



Banc Ceannais na hÉireann
Central Bank of Ireland

Eurosystem



Quarterly Bulletin

QB1 – February 2020

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Section 1



Notes

1. The permission of the Government has been obtained for the use in this Bulletin of certain material compiled by the Central Statistics Office and Government Departments. The Bulletin also contains material which has been made available by the courtesy of licensed banks and other financial institutions.
2. Unless otherwise stated, statistics refer to the State, i.e., Ireland exclusive of Northern Ireland.
3. In some cases, owing to the rounding of figures, components do not add to the totals shown.
4. The method of seasonal adjustment used in the Bank is that of the US Bureau of the Census X-12 variant.
5. Annual rates of change are annual extrapolations of specific period-to-period percentage changes.
6. The following symbols are used:

e	estimated
n.a.	not available
p	provisional
..	no figure to be expected
r	revised
-	nil or negligible
q	quarter
f	forecast
7. Data on euro exchange rates are available on our website at www.centralbank.ie.

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Forecast Summary Table

	2018	2019f	2020f	2021f
Real Economic Activity				
(% change)				
Personal consumer expenditure	3.4	3.3	2.7	2.2
Public consumption	4.4	5.0	3.6	2.5
Gross fixed capital formation	-21.1	45.8	-31.2	5.3
Exports of goods and services	10.4	10.9	7.4	5.0
Imports of goods and services	-2.9	21.9	-4.2	4.7
Gross Domestic Product (GDP)¹	8.2	6.1	4.83	4.2
Gross National Product (GNP)	6.5	1.5	1.9	2.4
Underlying Domestic Demand	5.3	4.0	3.7	3.0
External Trade and Payments				
Balance-of-Payments Current Account (€ million)	34,290	-1,954	34,027	31,683
Current Account (% of GDP)	10.6	-0.6	9.1	8.0
Prices, Costs and Competitiveness				
(% change)				
Harmonised Index of Consumer Prices (HICP)	0.7	0.9	1.4	1.8
<i>of which: Goods</i>	-0.3	-0.8	-0.5	0.2
Services	1.7	2.4	3.1	3.4
HICP excluding energy	0.1	0.8	1.3	1.6
Consumer Price Index (CPI)	0.5	0.9	1.6	2.0
Compensation per Employee	2.9	3.6	4.2	4.3
Labour Market				
(% change year-on-year)				
Total employment	2.9	2.7	1.8	1.5
Labour force	1.9	1.8	1.6	1.4
Unemployment rate (ILO)	5.7	5.0	4.8	4.7
Technical Assumptions²				
EUR/USD exchange rate	1.18	1.12	1.10	1.10
EUR/GBP exchange rate	0.88	0.85	0.85	0.85
Oil price (\$ per barrel)	71.09	64.05	57.81	55.44

¹ GNI* and adjusted presentations of the BOP/IIP provide more reliable estimates of the resources available to domestic residents.

² The technical assumption made is that exchange rates remain unchanged over the forecast horizon. Oil prices and interest rates are assumed to move in line with the futures market.

Comment

The most recent data indicate that the Irish economy grew at a strong pace in 2019. Despite the rise in uncertainty about economic prospects and increasing external headwinds, the buoyancy of domestic economic activity and strong growth in exports supported the growth of the economy over the past year. Looking ahead, the outlook remains broadly positive, though a number of risks to that outlook continue to prevail. The Central Bank's latest forecast projects that underlying economic activity will continue to grow at a relatively solid pace in coming years, though some moderation in growth is in prospect.

While data for the final quarter of 2019 are not available yet, it is likely that, in terms of GDP, the economy grew by around 6 per cent last year, with underlying domestic demand growing by around 4 per cent. Continued strong gains in employment and rising incomes supported ongoing growth in domestic economic activity, and consumption grew strongly in 2019, despite a marked weakening in consumer sentiment. However, the impact of uncertainty was more evident in some components of investment. Excluding construction and investment in intangible assets by multinational firms, growth in underlying investment by domestic firms has been subdued. It is likely that heightened uncertainty has played a role here, increasing the incentive to defer some investment spending decisions.

Despite the weak external environment, last year saw very strong growth in exports, though this was concentrated in a small number of sectors. Box A, page 16, takes a detailed look at the sectoral concentration of Irish exports. On the goods side, growth in exports was driven by exceptionally strong growth in exports of pharmaceuticals and chemicals, and computer processors, while on the services side, exports of computer services continued to grow robustly. Outside of these sectors, however, growth in other export categories has been far more modest and more in line with subdued international trade and weaker demand in Ireland's main trading partners. Growth in goods exports to the UK has been weak for some time now and remains relatively flat.

Looking ahead, the central forecast is that economic growth is set to be supported by a still solid pace of expansion in domestic economic activity. This expansion is projected to be underpinned by continued growth in employment and real incomes and the ongoing recovery of the construction sector. While underlying domestic demand is forecast to grow at a relatively solid pace in coming years, a gradual moderation in growth from last year's 4 per cent rate is in prospect, with growth of 3.7 per cent projected for 2020 and 3.0 per cent for 2021.

The expansion in activity on the domestic side of the economy should continue to be supported by further growth in employment and incomes. Given the slight easing seen over the past year, employment growth is projected to continue to slow somewhat from its previous very strong growth rate. This slowing reflects the limiting impact of domestic labour supply constraints. Given the forecast moderation in employment growth, the growth of consumer spending is also projected to ease back somewhat from its current growth rate of over 3 per cent.

Turning to exports, once again, multinational activity is likely to be a key driver. Reflecting the strength of export growth in a small number of sectors, overall export growth is likely to remain stronger than would be suggested by the prospects for demand in Ireland's main trading partners. This is likely to continue to mask slower growth in other key export sectors, where the relatively weak external demand outlook points to more subdued growth. Allied to the outlook for domestic economic activity, GDP growth is projected to moderate from 6.1 per cent in 2019 to 4.8 per cent this year and 4.2 per cent in 2021.

The estimated growth outturn for 2019 and the outlook for 2020 have been revised upwards, when compared to the forecasts published in the last Bulletin in October 2019. This reflects both stronger domestic demand and export data for 2019 and a more positive outlook for exports for this year and next. On the assumption of a trade agreement between the UK and the EU from 2021, which avoids the disruption of a disorderly Brexit but is less favourable than the current status quo, the outlook for underlying domestic demand next year has been revised down compared to the last Bulletin.

An article published in this Bulletin, 'Dealing with Friction: EU-UK Trade and the Irish Economy after Brexit' (pages 86-105), examines the possible impact on the Irish economy of an EU-UK Free Trade Agreement. The article looks at the potential impact of a basic Free Trade Agreement that allows for tariff and quota-free trade in goods, but would exclude trade in services. Such an agreement would give rise to non-tariff barriers on EU-UK trade due to the introduction of customs procedures, rules of origin requirements and other trade costs related to any differences in regulatory standards. The analysis finds that, while an orderly move to a Free Trade Agreement would result in smaller losses than trading on WTO terms, a basic Free Trade Agreement would still imply significantly higher trade frictions than exist today. The analysis estimates that a transition to such an agreement would result in Irish output being around 3.5 per cent lower in the long-run than if the UK had remained a member of the EU. If a new EU-UK trade agreement is not concluded before the end of 2020 and the UK

moves to trading on WTO terms, the estimates indicate that Irish output would be around 5 per cent lower in the long term.

However, this is only one possible scenario and the nature of the future economic and trading relationship between the UK and the EU still remains to be decided. Until it is, uncertainty over the potential impact of Brexit on the Irish economy is likely to remain. In addition, on the external side, there are also global risk factors related to the changing international trade and taxation landscape and the international economic outlook. The sizeable contribution of the multinational sector in terms of jobs, tax revenue and trade leaves the Irish economy vulnerable to changes in the global economic environment, as well as changes in international trade and tax regimes. On the domestic side, while some moderation in underlying domestic demand is in prospect following a period of strong growth, labour market conditions are set to tighten further. As domestic capacity becomes more constrained, and with wage growth set to increase further, there is a need to continue to guard against the risk that strong cyclical conditions give rise to overheating dynamics.

Economic growth has remained remarkably resilient in recent years in the face of significant headwinds. Looking ahead, the role of policy is to underpin stability by dampening potential volatility and enhancing the economy's resilience to withstand shocks.

An Timpeallacht Gheilleagrach

Tugann na sonraí is déanaí le fios gur tháinig fás láidir ar gheilleagar na hÉireann in 2019. Cé gur tháinig méadú ar an éiginnteacht maidir le hionchais eacnamaíocha agus constaicí seachtracha, bhí buacacht na gníomhaíochta eacnamaíche intíre agus fás láidir ar onnmhairí ag tacú leis an bhfás ar an ngeilleagar le bliain anuas. Ag féachaint romhainn, tá an tionchas dearfach ar an iomlán, ach tá roinnt rioscaí ann i gcónaí don ionchas sin. Tuairtar sa réamhaisnéis is déanaí ón mBanc Ceannais go leanfaidh fás réasúnta seasmhach ar an mbunghníomhaíocht eacnamaíoch sna blianta atá romhainn, cé go bhféadfadh maolú áirithe teacht ar an bhfás sin.

Cé nach bhfuil sonraí ar fáil fós don ráithe dheireanach de 2019, is é is dóichí gur tháinig fás 6 faoin gcéad i dtéarmaí OTI ar an ngeilleagar anuraidh agus gur tháinig fás 4 faoin gcéad ar an mbunéileamh intíre. Bhí méaduithe leanúnacha ar fhostaíocht agus ar ioncaim ag tacú le fás leantach ar an ngníomhaíocht eacnamaíoch intíre agus tháinig fás láidir ar thomhaltas in 2019, in ainneoin lagú suntasach ar sheintimint tomhaltóirí. Ar a shon sin, bhí tionchar na héiginnteachta níos soiléire i ngnéithe áirithe den infheistíocht. Cé is moite d'infheistíocht ag gnólachtaí ilnáisiúnta i sócmhainní doláimhsithe agus i sócmhainní caipitil atá soghluaiste go hidirnáisiúnta, agus d'infheistíocht a bhaineann le foirgníocht a bhfuil fás láidir ag teacht uirthi, bhí an fás ar bhuninfheistíocht ag gnólachtaí intíre sách maolaithe. Is dócha go raibh baint ag an éiginnteacht ghéaraithe leis seo toisc gur mó an dreasacht atá ann cinntí áirithe maidir le caiteachas infheistíochta a chur siar.

D'ainneoin na timpeallachta laige seachtraí, chonacthas fás an-láidir ar onnmhairí anuraidh, ach bhí an fás sin dírithe ar líon beag earnálacha. I mBosca A, leathanach 16, breathnaítear go mion ar chomhchruinniú earnála onnmhairí Éireannacha. Ó thaobh earraí de, bhí an fás ar onnmhairí á spreagadh ag fás fíor-láidir ar onnmhairí cógaisíochta agus ceimiceán, agus ar phróiseálaithe ríomhaire, fad a tháinig fás an-láidir ar onnmhairí seirbhísí ríomhaire ó thaobh na seirbhísí de. Lasmuigh de na hearnálacha sin, áfach, bhí an fás ar aicmí onnmhairí eile níos measartha agus bhí sé ag teacht le leibhéal maolaithe na trádála idirnáisiúnta agus le héileamh níos laige i bpríomhpháirtithe trádála na hÉireann. Tá fás ar onnmhairiú earraí chuig an Ríocht Aontaithe maolaithe le tamall anuas agus tá sé íseal i gcónaí.

Ag féachaint romhainn, is é príomh-réamhaisnéis an Bhainc Ceannais go mbeidh luas seasmhach an leathnaithe ar an ngníomhaíocht eacnamaíoch intíre ag tacú le fás eacnamaíoch. Meastar go mbeidh fás leanúnach ar fhostaíocht agus ar fhíorioncaim, mar aon leis an téarnamh leanúnach san earnáil tógála, mar bhunús leis an leathnú sin. Cé go meastar go dtiocfaidh fás sách seasmhach ar an mbunéileamh intíre sna blianta atá romhainn,

tuairtear go dtiocfaidh maolú céimseach ar an bhfás sin ó ráta 4 faoin gcéad a chonacthas anuraidh go dtí fás 3.7 faoin gcéad in 2020 agus 3.0 faoin gcéad in 2021.

Ba cheart go dtacódh fás breise ar fhostaíocht agus ar ioncaim leis an leathnú ar ghníomhaíocht ar an taobh intíre den gheilleagar. I bhfianaise an mhaolaithe atá feicthe le bliain anuas, meastar go moilleoidh an fás ar fhostaíocht i gcomparáid leis an ráta láidir fáis a bhí ann roimhe seo. Léiríonn an moilliú seo an tionchar teorantach a bhíonn ag srianta acmhainne intíre de réir a chéile. I bhfianaise an mhaolaithe atá á thuar ar an bhfás ar fhostaíocht, meastar go maolóidh an fás ar chaiteachas tomhaltóirí ón ráta reatha atá os cionn 3 faoin gcéad.

Maidir le honnmhairí, is dócha go mbeidh gníomhaíocht ilnaisiúntach ina príomhspreagadh. Ag freagairt do láidreacht an fháis ar onnmhairí i líon beag earnálacha, is dócha go mbeidh an fás foriomlán ar onnmhairí níos láidre ná mar a thabharfaí le tuiscint ó na hionchais don éileamh i bpríomhpháirtithe trádála na hÉireann. Is dócha go leanfaidh sé seo d'fheidhmíocht níos laige a cheilt i bpríomhearnálacha onnmhairí eile, áit a dtugann an t-ionchas sách lag don éileamh seachtrach le fios go mbeidh fás maolaithe ann. I dteannta an ionchais do ghníomhaíocht eacnamaíoch intíre, tuairtear go maolóidh fás OTI ó 6.1 faoin gcéad in 2019 go dtí 4.8 faoin gcéad i mbliana agus go dtí 4.2 faoin gcéad in 2021.

Rinneadh athbhreithniú aníos ar an toradh measta fáis do 2019 agus ar an ionchas do 2020 i gcomparáid leis na réamhaisnéisí a foilsíodh san Fhaisnéis Ráithiúil dheireanach i mí Dheireadh Fómhair. Léiríonn sé seo éileamh intíre níos láidre agus sonraí maidir le honnmhairí do 2019 mar aon le hionchas níos dearfaí don bhliain seo agus don bhliain seo chugainn. Ag glacadh leis go mbeidh comhaontú trádála idir an Ríocht Aontaithe agus an AE ó 2021 a sheachnódh saobhadh ó Brexit mí-ordúil ach gur lú fabhar é ná an *status quo*, tá athbhreithniú anuas déanta ar an ionchas don bhunéileamh intíre don bhliain seo chugainn i gcomparáid leis an bhFaisnéis Ráithiúil dheireanach.

In alt a foilsíodh san Fhaisnéis seo dar theideal, 'Dealing with Friction: EU-UK Trade and the Irish Economy after Brexit' (leathanaigh 86-105), scrúdaítear an tionchar a d'fhéadfadh a bheith ag Comhaontú Saorthrádála RA-AE ar gheilleagar na hÉireann. Breathnaíonn an t-alt ar an tionchar a d'fhéadfadh a bheith ag Comhaontú Saorthrádála bunúsach ina ndéanfaí foráil do thrádáil saor ó tharaifí agus ó chuótaí ach ina n-eisiafaí trádáil i seirbhísí. D'eascródh bacainní neamhtharaifí ar thrádáil RA-AE as comhaontú den sórt sin toisc go dtabharfaí isteach nósanna imeachta custaim, rialacha i dtaobh tionscnaimh, agus costais trádála eile maidir le haon difríochtaí idir na caighdeáin rialála. Cé go mbeadh cailiteanais níos lú i

gceist le haistriú ordúil chuig Comhaontú Saorthrádála ná mar a bheadh i gceist le trádáil ar théarmaí WTO, tugann an anailís seo le tuiscint go mbeadh teannais trádála i bhfad níos airde i gceist le Comhaontú Saorthrádála bunúsach ná mar atá ann faoi láthair. San anailís seo, meastar go mbeadh aschur Éireannach 3.5 faoin gcéad níos lú san fhadtéarma dá n-aistreofaí chuig comhaontú den sórt sin ná mar a bheadh i gceist dá bhfanadh an RA san AE, agus go mbeadh aschur 5 faoin gcéad níos lú ann i gcás ina mbeadh an RA ag trádáil ar théarmaí WTO.

