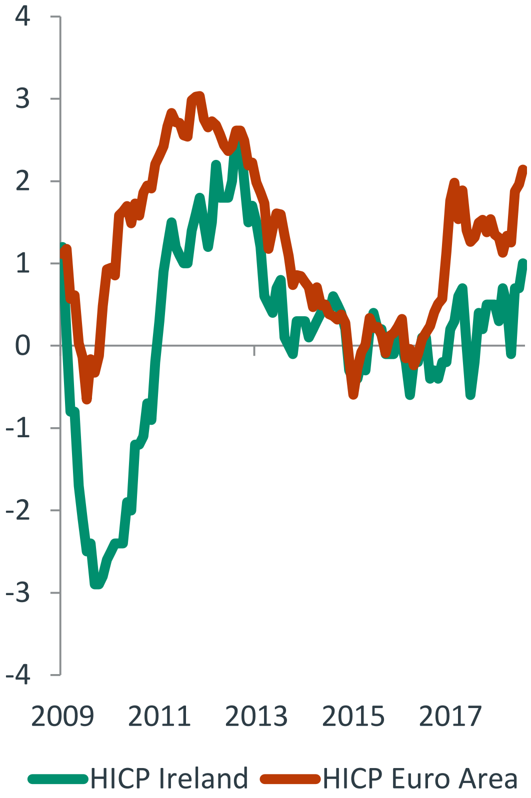
True growth healthy, but slowing?



Dramatic drop in unemployment rate



Inflation still low – partly thanks to Brexit



** Underlying series is modified final domestic demand*

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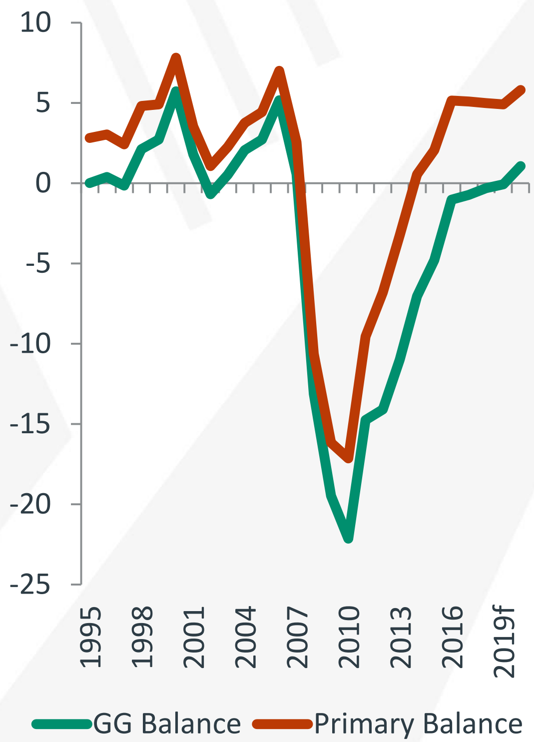
A hat-trick of primary surplus, improving debt dynamics and reduced financing needs

Five years of primary surplus (€bn)



Ireland is improving its debt dynamics by the month

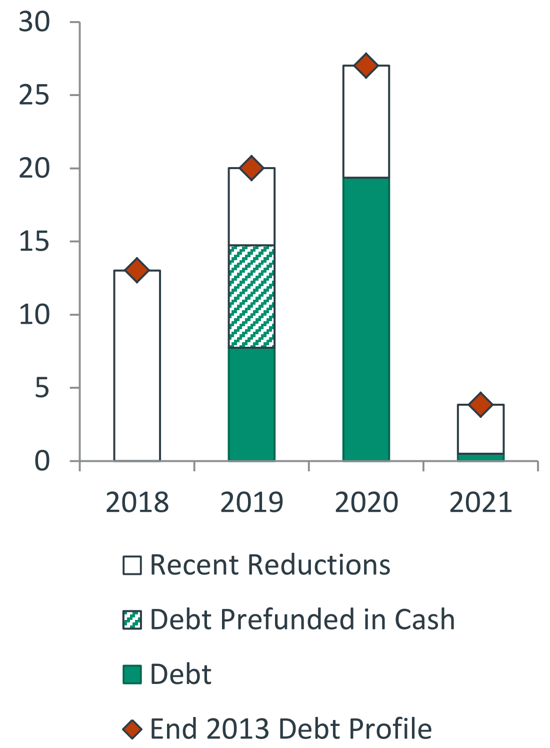
Debt-to-GNI*
(105% 2018f, from 166%)

Debt-to-GG Revenue
(255% 2018f, from 353%)

Average interest rate
(2.6% 2018f, from 5.1%)

Debt-to-GDP^
(64% 2018f, from 120%)

NTMA has reduced near-term issuance needs (€bns)



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

Main risks are external and outside Ireland's control

Late Cycle

Ireland is later than the Euro Area (EA) in its economic cycle thanks to its close ties to US

Slowdown invariably follows when Central Banks make money dearer and more scarce

US

Ireland is still a "high beta" bet on the US economy, in particular its ICT sector

Impact of US Corporate Tax reform

Brexit

"Hard" Brexit could impact Irish Growth by 4%-7% over a 4-5 year period

Funding environment still favourable for Ireland in 2018 - €16.5bn issued already at long maturity

Green

€3bn raised through the syndicated sale of Ireland's first Sovereign Green bond.
Yield of 1.399% on 2031 bond

€16.5bn

funding completed within guided range of €14-18bn

Average maturity 12 years
Interest rate of 1.1%
Auction in November

€13bn Cash

Over €13bn expected year end cash balance. Ireland prefunded heading into more volatile times

Section 1: Macro

Ignore GDP/GNP. Other metrics show Ireland is growing and closer to full employment

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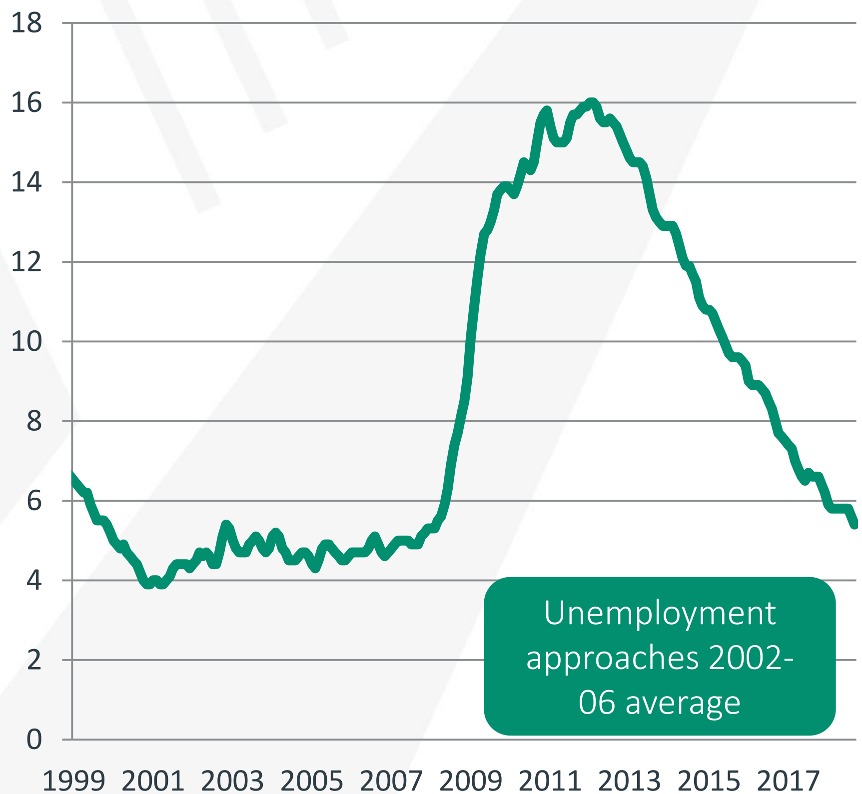
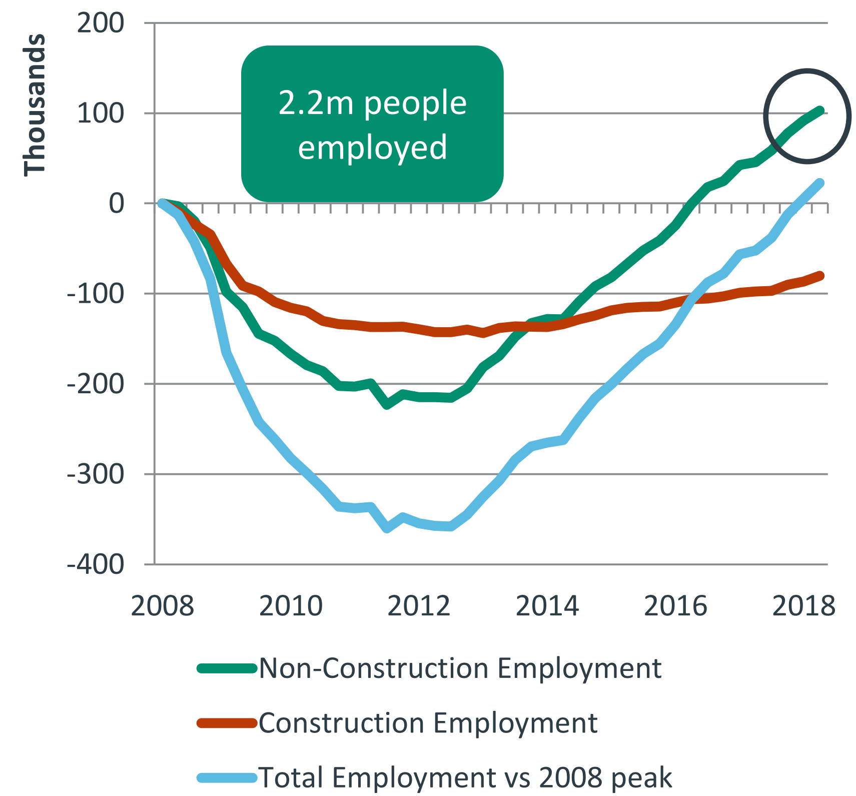
Labour market shows growth story most clearly – 390,000 net new jobs in last six years

Unemployment rate: 5.4% in September 2018



Total employment back above previous peak as 100K non-construction jobs added on net



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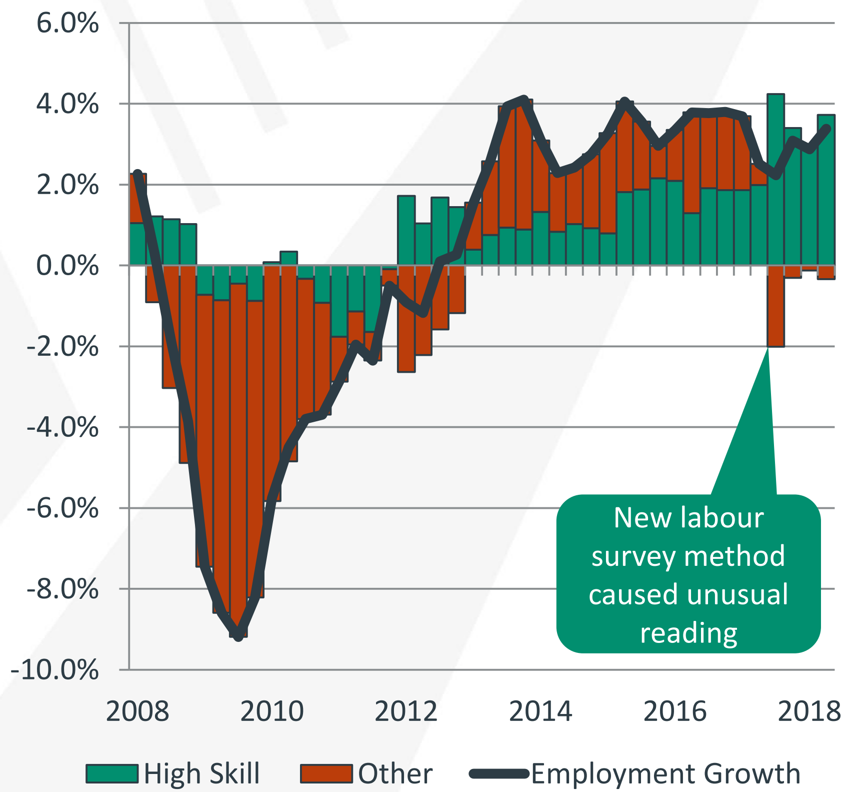
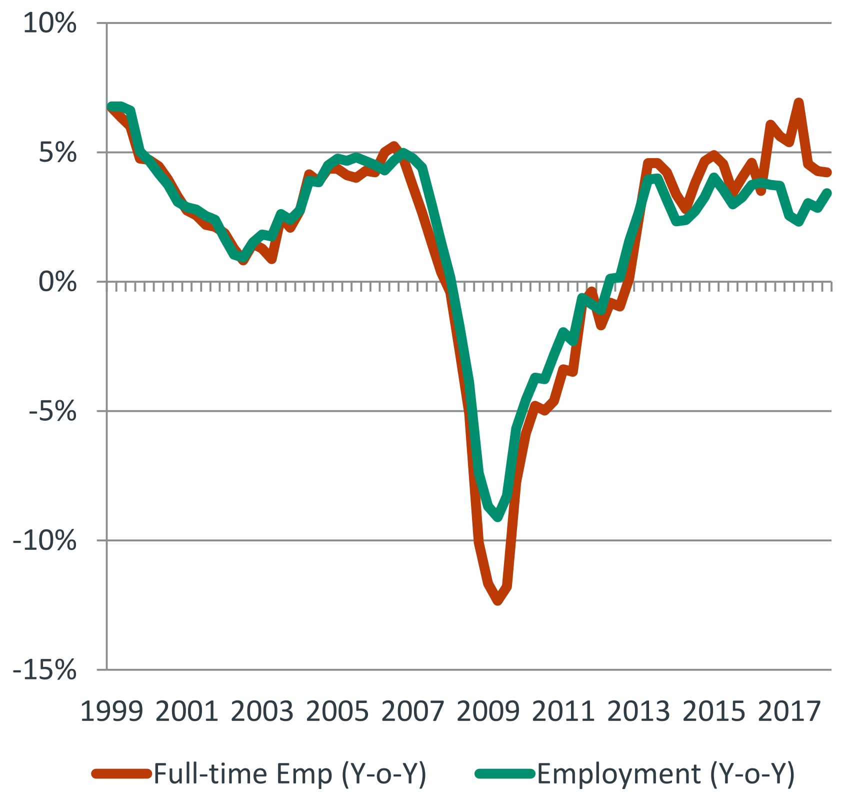
Source: CSO

Employment growth driven by high skill job creation; Full-time employment expanded by over 4% in H1 2018

Employment growth has been driven by high skilled jobs in recent years



Substantial full-time employment growth



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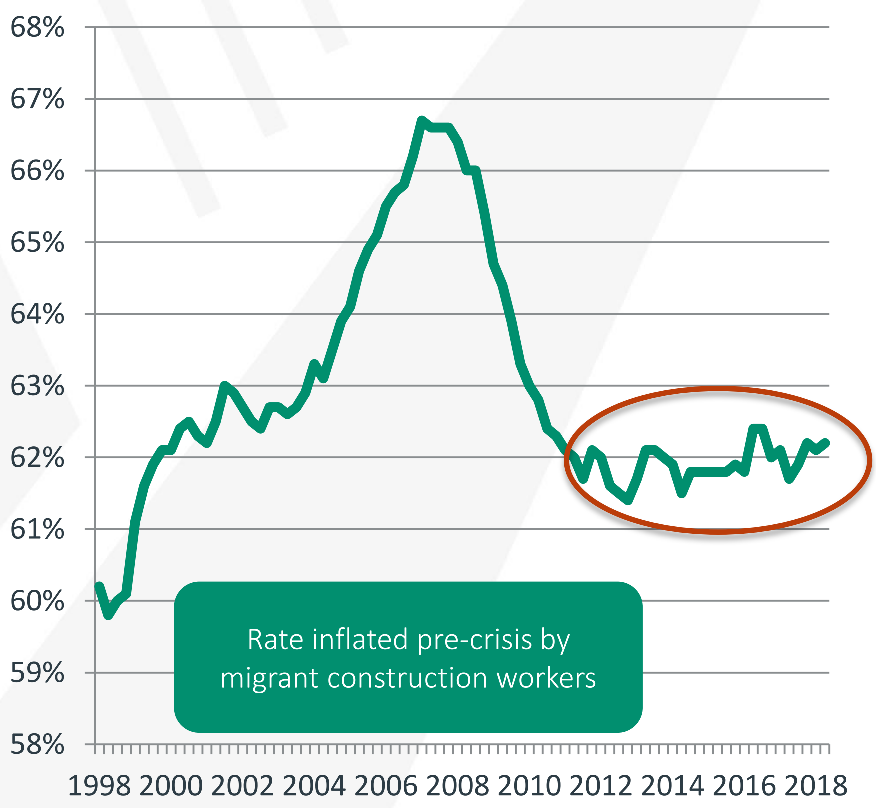
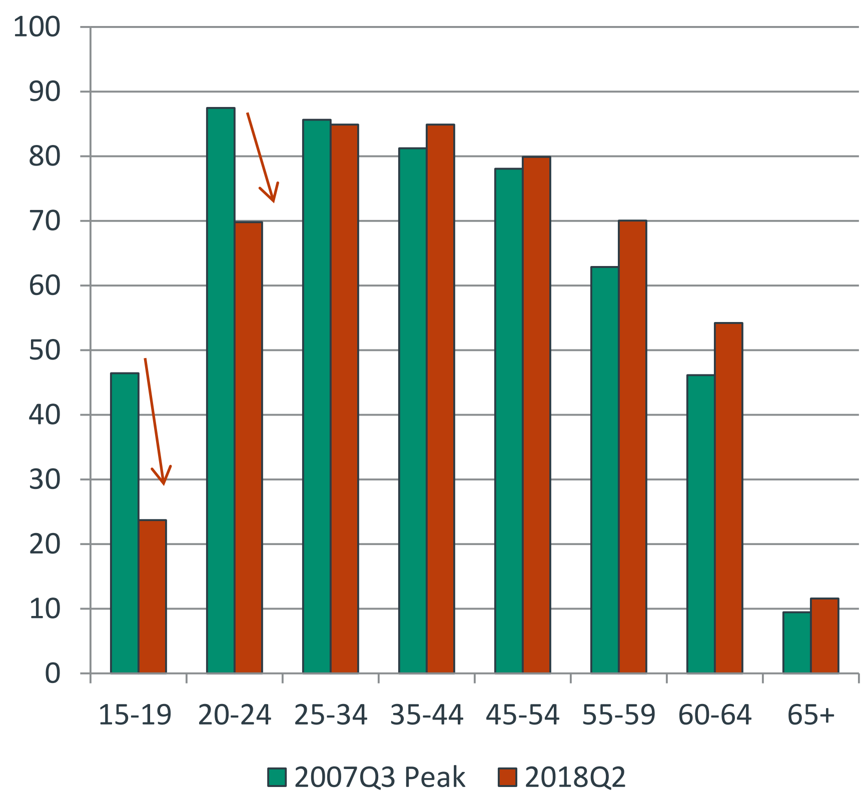
Source: Eurostat; CSO
High Skill jobs include the ISCO08 defined groupings Managers, Professionals, Technicians and associate professionals

Labour participation has not yet recovered – young reaching labour force later

Participation rate hovering around 62%



Part. rate down as construction jobs lost and younger people stay in education longer



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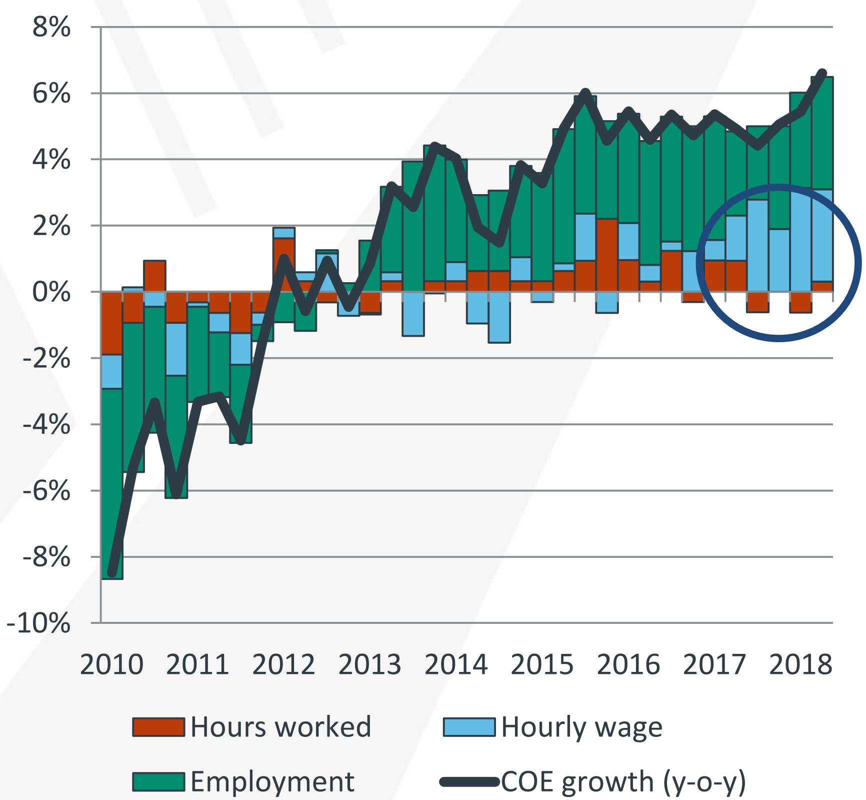
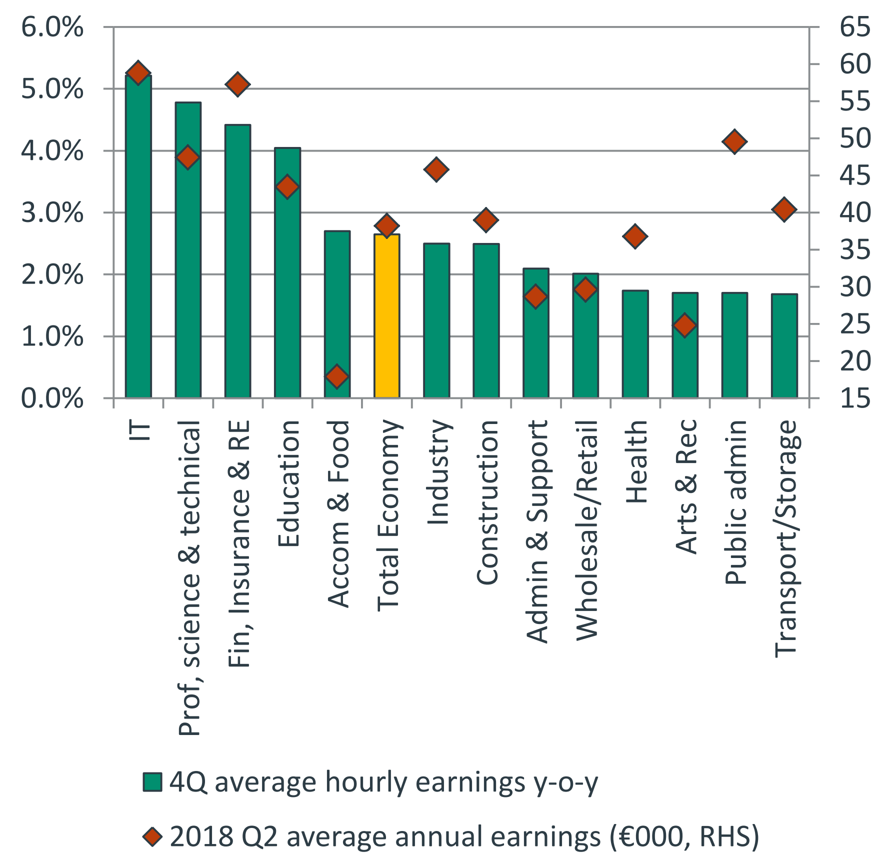
Source: CSO

Wages growth evident in 2018 but growth uneven across sectors

Wage growth a driver for increase in compensation of employees…



… however disparities remain across sectors regarding wage growth



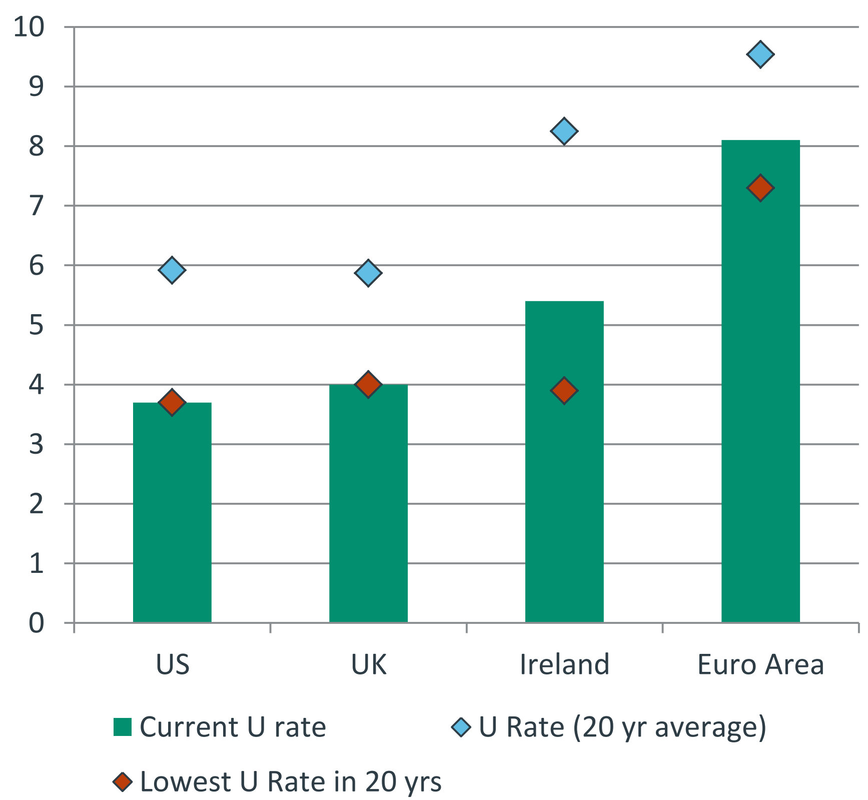
Source: CSO

Ireland’s labour market is edging closer to full employment - US and UK likely already there

Unemployment rates (%) falling across Europe; falling faster here

	2012	2016	2017	18Q2
Germany	5.4	4.2	3.8	3.4
Netherlands	5.8	6.0	4.9	3.9
Austria	4.9	6.0	5.5	4.7
Luxembourg	5.1	6.3	5.6	5.2
Slovenia	8.9	8.0	6.6	5.6
Ireland	15.5	8.4	6.7	5.9
Belgium	7.6	7.9	7.1	6.0
Sweden	8.0	6.9	6.7	6.2
EU 28	10.5	8.6	7.6	6.9
Portugal	15.8	11.2	9.0	7.0
Euro Area	11.4	10.0	9.1	8.3
France	9.8	10.1	9.4	9.1
Italy	10.7	11.7	11.3	10.8
Spain	24.8	19.6	17.2	15.4

Unemployment (%) close to lows in Ireland’s main trading partners



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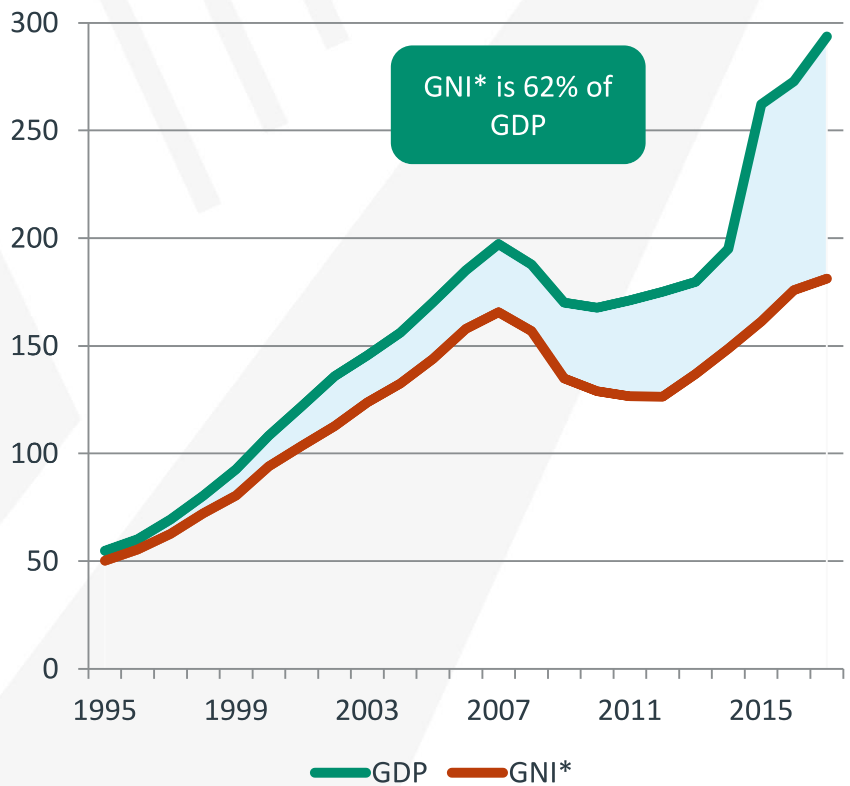
Source: Eurostat, 15-74 age basis; DataStream
20 year average = 1998 Q3 to 2018 Q2

External environment less helpful for Ireland

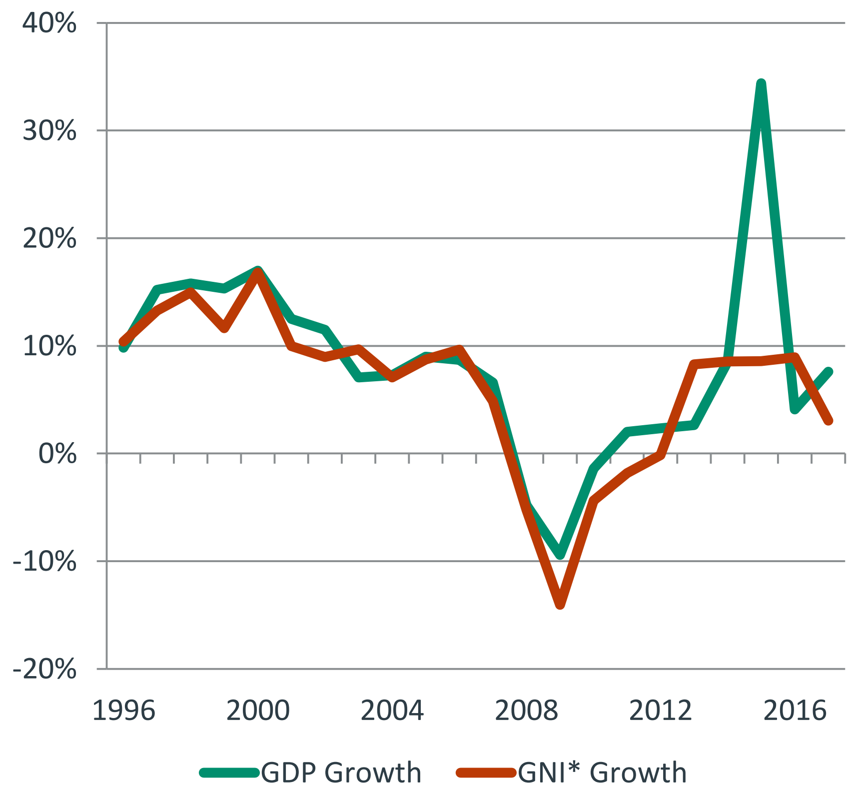
	2015	2016	2017	2018/19
EA Monetary Policy	Accommodative	Accommodative	Accommodative	Less accommodative
US Monetary Policy	Accommodative	Accommodative	Accommodative but tightening	Further tightening: curve inversion?
US growth	Stimulative	Less stimulative	Stimulative	Stimulative in 2018; fiscal drag in 2019
Oil price	Falling	Falling	Rising	Rising
UK growth	Stimulative	Less favourable; Brexit impact	Growth slowing	Brexit crunch
Euro currency	Very Helpful	Helpful	Headwind	Neutral

GDP distortions mean we need to look to other metrics; Irish recovery evident when looking at GNI*

GNI* was €181bn in 2017; 9.4% higher than in 2007 (current prices)



GNI* growth rate averaged 7.5% 2013-2017 (current prices)



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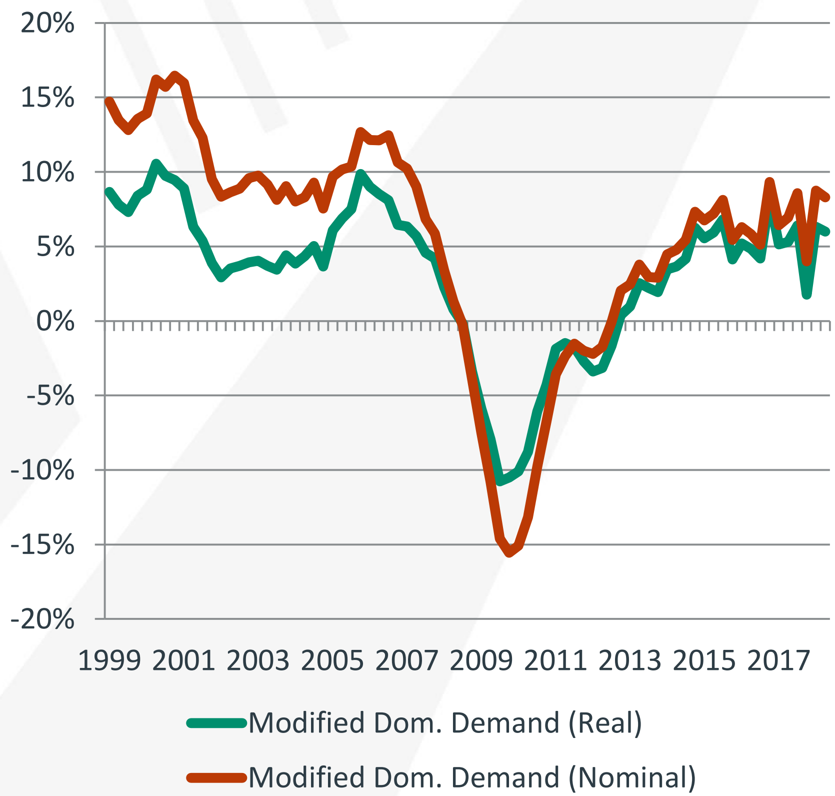
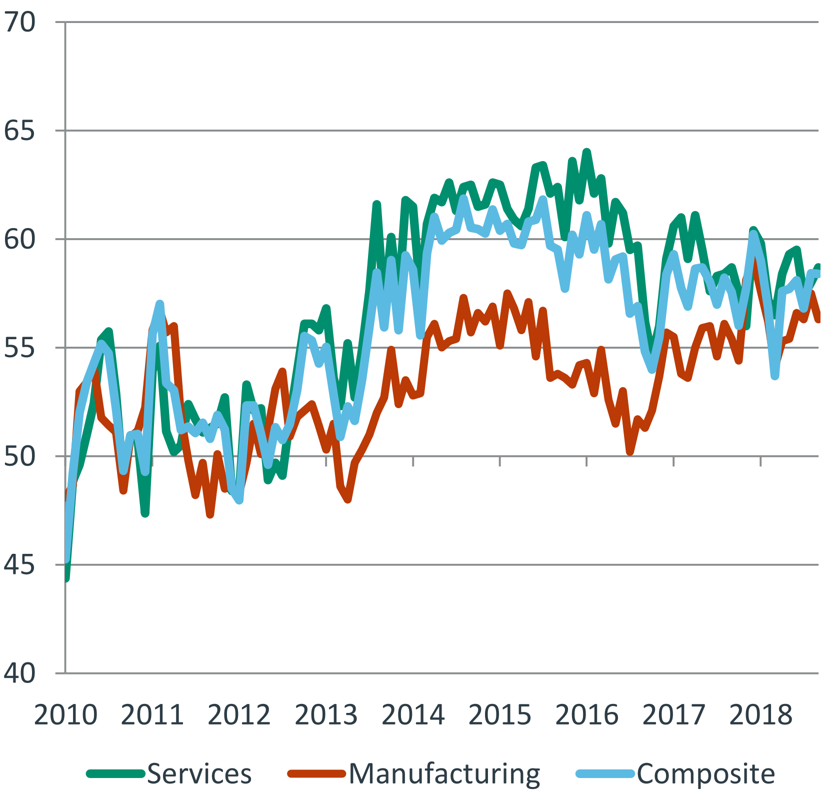
Source: CSO
Note: See annex for discussion on the GDP distortions from 2015 onwards

Modified Domestic Demand (MDD) – a reflection of the home economy - is best cyclical indicator

MDD still growing strongly in 2018



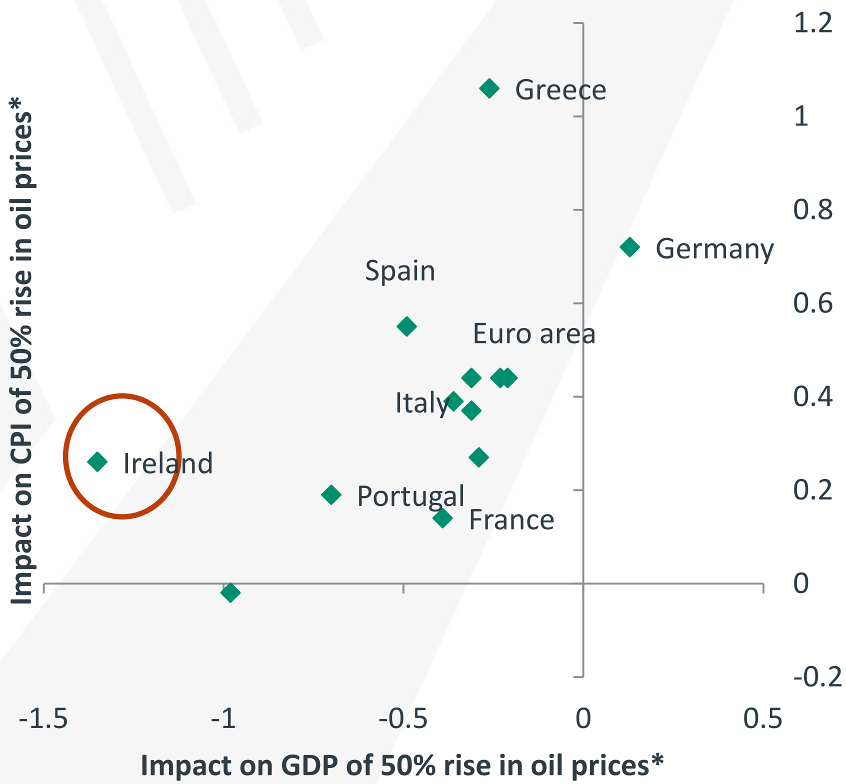
Ireland's PMIs are expanding but down from heights of 2016



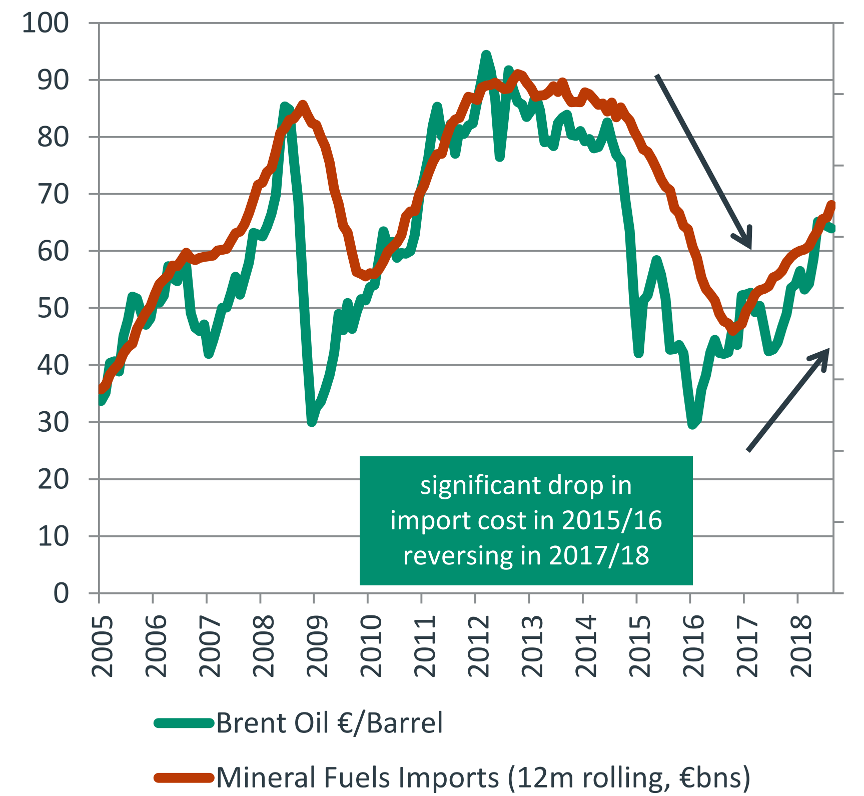
Source: CSO; Markit, Bloomberg, Investec
Note MDD measure used here private consumption, government consumption, building investment, elements of machinery & equipment investment, elements of intangible asset investment, value of physical changes in stock. See annex for more detail.

Oil price collapse helped supercharge the economy in 2015; but steady recovery of Brent is a headwind

Oil price shock boosted GDP by close to 1.5% in 2015



Ireland is a price taker for energy - 0.6% of GNI* cost increase in last 24 months



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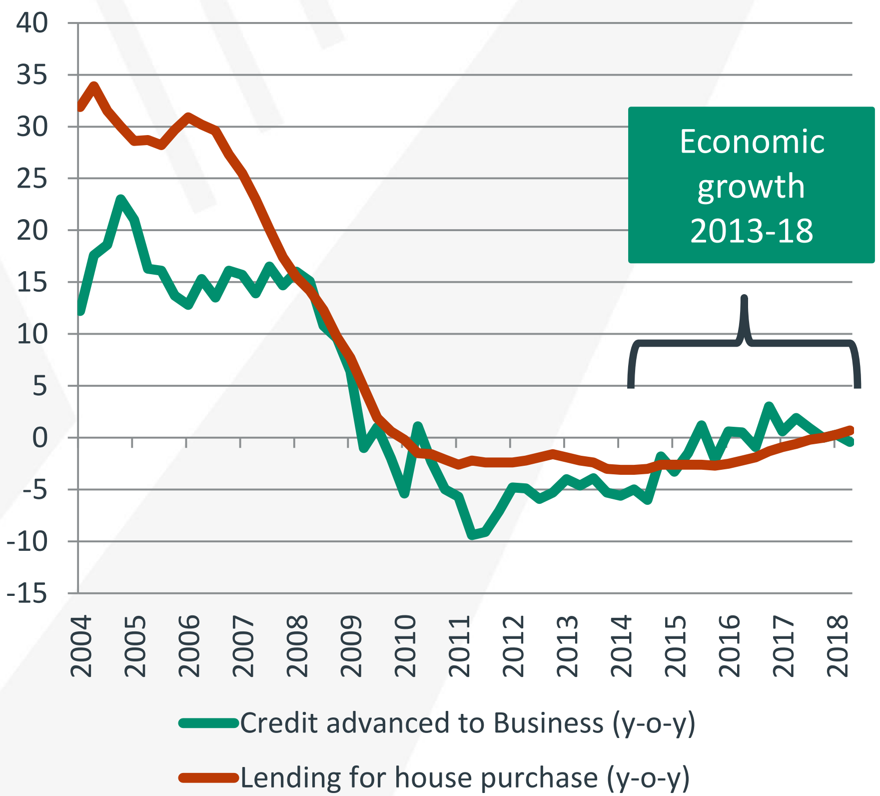
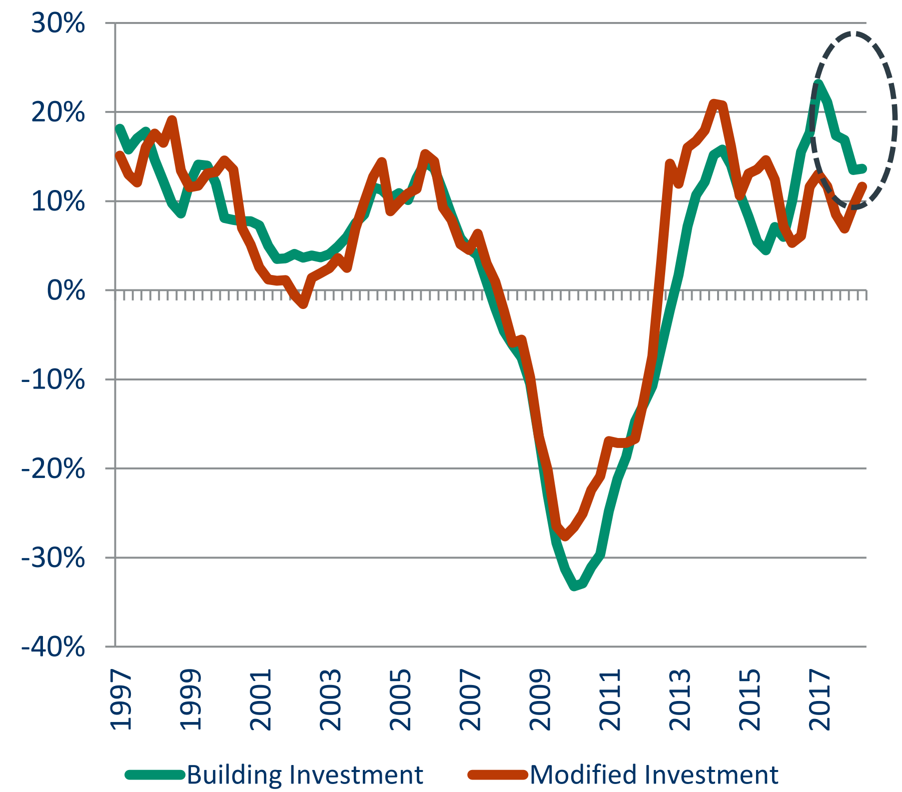
Source: CEPR: Oil and the Euro Area Economy
**impact over 1 year. Oil price shock in 2015 was c.50% implies 1 year impact close to 1.5%.*
Source: DataStream, CSO

Recovery has not been driven by credit so far

Lending for house purchase only edging into positive territory recently



House building catch-up will boost the economy in 2018



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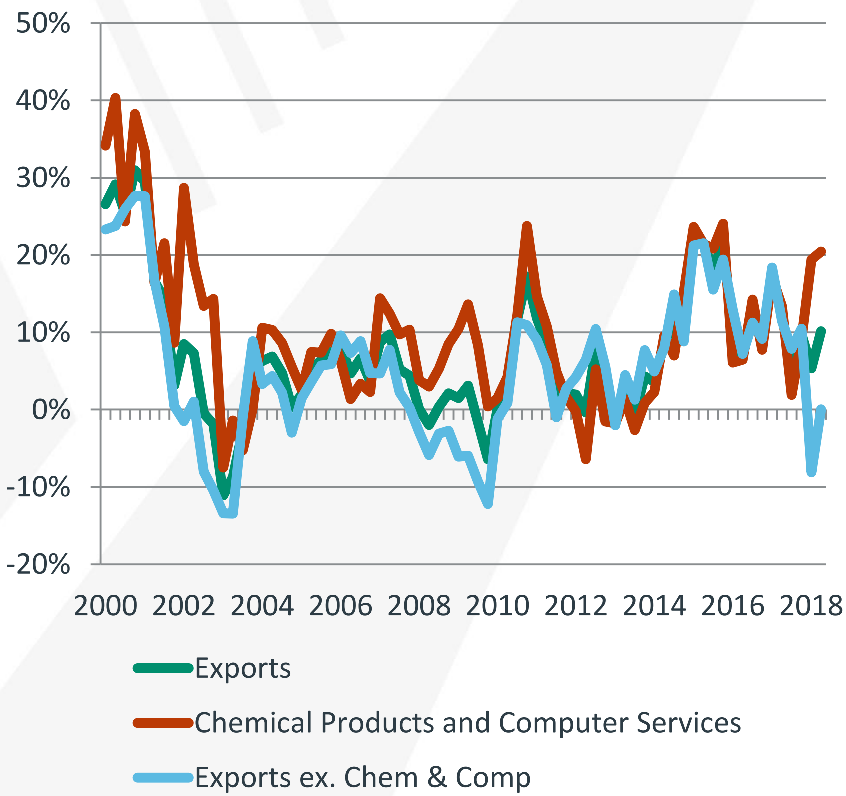
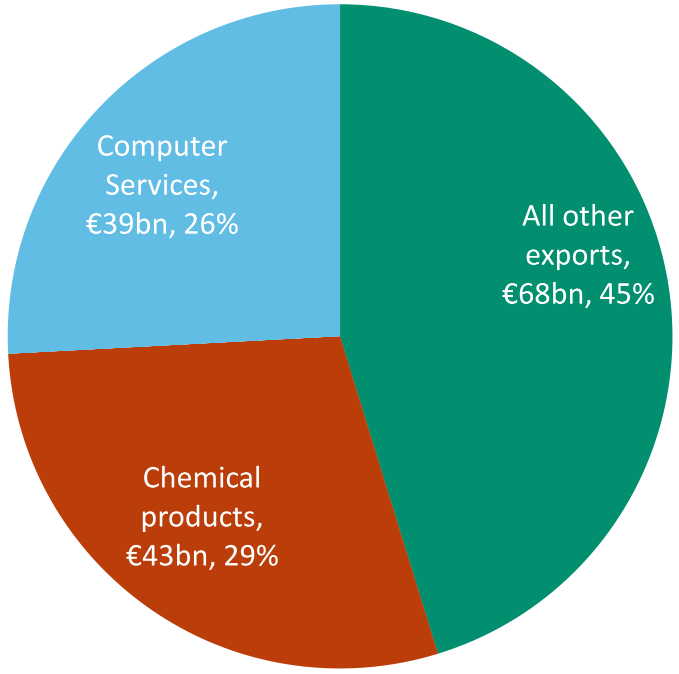
Source: CBI; CSO
Note: Credit to business series excludes financial intermediation and property related credit
Note Modified investment excludes impact of imports of intangible and aircraft leasing assets

Export growth has slowed in recent quarters

Exports outside MNC-dominated sectors have slowed



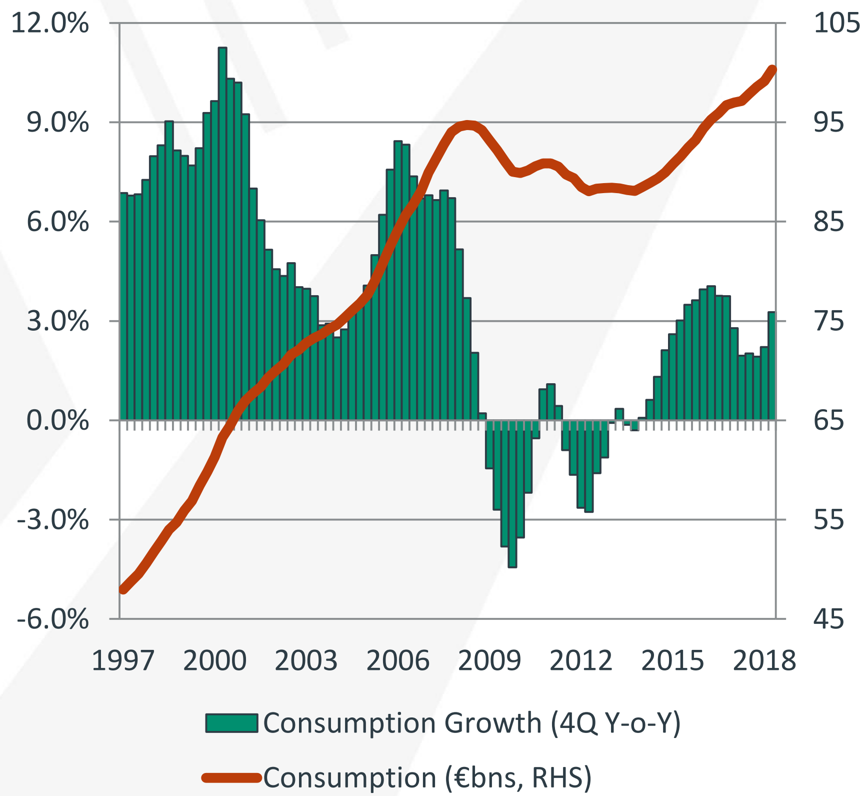
Ireland's exports are dominated by two main sectors (2018 data)



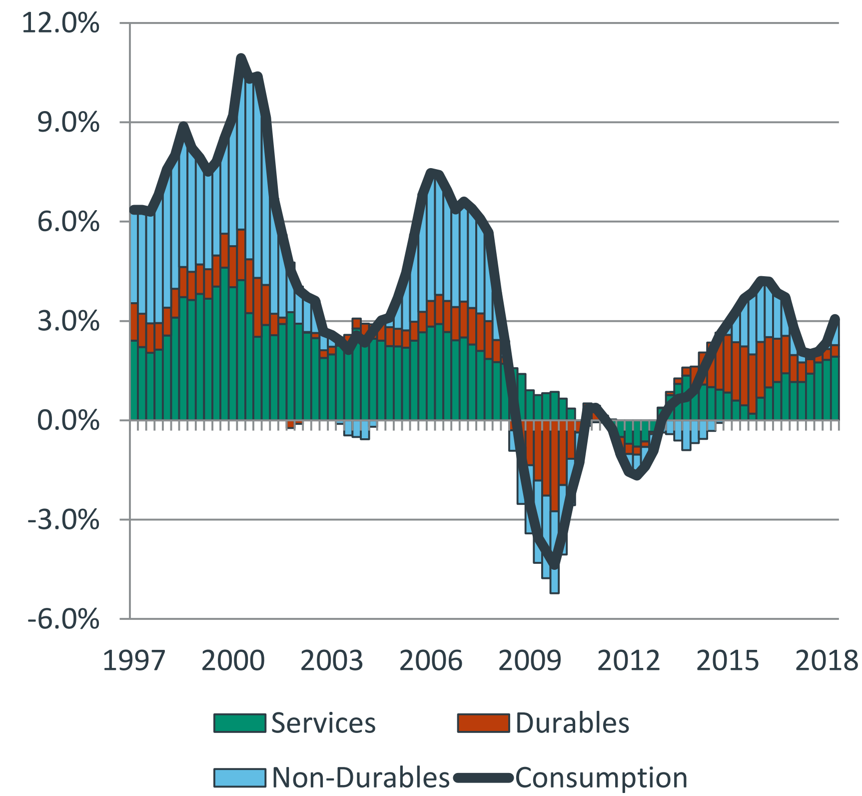
Source: CSO
Note: Nominal values used. Excludes contract manufacturing

Consumer spending growth is driven by rising incomes rather than recourse to debt

Private consumption grew at 3.3% y-o-y in Q2 2018



Services consumption driving recent consumption growth



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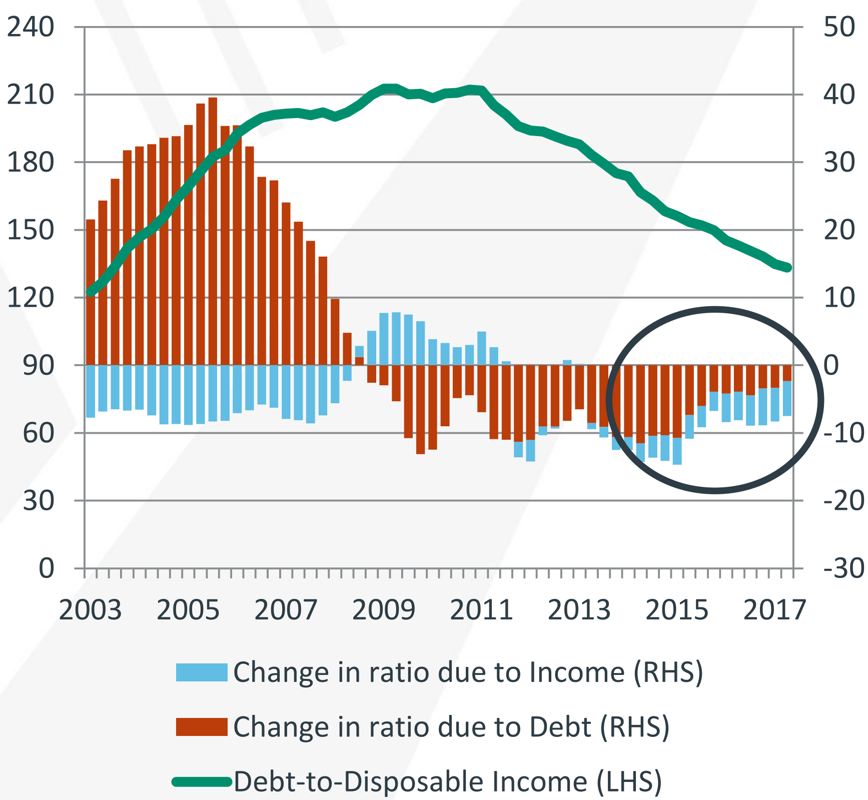
Source: CSO; Eurostat

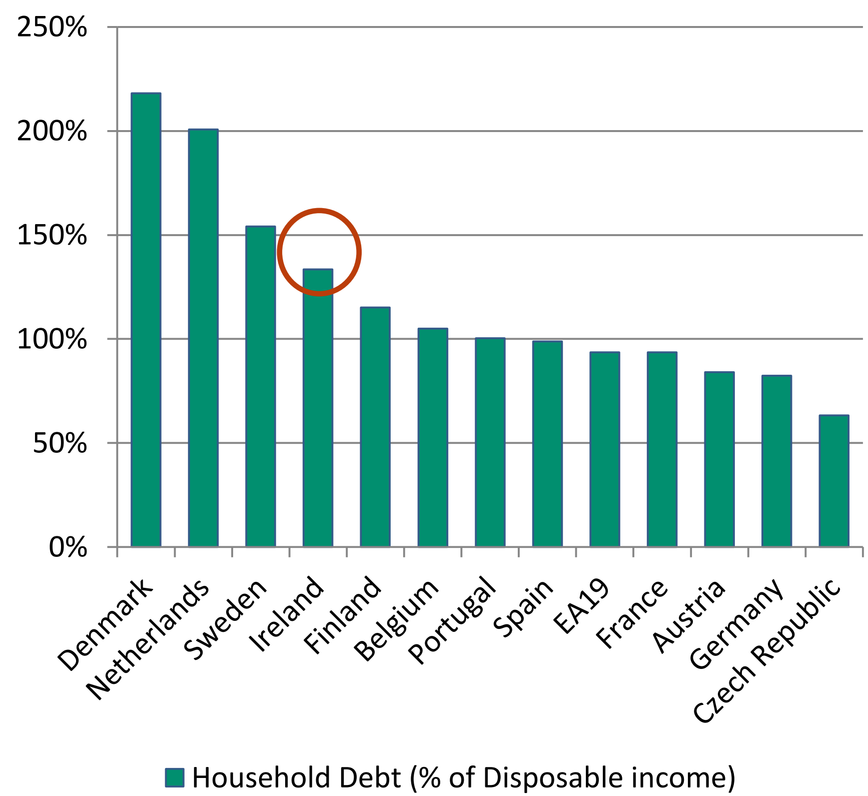
Private debt levels are high but improving

Household debt ratio has decreased due to deleveraging and increasing incomes



Source: CBI

Debt to after-tax income* improving (137%) but among highest in Europe

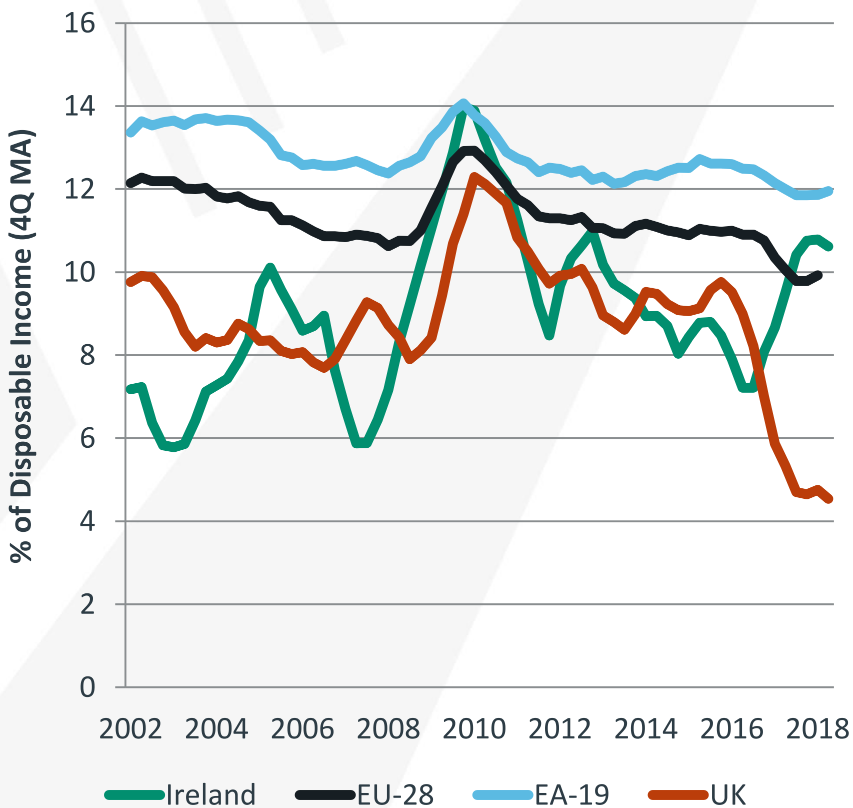


Source: Eurostat (Q1 2018)

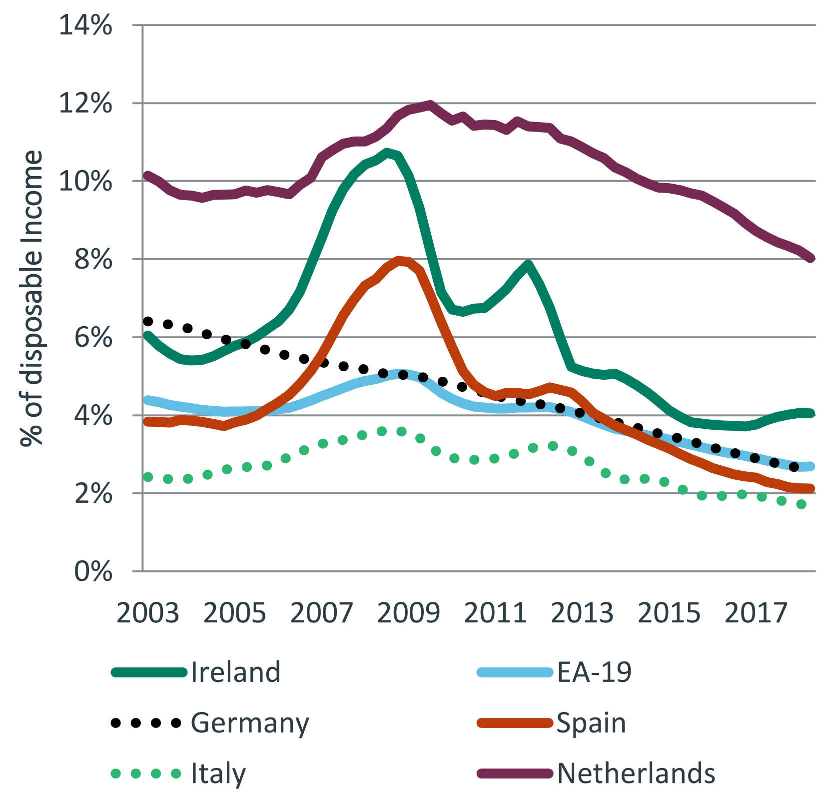
*Measure excludes "other liabilities" from household debt.