Níl i gceist sa mhéid seo, áfach, ach cás féideartha amháin agus tá cineál an chaidrimh eacnamaíoch agus an chaidrimh trádála idir an RA agus an AE amach anseo fós le cinneadh. Go dtí ndéanfar amhlaidh, is dócha go leanfaidh an éiginnteacht maidir leis an tionchar a d'fhéadfadh a bheith ag Brexit ar gheilleagar na hÉireann. De bhreis air sin, tá tosca rioscaí domhanda ann freisin ar an taobh seachtrach a bhaineann le timpeallacht trádála idirnáisiúnta agus cánach atá ag athrú, agus leis an ionchas eacnamaíoch idirnáisiúnta. Toisc go gcuireann an earnáil ilnáisiúnta go suntasach le geilleagar na hÉireann i dtéarmaí post, ioncam cánach, agus i dtéarmaí trádála, fágann sé go bhfuil geilleagar na hÉireann leochaileach d'athruithe ar an timpeallacht eacnamaíoch dhomhanda agus d'athruithe ar chórais trádála agus cánach idirnáisiúnta. Ar an taobh intíre, tá dálaí an mhargaidh saothair fós le daingniú tuilleadh, cé go bhfuil maolú áirithe ar an mbunéileamh intíre á thuar i ndiaidh tréimhse fáis láidir. Fad a bhíonn srianta acmhainne intíre ag dul i laghad, agus i bhfianaise go dtiocfaidh méadú breise ar fhás pá, is gá cosaint a thabhairt in aghaidh an riosca go n-eascróidh dinimic an róbhorrtha as dálaí timthriallacha láidre.

Is díol iontais é athléimneacht an fháis eacnamaíoch le blianta beaga anuas i bhfianaise na gconstaicí suntasacha. Ag féachaint romhainn, is ról beartais é taca a chur faoin gcobhsaíocht trí luaineacht fhéideartha a mhaolú agus trí athléimneacht an gheilleagar in aghaidh turraingí a fheabhsú.

The Irish Economy

Overview

- Economic growth remained resilient in 2019 in the face of significant headwinds from weak world demand and heightened Brexit related uncertainty. While the outlook for the economy remains positive in 2020 and 2021, some moderation in underlying domestic demand growth is likely. This primarily reflects both external demand prospects and the erosion of spare capacity domestically. Growth in underlying domestic demand is forecast to slow from 4 per cent in 2019 to 3.7 per cent this year and 3 per cent in 2021. Growth in GDP is projected to moderate from 6.1 per cent in 2019 to 4.8 per cent this year and 4.2 per cent in 2021.
- The outlook for growth this year and the estimated outturn for 2019 have been revised upwards when compared to the Brexit deal scenario in the previous Bulletin. This reflects both stronger 2019 data for domestic demand and exports and a more positive outlook for exports this year and in 2021. The outlook for 2021 is less positive in terms of underlying domestic demand. This reflects the likelihood of a trade agreement between the United Kingdom and the European Union which is likely to represent a worse position for Irish firms trading with the UK than the maintenance of existing arrangements.
- Contrasting trends in consumer spending and investment characterised developments in domestic demand last year. Weak sentiment, due to heightened uncertainty regarding Brexit and international trading conditions, was reflected in a marked slowdown in underlying investment but had little impact on consumer spending which remained strong, supported by strong income and employment growth.
- Consumer spending growth last year, at about 3.3 per cent, was broadly similar to the previous year. Looking ahead, solid growth in incomes and employment, improving household balance sheets and a recovery in consumer sentiment will support continued, albeit moderating, growth in private consumption of 2.7 per cent this year and 2.2 per cent in 2021.
- Headline investment, boosted by a surge in intellectual property (IP) investment masked a pronounced slowdown in the growth of underlying investment, from 13 per cent growth in 2018 to less than 5 per cent growth last year. This reflected a decline in

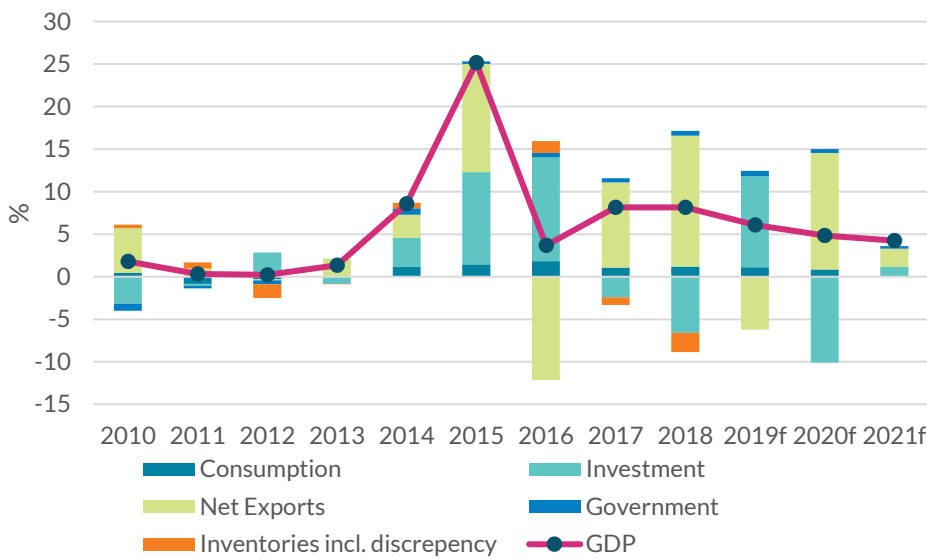
machinery and equipment investment that was offset by strong growth in building and construction, supported by a rise in housing completions. Levels of underlying investment, however, remain high by historical standards and are almost at the previous peak in 2007. An improvement in business sentiment, with some unwinding of Brexit-related uncertainty, should support a pick-up in underlying investment growth to 7.1 per cent this year, moderating to 5.8 per cent growth in 2021.

- Strong growth in total exports last year of 10.9 per cent belied a very weak external demand environment, but remained concentrated in a small number of sectors and attributable to a small number of multinational firms. Growth in goods exports was driven by exceptional strength in pharmaceuticals and chemicals with other sectors recording modest growth that was more in line with subdued external demand conditions. A similar pattern was evident in services exports with strong overall growth largely accounted for by computer services and business services. Other sectors, such as tourism were broadly flat, and in some cases mildly negative.
- Reflecting sector-specific demand and the prospect of increased production capacity, export growth is forecast to remain strong this year and in 2021 but, again, is expected to be concentrated in a small number of sectors and multinational firms. Growth in exports will continue to be driven by pharmaceuticals, computer processors and computer services
- Globalisation effects contributed to exceptional volatility in imports which increased by 21.9 per cent last year. Business services imports spiked in the second quarter, most likely due to imports of IP assets, while weak merchandise imports in the second half of the year was driven by a slowdown in imports of transport equipment, including airplanes purchased by aircraft leasing firms. A forecast decline of 4.2 per cent in imports in 2020 reflects a substantial base effect due to the absence of these factors in the forecast. The growth rate of imports is forecast to normalise in 2021, coming more into line with the outlook for exports and domestic demand.
- Employment growth averaged 2.7 per cent in the first three quarters of 2019, while unemployment declined to an average rate of 5 per cent, down from 5.7 per cent in the previous year. Following exceptionally strong growth in the first quarter, employment growth moderated during the remainder of the year. This trend is forecast to continue in 2020 and in 2021 with growth in

employment expected to rely increasingly on inward migration. Employment growth of 1.8 per cent this year and 1.5 per cent in 2021 is forecast to remain slightly ahead of growth in labour supply, giving scope for a modest decline in the unemployment rate to an average of 4.8 per cent this year and 4.7 per cent in 2021.

- Inflationary pressures in the Irish economy remained subdued last year, with both headline and underlying HICP inflation staying below 1 per cent. As the economy approaches full employment, some pick up in domestic inflationary pressures is to be expected. This will be reflected in a gradual acceleration in services prices, which, together with a less negative trend in goods prices would see HICP inflation average 1.4 per cent this year and 1.8 per cent in 2021.
- While the outlook for the economy is broadly positive, risks remain tilted to the downside. The near-term risk of a disruptive Brexit has dissipated. However, uncertainty about the nature of the future trading relationship between the UK and the EU remains. In addition, other external risks including escalation of international trade tensions and other geopolitical risks remain elevated. Domestically, the trajectory of growth points to a potential risk of overheating which would undermine competitiveness, leaving the economy more exposed to future external shocks.

Figure 1: Contributions to GDP Growth



Source: CSO and Central Bank of Ireland.

Box A: Sectoral Concentration in Irish Exports

By Stephen Byrne, Luke Doyle and Peter McQuade³

This box outlines the extent to which Irish export growth has become concentrated in the pharmaceutical and ICT sectors and in so doing draws together a variety of publically available data to give new insights to these sectors.

Irish export growth has remained remarkably resilient over the past two years despite a pronounced downturn in the external environment (Figure 1). Irish exports expanded by 12.1 per cent year-on-year in the first three quarters of 2019, despite trade-weighted world demand for Irish exports growing by just 1.7 per cent over the same period. This is significantly above existing estimates of the short run elasticity of Irish exports to world demand.⁴

Figure 1: Irish exports have grown consistently despite a weakening in trade weighted external demand



This divergence of export performance from external conditions can be explained by the composition of Irish exports.⁵ In particular, merchandise exports have become increasingly concentrated in the pharmaceuticals, with much of the remaining growth attributable to the computer hardware sector. At the same time, computer services now dominate

³ Irish Economic Analysis and International Relations Division

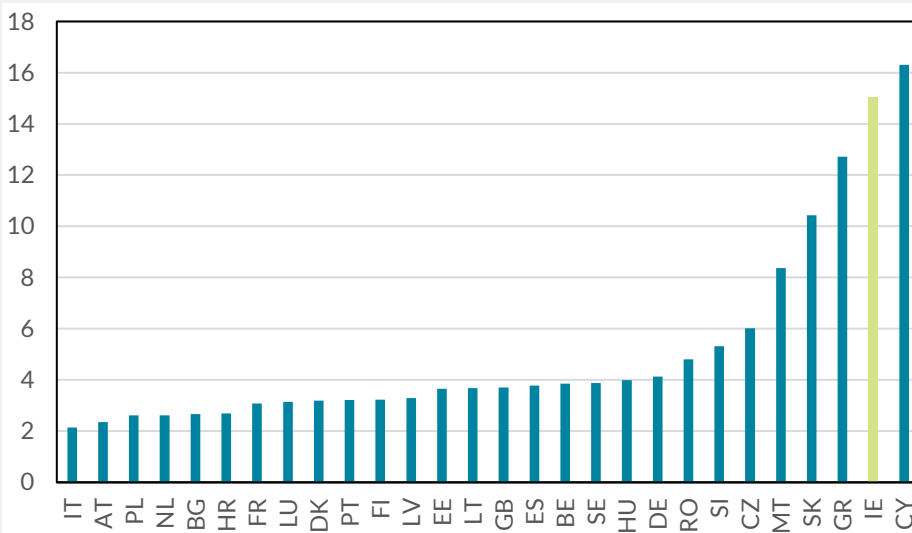
⁴ [Byrne, S. and Lenihan, S. \(2018\) The response of Irish Exports to World Demand, Central Bank of Ireland, Quarterly Bulletin 2018, No. 3, Box D.](#)

⁵ [Byrne, S. \(2019\) Strong Pharmaceutical Exports Boost Overall Export Growth, Central Bank of Ireland, Quarterly Bulletin 2019, No. 1, Box C.](#)

services exports and continue to expand rapidly. The analysis presented below suggests that these categories are likely to continue grow rapidly, at least over the forecast horizon. This supports the buoyant export growth forecast contained in this Bulletin.

However, the concentration of export growth in a small number of products represents a risk to the outlook as a shock to one or two firms or products could result in a significant downturn in Irish exports.⁶ Figure 2 makes use of disaggregated trade data to calculate a Herfindahl-Hirschman index (HHI) of concentration in merchandise exports. The level concentration in the Irish merchandise export basket is higher than in most other European countries, with Ireland second only to Cyprus.⁷ The remainder of the box provides a more detailed examination of the specific categories that dominate Irish exports and Irish export growth.

Figure 2: Herfindahl-Hirschman Index of Merchandise Export Concentration across Countries (2018)



Source: Eurostat, Central Bank of Ireland staff calculations

Merchandise Exports

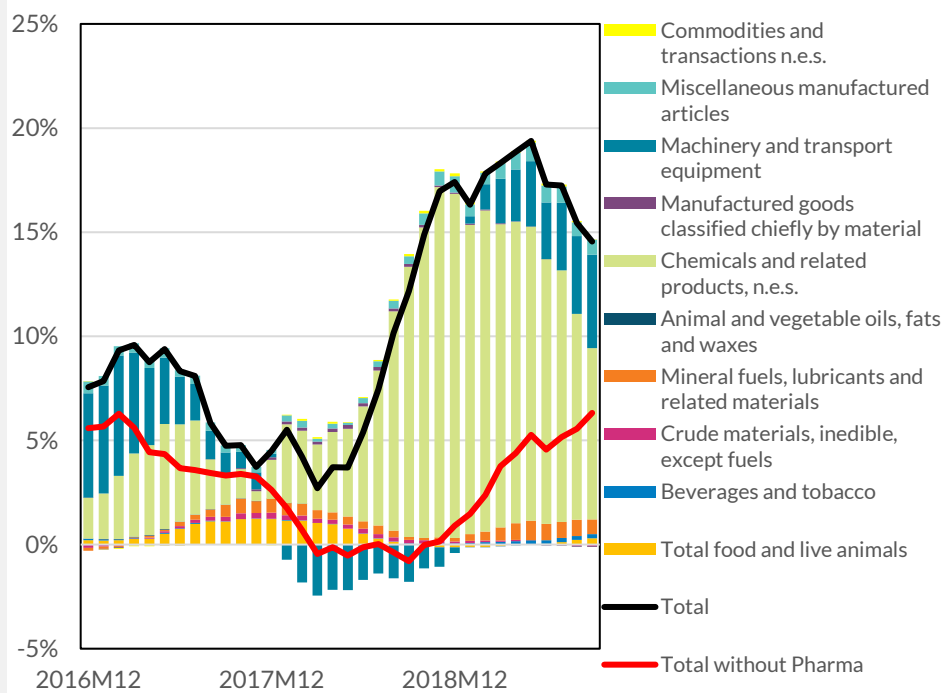
Chemicals and related products have dominated export growth over the past 18 months (Figure 3). In late 2018 and early 2019, growth in the other export sectors was weak enough that without the contribution of this sector overall merchandise export growth would have been flat.