Saving rate lower in recent years, facilitating consumption and slower pace of deleveraging

Gross household saving rate lower than peak but healthy 8-10%



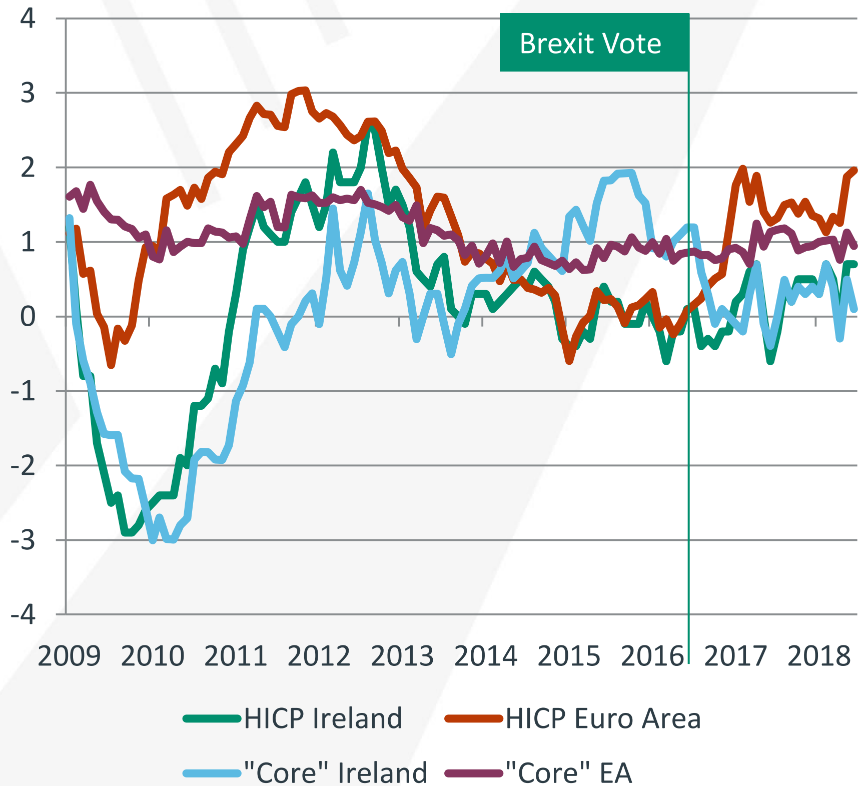
Interest burden down to only 4% of disposable income from peak of 11%



Source: Eurostat, ONS, CSO ; CBI, Eurostat NTMA calculations
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

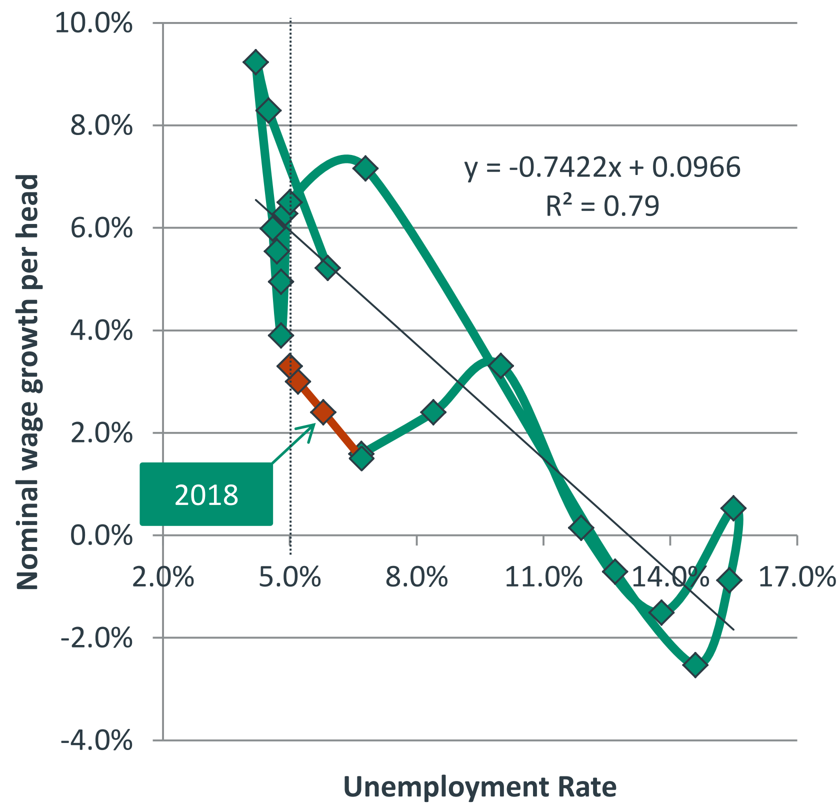
Despite being late cycle, inflation is low; Ireland's *Phillips Curve* may be "kinked"

Inflation (%) in Ireland lower than EA due mostly to sterling weakness post-Brexit vote



Source: CSO, Eurostat

Wage growth a natural consequence of improving labour conditions (1999-2021)



*Source: CSO, NTMA analysis *red dots are Budget 2019 forecasts (2018-2020); Non-Agriculture employment /wage data*

Section 2: Fiscal & NTMA funding

Ireland is well funded while the Government deficit has nearly closed

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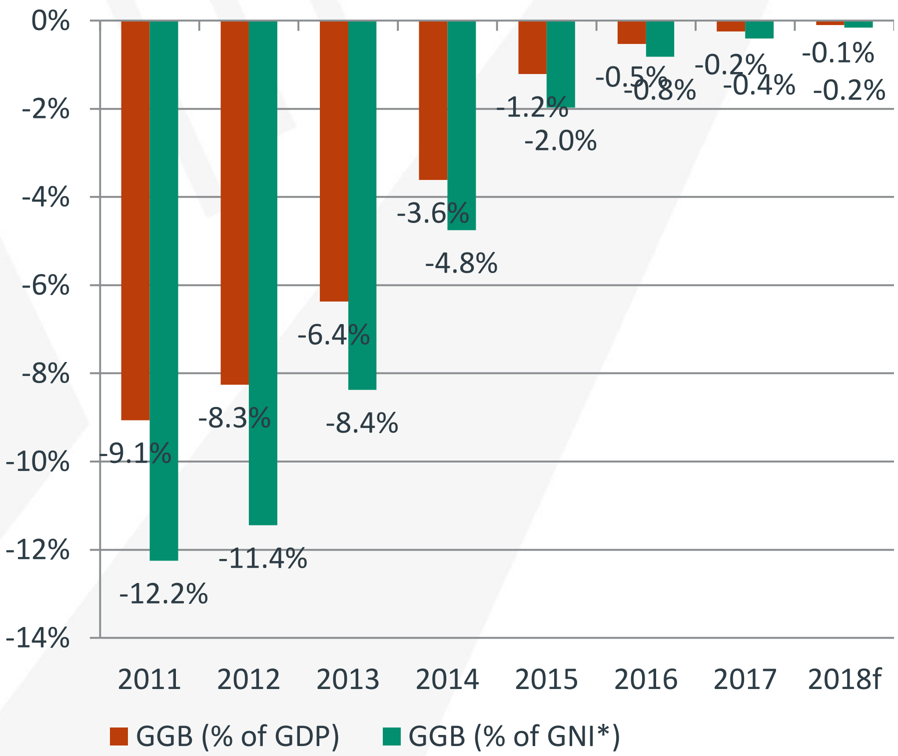
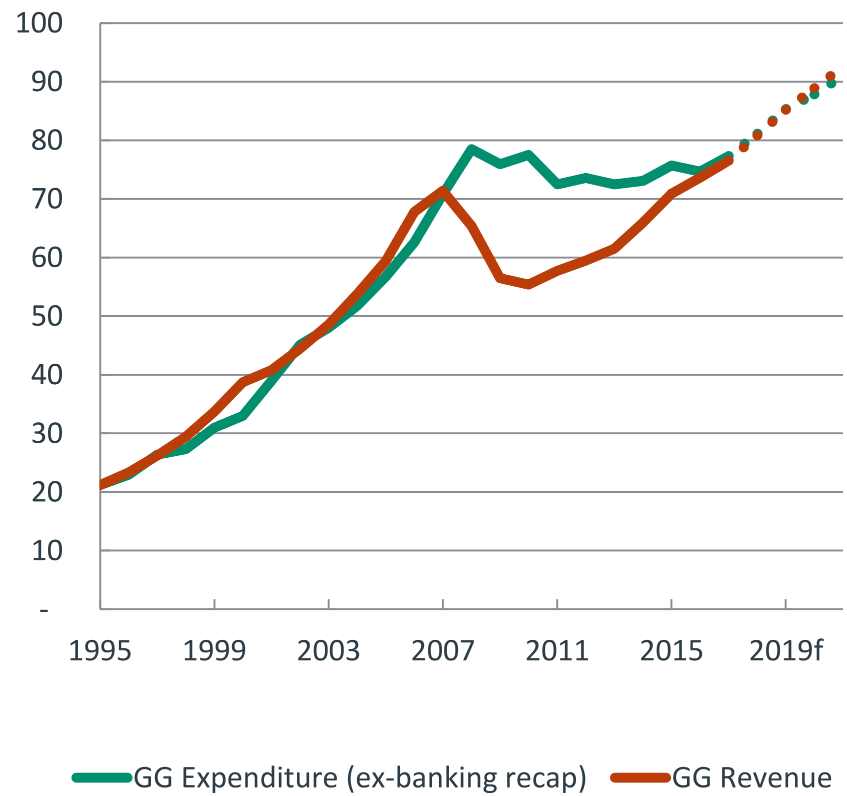
Ireland has beaten EU targets for seven straight years

General Government Balance (excl. banking interventions)



Surplus forecast in euro terms in 2020 (€bn)



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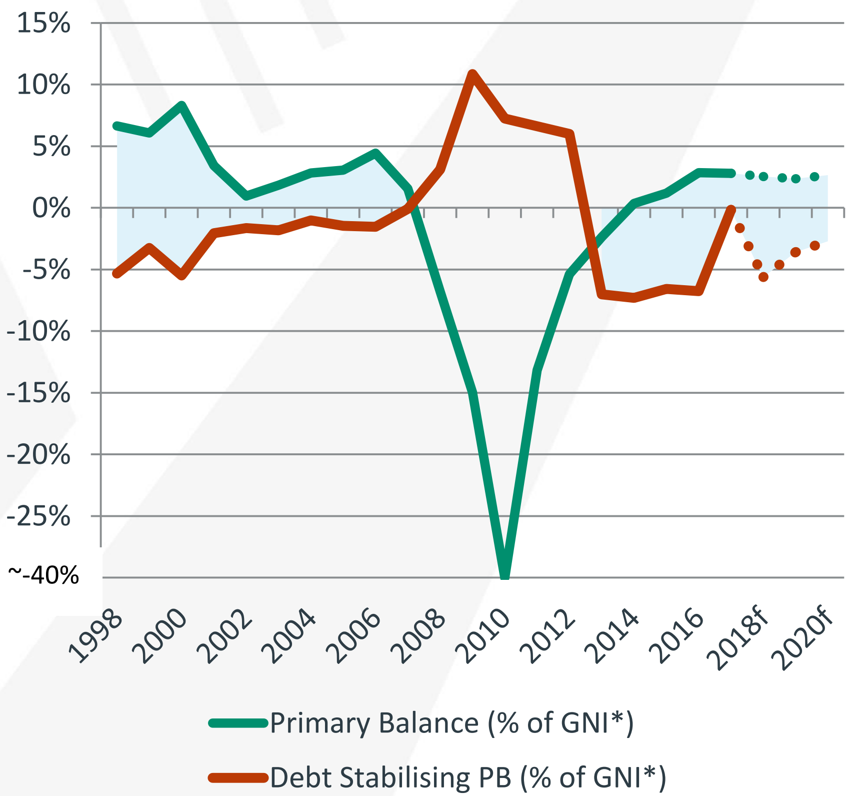
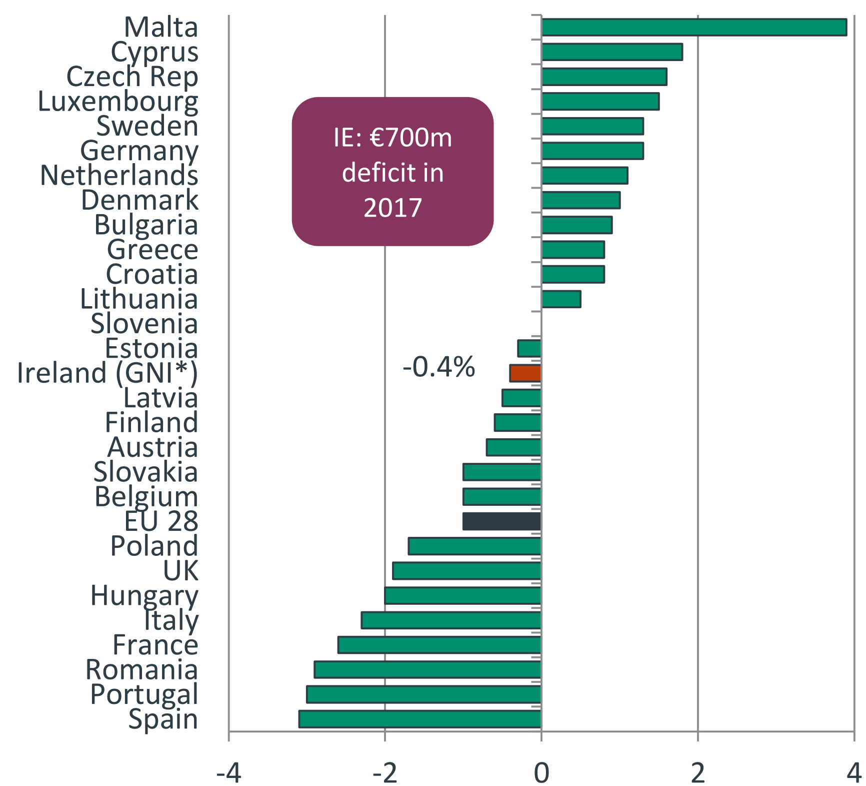
Source: CSO; Department of Finance

Ireland has improved its debt dynamics: next step is to follow others and run GGB surplus

In recent years Ireland has run primary surpluses that reduced debt ratios



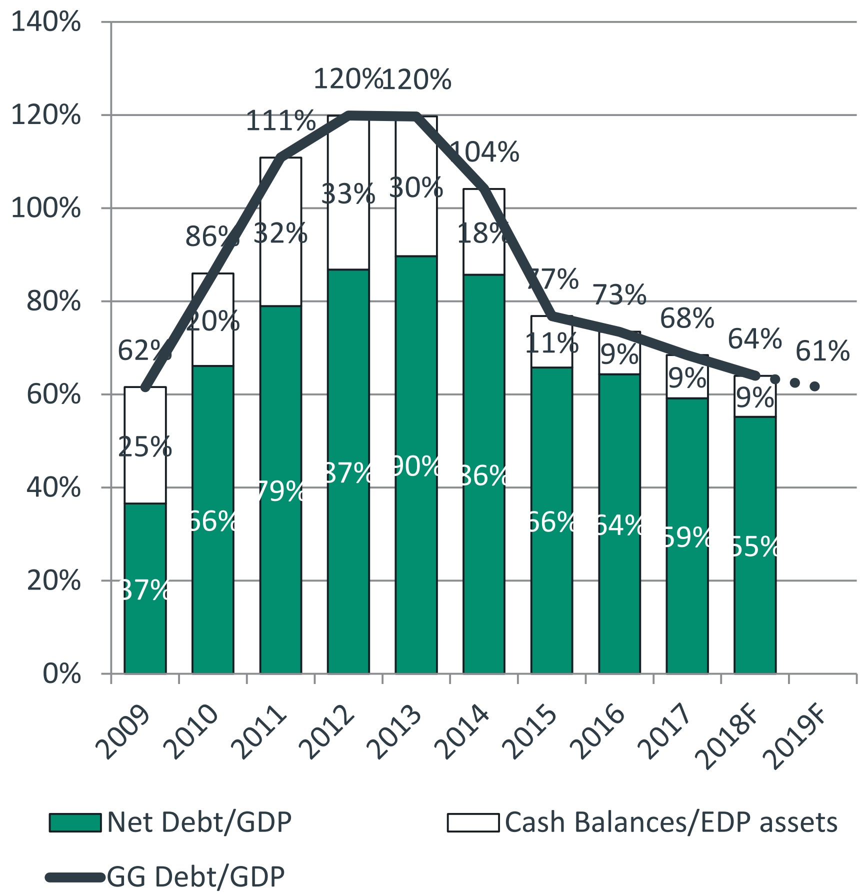
2017 GGB Deficit/Surplus (% of GDP); Ireland middle of the pack in Europe

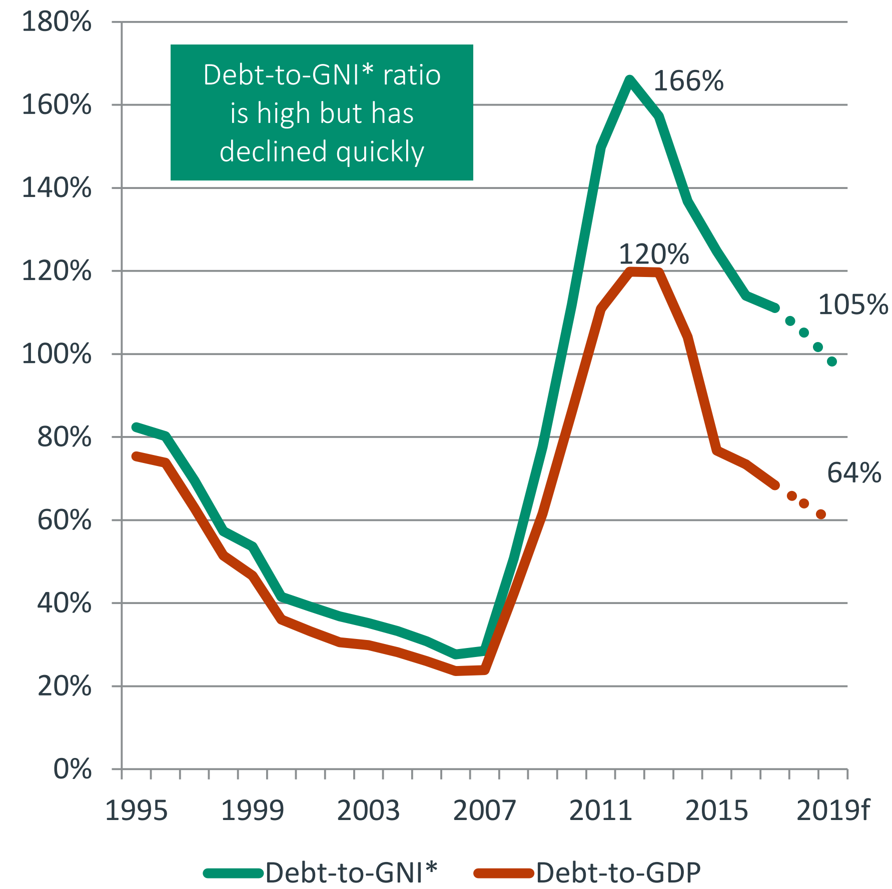


Source: CSO; NTMA calculation

Note: Debt Stabilising primary balance is the primary balance it is necessary to run in a year to keep the debt-to-GNI ratio from rising given the average interest rate and growth in that year.*

Gross Government debt forecasted to be 64% of GDP at end-2018; 105% of GNI*; reality somewhere in between





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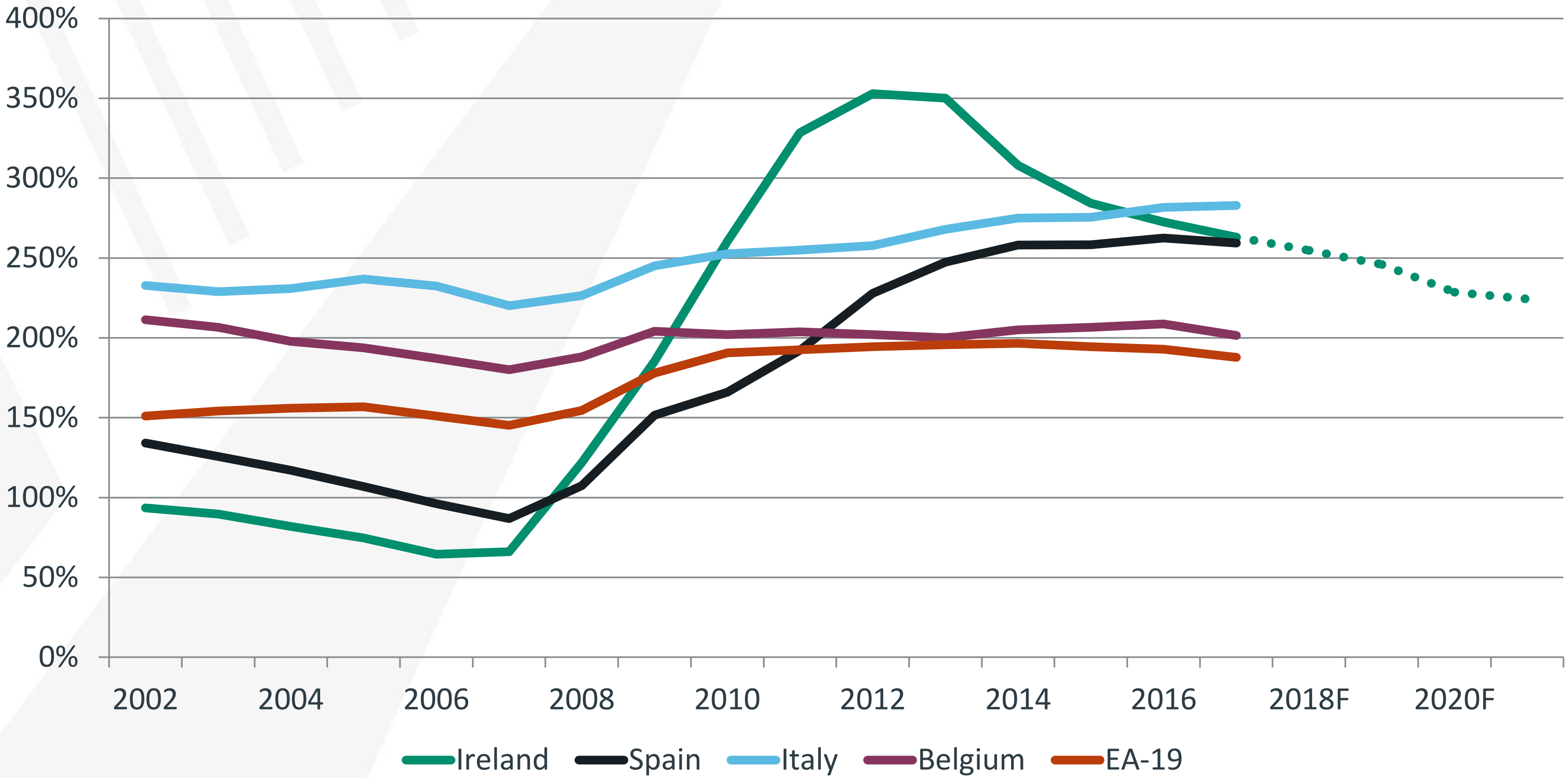
Source: CSO; Department of Finance

Alternative debt service metrics must also be used for Ireland e.g. General Government debt to GG Revenue



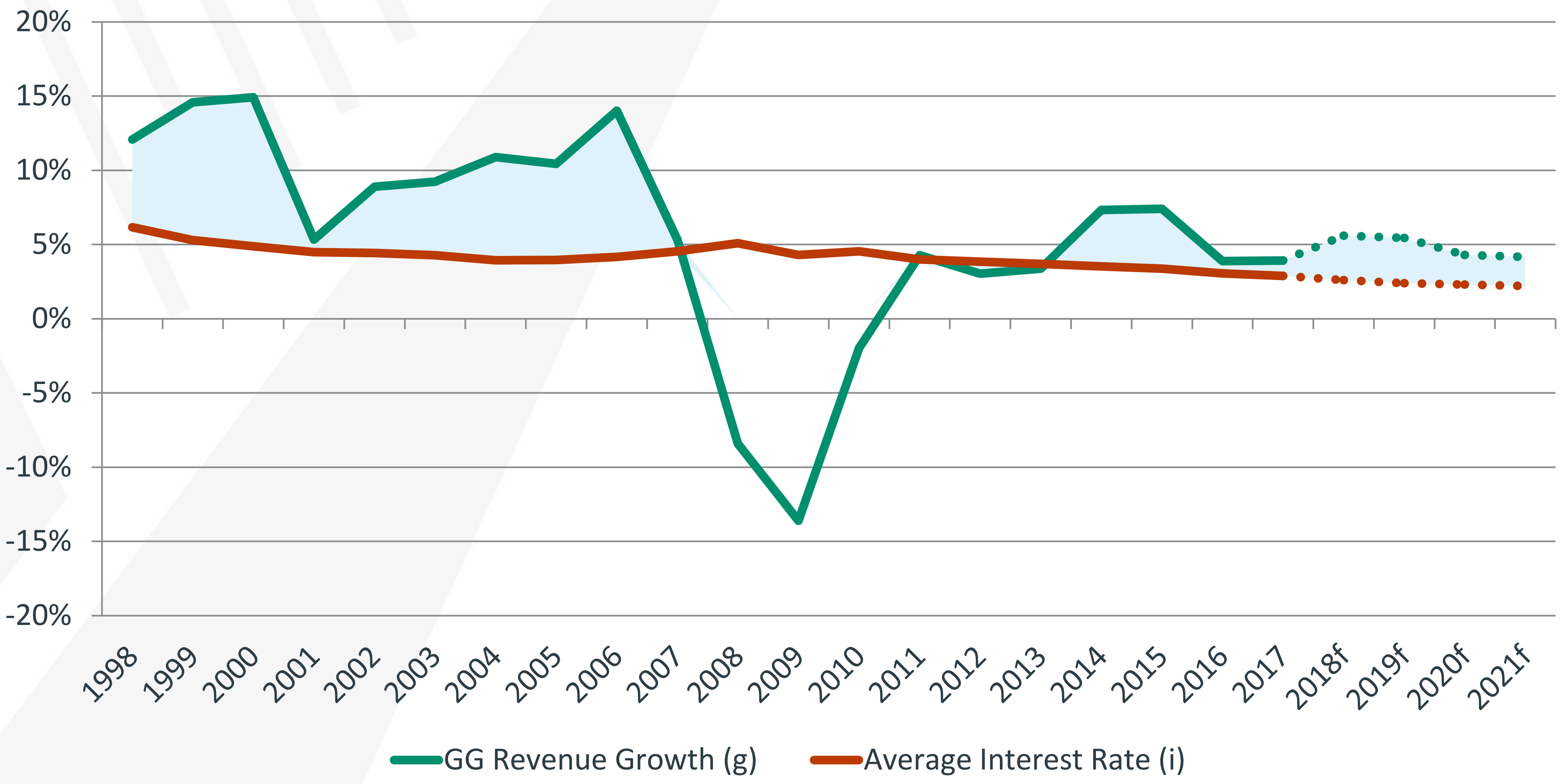
Source: Eurostat, CSO; Department of Finance

It’s best to analyse Irish debt with broad range of metrics

2017	GG debt to GG revenue %	GG interest to GG rev %	GG debt to GDP %
Greece	365.8%	6.5%	178.6%
Portugal	292.9%	9.0%	125.7%
Italy	282.9%	8.2%	131.8%
Ireland	263.0% (255%)	7.6%* (6.5%)	68.0%** (64%)
Spain	259.4%	6.8%	98.3%
Cyprus	244.1%	8.0%	97.5%
UK	220.8%	6.9%	87.7%
Belgium	201.5%	4.8%	103.1%
EA19	187.7%	4.3%	86.7%
EU28	181.8%	4.4%	81.6%
France	180.0%	3.3%	97.0%
Slovenia	170.8%	5.8%	73.6%
Austria	162.1%	3.8%	78.4%
Germany	142.0%	2.3%	64.1%
Slovakia	129.2%	3.5%	50.9%

Source: Eurostat , IE figures in brackets are 2018 forecast from the Department of Finance
**Closer to 6.5% of GG Revenue if you exclude the interest paid to CBI. Other countries would also see their interest % of GG Revenue fall under this treatment but Ireland’s would fall by more given amount held by CBI (FRNs etc.)*
*** 111% Debt to GNI* ratio*

Snowball Effect (i-g) in Ireland's favour given lower average interest rate



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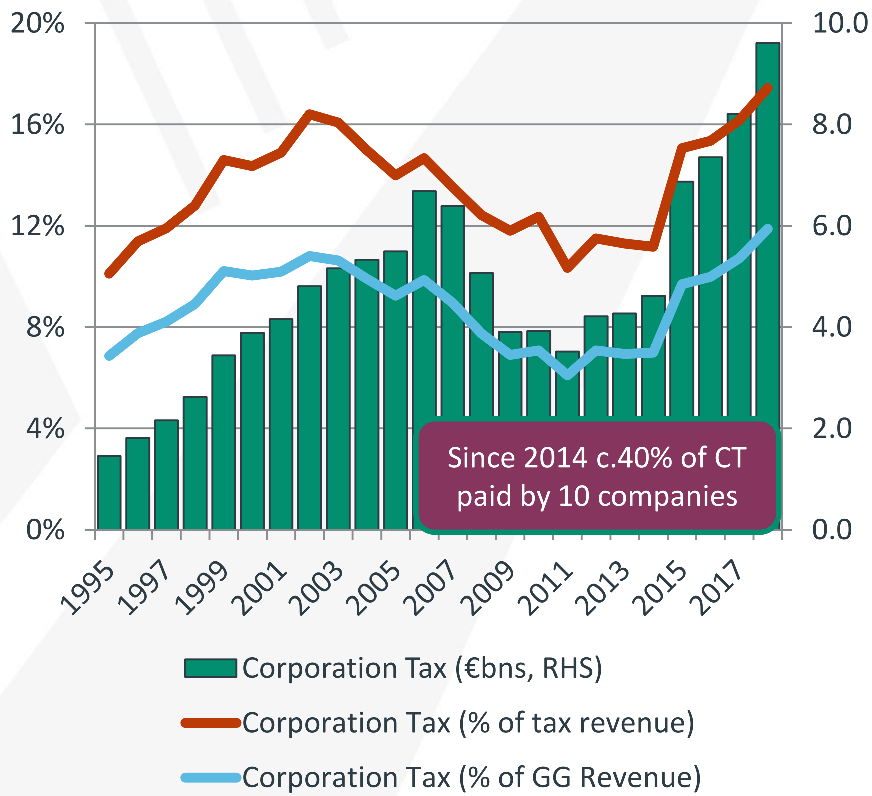
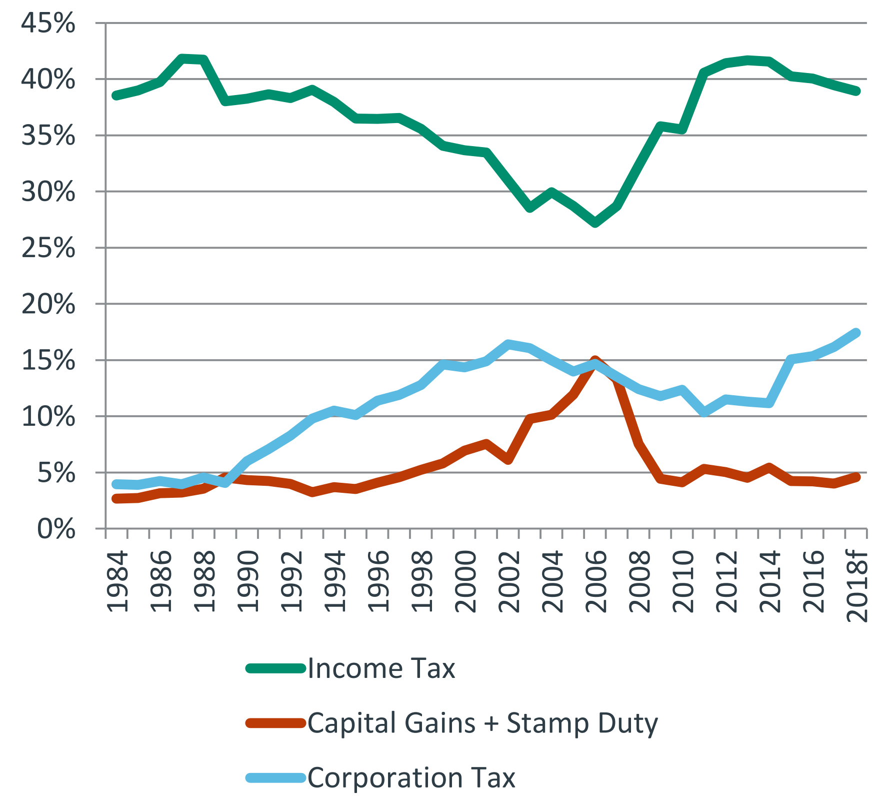
Source: CSO; Department of Finance

Corporation tax revenue surprising positively but exposed to concentration risk

Corporation tax receipts have doubled in four years



Income tax base intact - not comparable to narrowing of base pre-crisis



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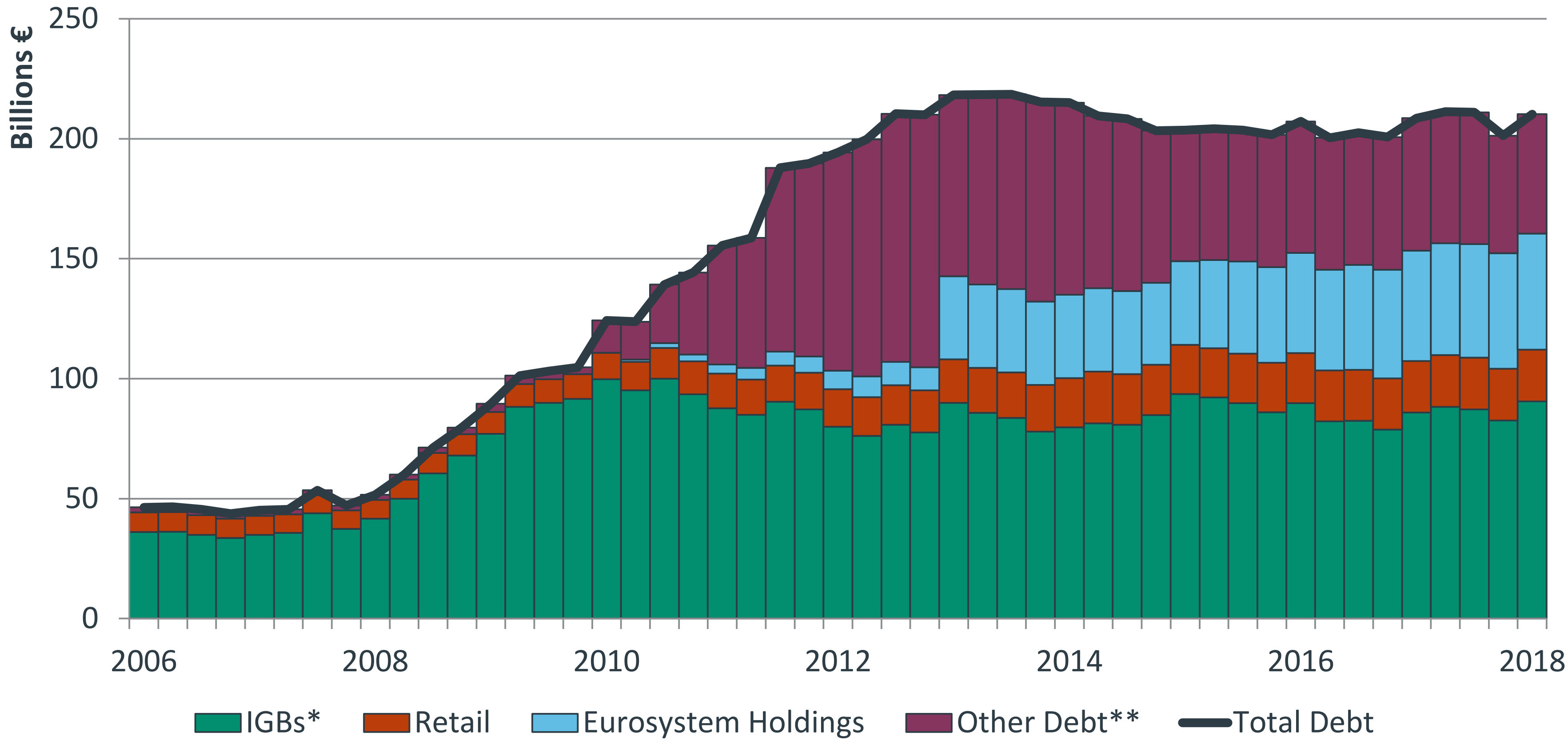
Source: Department of Finance