⁶ [Wosser, M., O'Brien, M. and Mehigan, C. \(2019\) Financial stability considerations of being a small, highly globalised economy, Central Bank of Ireland Financial Stability Review 2019, No. 1, Box 2.](#)

[Lane, P.R. \(2019\) Tail Risks and the Irish Economy, Lecture delivered to UCD School of Economics, 16 April 2019.](#)

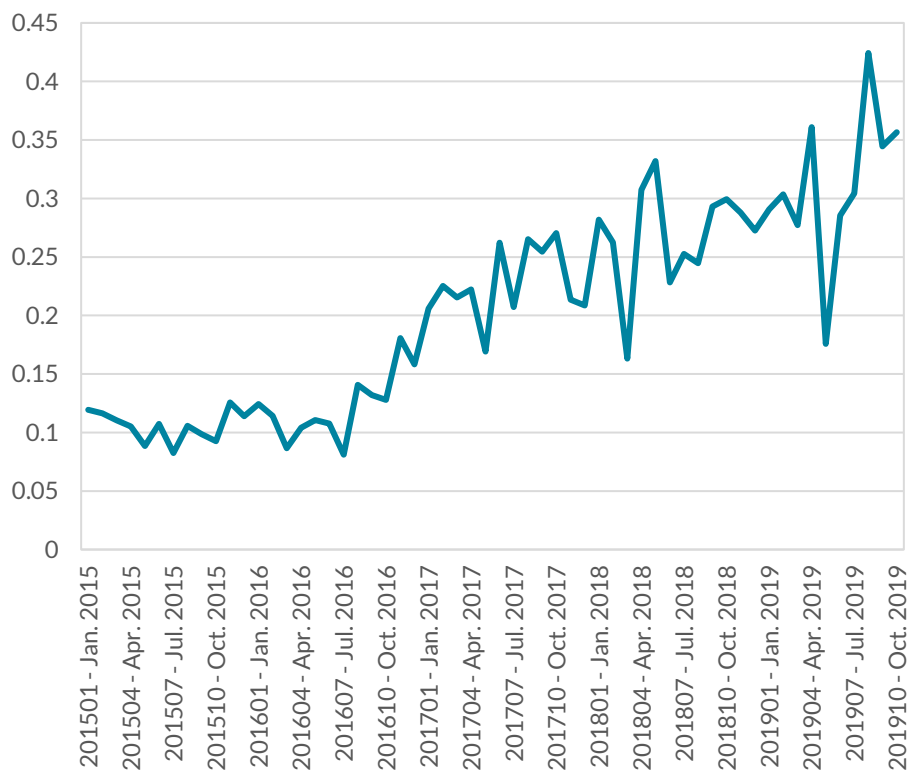
⁷ Cyprus' merchandise exports in 2018 were highly concentrated in Boats and Ships (24 per cent) Petrol (15.1 per cent).

Figure 3: Export Growth and Contributions from 1-digit SITC Categories



Merchandise exports data are published according to the Standard for International Trade Classification (SITC) codes. Figure 2 displays a breakdown of merchandise exports at the one-digit SITC, which divides products into 10 categories. *Chemicals and related products* accounted for almost 62 per cent of merchandise exports in the first three quarters of 2019. Given its importance, it is useful to look in more detail at what is driving this surge. Using more detailed data published by Eurostat, we can examine SITC data disaggregated into 2,970 categories. One product category, *Antisera and Other Blood Fractions*, is responsible for approximately 40 per cent of the growth in *Chemicals and related products* (Figure 3). Exports of this product averaged EUR 2.5bn per month during 2019. Approximately half of the exports of this product in 2019 were to the US. Belgium also accounted for a sizable share of the exports, possibly reflecting its position as a distribution hub for pharmaceuticals in Europe.

Figure 4: Irish Exports of Antisera and Other Blood Fractions

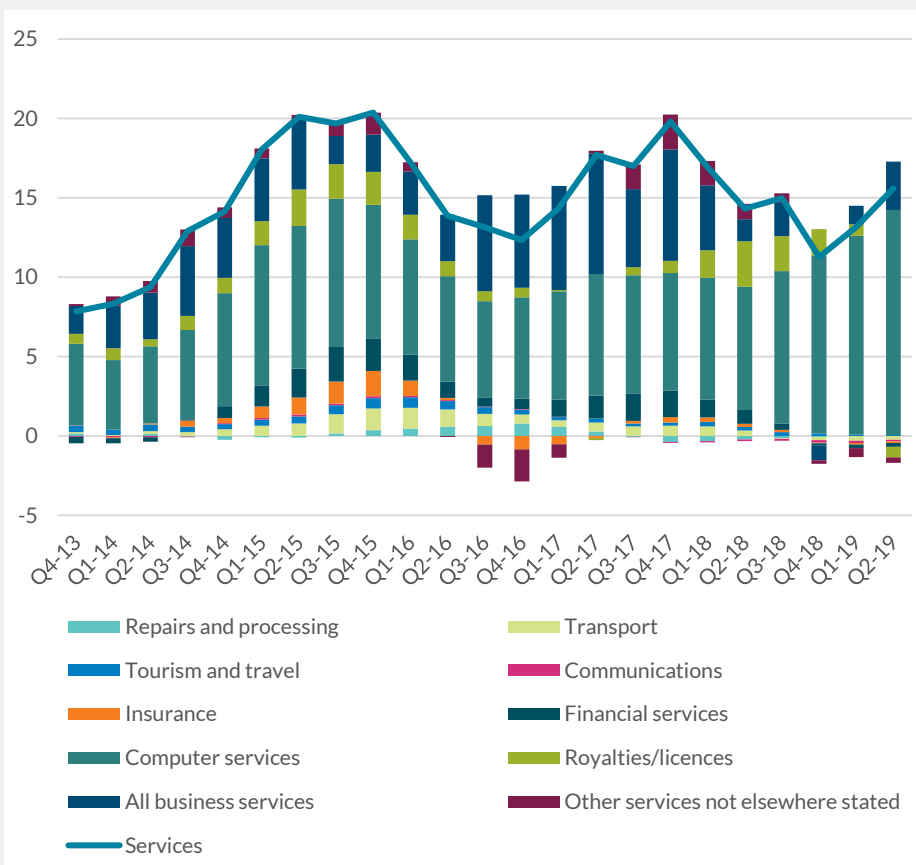


In recent months, there has also been a strong surge in exports of Machinery and Equipment (dark green bars in Figure 2). Looking into the detail again shows that one five-digit product code, “processors and controllers, whether or not combined with memories, converters, logic circuits, amplifiers, clock and timing circuits, or other circuits”, has been responsible a significant proportion of this growth. In short, this product classification refers to exports of computer processors. These goods are predominantly exported to the US and China, reflecting Ireland’s position in the global value chain for the production of computer hardware – with these processors being exported for assembly into computers and other devices elsewhere. Combined, these two product categories accounted for more than 20 per cent of total exports of merchandise goods in the third quarter of 2019.

Figure 5: Irish exports of computer processors



Figure 6: Irish Services Export Growth



Services exports have grown rapidly in recent years such that they now account for almost half of total exports.⁸ Much of this increase is attributable to computer services exports (Figure 6), exports of which

⁸ Byrne, Stephen & O'Brien, Martin, 2015. "The Changing Nature of Irish Exports: Context, Causes and Consequences," Quarterly Bulletin Articles, Central Bank of Ireland, pages 58-72, April.

have doubled since 2016 and now account for nearly a quarter of total exports. Highly disaggregated service categories, similar to those described above for goods, are not available for services. However, it is known that a number of the largest ICT firms in the world operate in Ireland, including Google, Microsoft and Facebook.⁹

What is driving these developments?

Table 1: Top 15 bestselling pharmaceuticals worldwide of 2018

Trade Name	Manufacturer	2018 Sales (million USD)	Increase (YoY %)
Humira	AbbVie	19936	8.2
Eliquis	Bristol-Myers Squibb	9872	33.5
Revlimid	Celgene (Bristol-Myers Squibb)	9685	18.3
Opdivo	Bristol-Myers Squibb	7570	31.4
Keytruda	Merck	7171	88.3
Enbrel	Pfizer	7126	-9.6
Herceptin	Genentech	6981	-0.5
Avastin	Genentech	6847	2.4
Rituxan/MabThera	Genentech and Roche	6750	-7.5
Xarelto	Bayer and Johnson & Johnson	6589	5.7
Eylea	Bayer and Regeneron	6551	12.4
Remicade	Janssen Biotech (Johnson & Johnson)	5908	-17.4
Prevnar 13	Pfizer	5802	3.6
Stelara	Janssen Biotech (Johnson & Johnson)	5156	28.5
Lyrica	Pfizer	4970	-1.9

Source: [Genengnews](#)

Note: Trade publications and the annual accounts of the companies listed suggests that the items highlighted in green are produced in Ireland.

Previous episodes of volatile export dynamics show that it is important to understand what sector and firm specific developments are behind the aggregate figures. For example, at the end of 2011 and 2012 a number of major drugs produced in Ireland fell out of patent. In particular, Lipitor – a cholesterol treatment made by Pfizer, for which the active ingredient was produced in Ireland, came off patent resulting in a significant drop in exports.¹⁰

⁹ Emter, L., McQuade, P. and Mehigan, C. (2019) MNEs and Ireland: A Firm Level Analysis, Central Bank of Ireland, Quarterly Bulletin 2019, No. 3, Box E.

¹⁰ John FitzGerald (2015). Problems Interpreting National Accounts in a Globalised Economy. ESRI Special Article.

The recent strength of pharmaceutical exports appear to be linked to the increasing use of a number of cutting edge immunology drugs (or their components) which are produced in Ireland. Many of these new drugs have recently received regulatory approval. One drug likely to have contributed to the sharp rise in exports of Antisera and Other Blood Fractions is *Keytruda* (Pembrolizumab). *Keytruda* is an immunological treatment produced by MSD Worldwide (also known as Merck). Worldwide sales of *Keytruda* have increased dramatically, standing at over USD 7 bn in 2018, an 88.3 per cent increase from 2017 making it the 6th highest selling pharmaceutical drug in the world in 2018 (Table 1).^{11,12,13,14} According to media reports, MSD supply the US market from Ireland and MSD Ireland has plans to further increase its Irish manufacturing capacity for *Keytruda* by 2021.¹⁵ Similarly, *Stelara* (Ustekinumab) was initially approved as a treatment for psoriasis and is produced by Janssen Biotech in Ireland, which has recently also expanded its manufacturing capacity in Ireland. Sales for *Stelara* were USD 5.156 bn in 2018, an increase of 28.5 per cent from 2017.¹⁶ As well as expanding Irish production facilities, both drugs have received approval as treatments for an increasing range of illnesses in recent years.^{17,18} Taken together, this suggests that exports of *Antisera and Other Blood Fractions* from Ireland might be expected to continue to grow in the near term.

¹¹ https://s21.q4cdn.com/488056881/files/doc_financials/2018/Q4/Merck-News-Release-02-01-19-Merck-Announces-Fourth-Quarter-and-Full-Year-2018-Financial-Results.pdf

¹² https://s21.q4cdn.com/488056881/files/doc_financials/2019/Merck-News-Release-04-30-19-Merck-Announces-First-Quarter-2019-Financial-Results.pdf

¹³ https://s21.q4cdn.com/488056881/files/doc_financials/2019/Q2/Merck-News-Release-07-30-19-Merck-Announces-Second-Quarter-2019-Financial-Results.pdf

¹⁴ https://s21.q4cdn.com/488056881/files/doc_financials/2019/q3/Merck-3Q19-Earnings-News-Release.pdf

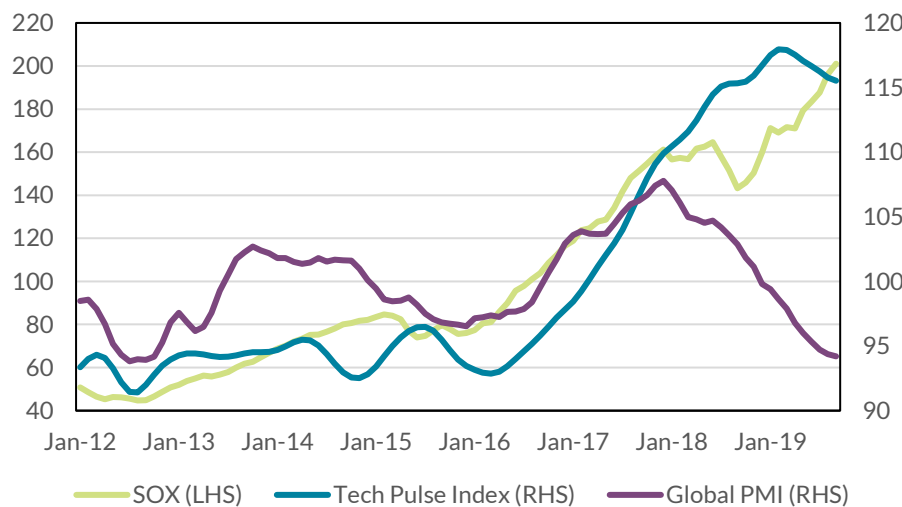
¹⁵ <https://www.irishtimes.com/business/health-pharma/cancer-drug-keytruda-drives-profit-at-merck-1.3480278>

¹⁶ <https://www.pharmaceutical-technology.com/projects/janssen-biologics-manufacturing-facility-expansion-ringaskiddy-ireland/>

¹⁷ <https://www.drugs.com/history/keytruda.html>

¹⁸ <https://www.drugs.com/history/stelara.html>

Figure 7: Quarterly Indexed (Average Q1 2012 to Q3 2019 = 100)



Developments in computer processor exports are linked to both the global tech cycle and the locational decisions of US MNEs with operations in Ireland. A number of indicators suggest that the sector is proving relatively resilient despite the recent slowdown in trade.¹⁹ As seen in Figure 7, both the SOX and Tech Pulse Index have seen large increases since 2016, representing a surge in semiconductor sales and signalling a strong growth phase in the investment cycle. This has occurred despite the marked slowdown in indicators of the broader economy such as the global PMI. Relatedly, in November 2019 Intel received planning permission for a new EUR 3.63 bn semiconductor fabrication facility at its Leixlip plant. This plant is expected to provide 1,600 full time jobs upon completion.²⁰

In line with the rapid growth in services export, numerous tech firms are undertaking significant expansion in Ireland. In the past 12 months large US computer services companies have announced substantial expansion plans or office purchases that imply a considerable increase in

¹⁹ The PHLX Semiconductor Sector Index (SOX) is a capitalization-weighted index composed of 30 semiconductor companies. Intel is one of the 30 companies which make up the composition of this index. The Tech Pulse Index is an index of coincident indicators of activity in the US information technology sector. The indicators used to compute the index are investment in IT goods, consumption of personal computers and software, employment in the IT sector, as well as industrial production of and shipments by the technology sector.

See also: [Tirpák, M. \(2019\) What the maturing tech cycle signals for the global economy, ECB Economic Bulletin, Issue 3/2019.](#)

²⁰ <https://www.irishtimes.com/news/ireland/irish-news/intel-welcomes-planning-approval-for-3-6bn-leixlip-facility-1.4094757>

employment and, potentially, exports. These companies include Facebook,²¹ Salesforce²², Google,^{23,24} Amazon,²⁵ and LinkedIn.²⁶

Although expanding rapidly, employment in the pharmaceuticals, and computer hardware and computer services are not proportional to their share of exports. For instance, previous analysis suggested that pharmaceuticals production comprises only 2 per cent of total employment in 2018.²⁷ As a consequence, the ongoing surge in exports is likely to have a positive but less dramatic impact on other macroeconomic aggregates such as employment or consumption. In a similar way, if there were to be a significant decline in these exports, the real macroeconomic effects could be less severe than the falls in headline figures.

Demand

Domestic Demand Overview

Underlying domestic demand is estimated to have grown by 4 per cent in 2019, and forecast to grow by 3.7 per cent this year and by 3 per cent in 2021. These projections represent a moderate upward revision to 2019 and 2020 compared with the last Bulletin, but a downward revision to 2021. The projected moderation in the pace of growth in the domestic economy over this year and next primarily reflects the advanced stage of the business cycle, a related moderation in the growth of employment and, despite some rebound from recent lows, continuing subdued consumer and business sentiment resulting from Brexit.

Consumption

National accounts data for the third quarter of 2019 showed that consumption has continued to grow at a strong pace, suggesting that the sharp fall in consumer sentiment from the second quarter of 2019 onwards was offset by strong growth in employment and rising earnings over the same period. Indeed, the growth rate of consumption in the first and second

²¹ <https://www.irishtimes.com/business/commercial-property/facebook-and-google-top-2018-s-big-dublin-property-deals-1.3707158>

²² <https://www.irishtimes.com/business/technology/salesforce-plans-to-add-up-to-1-500-jobs-in-ireland-1.3761871>

²³ <https://www.irishtimes.com/business/commercial-property/google-strikes-deal-for-new-sandyford-offices-1.4042868>

²⁴ <https://www.irishtimes.com/business/commercial-property/google-in-talks-for-new-dublin-docklands-offices-1.4066063>

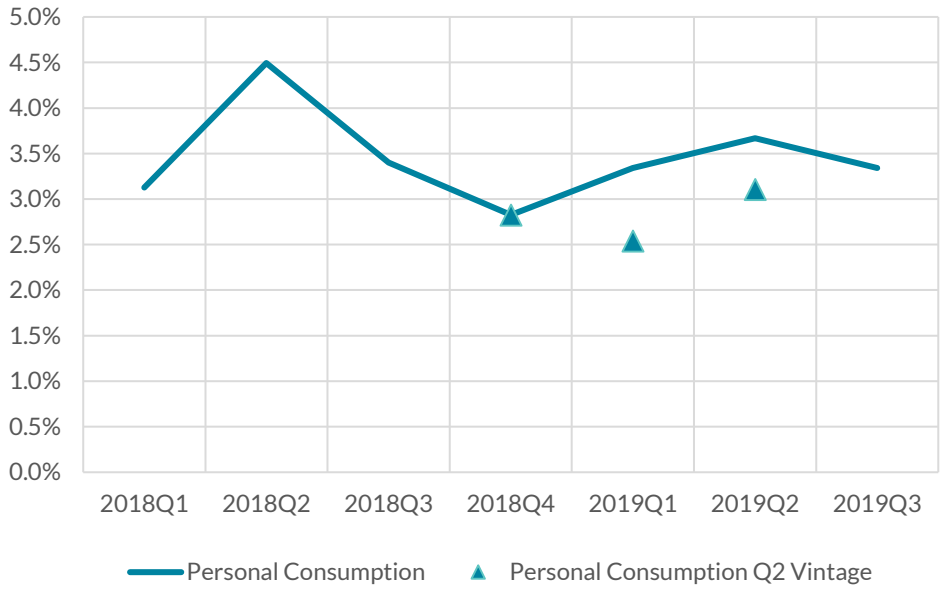
²⁵ <https://www.irishtimes.com/business/commercial-property/amazon-strikes-deal-for-new-dublin-offices-1.4099458>

²⁶ <https://www.irishtimes.com/business/commercial-property/linkedin-confirms-plan-for-massive-campus-in-dublin-city-centre-1.4135137>

²⁷ Horan, D. and McQuade, P. (2019) Sectoral Export and Employment Exposures to External Risks, Central Bank of Ireland, Quarterly Bulletin, 2019, No. 4, Box E.

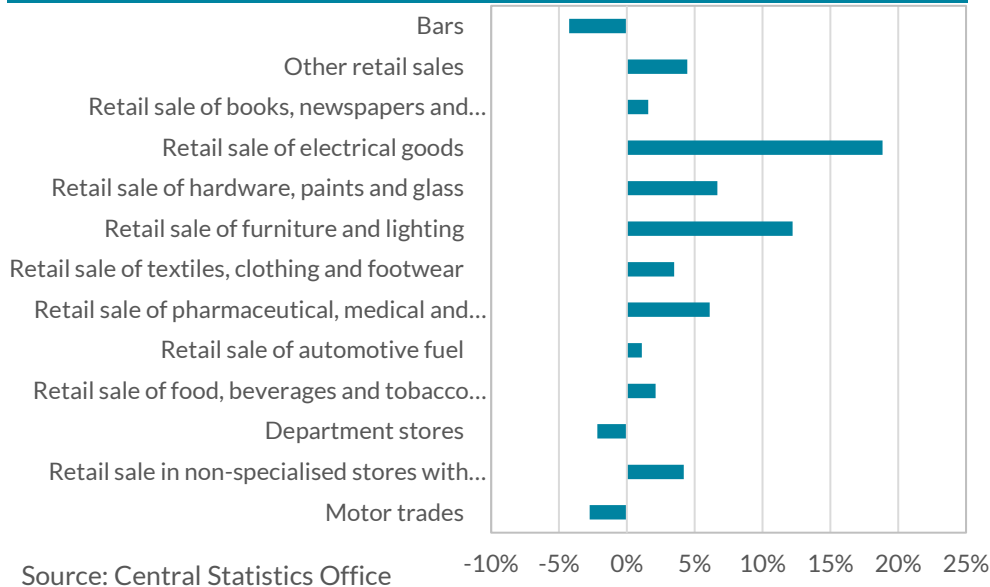
quarters was also revised upwards (Figure 2). Personal consumption grew by 3.3 per cent year-on-year in Q3, down slightly from the 3.7 per cent recorded in the second quarter.

Figure 2 Consumption growth was revised upwards in the first and second quarters



Source: CSO and Authors' Calculations.

Figure 3: Retail sales data indicate that consumption growth has been broad based



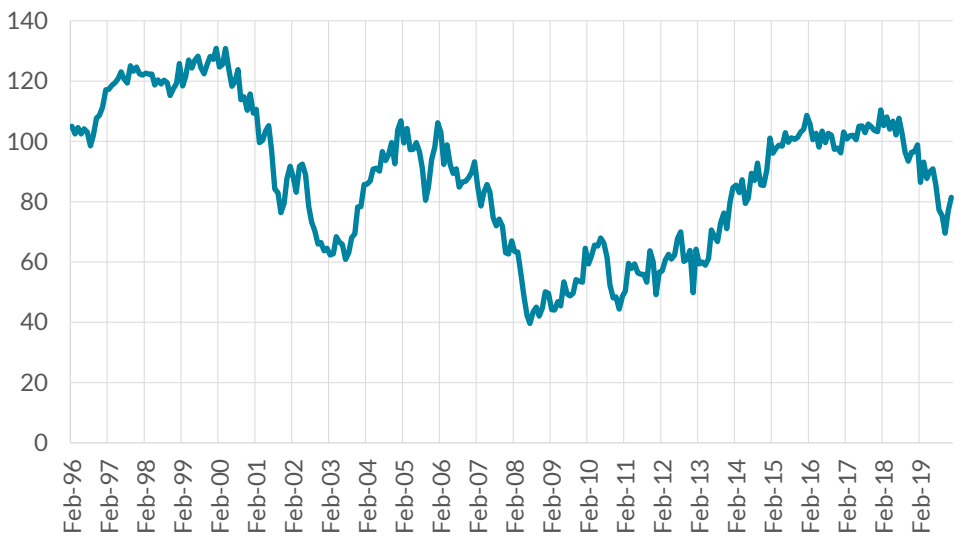
Retail sales give a more detailed picture of the profile of goods consumption. Over the first eleven months of 2019, retail sales growth was broad based (figure 3) – with the exception of a strong decline in retail sales in department stores and bars. The negative value for motor trades most

likely reflects the continuing trend of growing second-hand car imports from the UK.

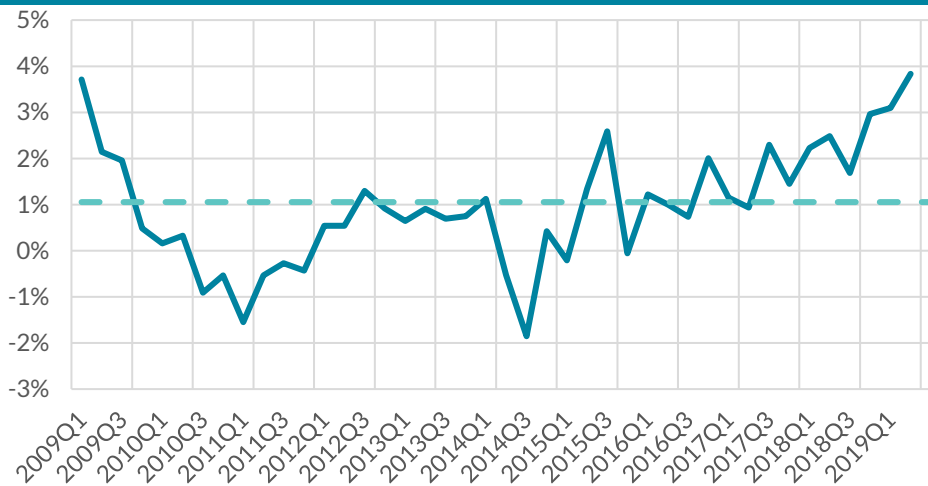
The strong consumption growth in the second and third quarters occurred despite the considerable weakness in consumer sentiment. Typically, consumer sentiment is highly correlated with household incomes, labour market developments, and the general economic outlook. During the second half of 2019, however, this was not the case. It is likely that uncertainty related to the October 31 Brexit deadline was a significant driver of this decline.

It would appear that developments in employment and wages dominated household consumption decisions during 2019. Household income growth has picked up since the fourth quarter of 2018 (figure 5), while employment has continued to grow alongside underlying domestic demand.

Figure 4: Consumer sentiment declined considerably in 2019



Source: KBC Bank Ireland

Figure 5: Hourly earnings growth has accelerated since Q4 2018

Source: CSO and Authors' Calculations

Note: The dashed line represents the average growth rate between 2013Q4 and 2018Q3

Preliminary high-frequency data for the fourth quarter of 2019 suggest that the trend in personal consumption seen in the first three quarters of the year continued to year-end. VAT receipts, retail sales, and consumer credit growth all point to the continuation of strong growth in consumption in the fourth quarter.

Looking ahead, continuing growth in labour income, as well as improving household balance sheets will support consumption growth over the medium-term, though with employment growth expected to moderate, some slowing in the growth of consumer spending is projected. In terms of other influences, to the extent that heightened uncertainty had an effect on consumption during 2019, the removal of the January 2020 Brexit cliff-edge threat may provide some relief in 2020, until there is more clarity on the future EU-UK trading relationship.

Combining all of these factors, personal consumption expenditure is estimated to have grown by 3.3 per cent in 2019, and to grow by 2.7 per cent in 2020 and 2.2 per cent in 2021. This represents a strong upward revision to 2019 compared with the forecasts published in October, driven in the main by the upward revisions to the data (figure 2).

Table 1: Expenditure on Gross National Product 2018 to 2020f

	2018 ^f	% change		2019 ^e	% change		2020 ^f	% change		2021 ^f
	€millions	vol	price	€millions	vol	price	€millions	vol	price	€millions
Personal Consumption Expenditure	106,977	3.3	1.6	112,329	2.7	1.7	117,323	2.2	1.8	122,062
Public Net Current Expenditure	32,110	5.0	1.2	34,099	3.6	2.1	36,079	2.5	2.3	37,818
Gross Domestic Fixed Capital Formation	75,856	45.8	2.8	113,684	-31.2	2.5	80,222	5.3	2.2	86,337
<i>Building and Construction</i>	24,202	7.1	6.2	27,489	7.2	4.1	30,677	6.2	3.2	33,634
<i>Machinery and Equipment</i>	24,542	-9.0	1.1	22,589	3.4	1.0	23,595	3.4	1.0	24,645
<i>Intangibles</i>	27,112	130.0	2.0	63,605	-60.0	2.0	25,951	6.0	2.0	28,058
Value of Physical Changes in Stocks	1,187			1,187			1,187			1,187
TOTAL DOMESTIC DEMAND	216,130	18.5	2.0	261,298	-11.9	2.0	234,811	3.3	2.0	247,404
<i>of which: Underlying Domestic Demand</i>	172,460	4.0	2.3	183,311	3.7	2.0	193,945	3.0	2.1	203,878
Exports of Goods & Services	396,383	10.9	1.5	446,202	7.4	1.2	485,063	5.0	1.1	514,917
FINAL DEMAND	612,513	13.6	1.7	707,501	0.3	1.5	719,874	4.4	1.4	762,321
Imports of Goods & Services	-288,993	21.9	1.2	-356,596	-4.2	1.3	-346,168	4.7	1.5	-367,847
<i>Statistical Discrepancy</i>	519			519			519			519
GROSS DOMESTIC PRODUCT	324,039	6.1	2.2	351,424	4.8	1.6	374,225	4.2	1.3	394,993
Net Factor Income from Rest of the World	-70,988	22.4	1.5	-88,197	13.7	1.2	-101,504	9.2	1.1	-112,024
GROSS NATIONAL PRODUCT	253,051	1.5	2.4	263,227	1.9	1.7	272,720	2.4	1.3	282,970
EU subsidies less taxes	1,133			1,179			1,221			1,267
GROSS NATIONAL INCOME	254,184	1.5	2.5	264,406	1.8	1.7	273,941	2.4	1.3	284,237

Investment

Headline investment increased by 1.2 per cent year-on-year in the third quarter of 2019 according to the Quarterly National Accounts (QNAs). When considering domestic economic developments, it is more instructive to look at underlying investment growth rather than the headline figure reported in the quarterly National Accounts.²⁸ Underlying investment growth, which excludes some of the activities of MNEs that have limited domestic employment effects – namely investment in aircraft and intangibles – slowed in the first three quarters of last year. Levels of underlying investment, however, remain high by historical standards and are close to the previous peak in 2007. The moderation in growth rates in 2019 is partly down to extremely high levels of investment in 2018 as well as Brexit-related uncertainty effects. Non-residential investment registered a record high in the third and fourth quarters of 2018, with over €4 billion of new investment in commercial, industrial and civil construction.

Looking at some of the components of investment, building and construction increased by 2.8 per cent in the third quarter, driven by growth in new dwellings of 21.9 per cent. While spending on home improvements recovered from the declines of the first two quarters, it was still down 8.3 year-on-year in Q3 2019.²⁹ Non-residential construction investment remained flat year-on-year in Q3, but as indicated this slowdown in yearly rates is largely a base effect related to record growth in 2018. Core machinery and equipment declined by 7.9 per cent in the year to Q3 2019, continuing the weaker trend that was evident earlier in the year. This component of investment has always fluctuated but this volatility has increased since the Brexit referendum. In terms of MNE-related components, intangible investment increased by almost 30 per cent in Q3 2019, mainly owing to imports of intellectual property.