Over 50% of Irish debt stock held by “sticky” sources



Source: CSO, ECB, NTMA Analysis

**excludes those held by Eurosystem. Euro system holdings include SMP, PSPP and CBI holdings of FRNs. Figures do not include ANFA holdings which are likely to further increase the Eurosystem’s holdings.*

*** 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.

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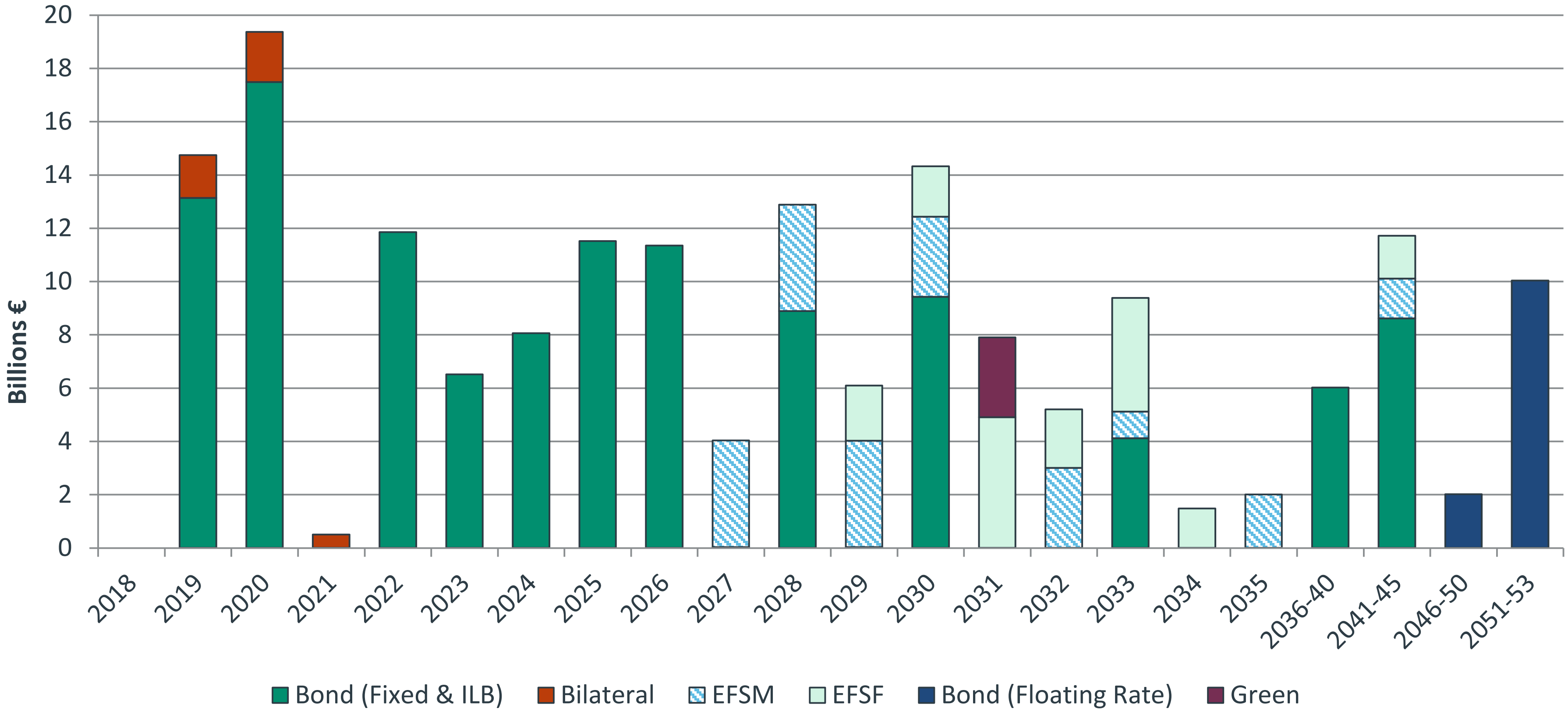
Maturity profile – IMF repayment and FRN buy-backs reduced refinancing risk; Green diversifies investor base



Source: NTMA

Note: EFSM loans are subject to a 7-year extension that will bring their weighted-average maturity from 12.5 years to 19.5 years. It is not expected that Ireland will refinance any of its EFSM loans before 2027. As such we have placed the pre-2027 EFSM loan maturity dates in the 2027-30 range although these may be subject to change.

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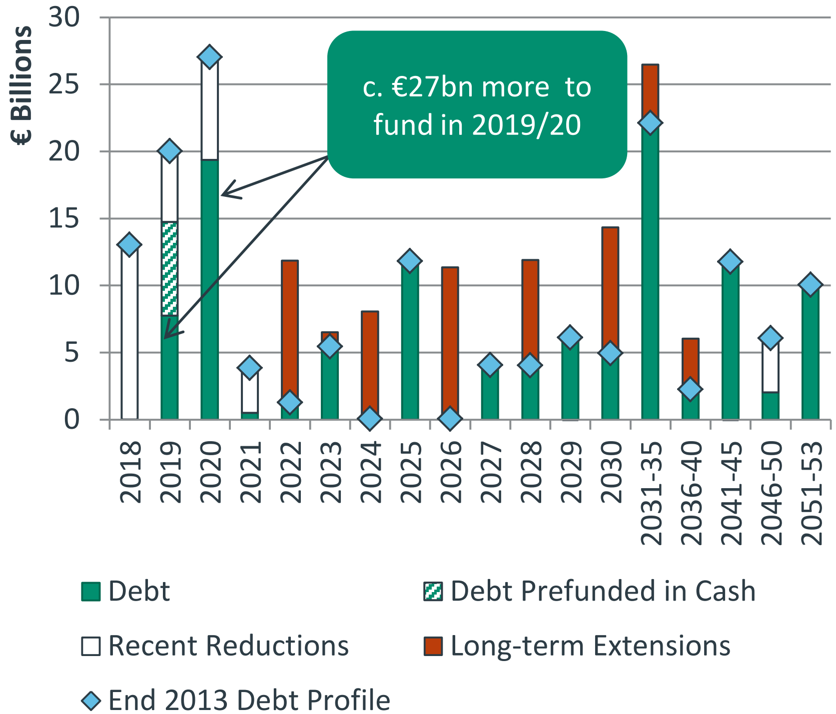
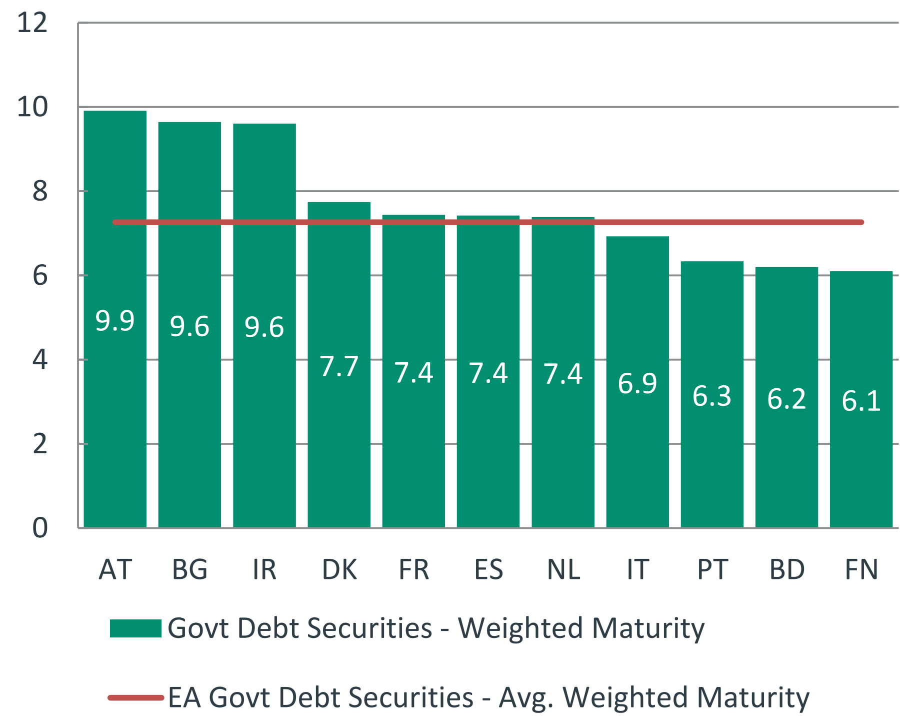
The NTMA improved Ireland's 2018-2020 maturity profile in recent years

Various operations have extended the maturity of Government debt …



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



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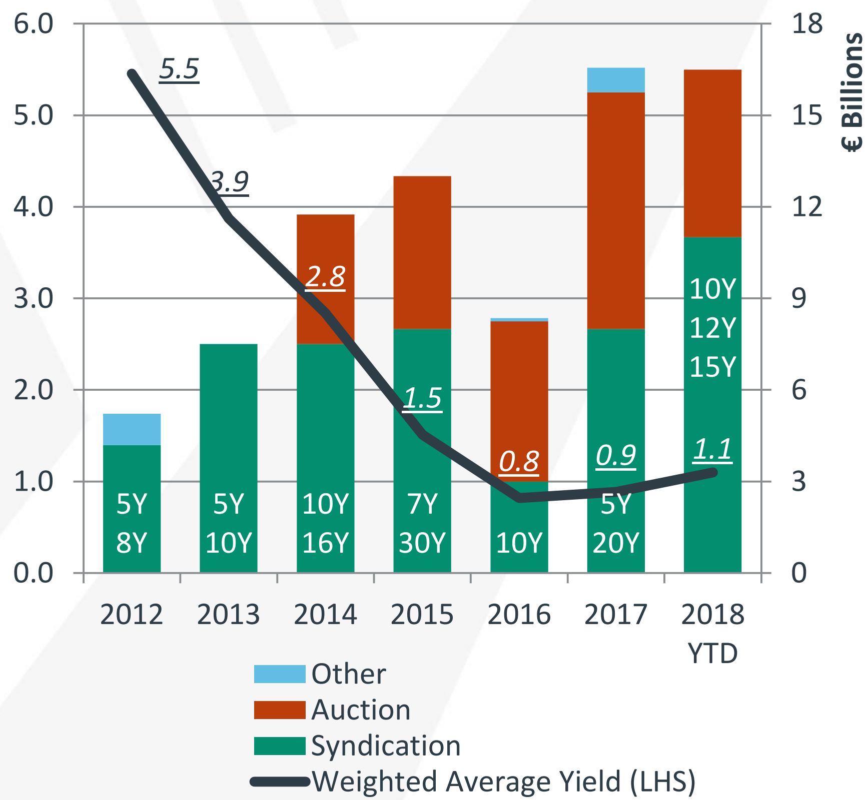
Source: NTMA; ECB

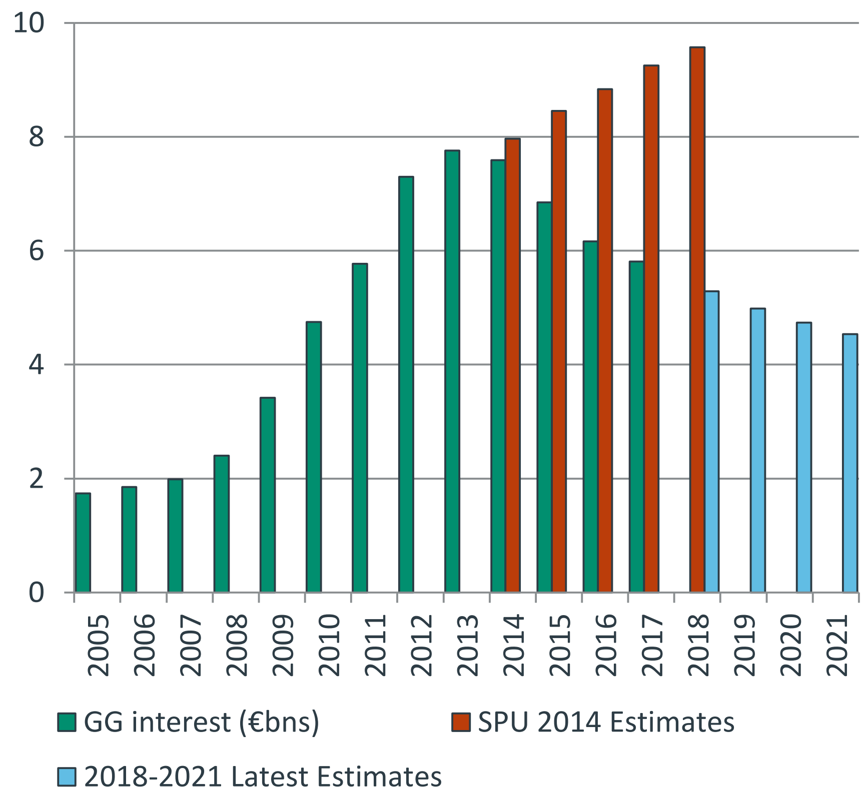
**excludes programme loans. Ireland's maturity including these loans is still similar.*

Funding strategy has lowered the State's interest burden

NTMA issued €55bn MLT debt since 2015; 13.5 yr weighted maturity, avg. rate of 1.1%



Interest costs were expected to reach almost €10bn but now are below €5.5bn a year

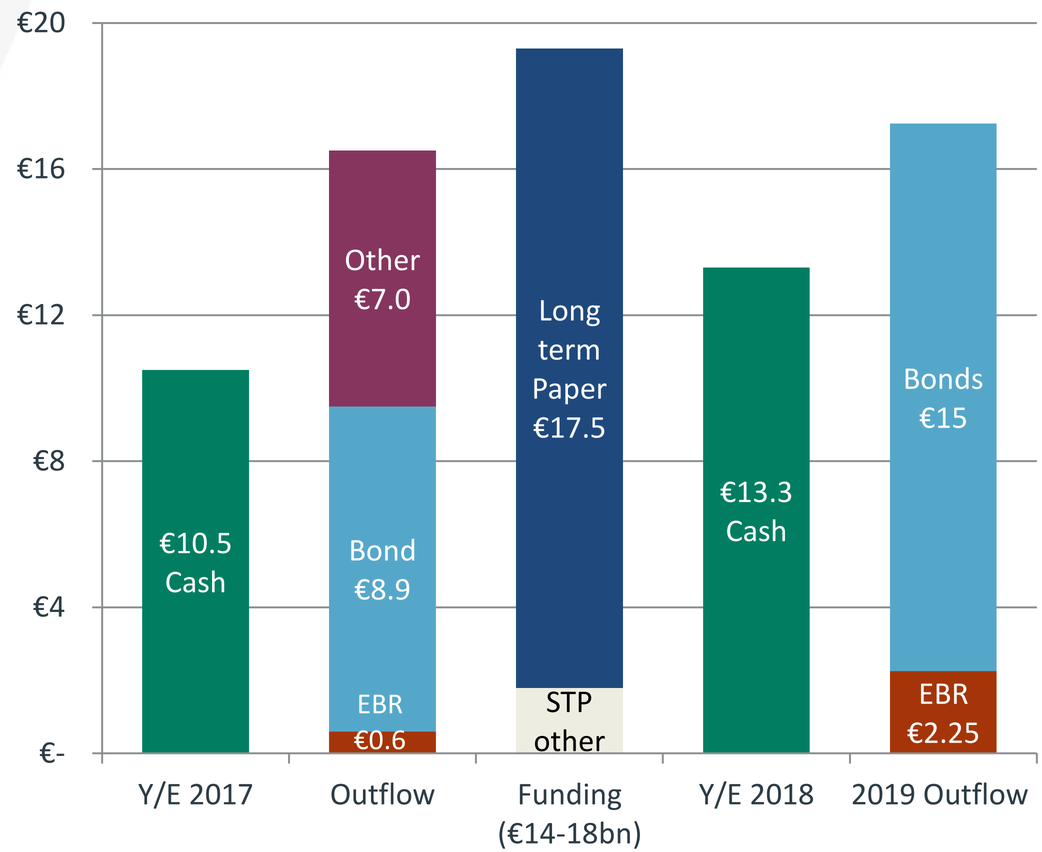


Source: NTMA, CSO, Department of Finance

Other issuance includes inflation linked bonds, private placement and amortising bonds

The State is funded three to four quarters in advance

- Our next bond redemption will be in June 2019 - €8.9bn.
- On January 3rd, the NTMA issued a new 10 year benchmark bond via syndication. €4bn was raised at a yield of 0.944%.
- On April 10th, the NTMA issued a new 15 year benchmark bond via syndication. €4bn was raised at a yield of 1.319%.
- In February/March/May/July/September a further €5.5bn was raised by auction across four bonds.
- In October, Ireland issued its first Sovereign Green Bond through syndication. It raised €3bn on a 12y bond at 1.399%.
- Forecast for end-2018 cash is €13.3bn.

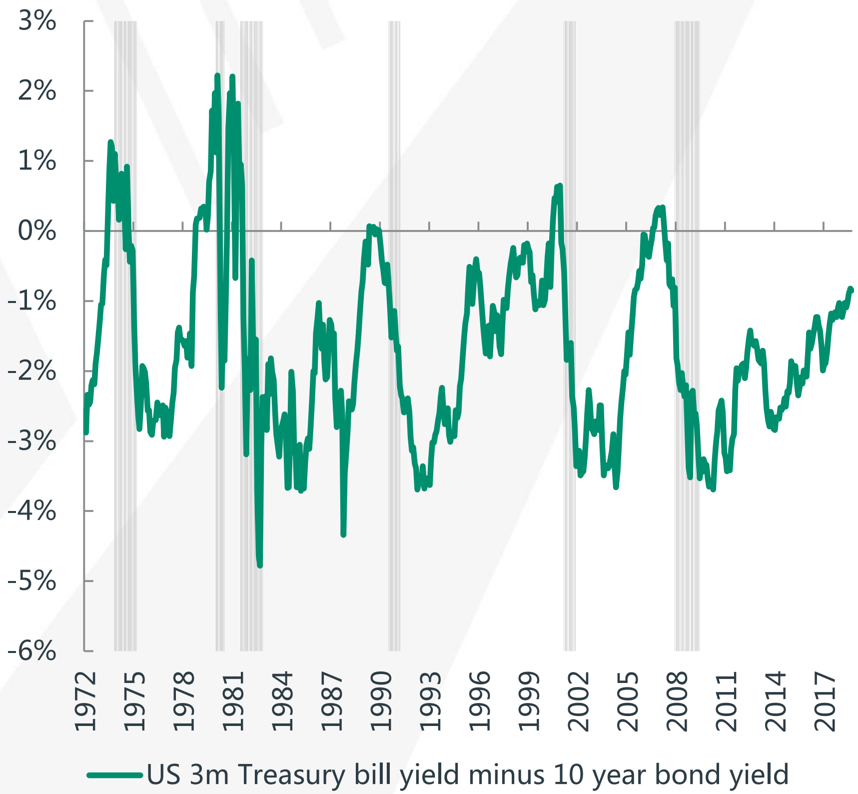


Source: NTMA

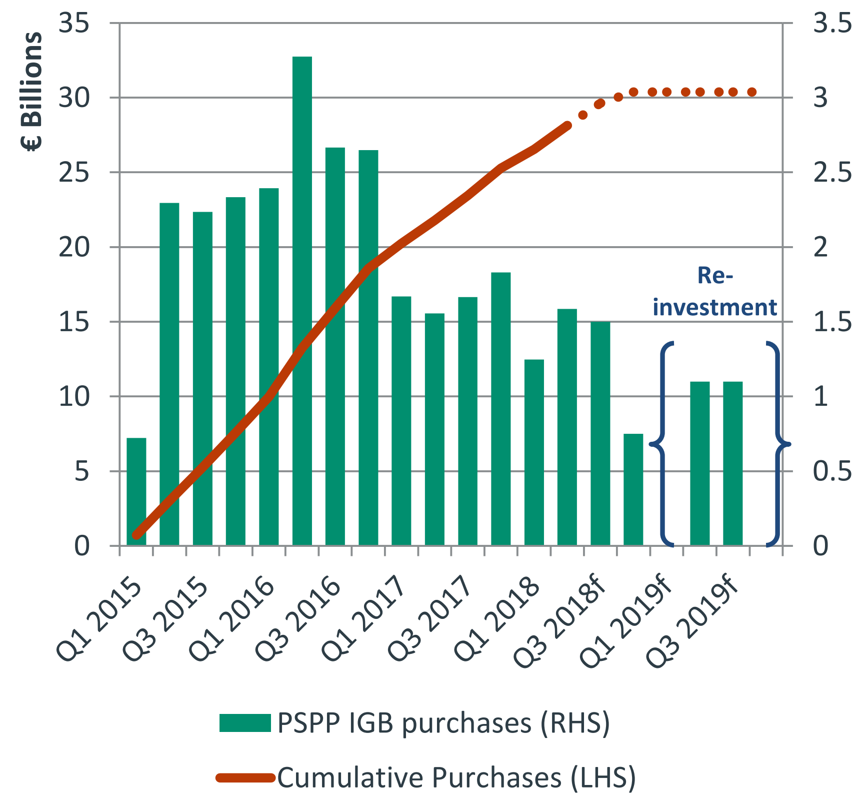
- EBR is the Exchequer Borrowing Requirement (DOF estimate)
- Cash balances excludes non-liquid asset classes such as Housing Finance Agency (HFA) Guaranteed Notes.
- Other outflows includes bond buybacks, switches, contingencies and potential bond purchases.
- Other funding includes Retail (State Savings).
- Rounding may occur.

Late cycle risks mixed for Ireland: rates may remain low but end of ECB bond buying may expose credit spread

If US yield curve inverts, recession is likely to follow – keeping base rates at zero*



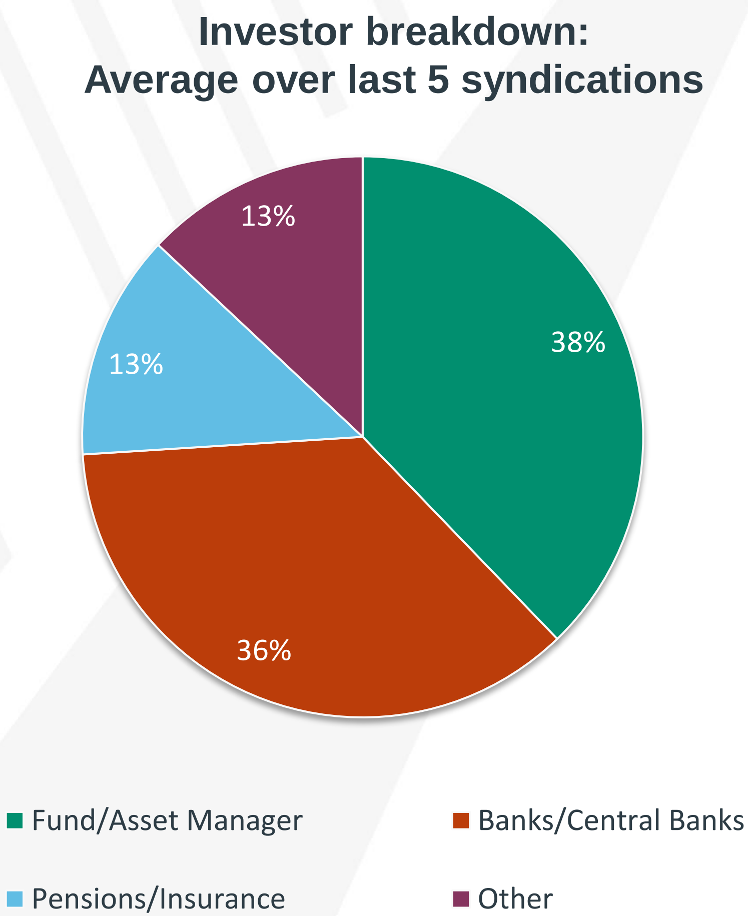
In euro area, PSPP is ending as tightening cycle starts very slowly

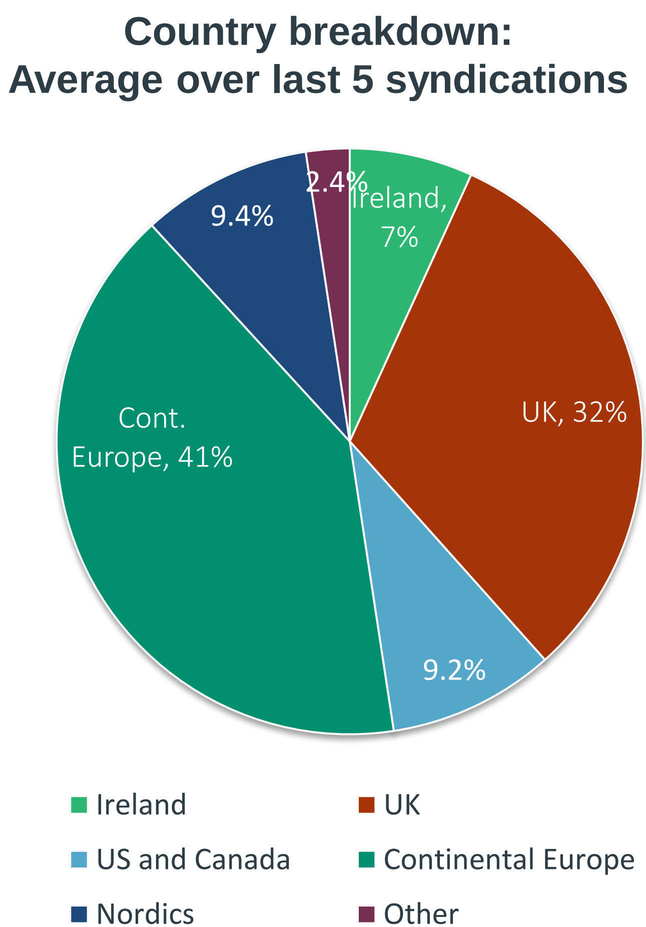


Source: DataStream

**Shaded areas indicate recessionary periods in the US*

Investor base for Government bonds is wide and varied





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Source: NTMA

Ireland issued 2031 Sovereign Green Bond in October 2018

€3bn

Final order book of €11.3bn
95% to non-Irish investors
UK 23%; Germany/Austria and France 19% each; Nordics 12%; Benelux 11%

1.399%

2031 maturity
priced at MS+12 bps

New demand

Increased demand from the three established centres for green investment
France 19%, the Netherlands 9% and Nordics 12%

- Green Bond Framework aligned with the ICMA Green Bond Principles (see slide 78)
- 1 in 5 euros in the National Development Plan to be spent on green projects (see slide 79)

Source: NTMA
Further details are available at ntma.ie

Breakdown of Ireland’s General Government debt

€ Billion	2012	2013	2014	2015	2016	2017
Currency and deposits (mainly retail debt)	62.1	31.4	20.9	20.7	21.3	21.6
Securities other than shares, exc. financial derivatives	87.3	112.7	119.1	125.8	124.2	130.7
- Short-term (T-Bills, CP etc)	2.6	2.4	3.8	1.4	2.4	2.9
- Long-term (MLT bonds)	84.8	110.3	115.3	124.4	121.8	127.8
Loans	60.6	71.3	63.4	55.1	55.2	49.0
- Short-term	1.9	1.4	1.3	1.0	0.7	0.5
- Long-term (official funding and prom notes 2009-12)	58.7	69.9	62.1	54.1	54.6	48.5
General Government Debt	210.0	215.3	203.4	201.6	200.7	201.3
EDP debt instrument assets	57.9	53.9	36.1	29.0	*24.9*	*27.3*
Net Government debt	152.1	161.4	167.3	172.6	175.8	174.0

Source: CSO

Central Bank of Ireland holdings increase domestic share of Irish Government bonds (IGBs) through PSPP

€ Billion					
End quarter	Dec 2014	Dec 2015	Dec 2016	Dec 2017	**Q2 18**
1. Resident	50.8	50.8	56.1	56.1	**58.0**
(as % of total)	(43.7%)	(40.6%)	(46.1%)	(44.2%)	**(42.5%)**
– Credit Institutions and Central Bank*	45.9	46.9	51.1	51.7	**53.5**
– General Government	1.6	0.8	0.5	0.4	**0.4**
– Non-bank financial	2.9	2.8	4.3	3.8	**3.9**
– Households (and NFCs)	0.4	0.3	0.2	0.1	**0.1**
2. Rest of world	65.5	74.2	65.5	70.9	**78.5**
(as % of total)	(56.3%)	(59.4%)	(53.9%)	(55.8%)	**(57.5%)**
Total MLT debt	116.3	125.1	121.6	127.0	**136.4**

Source: CBI

Ireland: "A"grade from all major credit rating agencies

Rating Agency	Long-term	Short-term	Outlook/Trend	Date of last change
Standard & Poor's	A+	A-1	Stable	June 2015
Fitch Ratings	A+	F1+	Stable	Dec 2017
Moody's	A2	P-1	Stable	Sept 2017
DBRS	A(high)	R-1 (middle)	Stable	March 2016
R&I	A	a-1	Stable	Jan. 2017

Source: Bloomberg

Section 3: Brexit

Softer Brexit would limit the impact on Ireland but no deal remains a possibility

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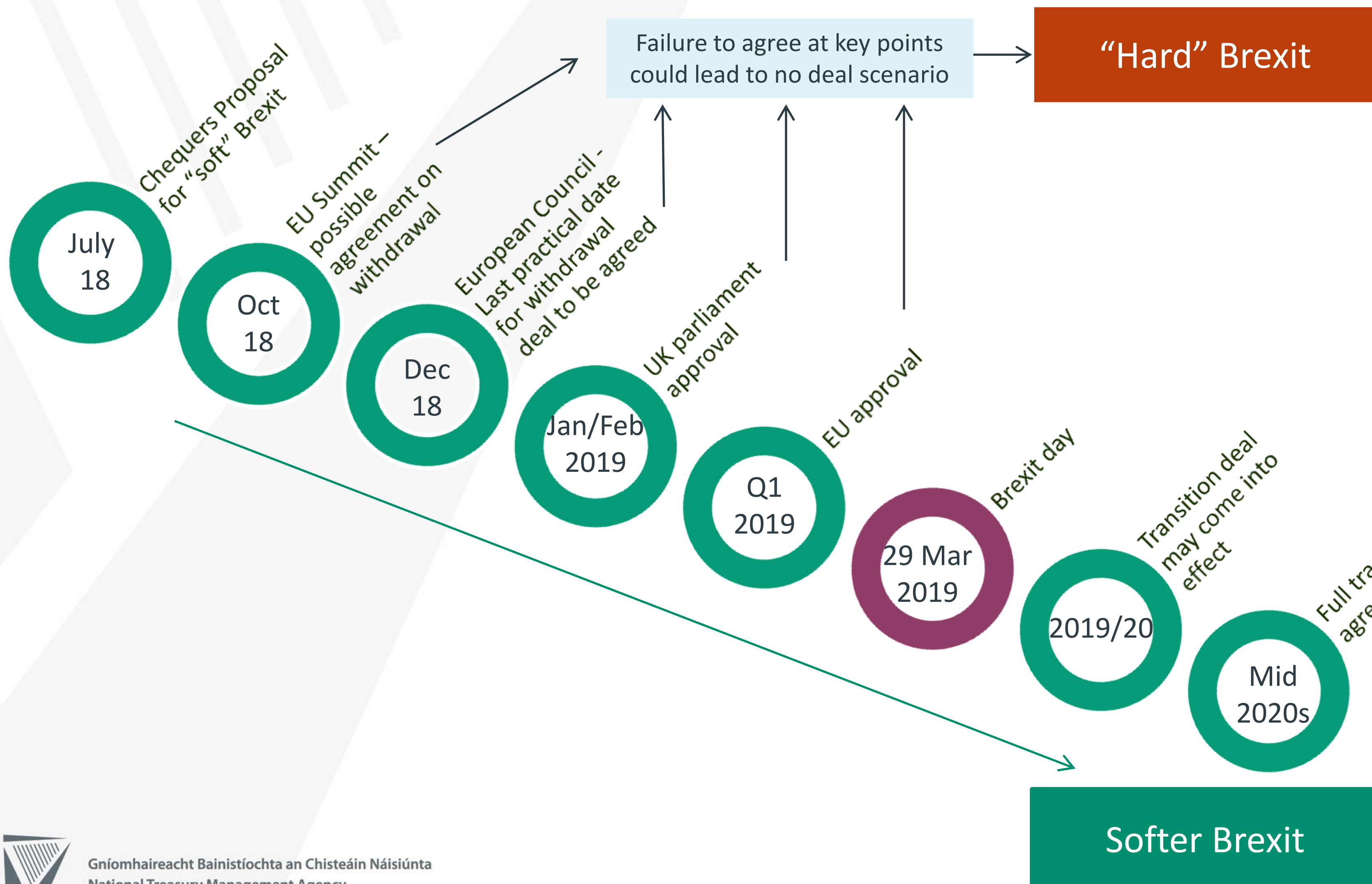
Brexit path still shrouded in mist



Whether "hard" or "soft" Brexit materialises, trade is likely to be negatively impacted

	Goods (2017)		Services (2016)		Total (2016)	
	Exp.	Imp.	Exp.	Imp.	Exp.	Imp.
US	27.1	20.5	10.5	21.7	17.6	20.9
UK*	13.4	23.6	16.0	6.4	14.4	11.0
NI	1.6	1.6	n/a	n/a	n/a	n/a
EU-27	36.5	31.3	33.4	23.6	35.4	27.2
China	4.1	5.7	2.7	0.2	2.9	1.8
Other	18.8	18.9	37.4	48.2	29.7	39.2

Irish/UK trade linkages will suffer following Brexit

- The UK is the second largest single-country export destination for Ireland's goods and the largest for its services
- At the same time, Ireland imports 20-25% of its goods from the UK. Consumer goods, capital equipment and inputs into the export process will become cheaper thanks to FX.

There is significant employment related to Ireland's trade with the UK

- The UK might only account for 14-15% of Ireland's total exports, but Ireland is more dependent than that, when you consider the employment related to those exports

SMEs account for over 55% of IE exports to UK. They are likely to be more affected than larger companies by the introduction of tariffs and barriers to trade

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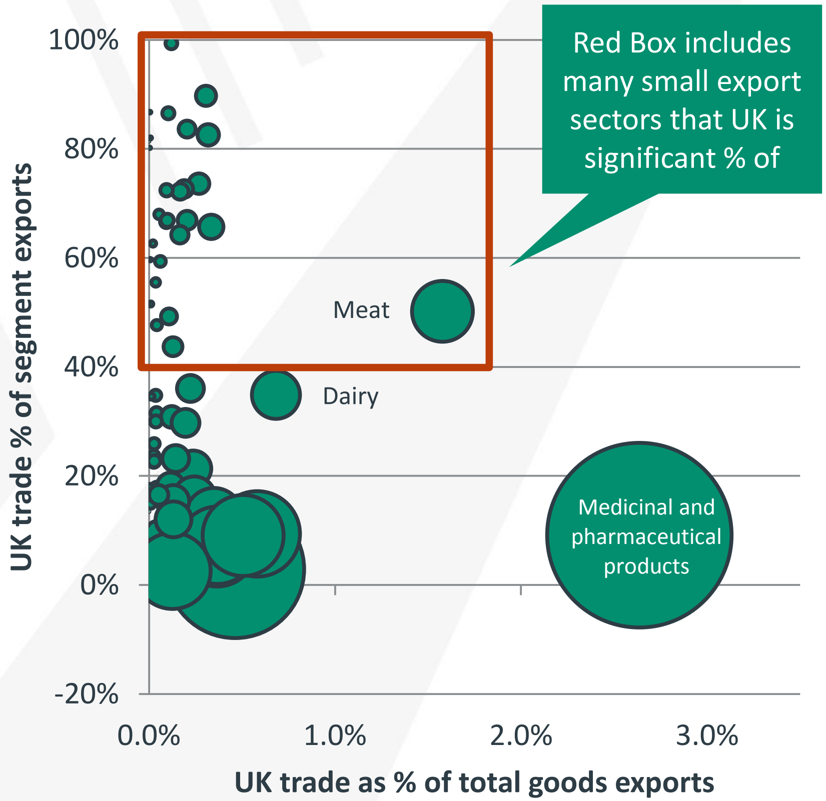
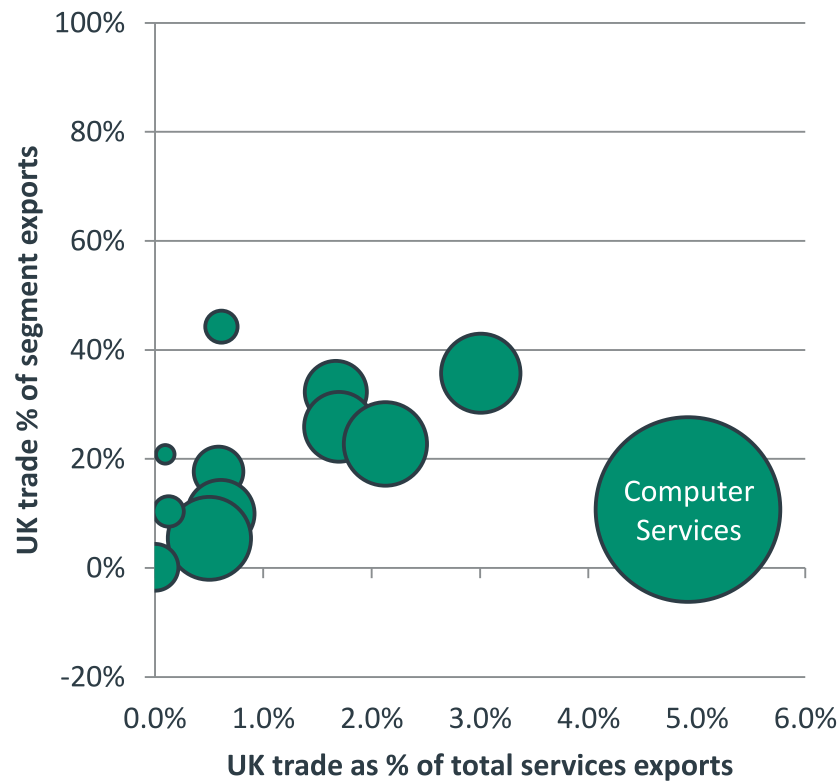
*Source: CSO 2016/2017 * UK data includes Northern Ireland*
NTMA calculations; Data does not include contract manufacturing

Breakdown of exports to the UK: important trade partner especially so in smaller sectors (agri-food products)

UK is 13-14% of goods exports but very important partner in many small sectors



UK is 16% of services exports but not the majority trading partner in any segment



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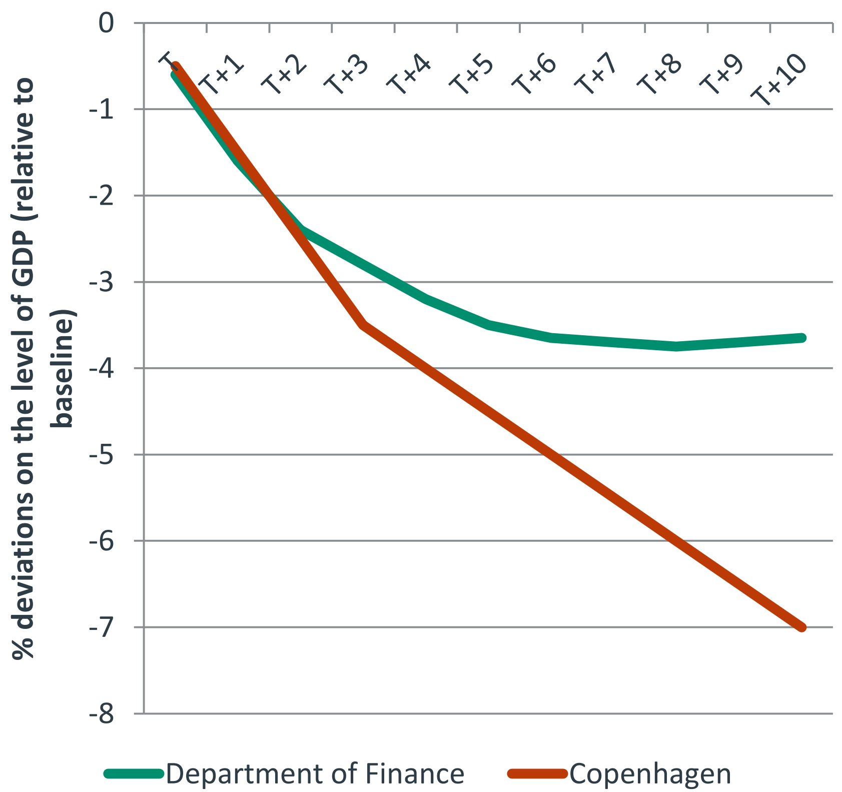
Source: CSO goods 2017 data, services 2016 data
The size of bubble relates to the sector's importance to Ireland's exports

“Hard” Brexit could cost Ireland 4-7% of output

Estimated Trade Reductions in “WTO rules Hard Brexit” Scenario

	% of exports lost with UK	% of total exports lost		% of UK exports lost with EU partner	% of total UK Exports lost
Ireland	30.6	4.2		27.6	1.5
Belgium	35.1	3.1		25.7	1.0
Spain	38.6	2.9		25.6	0.7
Germany	34.1	2.5		19.4	2.0
Denmark	39.8	2.5		24.4	0.2
Portugal	33.0	2.2		27.7	0.1
EU Total	30.5	2.1		22.3	9.8
Poland	30.6	2.1		20.8	0.3
NL	22.1	2.0		15.6	0.9
Italy	29.9	1.7		26.9	0.8
France	24.9	1.6		20.9	1.2
Greece	28.4	1.2		27.2	0.1

Estimated GDP impact “WTO rules Hard Brexit” Scenario



Source: CE, ESRI and Department of Finance analysis

Some foreign banks have already announced that they will set up in Dublin after Brexit

FDI: Ireland may benefit

- 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.
- Ireland's FDI opportunity will depend on the outcome of post-exit trade negotiations. The UK (City of London) is almost certain to lose its EU passporting rights on exit, so there may be more opportunities in time.

Companies that have indicated jobs to be moved to Ireland

J.P.Morgan

Morgan Stanley

citi

BARCLAYS

Goldman Sachs

Bank of America Merrill Lynch

LEGG MASON GLOBAL ASSET MANAGEMENT

S&P Global Ratings

BARINGS

Section 4: Long term fundamentals

Ireland’s long run future looks bright. Demographics, educated workforce and retaining competitiveness are all key

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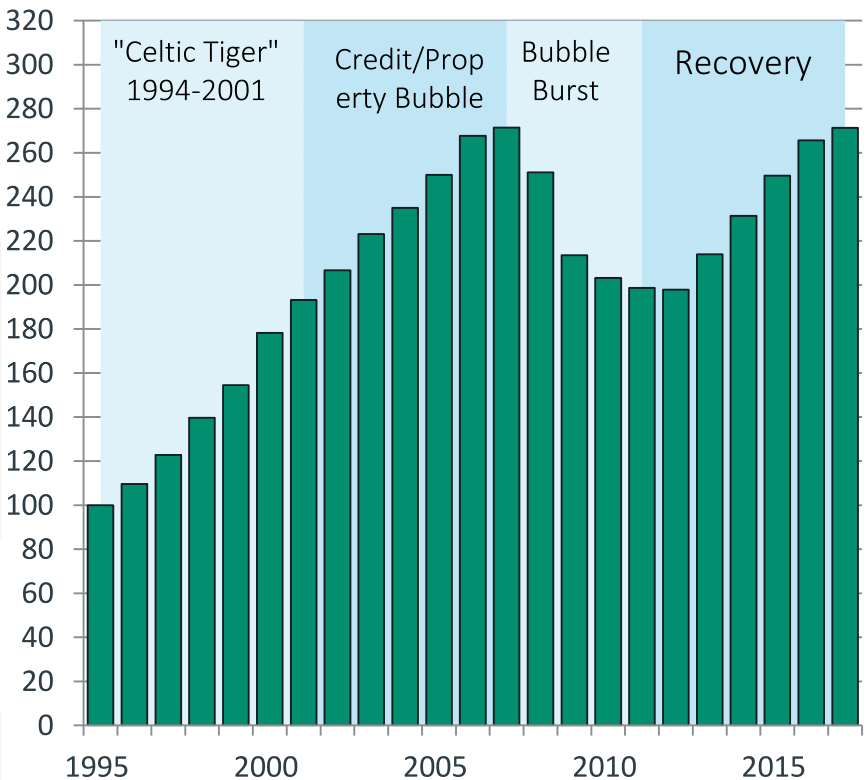
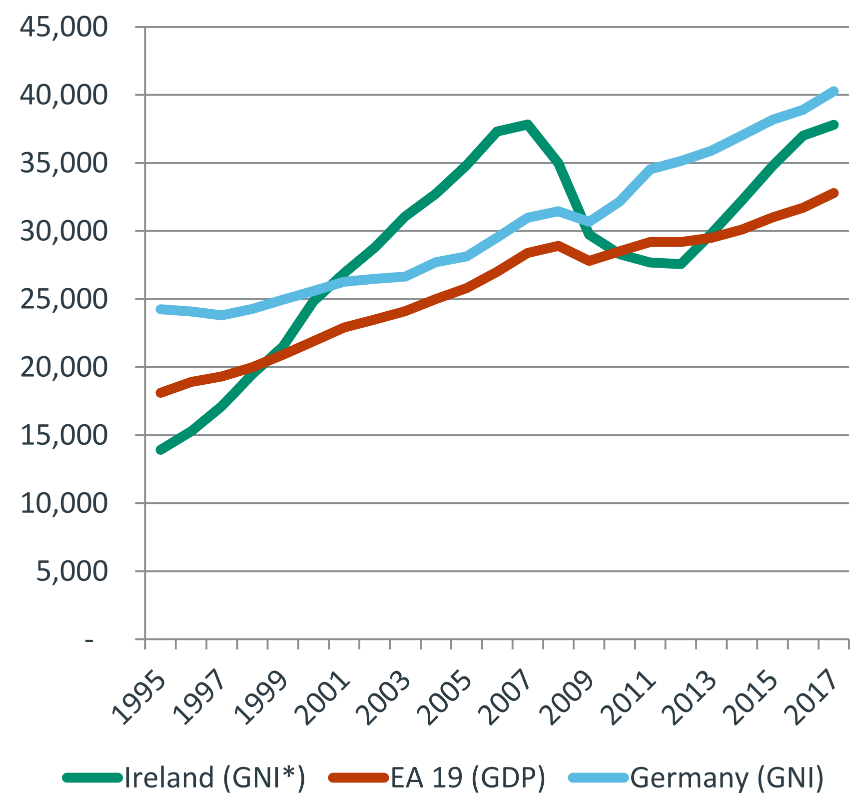
Much rebalancing has taken place – Ireland's structural growth drivers have reasserted

Gross National Income* at current prices (1995=100)



Ireland's GNI* per capita hit 2007 levels and compares favourably to EA



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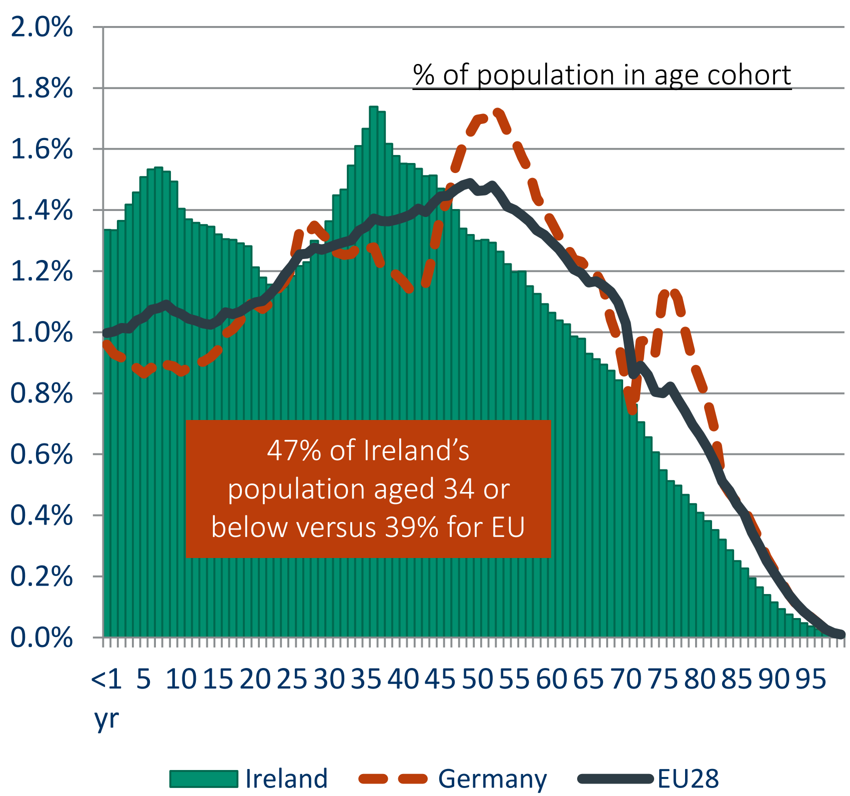
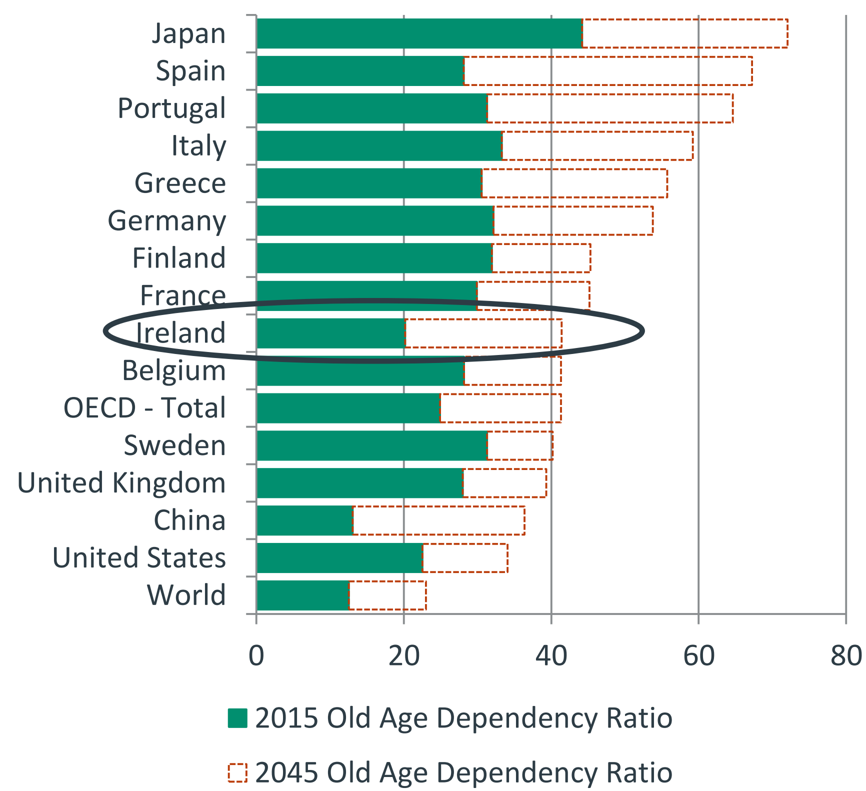
Source: CSO, Eurostat

Ireland’s population profile healthier than the EU average

Ireland’s population jumped to 4.79m in 2017 – up 200,000 on the 2011 Census



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



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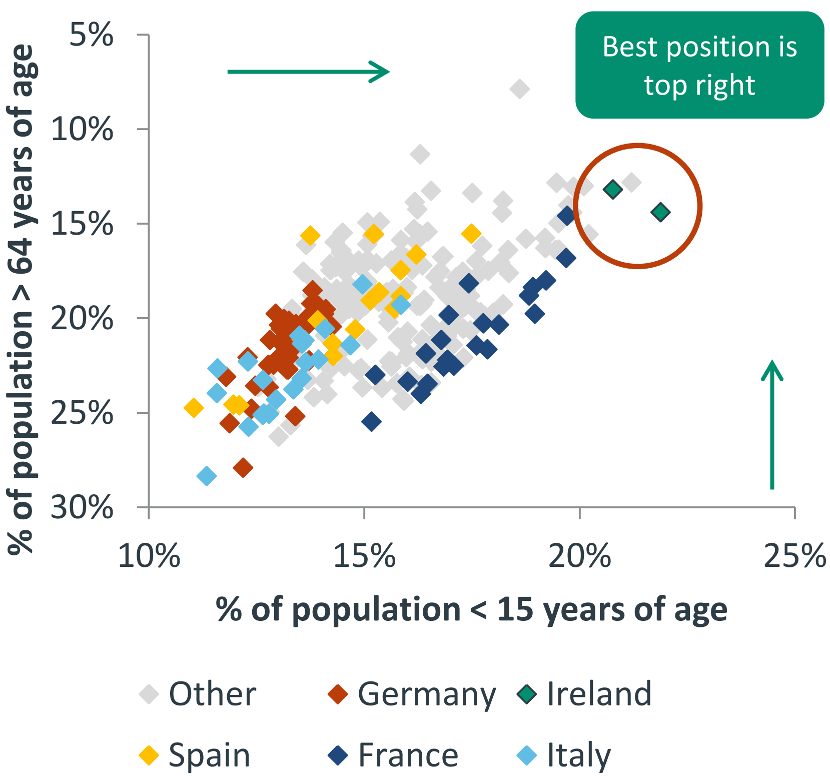
Source: Eurostat (2017) CSO; OECD population projections

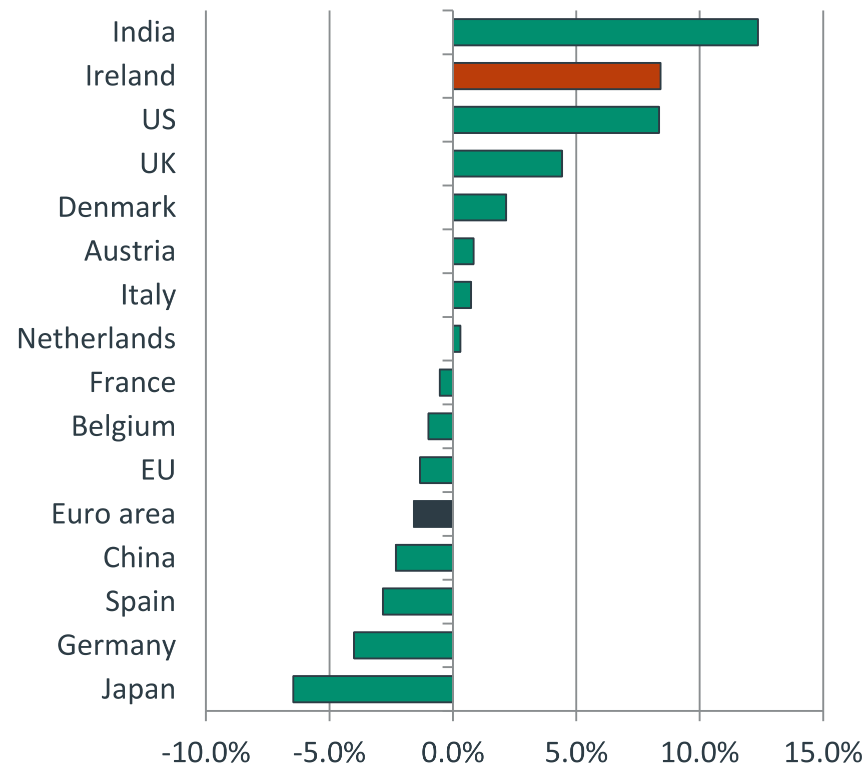
Favourable population characteristics underpin debt sustainability over longer term: next 10 years look great

Regional data show Ireland's mix of young and old among the best in EU



Source: Eurostat; Regional NUTS2 basis
Note: Each dot is a NUTS2 region in the EU. Y-axis is inverted

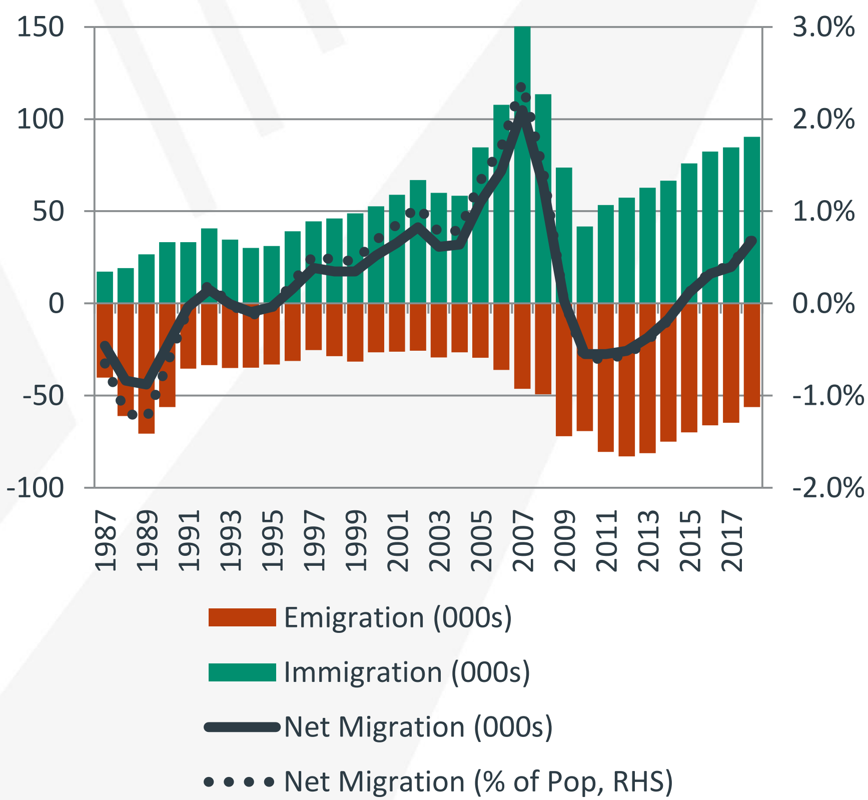
Ireland's Working-Age Population expected to grow in coming years (2018-2028)



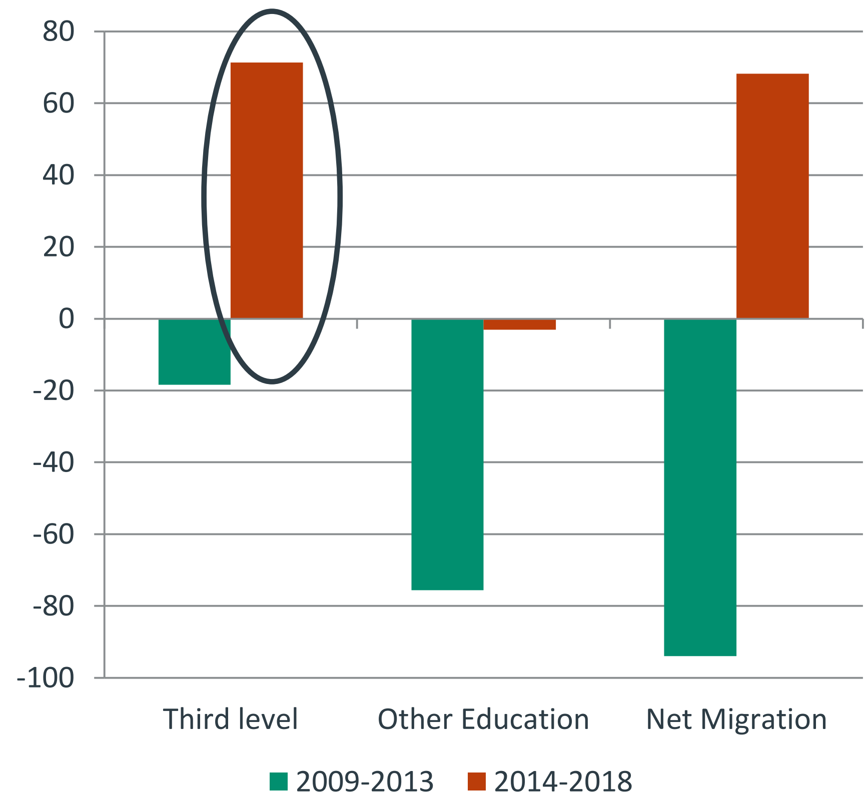
Source: Oxford Economics forecasts

Openness to immigration has been beneficial to Ireland

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



Highly educated migrants moving to Ireland "Reverse Brain Drain"



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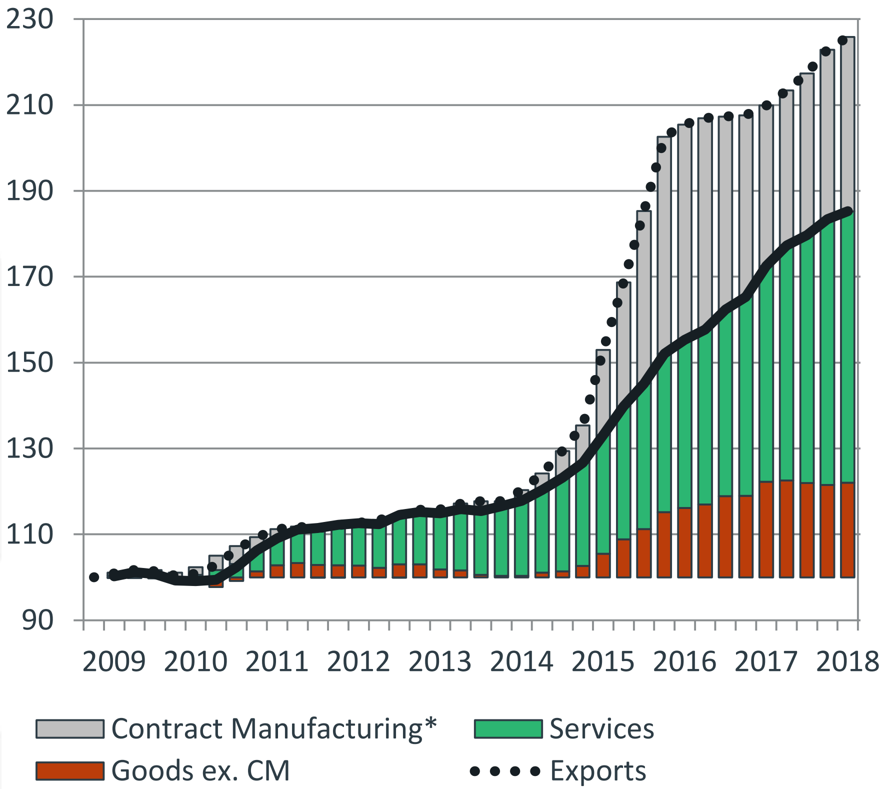
Source: CSO

Openness to trade is also central to Irish success – led by services exports; Brexit may hinder export-led growth

Cumulative post-crisis total exports (4Q sum to end-2008 = 100, current prices)



Ireland benefits from export diversification by destination

	Goods (2017)		Services (2016)		Total (2016)	
	Exp.	Imp.	Exp.	Imp.	Exp.	Imp.
US	27.1	20.5	10.5	21.7	17.6	20.9
UK	13.4	23.6	16.0	6.4	14.4	11.0
EU-27	36.5	31.3	33.4	23.6	35.4	27.2
China	4.1	5.7	2.7	0.2	2.9	1.8
Other	18.8	18.9	37.4	48.2	29.7	39.2

*Source: CSO, NTMA calculations , * Contract manufacturing proxy*

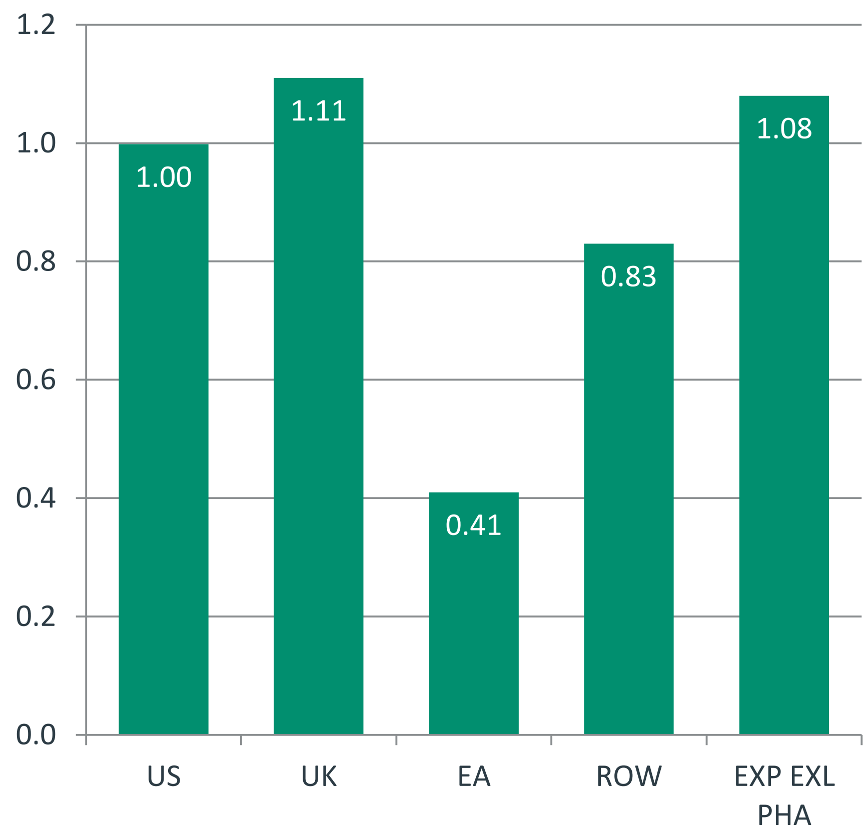
Ireland's goods exports respond vigorously to euro movements – in both directions

- A 1% depreciation of the euro increases Irish goods exports to the US by 1%
- The equivalent response for exports to the UK is 1.1% and to the rest of world is 0.8%. Brexit has the opposite effect on Irish exports.
- The EUR/USD exchange rate has a positive effect (elasticity of 0.4) on Irish goods exports to the euro area, due to Ireland-based multinational companies' exports to EA for onward sale to the rest of the world
- The elasticity of total goods exports excluding pharma to the exchange rate >1

Source: CSO; NTMA empirical analysis

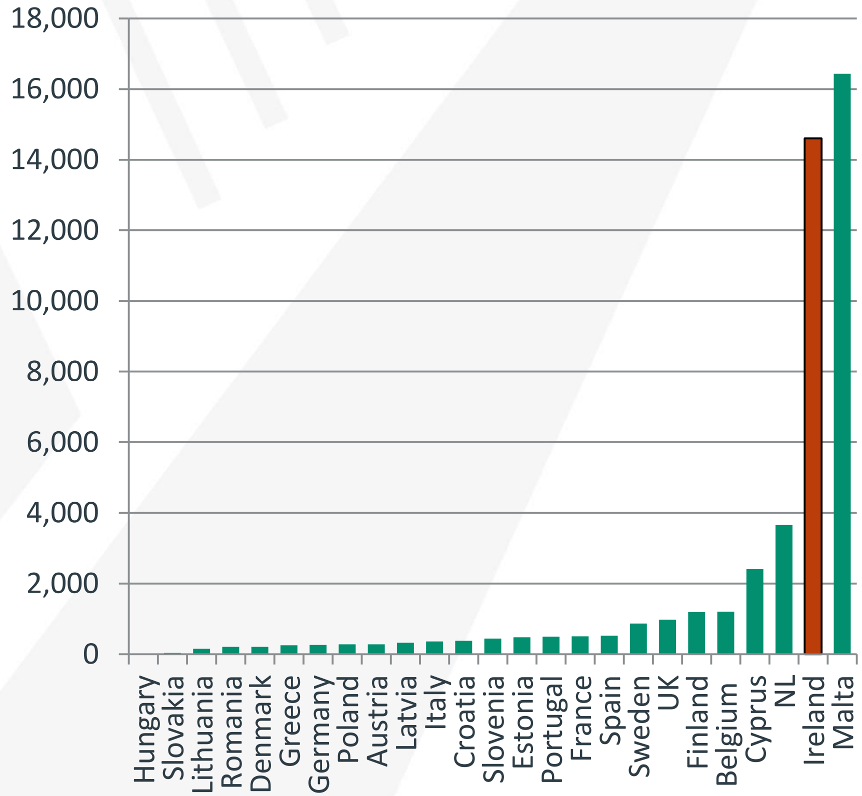
Note: All coefficients significant at 99% level; not affected by contract manufacturing. Time period is 1998 to 2016 Q2. For longer time periods, the UK elasticity is smaller (closer to 0.4-0.5 for 1981 onwards).