The outlook for investment should benefit from some unwinding of uncertainty and an associated slight pick-up in activity in 2020. New dwellings completions are expected to number approximately 21,600, 26,000 and 30,000 units in 2019, 2020 and 2021, respectively, an upward revision compared to the last Bulletin. These forecasts, however, are contingent on the availability of labour supply in the residential construction sector. Growth in non-residential investment is also forecast to remain robust, with an increase of approximately 5 per cent expected

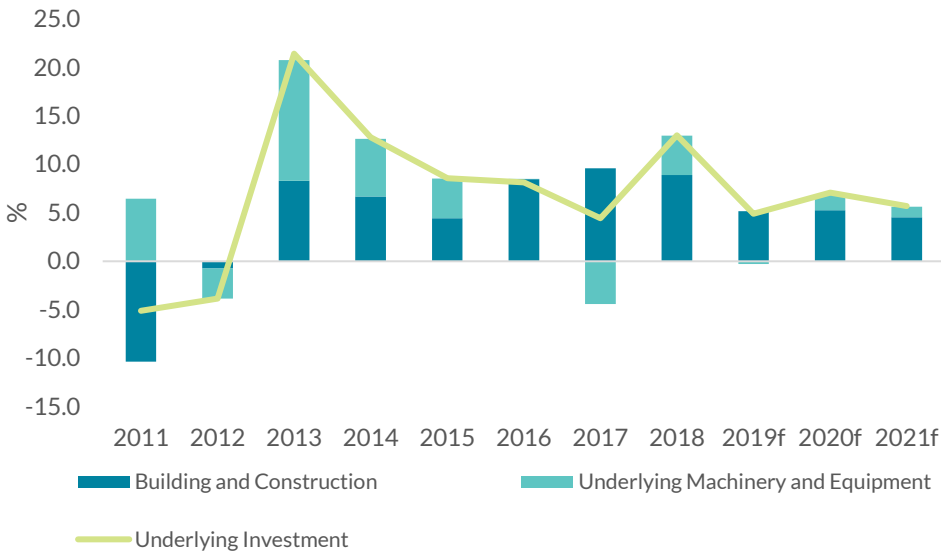
²⁸ This is made more difficult due to redactions in a significant portion of investment data in Q2 2019. Machinery and equipment and intangible investment data were redacted for Q2 2019 for confidentiality reasons.

²⁹ This is likely related to the proposed ending of home energy grants and subsequent boost to home improvement expenditure in 2018.

over the forecast horizon. Overall, building and construction investment is forecast to grow by 7.2 and 6.2 per cent in 2020 and 2021.

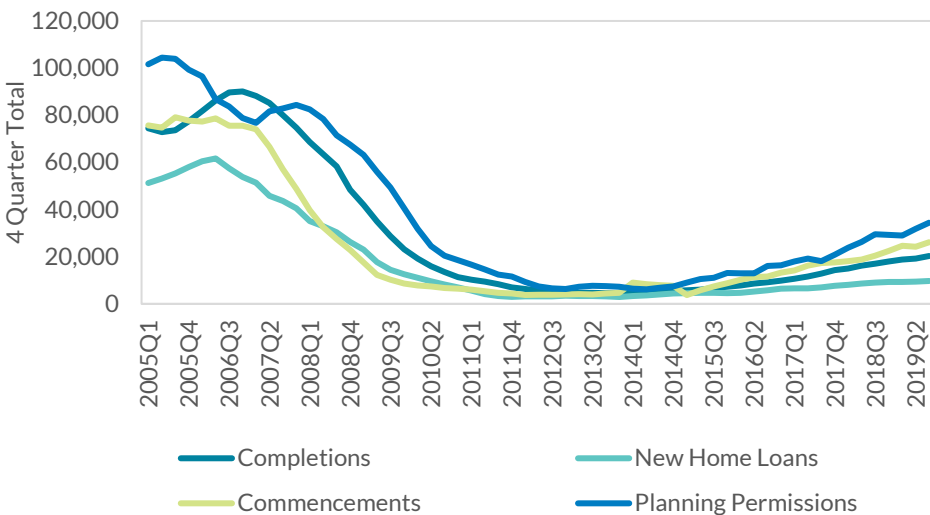
Core machinery and equipment investment (that is, not related to the aircraft sector) is forecast to increase by approximately 6 per cent and 4 per cent in 2020 and 2021. Combined, these estimates imply that underlying investment is forecast to increase by 7.1 and 5.7 per cent in 2020 and 2021, respectively.

Figure 6: Growth in Underlying Investment



Source: CSO

Figure 7: Housing Completions and Forward-Looking Indicators



Source: CSO

Government Consumption

Reflecting measures announced in Budget 2019, government consumption is estimated to have grown by 5 percent this year. It is projected to grow of 3.6 per cent in 2020, moderating to 2.5 per cent in 2021.

Box B: The International Economic Outlook

By Monetary Policy Division

The outlook for global economic activity remains weak, with only a slow and gradual recovery projected. Persistent political uncertainty, trade tensions and subdued business investment continue to weigh on the world economy and increase the risk of stagnation. Moreover, the coronavirus outbreak in China and its further spreading could cause increasing disruption to the Chinese economy and spill over to the rest of the world. The IMF downgraded its forecasts in January, expecting global GDP growth of 2.9 per cent in 2019, 3.3 per cent in 2020 and 3.4 per cent in 2021. In November, the OECD provided an even less favourable outlook, forecasting a global GDP growth rate of 2.9-3.0 per cent in 2020 and 2021.

In the euro area, seasonally adjusted GDP rose by 0.1 per cent on a quarterly basis and by 1.0 per cent on a yearly basis during the fourth quarter of 2019. Slow growth dynamics mainly reflect the ongoing weakness of international trade in an environment of prolonged global uncertainties and weigh particularly on manufacturing and investment. On the other hand, data point to some stabilisation in the slowdown of economic growth, and the unemployment rate, down to 7.4 per cent in December, is close to historical lows for the euro area.

The ECB macroeconomic projections released in December foresee euro area GDP increasing by 1.2 per cent in 2019, 1.1 per cent in 2020 and 1.4 per cent in both 2021 and 2022 (revised down slightly for 2020). Risks surrounding the outlook remain tilted to the downside, but are assessed to be somewhat less pronounced than in previous quarters.

Sentiment indicators continue to signal a weak outlook for euro area economic activity. The Markit Eurozone composite PMI is expected to remain unchanged at 50.9 in January, signalling that the economy remains close to stagnation at the start of 2020. The headline index continues to mask notable divergence between the performance of the manufacturing and services sectors. In January, the European Commission's consumer confidence indicator for the euro area remained unchanged (at -8.1), while the economic sentiment and business climate

indicators increased (by 1.5 points to 102.8, and by 0.09 points to -0.23, respectively).

Euro area annual HICP is expected to be 1.4 per cent in January, up from 1.3 per cent in December. Energy inflation is expected to display the largest increase, at 1.8 per cent up from 0.2% in December. Measures of underlying inflation are expected to remain broadly constant but subdued, with HICP inflation excluding energy and unprocessed food at 1.3 per cent (down from 1.4 per cent in December). ECB projections released in December foresee annual HICP inflation of 1.1 per cent in 2020, 1.4 per cent in 2021 and 1.6 per cent in 2022 (revised up slightly for 2020 and down slightly for 2021).

In light of the subdued outlook for euro area inflation and growth, the ECB Governing Council (GC) at its January meeting reiterated the need for monetary policy to remain highly accommodative for an extended period, and thus confirmed the comprehensive policy package announced in September. The key ECB interest rates are expected to remain at their present or lower levels until the inflation outlook robustly converges to a level sufficiently close to, but below, 2% within the projection horizon, and such convergence has been consistently reflected in underlying inflation dynamics. Net purchases under the asset purchase programme are expected to run at a monthly pace of €20 billion for as long as necessary to reinforce the accommodative impact of policy rates, and to end shortly before policy rates will be increased.

Moreover, the GC launched a review of the ECB monetary policy strategy, which will span the quantitative formulation of price stability, monetary policy toolkit and communication, as well as monetary policy interaction with financial stability, employment and environmental sustainability. During the process, which is expected to be concluded by the end of the year, the Eurosystem will engage with all stakeholders.

Turning to the United States, business investment and exports remain weak, while labour market conditions remain strong and economic activity has been rising at a moderate rate. Headline and underlying inflation are running below 2 per cent and market-based measures of inflation expectations remain low. Having cut the interest rate three times in 2019, the US Federal Open Market Committee (FOMC) decided at its January meeting to maintain the target range for the federal funds rate at 1.5 to 1.75 per cent. Looking forward, the current stance of monetary policy is judged to be appropriate for the near future, with the latest dot plots showing that FOMC members forecast no action on the federal funds rate in 2020.

In the United Kingdom, the growth rate of economic activity is expected to pick up gradually from current low levels, supported by the reduction in Brexit-related uncertainty, fiscal policy easing and a modest recovery in global growth. Inflationary pressures are expected to build gradually, with CPI inflation being projected to slightly exceed the 2 per cent target towards the end of the forecast period. In light of these developments, the Bank of England's Monetary Policy Committee maintained the Bank Rate and the stock of bond purchases unchanged in January, at 0.75 per cent and at 445 billion GBP respectively.

Exports and Imports

Headline export growth remained very strong in 2019 despite considerable external headwinds. Total exports grew by 11.1 per cent in Q3 2019 compared to Q3 2018, while imports increased by 12.8 per cent over the same period. With the volume of exports significantly higher than the volume of imports, the contribution of net exports to GDP growth was positive, having recovered to 2.4 per cent in Q3 2019, compared to the negative contribution of 38.6 per cent in the previous quarter.

The year-on-year growth rate of imports in Q3, while still strong, represents a move towards normalisation following the spike observed in Q2 2019. Business services imports stood at €20 billion in Q3 2019 compared to nearly €55 billion in the previous quarter. Although disaggregated data have been redacted, this spike was likely due to research and development (R&D) imports by MNEs in intellectual property intensive sectors such as computer services or pharmaceuticals. Merchandise imports also slowed compared to the second half of 2018, driven by a slowdown in imports in the *machinery and transport equipment* category, which includes airplanes purchased by the aircraft leasing industry. Imports from the UK were particularly strong in the first quarter of 2019, as firms engaged in stockpiling in advance of the original 31 March Brexit deadline, before slowing consistently thereafter as the year progressed.

Export growth remained heavily concentrated in a small number of sectors and are attributable to a small number of multinational firms (see Box A). Rising exports of chemicals and pharmaceuticals continued in year-on-year terms, while exports of machinery and transport equipment also expanded rapidly in recent quarters. Growth in other merchandise exports categories of the economy have been more modest and are more in line with subdued international trade and demand trends in Ireland's main trading partners. Overall goods exports, as recorded in the National Accounts, continue to exceed merchandise exports, recorded in the monthly trade data, as the

former includes contract manufacturing and other adjustments.³⁰ These adjustments stood at approximately €20.9 billion in Q3 2019, or 34 per cent of total goods exports, representing a substantial increase from €17.5 billion, or approximately 30 per cent, observed in the previous quarter.

Merchandise exports to the UK remained weak, while exports to the US and the euro area continued to grow rapidly. Merchandise exports to the UK declined by -1.25 per cent in the 12 months to November 2019. In contrast, merchandise exports to the US grew by 16.7 per cent in the 12 months to November 2019, and 5.8 per cent for the euro area, driven by chemicals exports.

The rapid growth in services exports continued during 2019, driven by computer services. Services exports grew by 11.8 per cent y-o-y in Q3 2019, of which 9.1 percentage points was attributable to *computer services*. The remaining growth in services exports was attributable to *business services (other than research and development and operational leasing)*. The contribution to services export growth of the remaining services sectors was either very modest or even mildly negative in some categories, including tourism.

Strong overall export growth is forecast to continue in the near term. As outlined in Box A, the strong export growth observable in the latest data is primarily driven by the MNEs in the pharmaceuticals, computer processors and computer services sectors, and is expected to persist to the end of the forecast horizon. As a consequence, exports are expected to continue to grow rapidly, by 10.9 per cent in 2019 and 7.4 per cent in 2020. This will continue to mask weaker export performance in other sectors as international trade and demand developments in Ireland's key trade partners are expected to remain subdued. As highlighted in Box A, the concentration of exports implies that they may be sensitive to firm specific developments. While near-term uncertainty surrounding Brexit has diminished since the previous forecast, nevertheless, there is an expectation that the future trade agreement between the EU and the UK will result in a more distant trading relationship from 2021 onwards. As a consequence, overall export growth is forecast to slow to 5.0 per cent in 2021, with the adverse effects of the new trading relationship partly offsetting the continued strong export growth in MNE dominated sectors.

The forecast decline in imports in 2020 reflects the substantial base effect arising from the surge in intellectual property imports observed in Q2 2019. As a repetition of this phenomenon is not incorporated into the

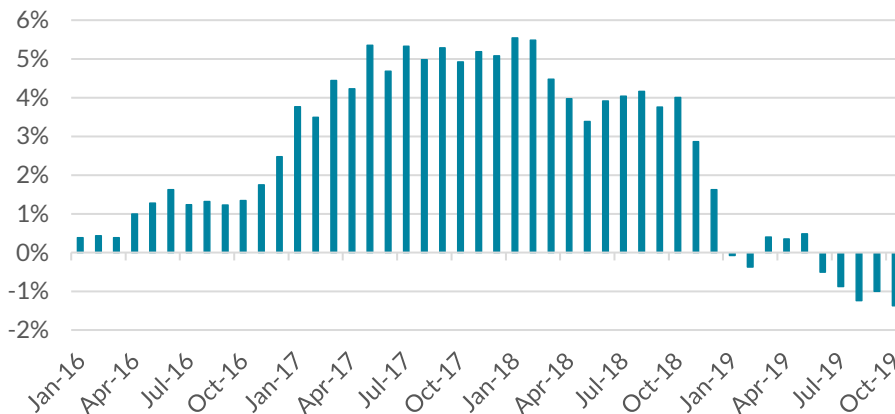
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[https://www.cso.ie/en/media/csoie/methods/internationalaccounts/Contract Manufacturing - rebrand.pdf](https://www.cso.ie/en/media/csoie/methods/internationalaccounts/Contract_Manufacturing_rebrand.pdf)

projections, the growth rate of imports is forecast to normalise in 2021. However, a recurrence remains a possibility, particularly given the planned changes to corporate tax residency rules at end-2020, which could influence the decisions of firms regarding the location of their intellectual property assets.

There are a number of additional downside risks to the forecast. For instance, a less favourable trade agreement with the UK, an escalation of international trade tensions or the materialisation of geopolitical risks, could all have adverse consequences for Irish export growth. In particular, the effect of Brexit on Irish trade will depend on the extent to which the new trading and regulatory relationships diverge from the present arrangements and also how these changes affect the performance the UK economy. More broadly, as a highly open economy, with a large and growing MNE sector that is deeply embedded in global value chains, Ireland is particularly exposed to disruptions to international trade.

Figure 8: Growth in Global Trade



Source: Datastream and CBol calculations.
 Note: Yoy growth in 3 month moving average of CPB World Trade Balance Index

Table 2: Goods and Services Trade 2018 to 2021f

	2018	% change in		2019f	% change in		2020f	% change in		2021f
	€millions	vol	price	€millions	vol	price	€millions	vol	price	€millions
Exports	396,383	10.9	1.5	446,202	7.4	1.2	485,063	5.0	1.1	514,917
Goods	216,307	10.0	0.9	240,079	7.0	0.0	256,885	5.0	0.3	270,538
Services	180,077	12.0	2.2	206,123	8.0	2.5	228,179	5.0	2.0	244,379
Imports	288,993	21.9	1.2	356,596	-4.2	1.3	346,168	4.7	1.5	367,847
Goods	103,346	20.8	1.7	126,962	-3.6	1.0	123,556	4.7	1.2	130,878
Services	185,647	22.5	1.0	229,634	-4.5	1.5	222,612	4.7	1.7	236,969

Net Trade, Factor Incomes and International Transfers

The dramatic decline in the current account balance in 2019 was due to large transactions in the MNE sector and does not reflect developments in underlying economic activity. As mentioned above, there was a large spike in research and development (R&D) imports by MNEs in intellectual property intensive sectors in Q2 2019. As a consequence, there was a current account deficit of 1.7 per cent of GDP in the first three quarters of 2019, compared to a surplus of 13.9 per cent in the same period of 2018.