Response (% chg.) of Irish goods exports to 1% depreciation of the euro

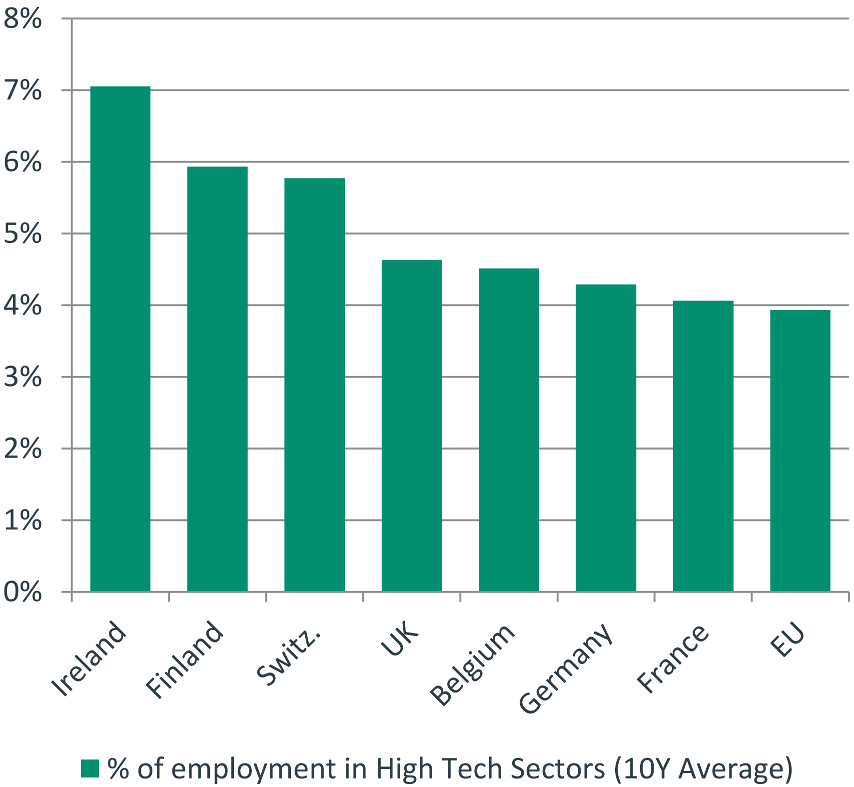


Crucially, openness to overseas capital has played a big part in Ireland's economic development

Average FDI inflow in $ per capita, 2012–17



Ireland has attracted high-quality jobs



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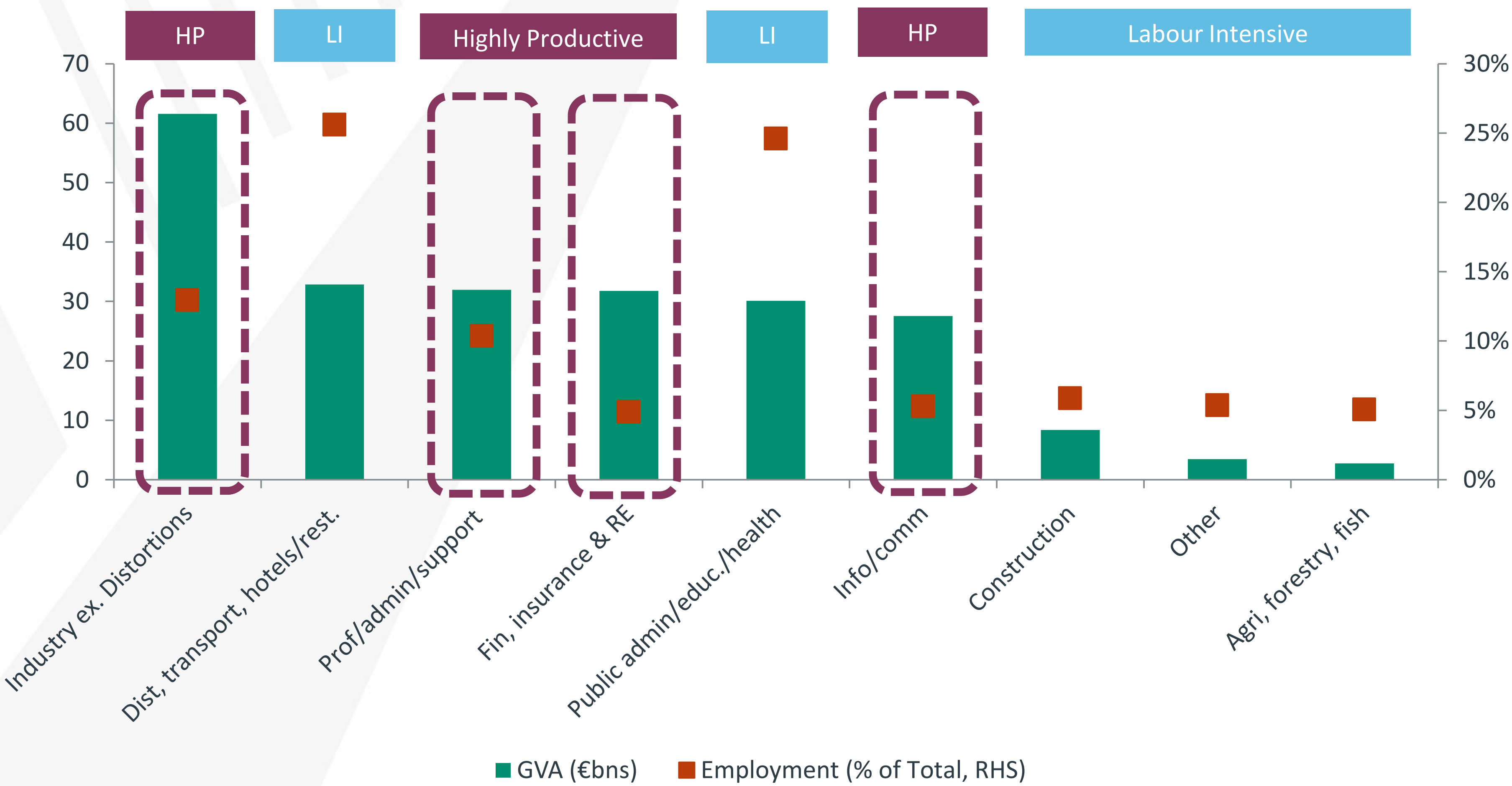
Source: Unctad (UN) database, Eurostat
Note: Luxembourg excluded for presentation purposes – average $39,800 per capita over period.
Note 2: High tech = High-technology manufacturing and knowledge-intensive high-technology services

All this leads to mixture of highly productive and labour intensive sectors in Ireland



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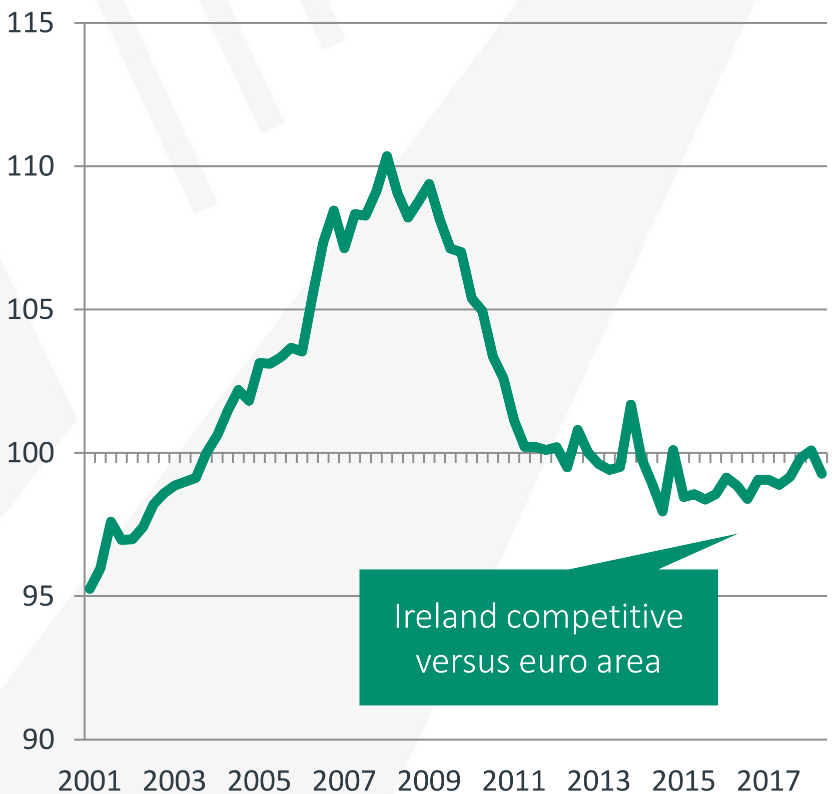
Source: CSO , NTMA calculations, 2017 data

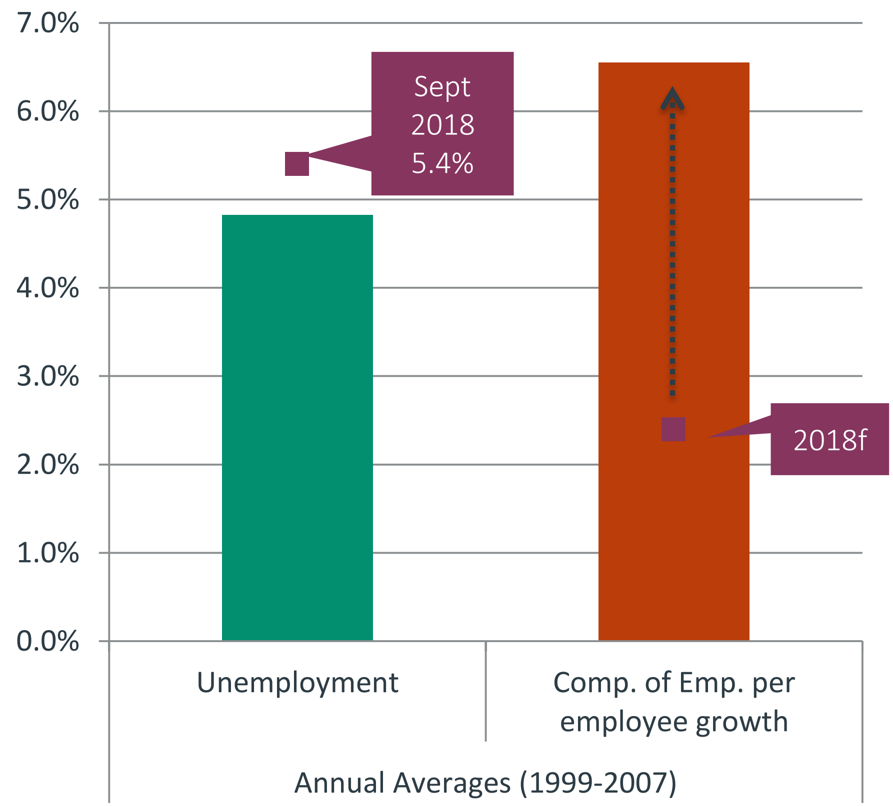
Ireland is pretty competitive now; we need to avoid repeat of the mid-2000s

Nominal Labour Cost Ratio – IE vs Euro Area



*Source: Eurostat, NTMA analysis *Ratio = IE Nom. Labour Costs/ EA Nom. Labour Costs*

Unemployment back towards 1999-2007 level, but wage growth less than half



Source: CSO, Eurostat, NTMA calculations

Ireland’s strong fundamentals highlighted by performance on United Nations sustainability index

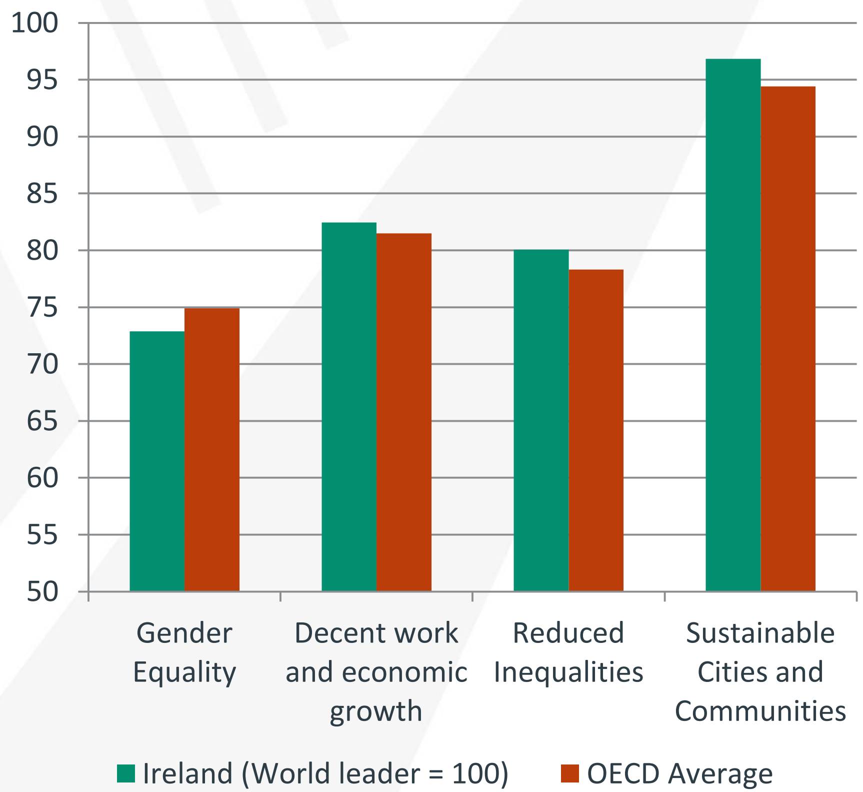
Selected Countries	Global Rank	Index Score (0-100)
Sweden	1	85.6
Denmark	2	84.2
Finland	3	84.0
Norway	4	83.9
Czech Republic	5	81.9
Germany	6	81.7
France	10	80.3
Belgium	12	80.0
United Kingdom	16	78.3
Ireland	**19**	**77.9**
Spain	25	76.8
Portugal	28	75.6
Italy	30	75.5
Luxembourg	33	75.0
Greece	38	72.9
United States	42	72.4

Ireland	Global rank	Vs. Regional Average
Subjective Wellbeing (2016)	13/133	↑
Environmental Performance Index (2016)	19/155	↑
Human Development Index (2016)	8/157	↑
Global Competitiveness Index (2016/17)	21/134	↑
Global Peace Index (2016)	12/149	↑

Source: United Nations SDG project

Ireland's performs well versus peers in particular on governance metrics

Ireland is close to OECD norms on social issues



Ireland scores well on metrics such as property rights and government efficiency

UN Goal – Peace, Justice and Strong institutions	Ireland Actual Figure	Ireland Normalised (world leader = 100)	OECD Average
Overall	-	87.5	75.8
Corruption Perception Index (0-100)	73.0	79.4	73.5
Government Efficiency (1-7)	4.8	**74.8**	**52.8**
Homicides (per 100,000 people)	1.1	97.8	96.1
Prison population (per 100,000 people)	80.0	87.8	74.6
Property Rights (1-7)	6.1	**94.8**	**73.1**
Population who feel safe walking alone at night (%)	75.0	73.7	67.4

Source: United Nations SDG project

Section 5: Property

Property prices are rising thanks to lack of supply and capital inflows

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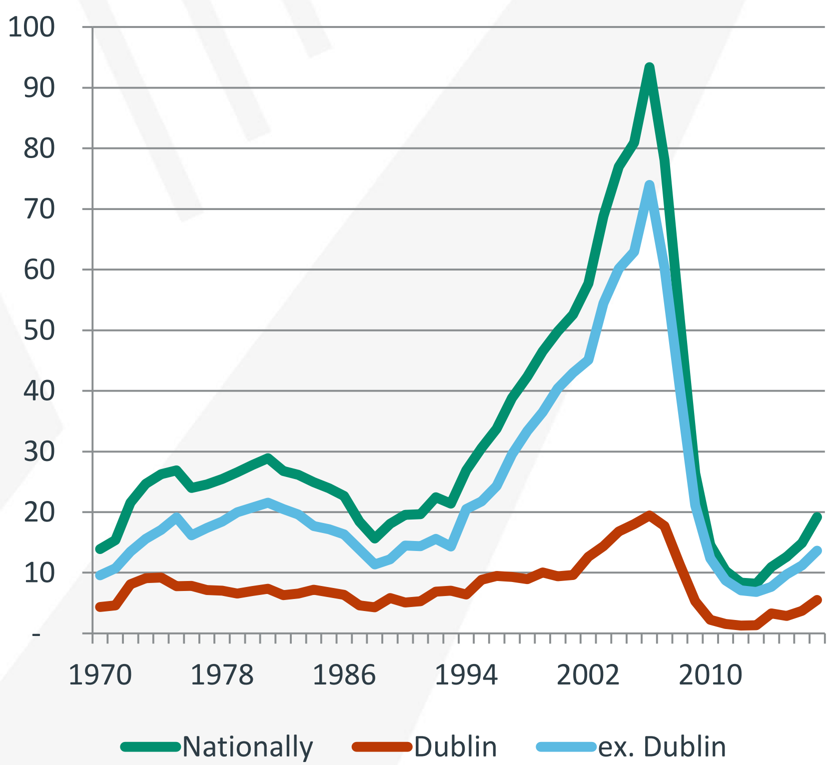
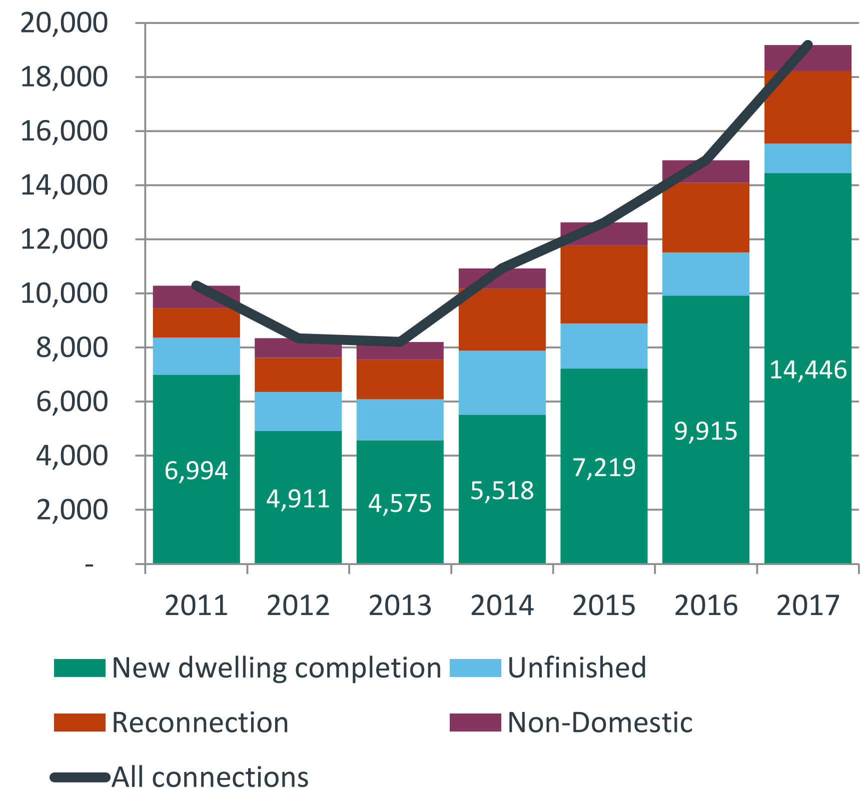
Housing supply still below demand but slowly catching up

Housing Completions above 19,000 in 2017 but still low historically (000s)



New dwellings* make up 75% of housing completions: some debate abut the rest



Source: DoHPCLG, CSO

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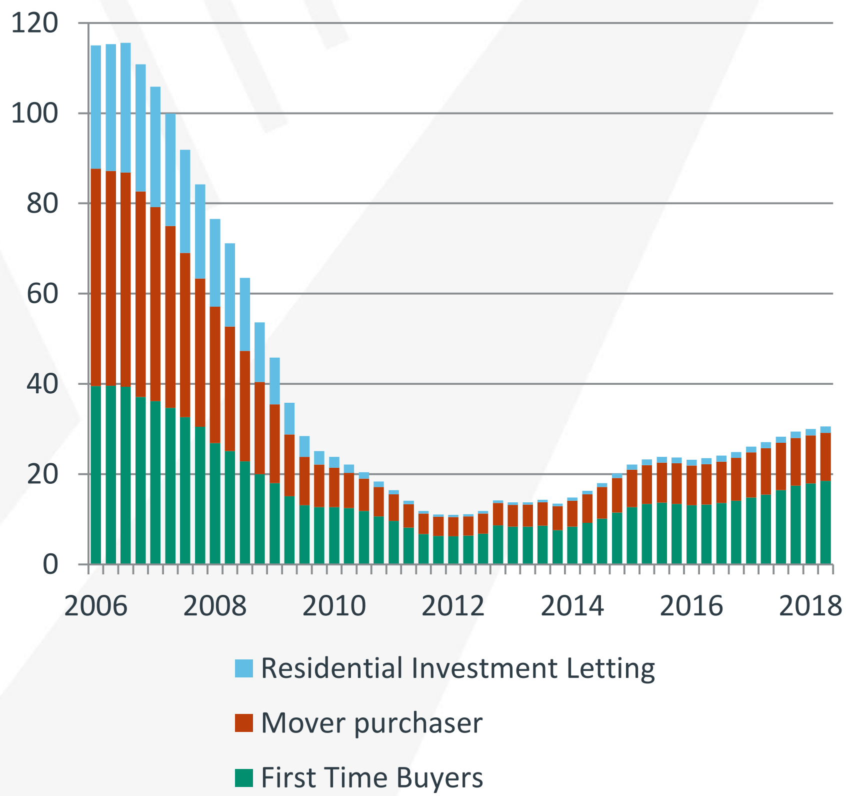
* Housing completions derived from electrical grid connection data for a property. Reconnections of old houses or connections from "ghost estates" overstate the annual run rate of new building.

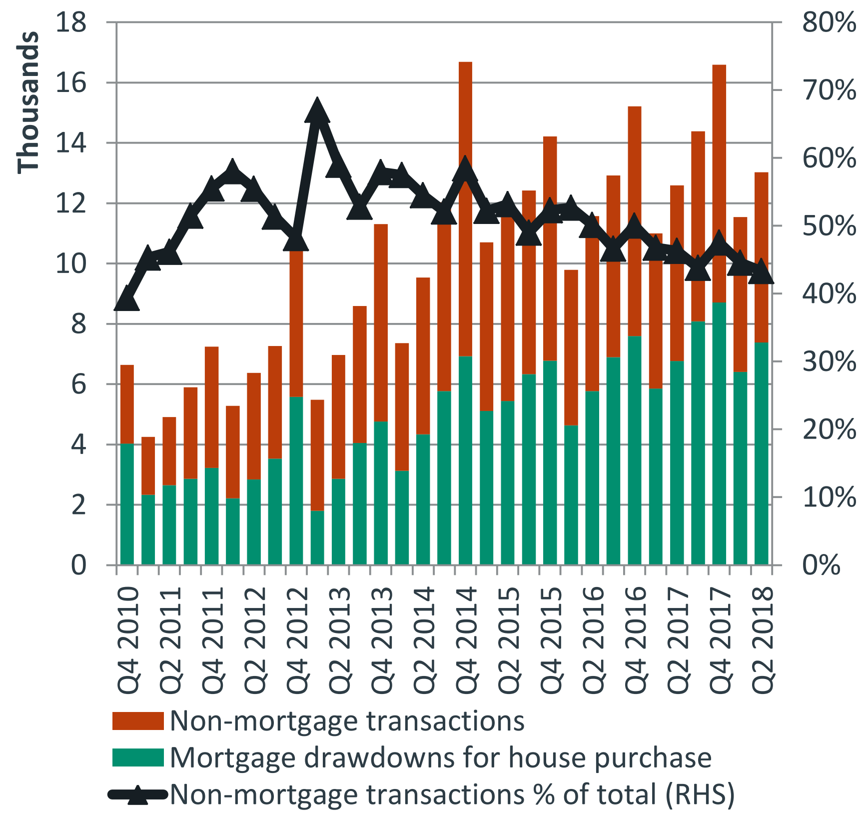
Demand has picked up since 2015; Credit slowly increasing as cash buyers become less important

Mortgage drawdowns rise from deep trough (000s)



Source: BPFI *4 quarter sum used

Non-mortgage transactions still important but falling towards 40% of total



Source: BPFI; Residential Property Price Register

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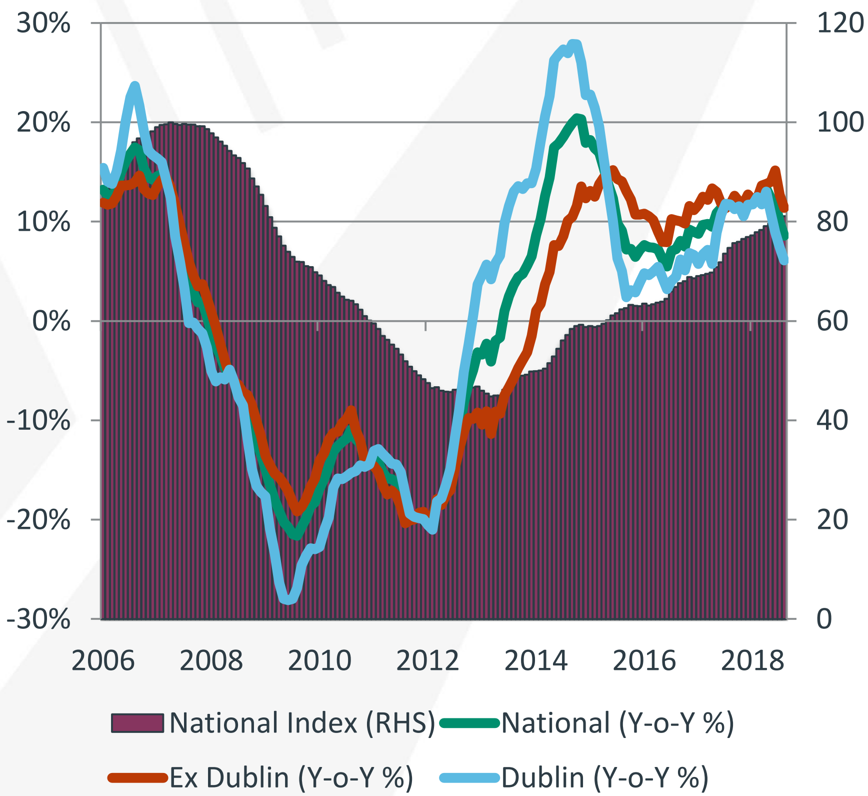
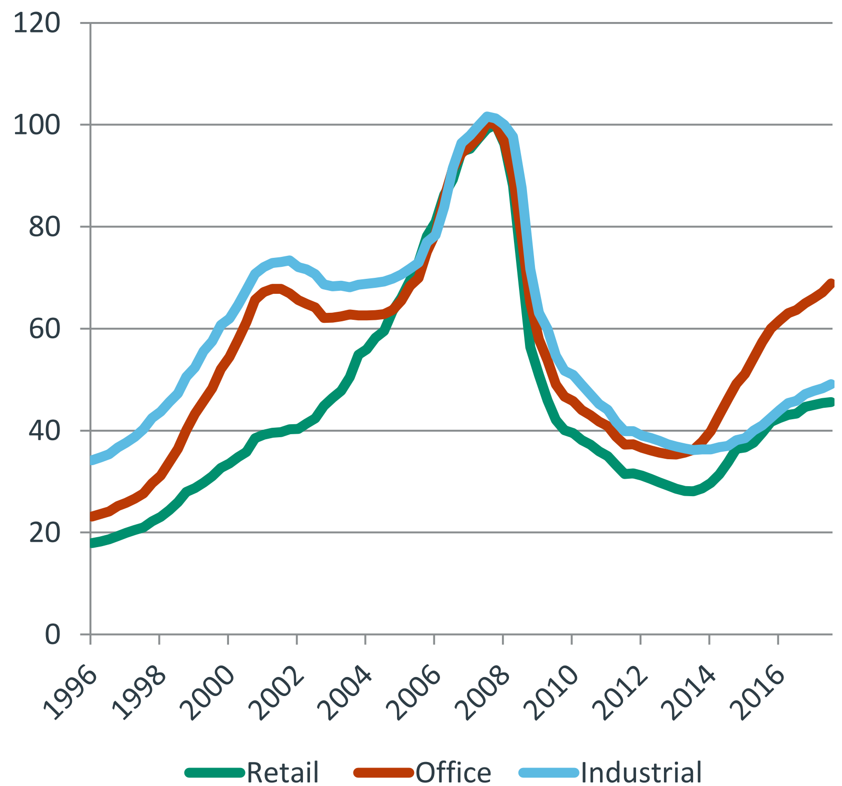
Property prices have rebounded strongly since 2012

House prices rising strongly but some way off peak (Y-o-Y change, RHS peak =100)



Office leads commercial property (peak = 100)



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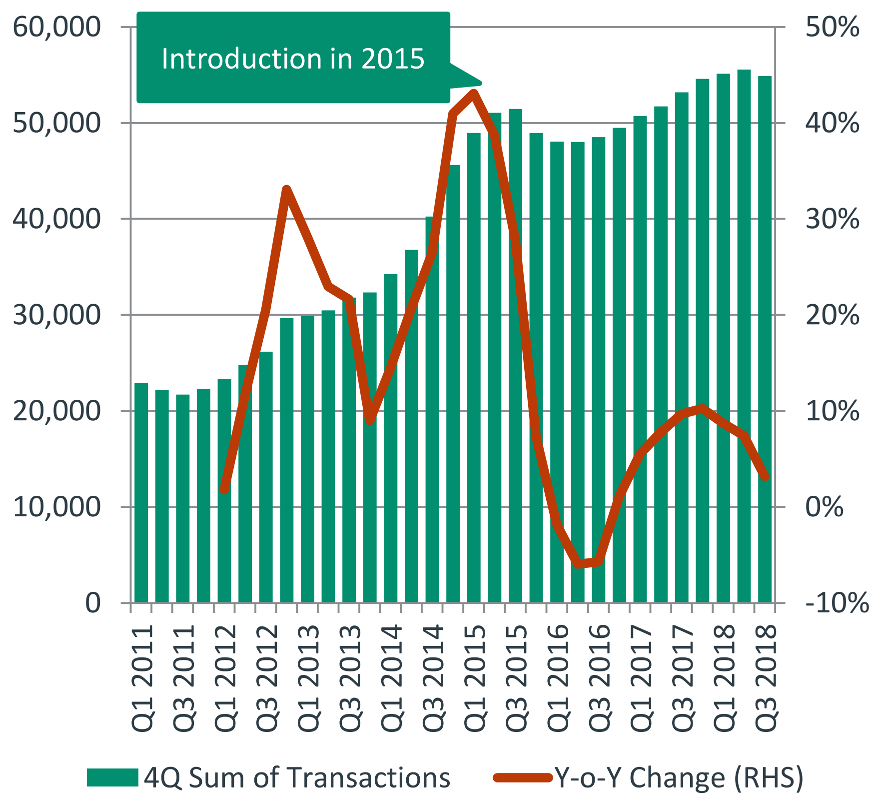
Source: CSO; IPD

CBI's macro-prudential rules increase resilience of banking and household sector

CBI's amended macro-prudential rules

- First time buyers (FTBs) can borrow 90% of the value of a home (10% minimum deposit). Five per cent of the total new lending to FTBs will be allowed above the 90% LTV limit.
- For second and subsequent buyers (SSBs), banks must restrict lending for primary dwelling purchase above 80 per cent LTV to no more than 20 per cent of new lending to SSBs.
- Bank must restrict lending for primary dwelling purchase above 3.5 times LTI to no more than 20 per cent of that aggregate value for FTBs and 10 per cent for SSBs.
- Banks have to limit Buy-to-Let loans (BTL) above 70 per cent LTV to 10 per cent of all BTL loans.

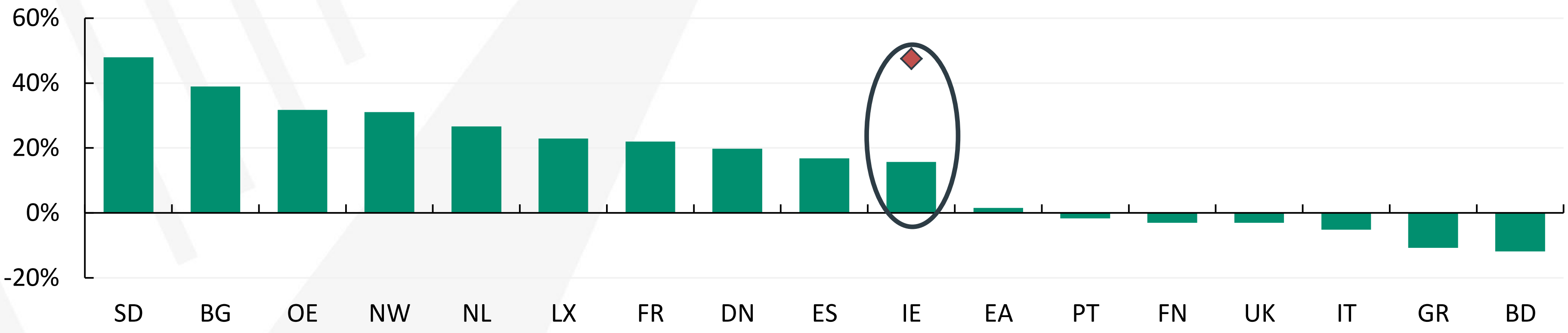
Transactions have slowed since macro-prudential rules introduced



Source: [Residential Property Price Register]

Irish house price valuations rose relative to other European countries in 2017 but remain below 2008 levels

Deviation from average price-to-income ratio (Q1 2018, red dot represent Q1 2008)

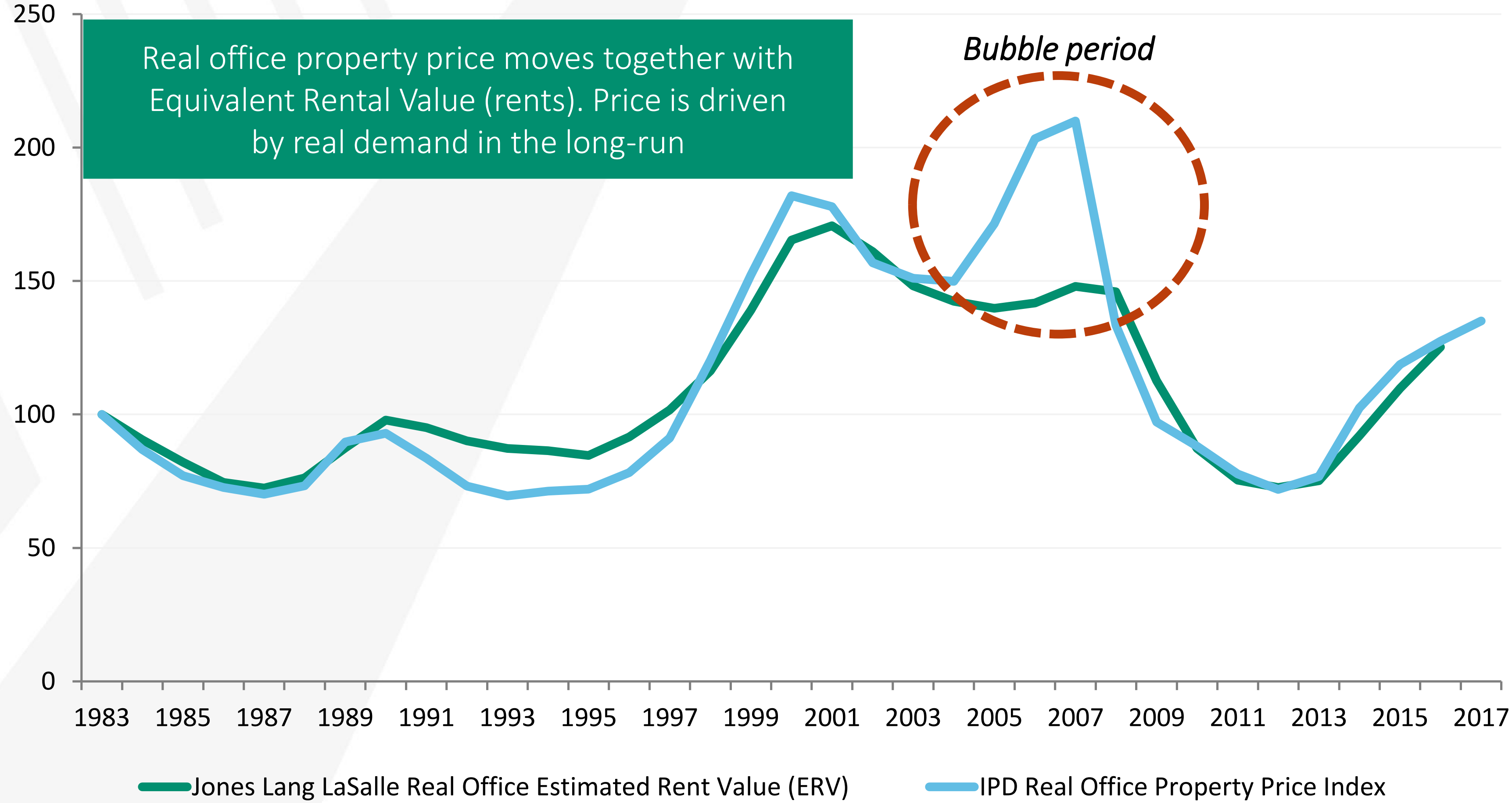


Deviation from average price-to-rent ratio (Q1 2018, red dot represent Q1 2008)

Source: OECD, NTMA Workings

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

Real commercial property prices still down from peak (index 1983 = 100)



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Source: IPD; NTMA
Note: IPD office price index updated to Q3 2017

Section 6: Other data

Worries about contingent liabilities no longer; Ireland now has legacy assets

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Ireland has legacy banking-related assets

- Banking
  - Banks are now profitable; income, cost and balance sheet metrics are 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.
  - An IPO of AIB stock (28.8%) was completed in June 2017. This returned c. €3.4bn to the Irish Exchequer.

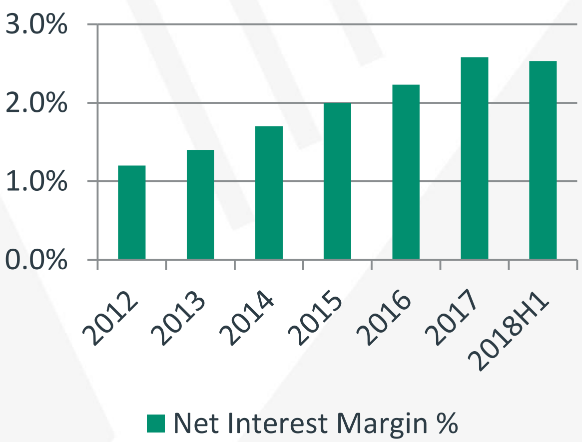
- NAMA
  - NAMA has repaid 100% of its senior debt; it forecasts a profit of €3.5bn subject to market conditions.
  - This is likely to be returned to the Government coffers in the next few years.

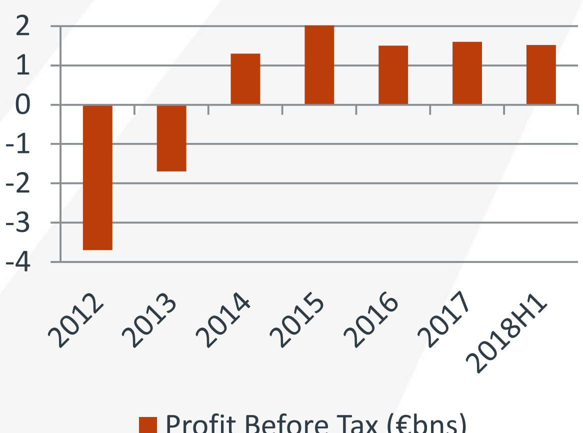
- IBRC
  - Liquidation of the IBRC could ultimately return over €1bn to the Irish Exchequer.
  - The Exchequer received €280m as an interim dividend in 2016 and €270m in 2017.

All three pillar banks profitable given enhanced margins

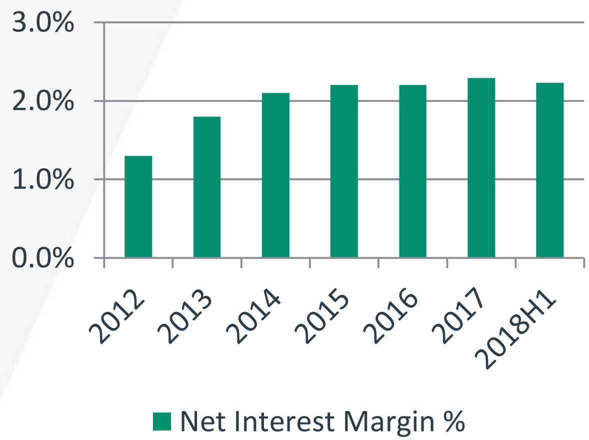
State Ownership

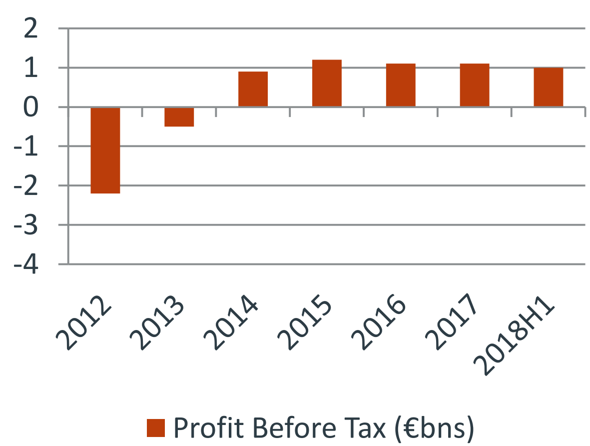
71% owned
Allied Irish Bank



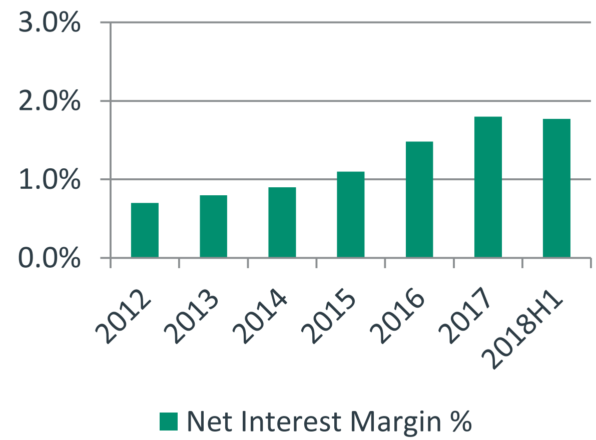


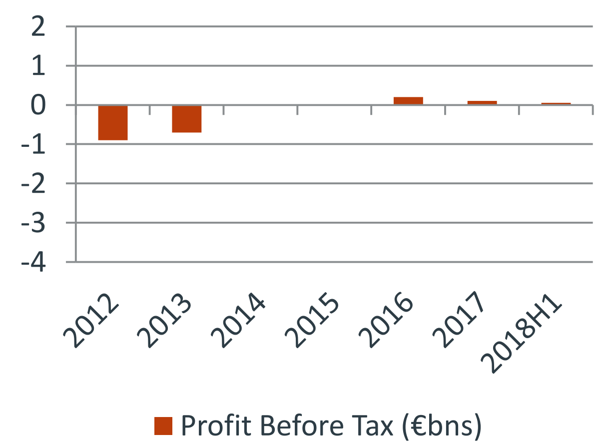
14% owned
Bank of Ireland





75% owned
Permanent TSB





Source: Annual reports of banks - BOI, AIB, PTSB
Profit measures are before exceptional items, 2018H1 figure annualised

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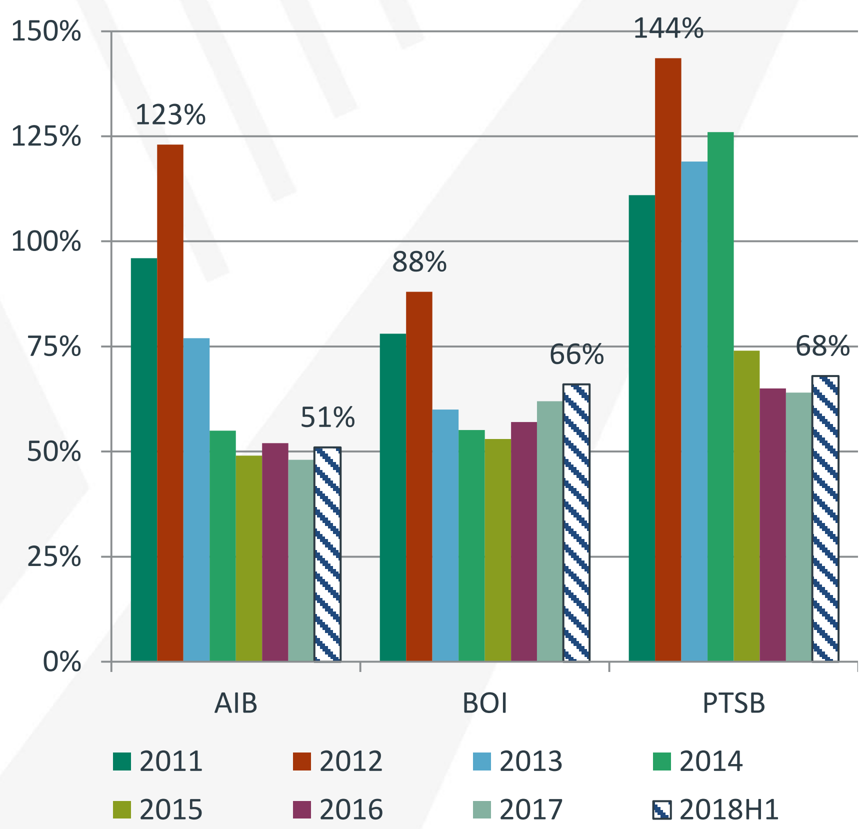
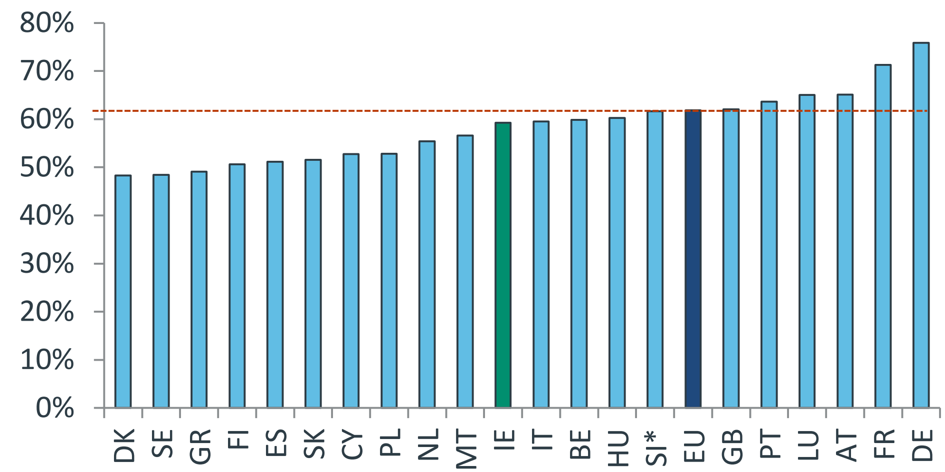
Domestic bank cost base reduced over time

Cost income ratios improve dramatically…

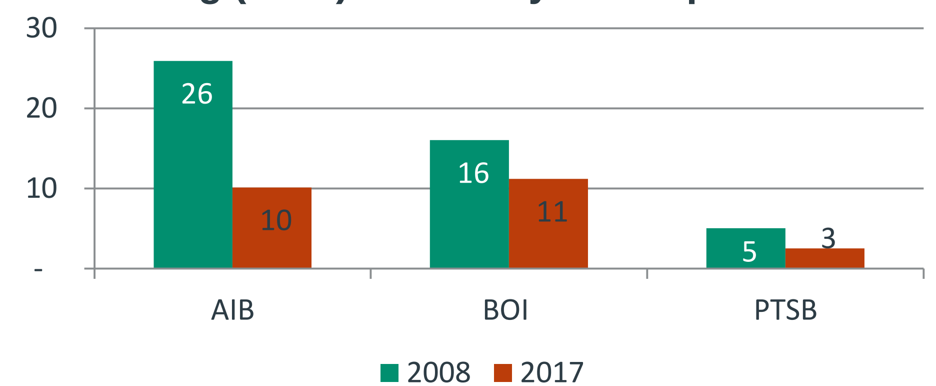


Source: Annual reports of Irish domestic banks

… and IE banks* below to EU average



Staffing (000s) shrunk by c.50% post crisis



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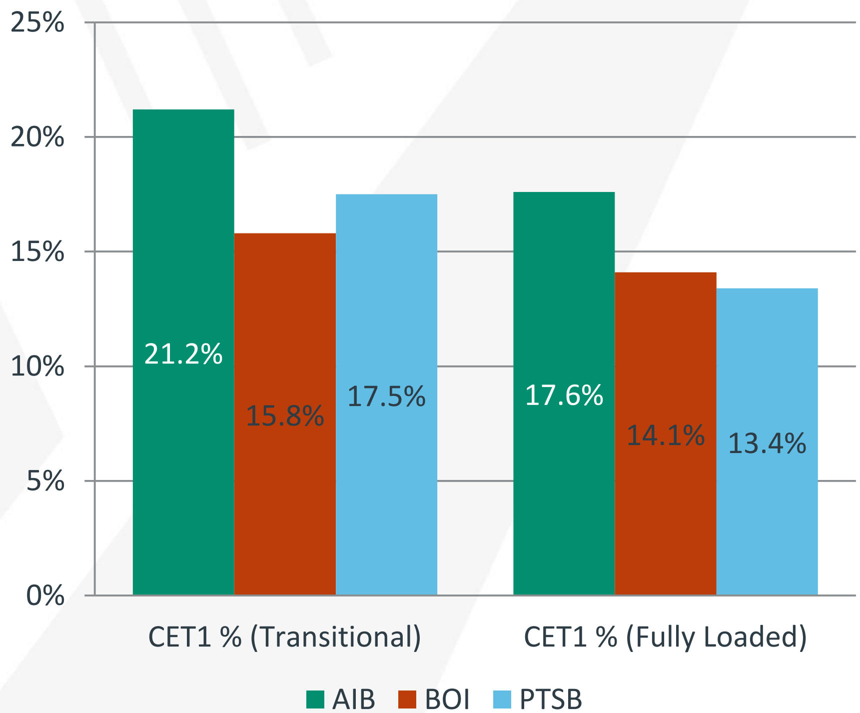
Source: Annual reports of Irish domestic banks, EBA
* EBA data includes three domestic banks as well as Ulster Bank, DEPFA & Citibank.

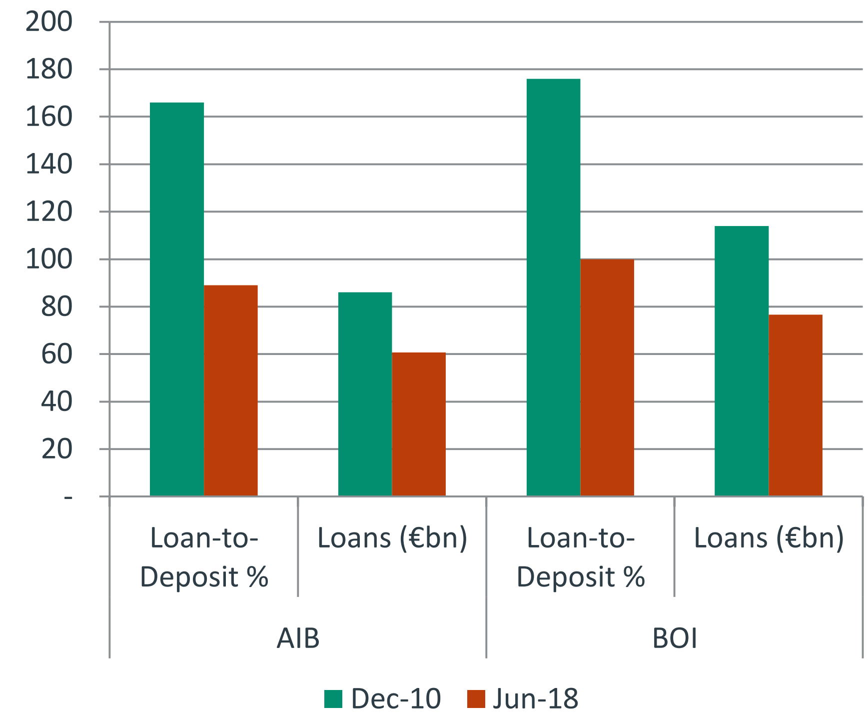
Capital ratios strengthened as banks were slimmed down and consolidated

CET 1 capital ratios (Jun-18)



Source: Published bank accounts

Loan-to-deposit ratios have fallen significantly as loan books slimmed down



Source: Published bank accounts

Note: "Transitional" refers to the transitional Basel III required for CET1 ratios
"Fully loaded" refers to the actual Basel III basis for CET1 ratios.

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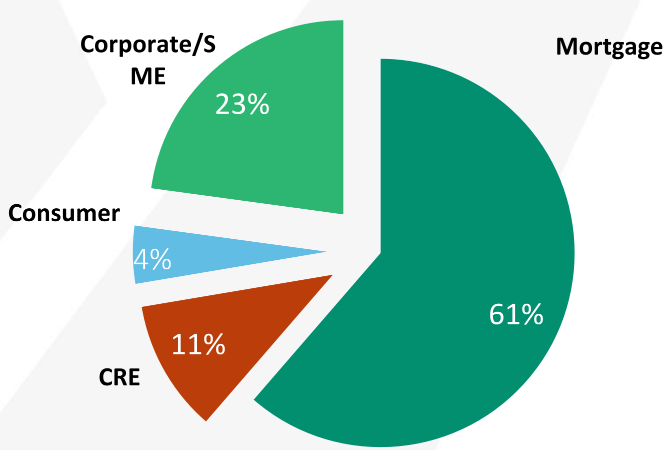
Asset quality continues to improve: impaired loans and provisions fall in 2017

All 3 PCAR banks (€bn)	Dec-15	Dec-16	Dec-17
Total Loans	186.5	168.9	160.2
Impaired	29.0	20.3	14.8
(Impaired as % of Total)	15.5%	12.0%	9.2%
Provisions	14.7	9.9	7.6
(Provisions as % of book)	7.9%	5.9%	4.7%
(Provisions as % of Impaired)	50.6%	48.8%	51.4%

Loan Asset Mix (3 banks Dec 17)



Impaired loans % (coverage %)[1] by bank and asset					
		Dec-15	Dec-16	Dec-17	*Book (€bn)*
BOI	Irish Residential Mortgages	9.3(52)	6.0(45)	4.7(42)	24.1
	UK Residential Mortgages	1.6(22)	0.7(15)	0.8(11)	22.6
	Irish SMEs	21.9(52)	15.7(55)	12.0(56)	8.2
	UK SMEs	11.1(51)	6.3(55)	5.9(52)	1.7
	Corporate	4.6(59)	3.5(54)	2.9(62)	8.8
	CRE - Investment	28.5(53)	21.1(57)	13.7(51)	8.3
	CRE - Land/Development	84.8(76)	68.8(73)	35.3(60)	0.5
	Consumer Loans	4.1(105)	2.7(66)	2.1(63)	4.3
		11.6(56)	7.6(54)	5.2(49)	78.5
AIB	Irish Residential Mortgages	16.6(38)	13.1(44)	9.8(44)	32.2
	UK Residential Mortgages	10.8(50)	10.8(46)	8.4(30)	1.5
	SMEs/Corporate	11.5(63)	8.0(60)	4.9(54)	17.7
	CRE	37.4(61)	29.0(53)	20.4(51)	8.8
	Consumer Loans	19.9(70)	13.9(58)	11.6(56)	3.1
		18.6(47)	14.0(44)	10.0(53)	63.3
PTSB	Irish Residential Mortgages	23.6(49)	23.4(49)	24.2(49)	17.9
	UK Residential Mortgages	3.9(39)	0.0(0)	0.0(0)	0
	Commercial	35.8(69)	29.6(113)	46.4(104)	0.2
	Consumer Loans	27.0(93)	22.3(88)	16.6(92)	0.3
		21.1(49)	23.1(51)	24.2(50)	18.4

[1] Total impairment provisions are used for coverage ratios (in parentheses)

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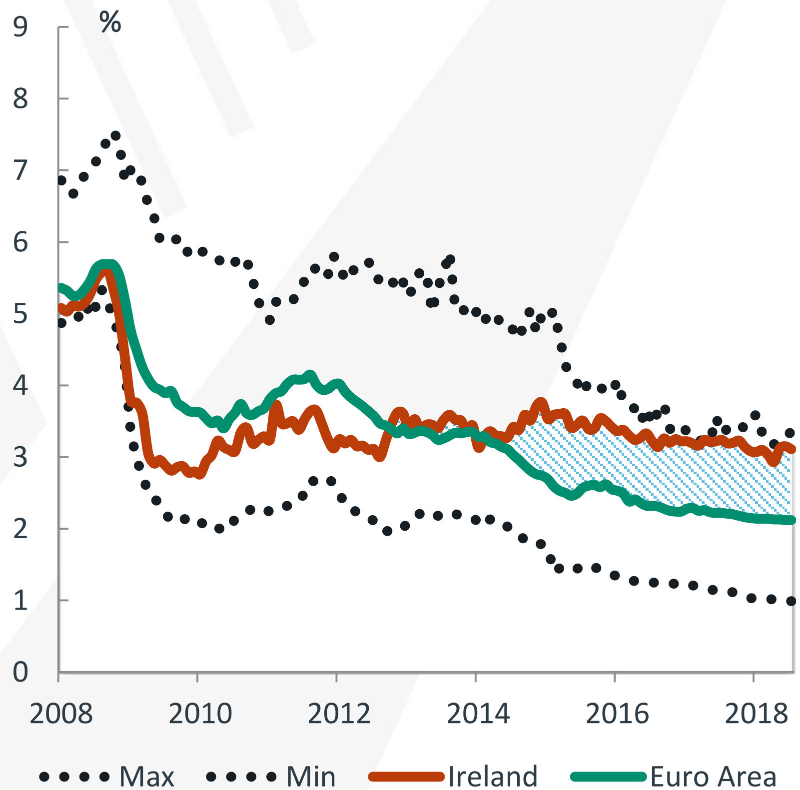
Source: Published bank accounts

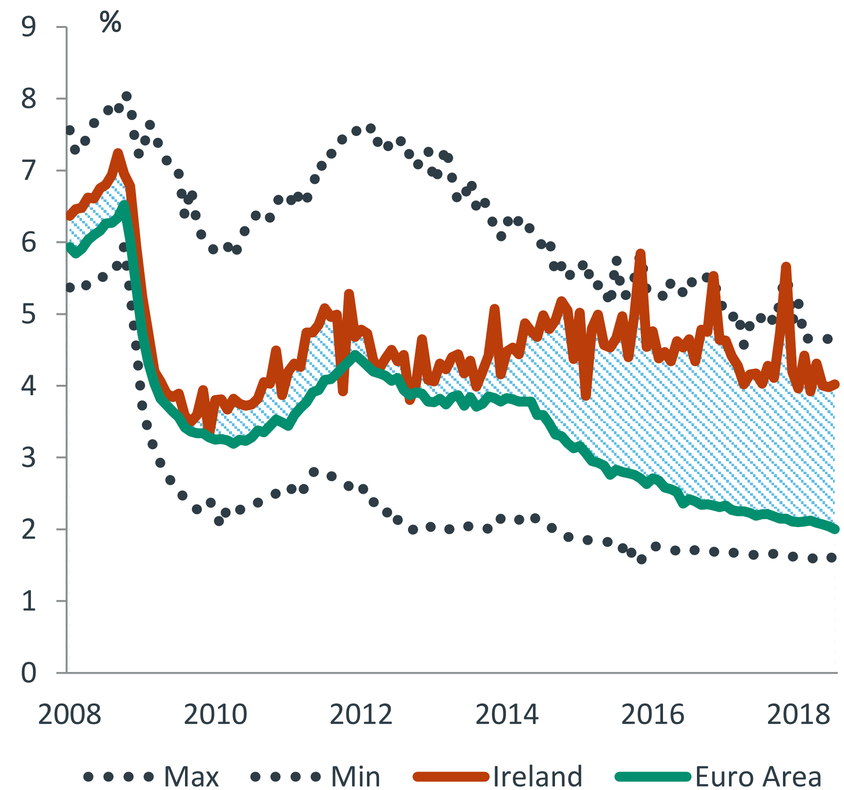
Profitability aided by higher interest rates than EA peers

Ireland's interest rates on lending for house purchase the highest in euro area



Source: ECB

Rates on SME loans* over euro area average



*SME loans proxy of loans <1year and <€1m to Non-Financial Corporates

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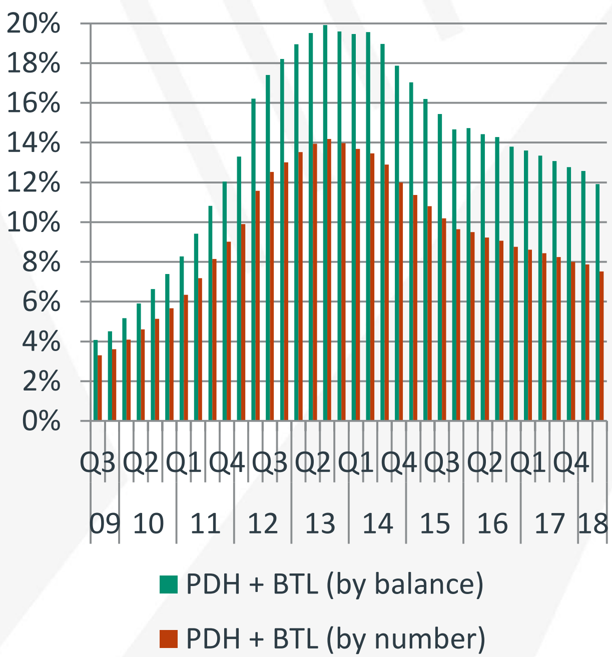
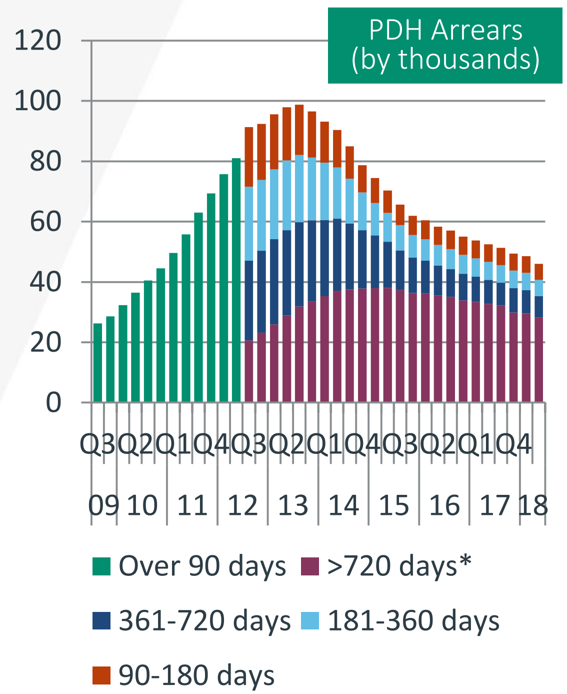
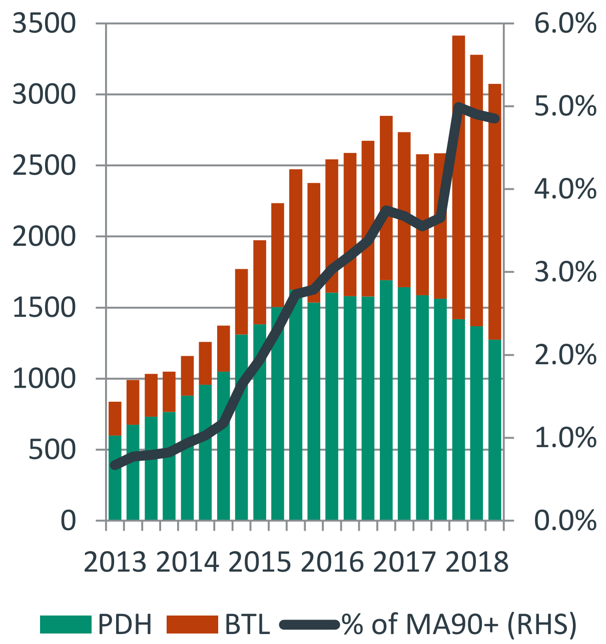
Irish residential mortgage arrears are improving across all duration categories; environment still abnormal

Mortgage arrears (90+ days)





Repossessions**



Source: CBI

- PDH mortgage arrears have fallen steadily since 2013. The smaller BTL market (c. 25% of total) has higher arrears but also saw declines in the same period.
- 116K PDH mortgage accounts were classified as restructured at end H1 2018. Of these restructured accounts, 87% were meeting the terms of the restructured arrangement.