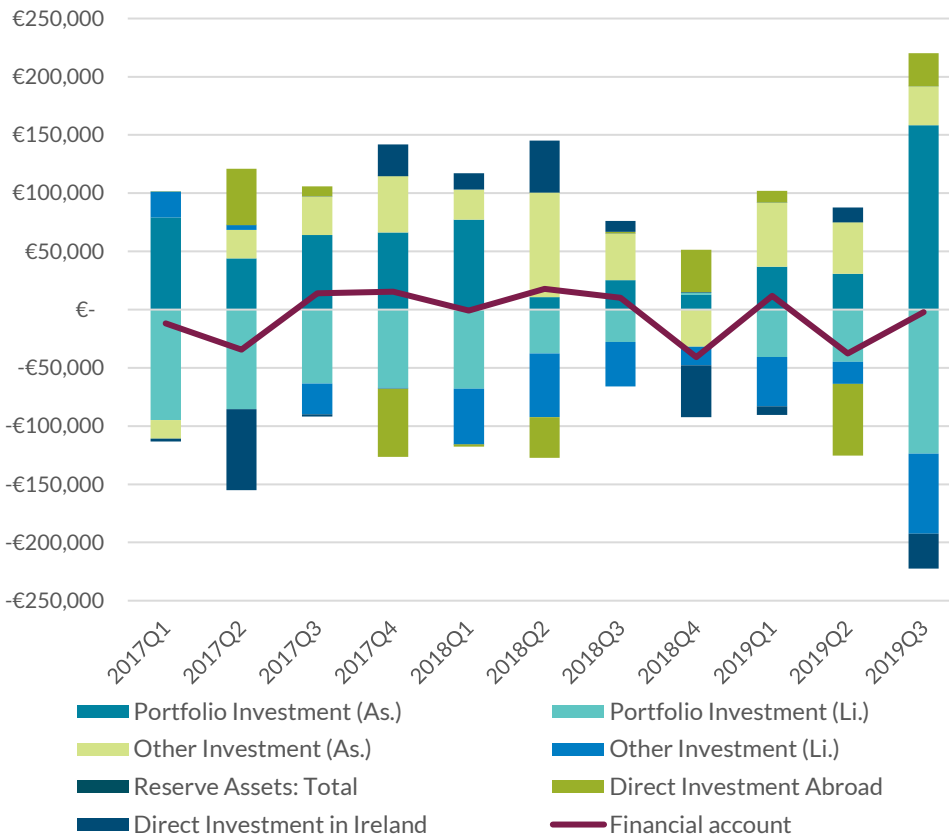
The continued deficit on the income account is due to the high profitability of MNEs operating in Ireland. Income payable to foreign investors stood at €47 billion in Q3 2019, having increased from €41 billion in Q3 2018. This increase was largely attributable to the manufacturing sector. This exceeded the €26 billion income paid to Irish resident investors in Q3 2019, leading to a deficit on the income account of €21.7 billion.

The deficit on the financial account declined dramatically, primarily due to a surge in purchases of portfolio investment assets by Irish resident investors. This was only partially offset by increased purchases of Irish *other investment* and *portfolio investment* assets by foreign investors. Both direct investment assets and liabilities increased in Q3 2019, such that the retrenchment in direct investment observed in Q2 2019 was not repeated. Overall, the deficit on the financial account declined from almost €38 billion in Q2 2019, to just over €2 billion in Q3 2019.

The highly globalised nature of the Irish economy means there are considerable uncertainties surrounding forecasts for external balances. The current account is projected to be close to balance in 2019. While

substantial surpluses are forecast for 2020 and 2021, these projections are on the basis of there being no repeat of the surges in intellectual property imports observed in 2017 and 2019. The gradual decline in the current account surplus projected for 2020 to 2021 is consistent with an economy in a mature phase of the business cycle.

Figure 9: Financial Account of the Balance of Payments (2017Q1-2019Q1)



Source: CSO

Note: Billions of Euro. Positive sign denotes outflows, negative sign indicates inflows. As. stands for assets, Li. is for liabilities.

Table 3: Balance of Payments 2017 to 2020f

	2018	2019	2020f	2021f
Trade Balance	107,391	89,608	138,896	147,072
<i>Goods</i>	112,961	119,732	134,554	140,798
<i>Services</i>	-5,570	-30,126	4,341	6,272
Net Factor Income from the Rest of The World	-69,736	-88,197	-101,504	-112,024
Current International Transfers	-3,365	-3,365	-3,365	-3,365
Balance on Current Account	34,290	-1,954	34,027	31,683
(% of GDP)	10.6	-0.6	9.1	8.0

Supply

Quarterly National Accounts for Q3 2019 show that GDP in the quarter was up 5.0 per cent from Q3 2018. Eight of the eleven economic sectors grew over this period, with *Arts, Entertainment and Other Services* (-2.5%), *Distribution, Transport, Hotels and Restaurants* (-1.6%) and *Industry (Manufacturing)* (-0.5%) experiencing declines. *Information and Communication* continued to grow much more quickly than the rest of the economy, with output increasing by 22.4 per cent. Agriculture grew by 15.2 per cent, but this growth must be taken in the context of the exceptionally hot summer experienced in 2018, which resulted in reduced grass growth and rising expenditure on purchased feed, which in turn likely suppressed gross value added in 2018.³¹ *Financial and Insurance Activities* and *Professional, Admin and Support Services* also grew robustly, expanding by 9.5 and 5.6 per cent, respectively.

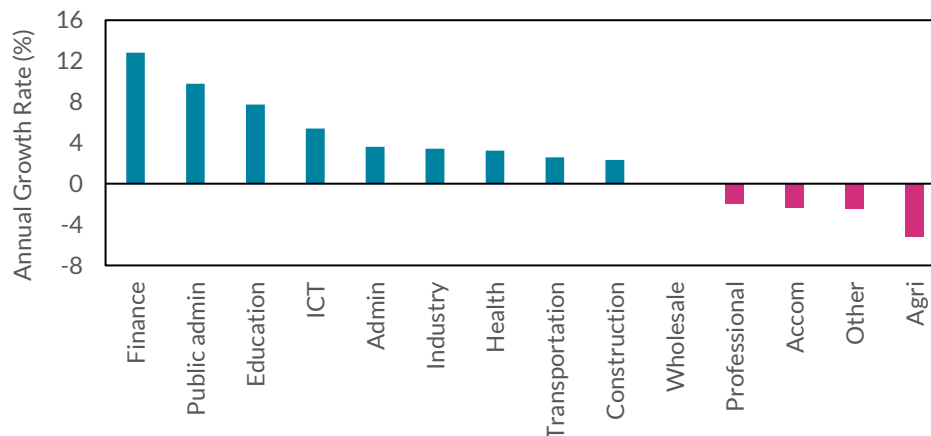
Production for manufacturing industries was 0.4 per cent higher in year-on-year terms in December 2019. Given the effect that large multinational enterprises have on statistics for this sector, it is best to consider the Traditional and Modern sectors separately. The CSO report that the Modern Sector recorded an annual decrease of 3.6 per cent in December 2019 when compared with December 2018. Output in the Traditional Sector increased by 1.1 per cent over the same period. On a 3-month moving average basis, the Traditional sector grew by 3.3 per cent in the twelve months to December while the Modern sector declined by 5.5 per cent over the same period.

³¹ Conefrey, T. (2019) [New Risks and Old Problems: The Uncertain Outlook for Irish Agriculture](#), Central Bank of Ireland, Economic Letter, Vol.2019, No.10.

The AIB Manufacturing PMI survey for January shows that activity in the sector picked up momentum at the start of 2020, with the overall manufacturing index improving to 51.4. This moves the index into growth territory and represents a nine-month high in the reading. In addition, new orders, purchasing, export demand and jobs all expanded following contractions at the end of 2019. Improvements in the manufacturing backdrop in the Eurozone and the UK, and some easing in Brexit uncertainty following December's general election in the UK were cited as factors behind the recent improvements.

The Labour Market

The Q3 2019 Labour Force Survey (LFS) data exhibited strong employment growth of 2.4 per cent on a year-on-year basis, representing an additional 53,700 persons at work. However, as spare capacity in the labour market has continued to diminish, the year-on-year rate of employment growth has moderated over the past twelve months, from around a 3 per cent pace in the third quarter of 2018. Employment grew in nine of the fourteen sectors, with the biggest increases in the financial, insurance and real estate activities (12.8 per cent), public administration (9.8 per cent) and education sectors (7.7 per cent). Levels declined in the accommodation and food service activities (-2.3 per cent) and agriculture sectors (-5.2 per cent), as numbers in agriculture declined below 100,000 for the first time in available data for the State. Full-time employment levels have risen by 2.2 per cent over the year, with part-time employment levels increasing by 2.9 per cent. As domestic labour slack has diminished, the share of those in part-time employment has declined to 14.7 per cent, marking its lowest point since Q3 2008. Employment growth for 2019 is projected to have averaged 2.7 per cent, reflecting strong growth in the first and third quarters of 2019, which is an upward revision of 0.3 per cent compared to the forecast contained in the last Quarterly Bulletin. Growth in employment of 1.8 per cent and 1.5 per cent is projected for 2020 and 2021, respectively.

Figure 10: Employment Growth by Sector – 2019Q3


The labour force grew by 1.6 per cent year-on-year in the third quarter, benefitting from transitions back to employment and net inward migration. The year-on-year increase in the labour force was 38,700, with two-thirds accounted for by Irish nationals and one-third by non-Irish nationals, of which the majority are non-EU workers. Previous migration research identified the changing composition of inward migration from EU accession countries towards non-European countries across a range of sectors with migration providing an important source of labour supply in a tightening labour market.³² The labour force participation rate remained unchanged in the third quarter of 2019 from the previous year at 62.2 per cent on a four-quarter moving average basis, with marginal changes in participation rates by gender offsetting one another. In terms of 2019 as a whole, labour force growth is projected to have increased by 1.8 per cent. With further labour force growth likely to be dependent on net inward migration flows, increases of 1.6 per cent and 1.4 per cent are projected for 2020 and 2021.

Taking account of the above outlook, unemployment is expected to moderate slowly over the forecast horizon. The seasonally-adjusted unemployment rate for the third quarter was 4.9 per cent (128,000 persons), down from 5.7 per cent in the corresponding period of 2018. The long-term unemployment rate decreased to 1.4 per cent in Q3 2019, with long-term unemployment accounting for 27.3 per cent of total unemployment. The CSO's monthly unemployment rate for December measured 4.8 per cent, marking the lowest rate observed in the previous ten-year period. Considering these developments, the unemployment rate is estimated to average 5 per cent for 2019 as a whole. With employment growth projected to moderate and grow more in line with projected labour force growth, further small declines in the unemployment rate are

³² See Quarterly Bulletin 2019.2 "Box C: Inward migration and the Irish labour market". David Staunton and Diarmaid Smyth

projected over the forecast horizon, to 4.8 per cent and 4.7 per cent in 2020 and 2021, respectively.

Table 4: Employment, Labour Force and Unemployment 2017 to 2020f

	2018	2019f	2020f	2021f
Agriculture	107	106	105	105
Industry (including construction)	423	438	445	453
Services	1,727	1,773	1,808	1,836
Total Employment	2,258	2,317	2,359	2,394
Employment Growth (%)	2.9	2.7	1.8	1.5
Labour Force	2,395	2,438	2,477	2,512
Labour Force (%)	1.9	1.8	1.6	1.4
Unemployment	137	121	119	117
Unemployment Rate (%)	5.7	5.0	4.8	4.7

Pay

Wage pressures are projected to strengthen over the forecast horizon reflecting a tight labour market and the low availability of domestic labour slack. An increase in the national minimum wage starting from February will bring the hourly rate to €10.10 with approximately 127,000 workers expected to benefit. Annual growth of 3.3 per cent in average hourly earnings from the EHECS data continues to be driven by the private sector at 3.8 per cent, while public sector wage growth rose comparatively by 1.6 per cent annually.

The most recent earnings data point to a broad based increase in hourly earnings, with the largest increases occurring in the transportation and storage (5.9 per cent) and administrative and support services sectors (5.5 per cent). Previous research by Linehan et al (2017) identified that the degree of wage sensitivity is higher during periods of low or high unemployment.³³ During the previous period of below 5 per cent unemployment between 2000 and 2007, the relationship between wages and prices picked up strongly, although any future developments may be contingent on the structural nature of unemployment, wage bargaining, or

³³ Linehan, Lydon, McIndoe-Calder, Reddan, and Smyth “[The Labour Market and Wage Growth after a Crisis](#)” Central Bank of Ireland Quarterly Bulletin Signed Article. Quarterly Bulletin 2017Q4

scarring effects from the previous crisis. Compensation per employee is projected to increase by 3.6 per cent for 2019 and 4.2 per cent for 2020.

The higher job vacancy rates remain evident in the high wage sectors. ICT and financial services, among other multinational-dominated sectors, are demonstrating a greater share of new hires from abroad to meet labour and skill demands. This increasing reliance on inward migration sees Irish-based firms competing globally to attract the best talent, which may spillover into greater wage premia as firms experience increasing staff retention issues amongst a relatively high level of job switching rates. Using the job-switching rate as a leading indicator for wage growth, the most recent estimates for 2018 measured 3.2 per cent, with a peak value of 55 per cent of new roles being filled by job-switchers.³⁴ Recent adjustments to work permit restrictions and employment quotas for non-EEA workers aimed at easing employment shortages in hospitality, construction, health and logistics may help to address current labour shortfall and serve to alleviate wage pressures in key sectors.³⁵

Box C: Sectoral Wage Growth in Ireland

By Enda Keenan³⁶

The Irish economy continues to experience robust growth, supported by strong labour market performance. Until the recent pick up in compensation growth however, wage inflation has been conspicuously absent. The unemployment rate has declined from a peak of 15.9 per cent in 2011 to a ten-year low of 4.9 per cent in Q3 2019. A reduction in domestic labour market slack is bringing the economy close to full employment levels, with the potential for earnings to rise further as labour market tightness persists.³⁷

The recent increase in earnings has not been equally spread across all income deciles or sectors over time as shown from the CSO data release on Earnings Analysis using Administrative Data Sources (EAADS).³⁸

³⁴ Staunton and Lydon (2018) "[Does increased job switching signal higher wage growth?](#)" Central Bank of Ireland Economic Letters. Vol. 2018. No. 13.

³⁵ Department of Business, Enterprise and Innovation: [Ministers Humphreys announces changes to the employment permits system for workers from outside the European Economic Area](#)

³⁶ Irish Economic Analysis Division

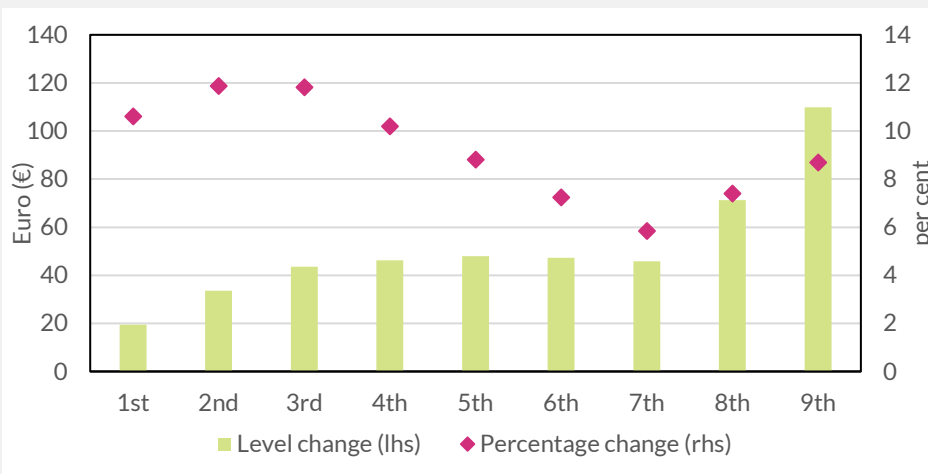
³⁷ See Byrne, S and McIndoe-Calder, T (2019) "[Employment Growth: Where Do We Go From Here?](#)" Central Bank of Ireland Quarterly Bulletin Signed Article. QB3 – July 2019.