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* Over 40% of those cases in arrears > 720 days are also in arrears greater than five years.
** Four quarter sum of repossessions. Includes voluntary/abandoned dwellings as well as court ordered repossessions

NAMA: All original senior debt has been repaid; likely to deliver surplus of around €3.5bn

- NAMA's operating performance is strong
  - Acquired 12,000 loans (over 60,000 saleable property units) related to €74bn par of loans of 780 debtors for €32bn
  - NAMA continues to generate net profit after impairment charges.

- It has repaid 100% of €30.2bn of original senior debt
  - NAMA exceeded its senior debt redemption targets well ahead of schedule. It remains on course, subject to market conditions, to redeem its small amount of subordinated debt by 2020.

- NAMA could deliver a surplus for Irish taxpayers of about €3.5bn, according to its management team - if current market conditions remain favourable.

- NAMA initiative to develop up to 20,000 housing units by 2020 – <u>subject to commercial viability.</u>
  - Progress has been strong so far with 7,300 units completed from Jan 2014 – May 2018;
  - Another 2,800 under construction and 8,500 have planning permission granted;
  - Planning applications lodged or will be lodged in 2018 for a further 8,600 units

The European Commission's ruling on Apple's tax affairs does not change the NTMA's funding plans

- The EC has 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. This was closed on December 31st 2014.
- **This case has nothing to do with Ireland's corporate tax rate.** In its press release the EC stated: "This decision does not call into question Ireland's general tax system or its corporate tax rate".
- **Apple is appealing the ruling, as is the Irish Government.** This process could be lengthy. Pending the outcome of the appeal, Apple has paid approximately €13bn plus EU interest into an escrow fund.
- Bank of New York Mellon has been selected for the provision of escrow agency and custodian services to hold and administer the fund.
- Amundi, BlackRock Investment Management (UK) Limited and Goldman Sachs Asset Management International have been selected for the provision of investment management services for the fund.
- As the funds will be held in escrow pending the outcome of the appeal, **the NTMA has made no allowance for these funds.**

Irish Sovereign Green Bond Framework aligned with the ICMA Green Bond Principles

Use of Proceeds

Sustainable Water, Clean Transportation, Energy Efficiency, Climate Change Adaptation & others

Project Evaluation and Selection Process

Working Group established by Government: NTMA, DPER, DCCAE & DFIN

Management of Proceeds

Pending its allocation to Eligible Green Projects, Ireland will temporarily hold proceeds in its Central Fund.

Reporting

Annual Allocation Report &
Biennial Eligible Green Project Impact Report

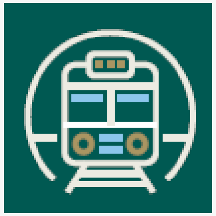
External Verification

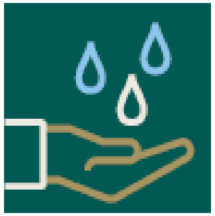
Source: NTMA
Further details are available at ntma.ie

Government's NDP outlines green projects; aim to cut CO_2 emissions by at least 80% by 2050

1 in 5 euros in the NDP to be spent on green projects

Sustainable Mobility	Sustainable Management of Water and Environmental Resources	Transition to a Low carbon and Climate Resilient Society	Total:€23 billion (13% of GNI*)
€8.6 billion	€6.8 billion	€7.6 billion	





Further details are available at ntma.ie

Source: National Development Plan 2018-2027

Annex

Explanatory charts about the distortions to Ireland's National Accounts

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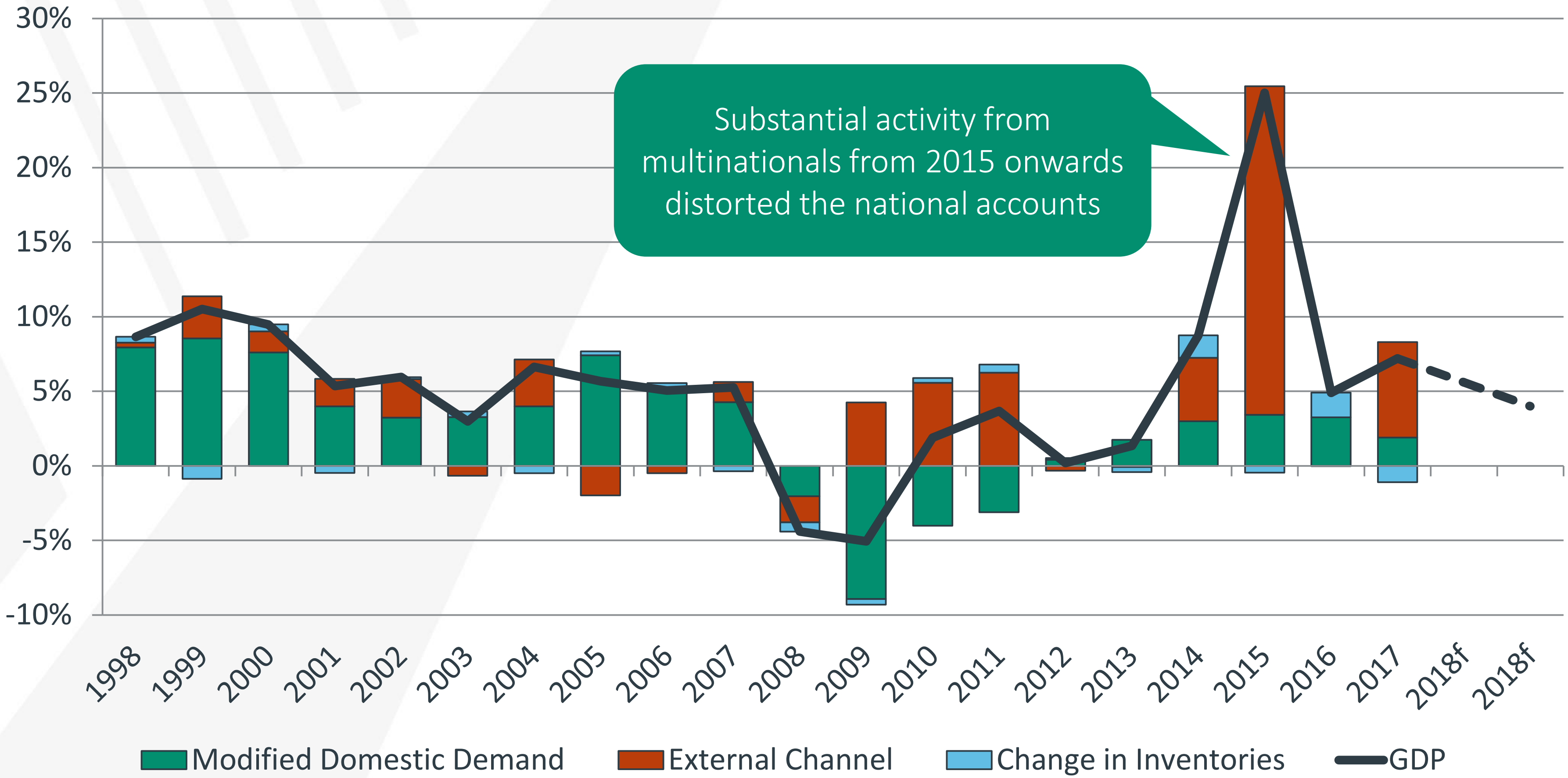
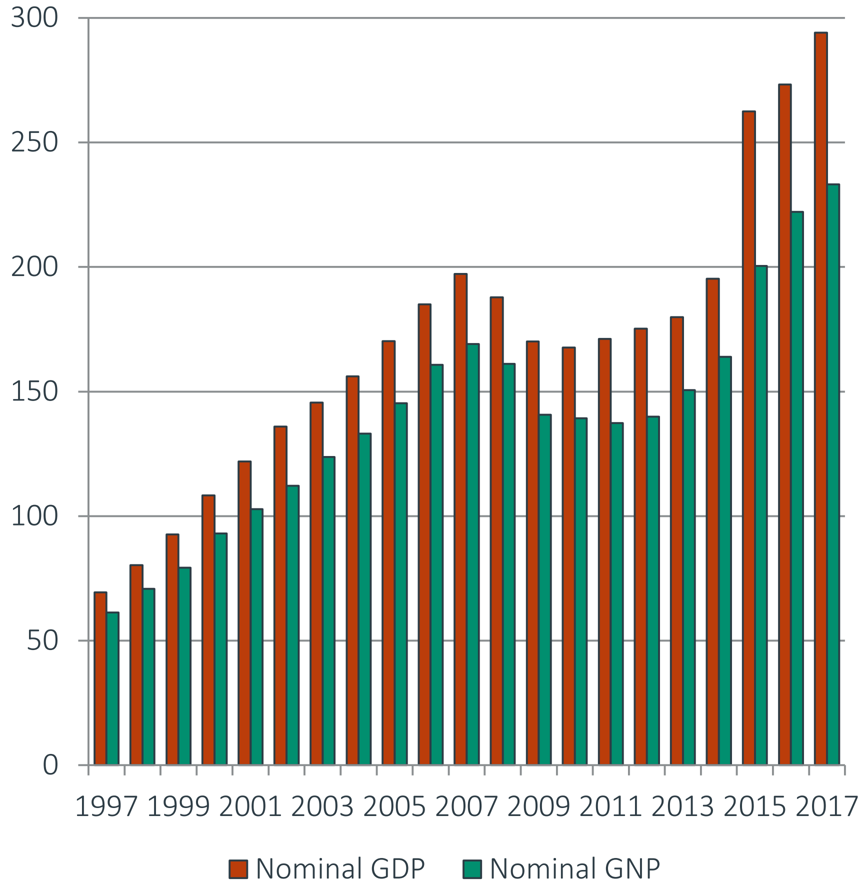
National Treasury Management Agency

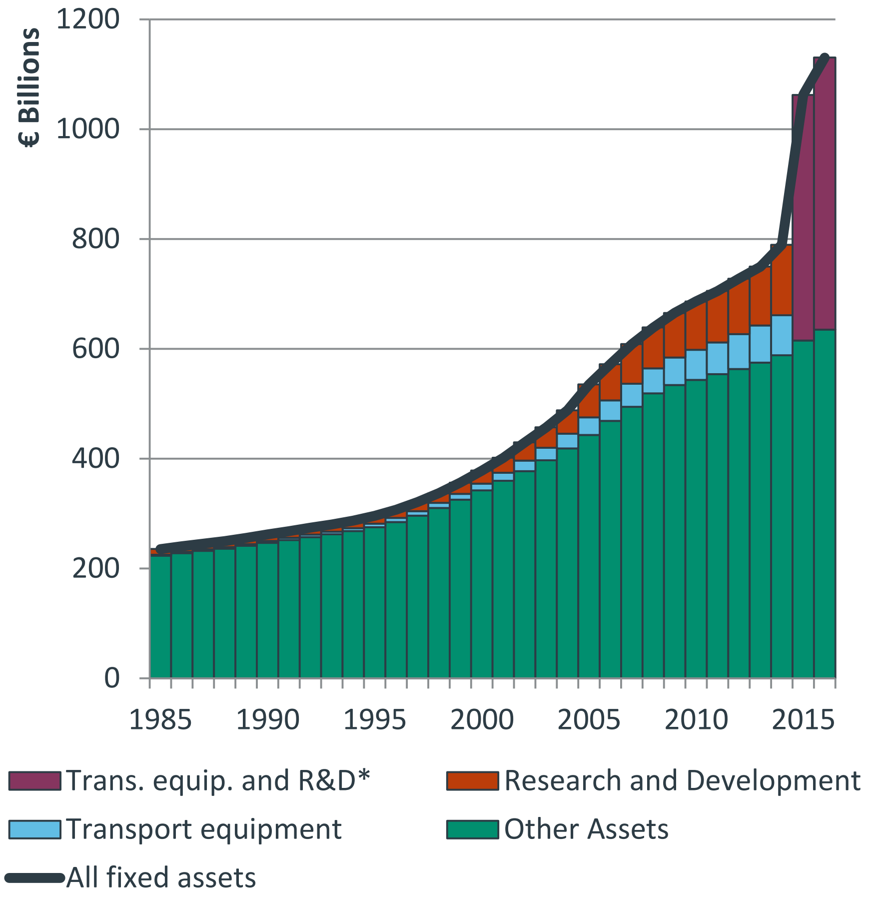
Distortions to GDP/GNP make them sub-optimal indicators of economic performance



Source: [CSO](); [Department of Finance]()

Reclassification of several companies and "onshoring" of IP led to step change in GDP & capital stock





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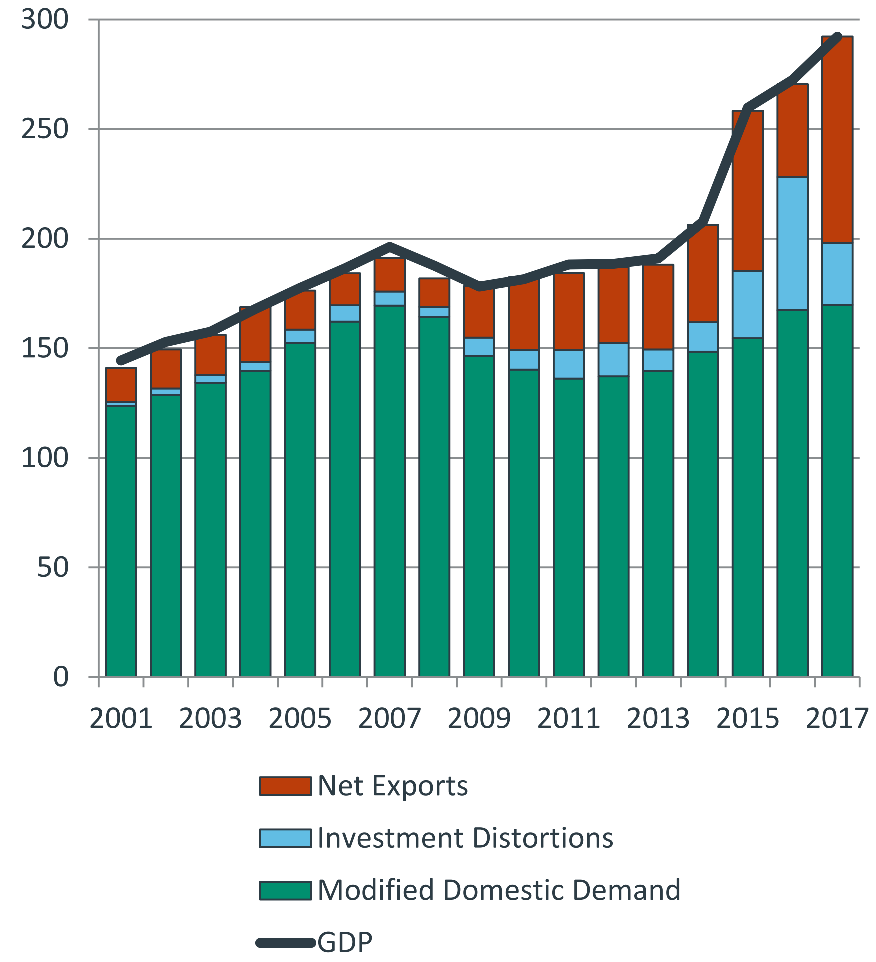
Source: CSO; Department of Finance
**due to confidentiality some sector data for 2015 has been restricted*

The change in capital stock resulted in large increase in net exports

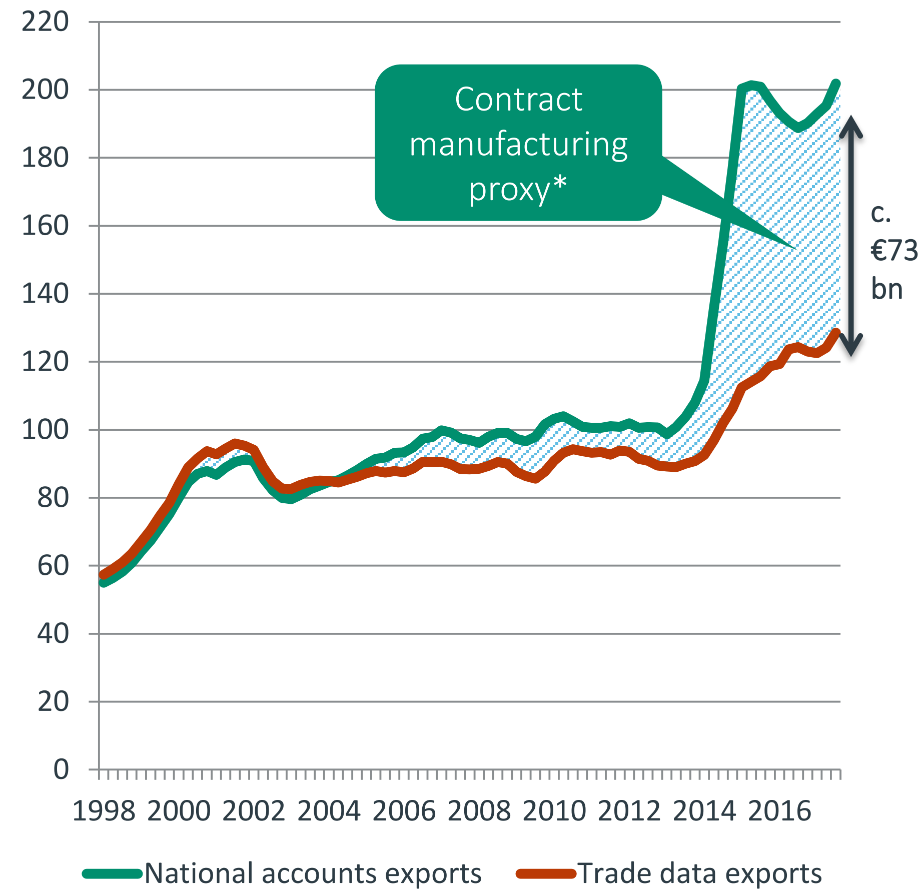
- The capital stock expanded in 2015 by c. €300bn or c. 40%. This is due to:
  - Re-domiciling/inversions of several multinational companies
  - The “onshoring” of IP assets into Ireland by multinationals
  - The movement of aircraft leasing assets in Ireland.
- The transfer of whole entities and assets of this size is not something seen before in Ireland.
- Goods produced by the additional capital were mainly exported. Complicating matters, the goods were produced through “contract manufacturing” (explained in detail overleaf).
- Little or no employment in Ireland results from this contract manufacturing.



Source: [CSO]

Contract manufacturing (CM) overstates the extent of goods export growth in the last three years

- Contract manufacturing (CM) occurs where a company in Ireland engages another abroad to manufacture products on its behalf.
- Crucially, the foreign contract manufacturer supplies a manufacturing service to the Irish entity but the overseas contractor never takes ownership of the product. When the product is sold abroad, a change of *economic* ownership takes place between Ireland and the country where the product is sold.
- **This export is recorded in Ireland's statistics even though it was never produced in Ireland.**
- Previously, CM did not have a significant net impact on GDP as the company would send royalties back to where the intellectual property (IP) was "owned" – it was a royalty import. Now that the IP is here, Ireland's GDP is artificially inflated.



Source: CSO, NTMA Calculations

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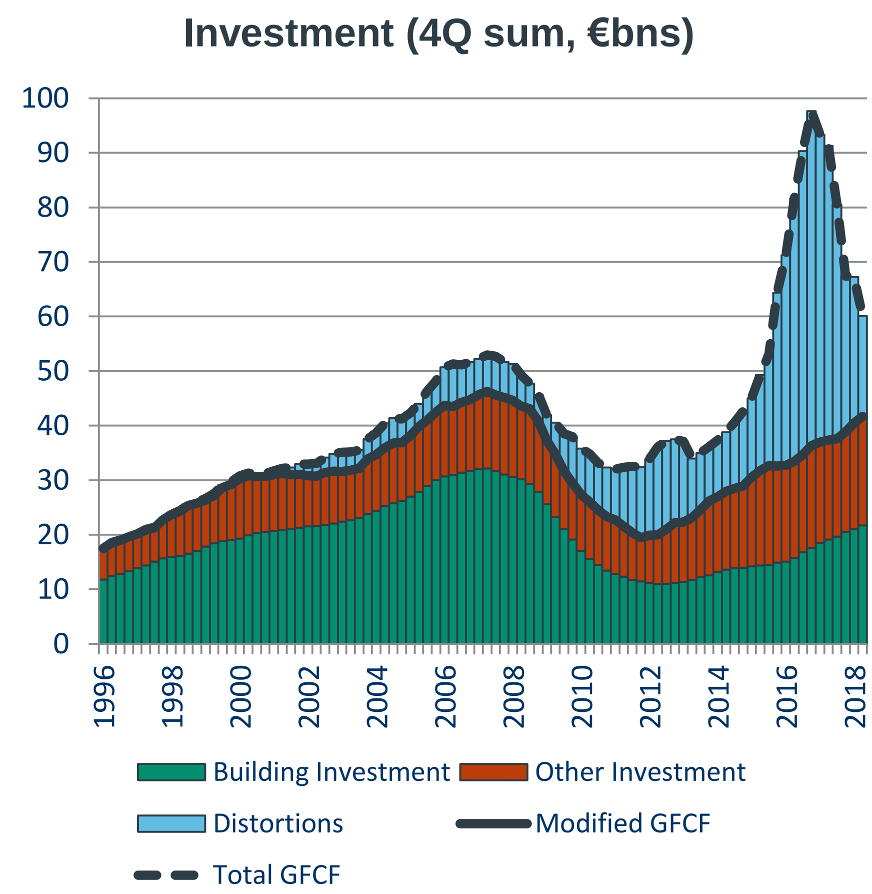
*Contract manufacturing proxy is calculated as the difference between the monthly International trade exports statistics and the National Accounts/BOP measure for goods exports. The monthly data is based on the actual volume of goods flowing through Ireland's various ports/airports whereas the national accounts/BOP makes adjustments for, among other items, contract manufacturing.

Investment distorted by multinationals importing intellectual property (IP) into Ireland

- Investment is above the pre-crisis level due to MNCs importing intangibles into Ireland.
- Ireland has become an ICT hub in recent years with this investment impacting the real economy.
- However the recent sharp increase in intangibles investment overstates Ireland's position and should be discounted accordingly.
- Building investment grew by 12% in H1 2018 versus H1 2017 highlighting pent up demand for housing.



Source: CSO,

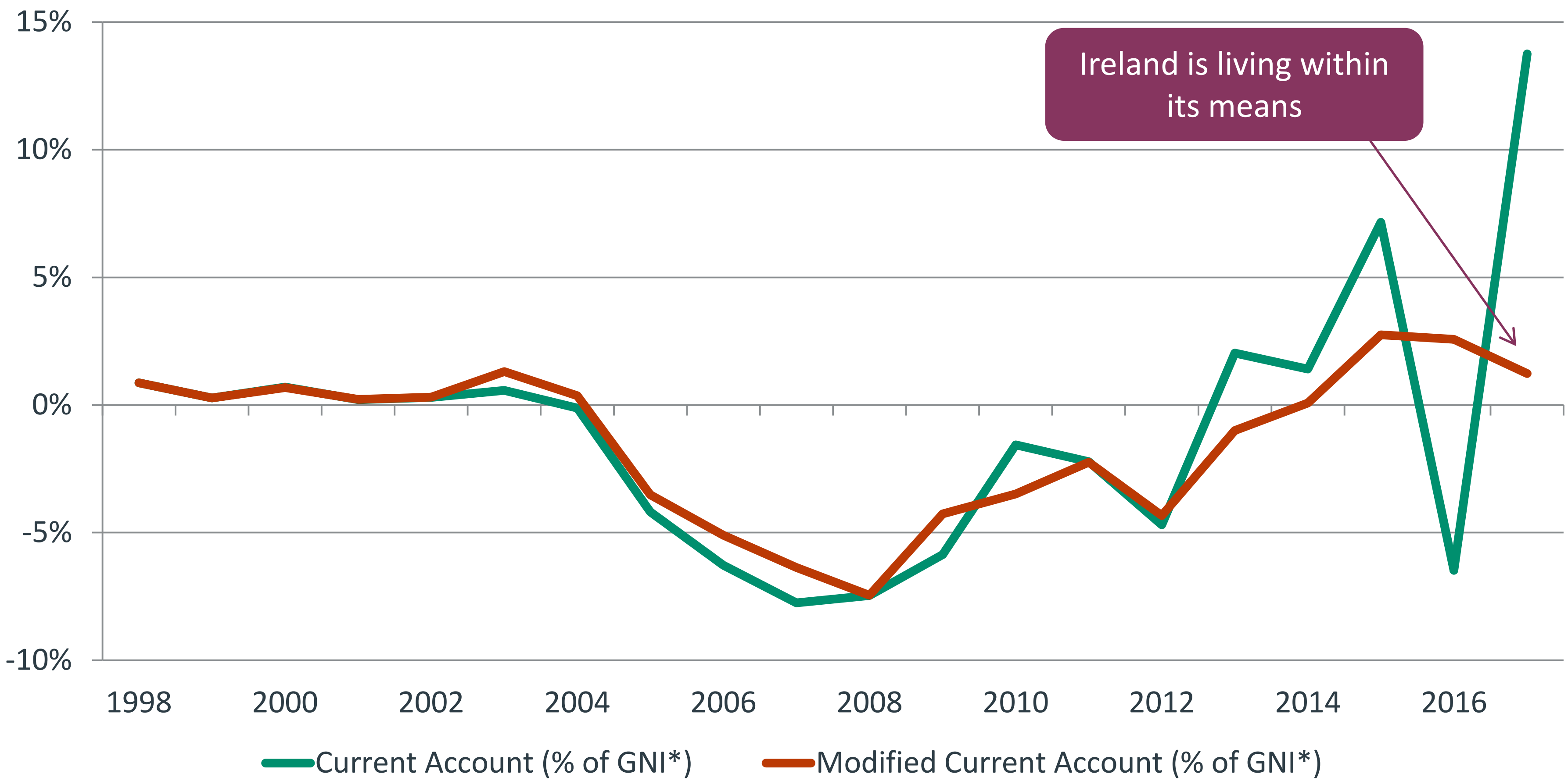
GNI* is a better measure of underlying economic activity than GDP/GNP

- GDP headline numbers do not reflect the "true" growth of Ireland's income due to MNCs.
- Reasons for 2015-17 MNC distortions:
  - Re-domiciling/inversions of several multinational companies
  - The "onshoring" of IP assets into Ireland by multinationals
  - The movement of aircraft leasing assets in Ireland.
- By modifying GNI to take account of these factors, GNI* gives us a better understanding of the underlying economy.
- GNI* only available in nominal terms at present.
- In time, GNI* will be published on a constant price basis.

National Account – Current Prices (Euro, y-o-y growth rates)	2015	2016	2017
Gross Domestic Product (GDP)	262.4bn (34.4%)	273.2bn (4.1%)	294.1bn (7.6%)
minus Net Factor Income from rest of the world			
= Gross National Product (GNP)	200.4bn (22.2%)	222.2bn (10.8%)	233.1bn (4.9%)
add EU subsidies minus EU taxes	1.2bn	1.0bn	1.1bn
= Gross National Income (GNI)	201.7bn (22.3%)	223.2bn (10.7%)	234.2bn (5.0%)
minus retained earnings of re-domiciled firms	-4.6bn	-5.8bn	-4.6bn
minus depreciation on foreign owned IP assets	-31.0bn	-36.7bn	-43.1bn
minus depreciation on aircraft leasing	-4.6bn	-4.9bn	-5.1bn
= GNI*	161.4bn (8.6%)	189.2bn (9.0%)	181.2bn (3.0%)

Source: CSO

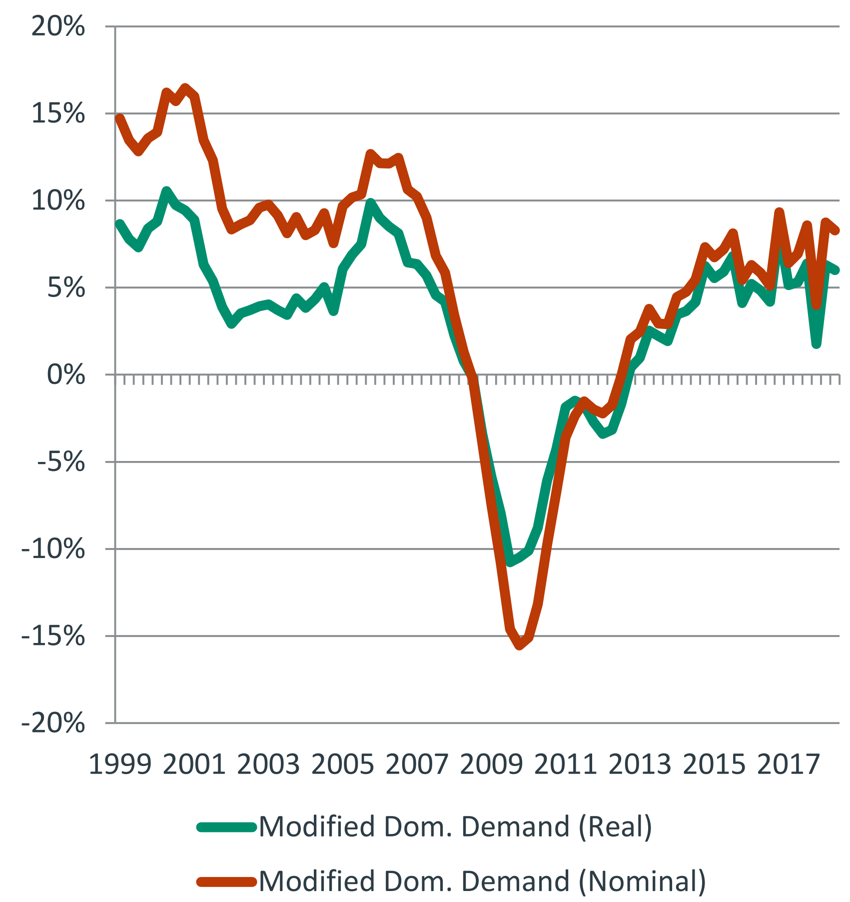
The current account (CA) is distorted heavily by actions of MNEs – CSO has modified CA to be consistent with GNI*



Source: CSO, NTMA calculations
Modified CA=CA less (IP Depreciation + Aircraft Leasing Depreciation + Redomiciled Incomes + R&D Services Exports) adding back (Imports of related to Leasing Aircraft + R&D related IP and services Imports). Significant caution should be exercised when viewing Ireland's current account data. MNC's action distort metrics heavily.

Modified Domestic Demand (MDD) – which ignores the net exports channel - is best cyclical indicator

- GNI* is useful but not timely. MDD is released on a quarterly and real basis.
- MDD ignores the net exports channel. It also omits aircraft leasing and IP imports from investment to give a modified measure of domestic demand.
- The measure includes:
  - private consumption
  - government consumption
  - building investment
  - elements of machinery & equipment investment
  - elements of intangible asset investment
  - value of physical changes in stock
- This measure pegs real growth closer to 6.0% in the year to Q2 2018. Since 2014, annual growth has averaged over 5% when looking at MDD.



Gníomhaireacht Bainistíochta an Chisteáin Náisiúnta
National Treasury Management Agency

Source: CSO, four quarter sum growth rate used to strip out substantial quarterly volatility.
Note MDD includes inventories. Large inventories in Q4 2016 added a further degree of volatility into MDD data.

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