³⁸ The EAADS employs the P35L dataset from the Revenue Commission to provide details of gross annual earnings (before deduction of tax, PRSI and superannuation) and number of weeks worked in the year for all employments in the non-

Analysis of these data shows changing pay dispersion patterns at a sectoral level. Pay dispersion measures the difference between the wages paid to the highest earners in a sector when compared to the lowest earners in that sector. Pay dispersion has increased in the multinational dominated sectors, while aggregate pay dispersion has fallen, mostly due to trends in the public non-traded sectors.

Overall, between 2011 and 2018 weekly earnings by decile show employees in the first decile i.e. the lowest 10 per cent of earners experienced an increase in median pay of 10.6 per cent to €202.91, while those in the ninth decile experienced an 8.7 per cent increase to €1,373.90 (See Chart 1). In 2018, the highest 1 per cent of males were estimated to earn in excess of €2,400 per week, while earnings for the top 1 per cent of females began at the lower point of €2,100 (12.5 per cent less). The median income (50th percentile) across all employed persons was €593 per week, with the mean figure of €741 indicating that the distribution of earnings is skewed towards high earners.

Chart 1: Change in weekly median earnings by decile (2011-2018)



Looking at earnings by production sector shows a greater level of median earnings for workers in high value-added sectors that are associated with multinational enterprises. These are sectors where levels of productivity and gross value added are high due to the capital-intensive nature of activities and employees typically exhibit higher educational attainment levels. Holton and O'Neill (2017) observed previous pay dispersion in Ireland increasing towards the height of the boom period, driven almost entirely by rising returns to skills.³⁹ CSO data on earnings in

agricultural economy. Weekly earnings are calculated by dividing the gross annual earnings by the number of weeks worked as declared on the P35L file.

³⁹ Holton, N. and O'Neill, D. (2017) "[The Changing Nature of Irish Wage Inequality from Boom to Bust](#)" *The Economic and Social Review*, Vol. 48, No. 1, Spring, 2017, pp. 1-26

multinational firms estimate that the average annual wage in 2017 for employees was approximately €50,000, while the average wage in Irish-owned firms was closer to €33,000 a year.⁴⁰ These higher wages were identified for the higher-skilled sectors of ICT, financial, and scientific and technical activities, with US and Japanese firms offering the highest average wages.

The EAADS data provides the share of employees in each earnings decile for each NACE sector from 2011 to 2018 (Table 1 below). This breakdown enables the identification of high earning groups in each sector relative to the national distribution of earnings. In 2011, 23 per cent of employees in the ICT sector recorded weekly earnings that placed them in the highest earnings decile nationally, with figures increasing to 31 per cent in 2018. In other words, almost one in three workers in this sector earn in excess of €1,374 per week in 2018. The financial and industrial (manufacturing) sectors also recorded 23 and 15 per cent of workers in the highest earnings decile, respectively.⁴¹ Comparatively, only 1 per cent of employees in the accommodation and food services sector are in the highest earning decile reflecting the large proportion of employees in part-time working arrangements amongst other sectoral idiosyncrasies. These findings are consistent with research on pay dispersion the results of which suggest that economies that are highly FDI-dependent are likely to display greater pay dispersion because of inter-sector pay differentials (Galbraith, 2011).

⁴⁰ CSO: [Foreign Direct Investment in Ireland 2017](#)

⁴¹ Industry (B to E) is an agglomeration of NACE sectors including Mining and Quarrying (B), Manufacturing (C), Electricity, Gas, Steam and Air Conditioning Supply (D) and Water Supply; Sewerage, Waste Management and Remediation Activities (E). Much of the Pharmaceuticals and Medical Device Technologies operations are located within this sector.

Table 1: Share of Employees in Highest Pay Decile by NACE Sector

	2011	2012	2013	2014	2015	2016	2017	2018
B-E Industry	14	15	14	16	15	15	15	15
F Construction	5	5	5	5	5	5	5	5
G Wholesale and retail trade; repair of motor vehicles and motorcycles	4	5	5	5	5	5	6	5
H Transportation and storage	8	8	8	8	7	8	7	7
I Accommodation and food service activities	1	1	1	1	1	1	1	1
J Information and communication	23	24	25	28	29	30	31	31
K-L Financial, insurance and real estate	21	21	22	22	22	22	22	23
M Professional, scientific and technical activities	14	14	15	16	16	17	17	17
N Administrative and support service activities	4	4	4	4	4	5	5	5
O Public administration and defence; compulsory social security	17	15	15	15	16	15	16	15
P Education	17	16	15	13	13	10	10	10
Q Human health and social work activities	8	8	7	7	7	7	6	6
R-S arts, entertainment, recreation and other service activities	3	3	3	4	4	4	3	3
All	10	10	10	10	10	10	10	10

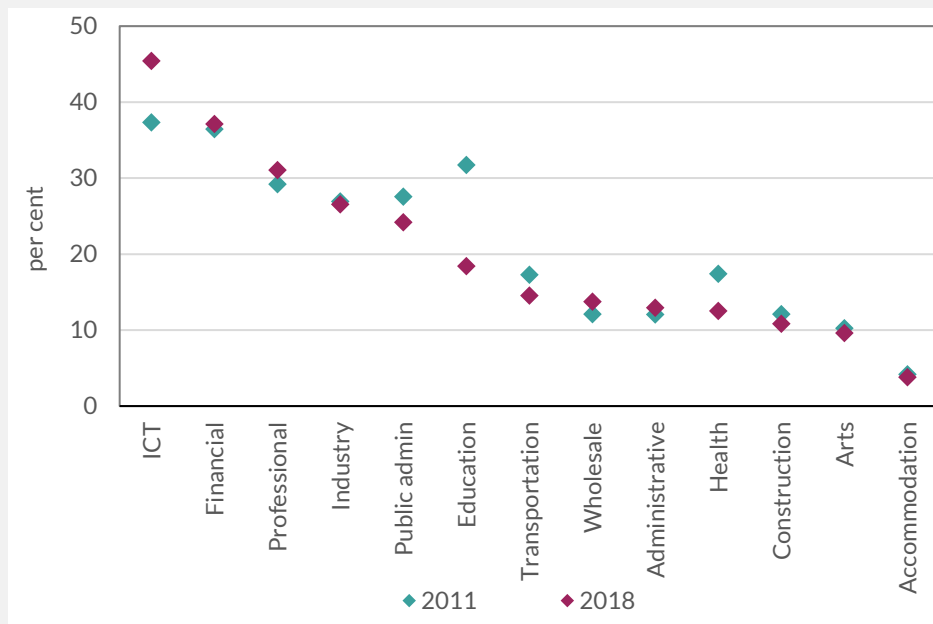
Sectors

While the EAADS data provide an overview of pay dispersion at an aggregate economy level, it does not identify pay dispersion of employees within an individual sector. This can be useful to identify the volume of pay received by high earning employees relative to low or middle earners in the same sector. By combining the distribution of employees per income decile in Table 1 with the median earnings per decile and NACE sector employment figures from the Labour Force Survey, it is possible to attain an approximation of the total weekly earnings in each sector along with the proportion received by the highest decile of earners specific to that sector. For example, in the construction sector 5 per cent of employees are in the highest earnings decile, which constitutes approximately 7,200 employees earning in excess of €1,374 per week.

In terms of the share of overall sectoral earnings received by the highest earning decile of employees, the multinational-dominated sectors clearly

stand out with ICT recording a value of 45.4 per cent (See Chart 2). Similarly, in the financial and manufacturing sectors the figures are 35.6 per cent and 26.5 per cent, respectively.⁴² The earnings for this upper decile have increased strongly in recent years, particularly within the ICT sector, where the top decile of earners received 37.1 per cent of overall earnings in the sector in 2011 rising to 43.9 per cent in 2018. Conversely, the non-traded public sectors have experienced a decrease in pay dispersion, particularly in the education sector as the figure for the top decile of earners declined from 32 per cent to 18 per cent.

Chart 2: Share of Earnings in Highest Pay Decile by NACE Sector



In aggregate terms, wage dispersion has decreased slightly with earnings across all sectors received by the highest decile declining from 22.8 per cent to 21.1 per cent. Collective earnings for the lowest four deciles have risen from 17.9 per cent to 18.8 per cent. Trends observed in the EAADS data correspond to the recent CSO SILC release that demonstrated a decline in the Gini Coefficient, a measure for the distribution of income, from 0.311 to 0.297 over the same time period.⁴³

⁴² The figures in manufacturing are masked somewhat by the aggregation of several industries, as potential analysis on sub-sectors such as chemicals and pharmaceuticals would be expected to yield far higher levels of dispersion. For instance, DBEI Annual Employment Survey data show the chemicals and pharmaceuticals manufacturing to equate to less than 1.5 per cent of total employment, yet it accounts for almost 40 per cent of merchandise exports in a capital-intensive sector dominated by a small number of multinational firms.

⁴³ The Gini Coefficient is a statistical measure of the distribution of income within an economy. A higher coefficient indicates greater inequality, with high income individuals receiving much larger percentages of the total income of the population. A value of 0 denotes perfect inequality and a value of 1 denotes perfect inequality

This aggregate trend appears to be driven by the non-traded public sectors of health, education and public administration, which underwent a number of emergency measures following the financial crisis including voluntary redundancy schemes and extraordinary emergency pay legislation to limit Exchequer spending. Research by Gomes (2019) suggests that such a difference in dispersion between the public and private sectors could cause perverse effects such as an insufficient amount of highly skilled persons employed in the public sector.⁴⁴ Additionally, the sectors experiencing greater levels of wage dispersion such as ICT and financial services are competing internationally on a search and match basis to attract the best talent and as such may have to pay greater wage premia to attract and retain staff.

EHECS data on job vacancies shows the multinational-dominated sectors to have displayed a relatively high vacancy rate in recent quarters suggesting an inability to meet labour demand with current domestic labour supply. There may be additional pressures on domestic firms to increase wages in order to retain staff in light of the current labour market tightness which if it materialised could serve to reduce overall firm competitiveness.

Inflation

Prices

HICP inflation averaged 0.9 per cent in 2019. The pattern of negative goods inflation offset by positive services inflation continued throughout the year. Goods prices declined by 0.8 per cent, while services prices increased by 2.4 per cent. Food prices increased by an average of 0.5 per cent over that period, while non-energy industrial goods prices declined by 2.7 per cent. These prices have a significant import content and can be influenced by exchange rate movements. Services price trends, on the other hand, are driven more by domestic economic developments.

Figure 6 provides some more granular detail of the available 2019 data. On the back of increases in wholesale energy prices, gas prices rose by 6.7 per cent, while electricity prices increased by 3.2 per cent in 2019. Rent prices continued to increase but at a more moderate pace, up 5.3 per in 2019. Prices in restaurants and hotels increased by 3 per cent, while prices for education services rose by 2.4 per cent.

Non-energy industrial goods prices declined by 2.7 per cent in 2019.

Figure 12 illustrates the impact that the exchange rate can have on goods

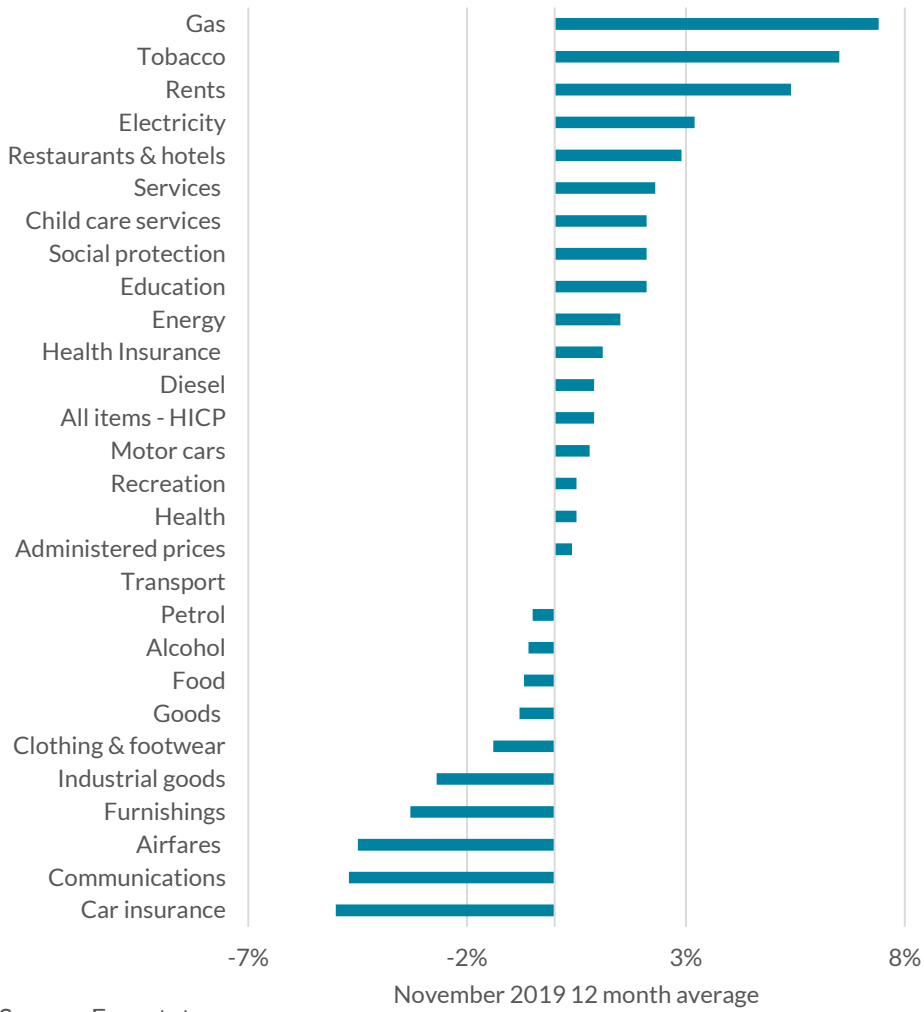
⁴⁴ Gomes, P (2019) "[Public-Sector Employment, Wages and Human Capital Accumulation](#)" University of Cyprus Working Paper 07-2019

prices, particularly imported consumer goods. Appreciations in the exchange rate (represented by those portions of the bar that are positive) tend to be associated with downward pressure on industrial goods prices and vice versa. The recovery in sterling following the removal of the January 2020 Brexit cliff-edge threat and some depreciation of the euro vis-à-vis the dollar has resulted in some upward pressure on imported goods prices.

International oil prices are an important, volatile and often difficult to predict component of Irish inflation. Over the last decade Brent crude oil prices have varied significantly, from a high of \$125 per barrel in 2011, to a low of \$30 per barrel in 2016. Figure 13 shows a high correlation between movements in international oil prices and Irish energy prices. Recent geopolitical tensions in the Middle East resulted in significant variation in oil prices over a short period. The forecasts contained within this Bulletin are based on oil futures at the time of writing. The forecasts also contain new estimates of the impact of the increase of carbon taxes on energy prices in Ireland. After the increases in carbon taxes in Budget 2020, carbon prices are approximately €26 per tonne, with commitments to reach a target of €80 per tonne by 2030. These increases are likely to be a feature of the energy price landscape as Ireland continues to rely heavily on carbon for energy.

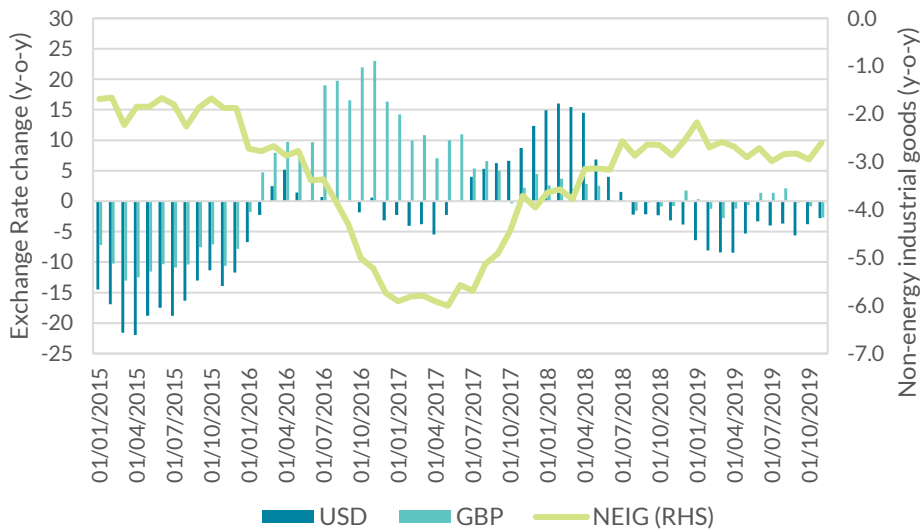
Conditional on the assumptions for oil prices, global commodity prices, exchange rates and real economic activity, HICP inflation is forecast to increase by 1.4 and 1.8 per cent in 2020 and 2021, respectively. These are upward revisions compared to the previous Bulletin.

Figure 11: Consumer Prices by Commodity



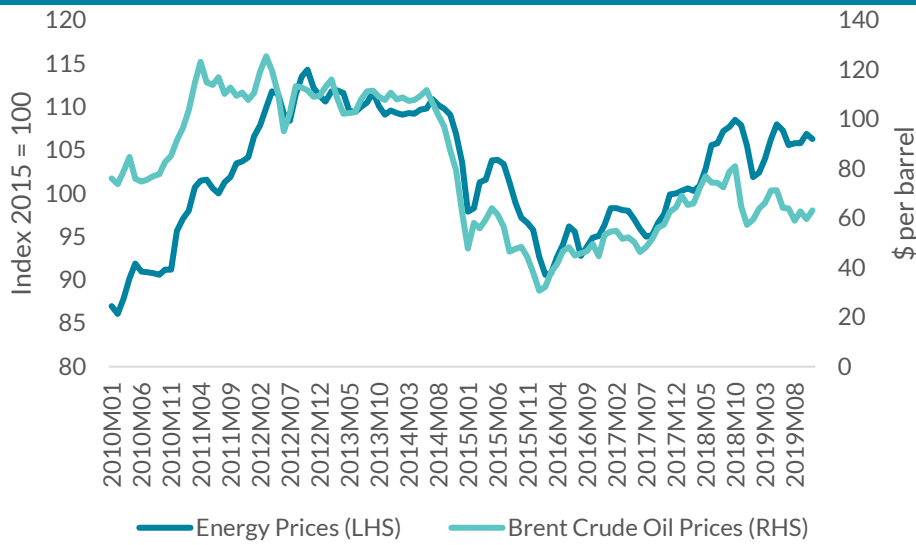
Source: Eurostat

Figure 12: Irish Inflation and Exchange Rate Changes



Source: Eurostat, CBI

Figure 13: Irish Energy Prices and International Oil Prices



Source: Eurostat, FRED

Table 5: Inflation Measures – Annual Averages, 2018 to 2021f

Measure	HICP	HICP excluding Energy	Services ^a	Goods ^a	CPI
2018	0.7	0.1	1.7	-0.3	0.5
2019 ^f	0.9	0.8	2.4	-0.8	0.9
2020 ^f	1.4	1.3	3.1	-0.5	1.6
2021 ^f	1.8	1.6	3.4	0.2	2.0

^a Goods and services inflation refers to the HICP goods and services components

Residential Property⁴⁵

Latest data from the CSO’s Residential Property Price Index in November show a national annual increase of 1.4 per cent, down significantly from 7.2 per cent in the 12 months to November 2018. Despite a modest uptick in the November data, the annual rate of price growth has largely been slowing since April 2018. The disparity in house price inflation between Dublin and non-Dublin regions remains evident, with the former declining by 0.7 per cent and the latter increasing by 3.6 per cent year on year in November 2019. Indeed, house prices in Dublin declined in the four consecutive months to November 2019. The Border region experienced the fastest price increase, with inflation rising 9.9 per cent in the 12 months to November 2019. Overall, the national index is 16.8 per cent lower than

⁴⁵ The Bank’s [Financial Stability Review](#) for H2 2019 provides a more detailed review of residential and commercial property prices.

its 2007 peak, with property prices in Dublin and the rest of Ireland 21.3 per cent and 19.9 per cent, respectively below their 2007 peaks.

Turning to supply, data from the CSO show that housing completions totalled 14,764 units in the first three quarters of 2019, up 18 per cent on the same period in 2018. Growth in overall completions was driven primarily by apartments, which grew by 81 per cent year-on-year in Q3 2019. A surge in new housing completions in Dublin's commuter belt (Wicklow, Louth, Meath and Kildare) strongly contributed to overall completions, up 52 per cent in Q3 when compared to the same quarter in 2018. In contrast, annual completions in Dublin increased by a modest 3 per cent in Q3 2019. Current projections are for 26,000 new dwelling completions in 2020 and 28,500 in 2021.⁴⁶

According to the latest Daft.ie rental report, rental prices decreased by 0.1 per cent in the final 3 months of 2019, the first fall in nationwide rents in over 7 years. On an annual basis, year-on-year rental prices have moderated significantly over the past 24 months, down from 12.4 per cent in mid-2018 to 4.1 per cent in Q4 2019. Increased availability has helped in this regard as there were 3,500 homes available to rent in February 2020, up 10 per cent on the same month in 2019. On an annual basis, rents in Dublin rose 3.5 per cent in Q4 2019, the slowest rate of increase since mid-2012. Rental inflation in other major cities in Ireland, specifically in Waterford, Cork, and Galway, continued to grow more rapidly than in the capital, however, at a slower rate than seen in previous quarters. Of these other major cities, Galway and Cork experienced the largest year-on-year increases in rental inflation, growing by 5.6 per cent and 5.5 per cent, respectively in Q4 2019.

Commercial Property

Latest data from MSCI/IPD show that that overall commercial property values grew by 1.6 per cent year on year in Q3 2019, marginally lower than 2.2 per cent in Q2 2019. Over the same period, industrial and office values increased by 3.9 and 2.2 per cent, respectively, while retail capital values fell by 1.2 per cent.

The Public Finances

Overview

The latest data point to a further improvement in the public finances in 2019. The General Government balance ran a modest deficit in the first three quarters of the year, a considerable improvement from the deficit of €3.9 billion in the same period of 2018. This primarily reflected strong

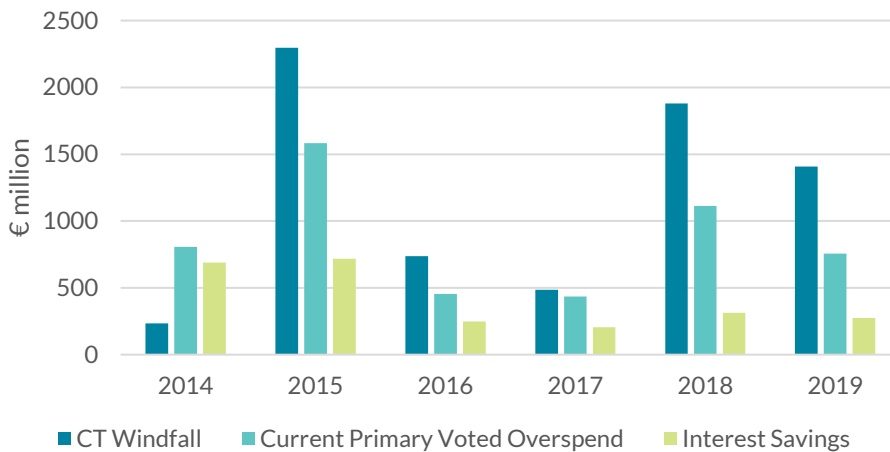
⁴⁶ For a detailed discussion of the methodology used to forecast housing completions, see [Box C, Leading Indicators of New Housing Output, Quarterly Bulletin 2, 2018](#)

growth in taxes and social contributions, which offset a modest increase in government spending.

Exchequer data, meanwhile, suggest that these positive trends continued in the final months of the year. The Exchequer – excluding transactions that have no impact on the general government balance – ran a deficit of just over €1 billion for 2019 as a whole, a halving of its level from 2018. The broad Exchequer trends of recent years were once again evident (see Figure 14). Corporation Tax (CT) receipts ended the year well ahead of expectations, following strong inflows in the final quarter (see Box D for a more detailed look at CT developments last year). On the expenditure side gross voted current spending was stronger than budgeted for the year, with this partly offset by weaker than expected interest costs.

Given favourable developments in other parts of the broader government finances⁴⁷ - notably strong surpluses in the Social Insurance Fund and Irish Strategic Investment Fund in the year to November - it appears the general government balance recorded a bigger surplus in 2019 than the 0.4 per cent of GNI* that was forecast in October’s Budget. This would be the first general government surplus since 2007. General government debt also improved in the first half of last year both in nominal terms and as a percentage of GNI*, but remains at an elevated level.

Figure 14 - Recent Trends in Exchequer Finances



Source: Department of Finance

Exchequer Returns

The Exchequer ran a surplus of €647m last year, a considerably better outturn than had been expected at the beginning of 2019. This was the

⁴⁷ Monthly data on revenues and expenditures of the subsectors of general government, published by the Department of Finance, showed strong surpluses in ISIF and the SIF in the year to November.

third successive annual surplus, but as in the two previous years, the outturn was supported by factors that have no impact on the general government balance. Excluding such factors, the Exchequer ran a deficit of just over €1 billion, still a significant improvement from the 2018 deficit (see Table 6)⁴⁸. Revenue ended the year in a better position than had been anticipated in Budget 2019, while expenditure was modestly above its annual profile. Within this the broad trends of recent years were once again evident; higher than expected corporation tax receipts and gross voted current spending, and below profile interest payments on the national debt. The year also saw non-tax revenues come in stronger than forecast.

Table 6: Analytical Exchequer Statement, 2019 (€ millions)

	2019 €m	2018 €m	Annual Change (%)	Outturn vs Profile (€m)
Revenue	74,296	69,748	7	2,279
Tax Revenue	59,314	55,557	7	1,369
Appropriations-in-Aid	13,269	12,621	5	584
Other Revenue	1,714	1,570	9.1	327
Expenditure	75,342	71,826	5	277
Current Primary Expenditure	62,928	60,017	5	528
Capital Expenditure	7,366	6,011	22.5	24
Interest on National Debt	5,047	5,798	-13	-275
Balance	-1,046	-2,077	49.7	2002

Source: Department of Finance

Note: The figures in the Table exclude transactions with no general government impact, to try and give a closer approximation to the General Government balance.

Taking a closer look at revenue, tax receipts continued to record strong growth, increasing by 6.8 per cent on an annual basis. All of the major tax heads strengthened against the backdrop of robust economic activity. Income tax and PRSI, for example, increased by a combined 7.2 per cent as employment and earnings continued to grow. VAT was 6.2 per cent higher reflecting solid consumer spending. Tax revenue also ended the year €1.4 billion (2½ per cent) ahead of expectations. As in recent years this windfall was almost entirely down to developments in CT, following very strong inflows in the final quarter of the year. CT receipts were €750m ahead of profile in November alone - the biggest month for inflows - resulting in a

⁴⁸ It is more appropriate to focus on the Exchequer balance excluding transactions with no general government impact. This provides a better proxy for the main international budgetary measure and the one that is relevant for both domestic and European fiscal rules.

windfall of €1.4 billion for the year as a whole. Non-tax revenue also contributed to better than expected inflows last year, reflecting amongst other things favourable developments in Central Bank surplus income and receipts collected by Government Departments.

Government expenditure, meanwhile, grew by 4.9 per cent on annual basis. Over one-third of this reflected stronger investment spending linked to the National Development Plan; gross voted capital expenditure increased by 22.5 per cent from the previous year, with the largest increase coming in the Housing, Planning and Local Government vote group. Current primary spending was 4.9 per cent higher from last year, while interest payments on the national debt declined once again. Compared to its Budget 2019 profile, gross voted current primary spending once again came in ahead of target. While the €757m overshoot was below its recent average (€870m per annum between 2014 and 2018), it was nevertheless the fifth above profile annual outturn in succession. This overshoot was partly offset by developments in the non-voted - mainly due to a lower than expected EU Budget contribution - and interest expenditure components.

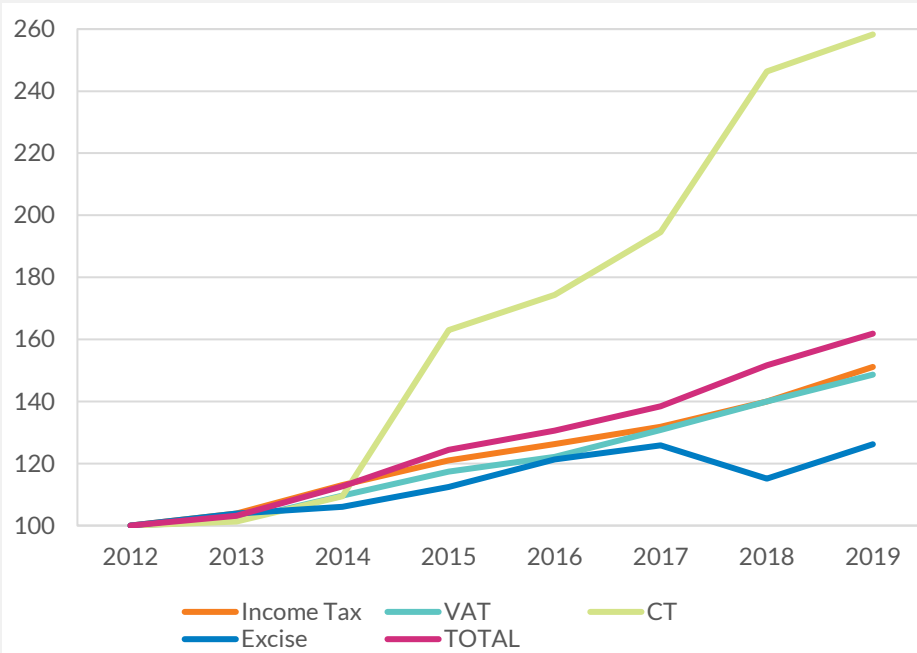
Box D: Developments in Corporation Tax – An Update

By *Thomas Conefrey, Rónán Hickey, Graeme Walsh*

Corporation tax (CT) receipts reached a record high of €10.9 billion in 2019, once again significantly surpassing budgetary expectations. Against this backdrop this Box provides an update on the latest developments in CT, building on other recent analysis by the Central Bank.⁴⁹ It highlights the substantial growth that has occurred in CT receipts since end-2014 and the difficulty in forecasting these developments given the high proportion of tax payments that occur in the final two months of the year. It also finds that, had CT moved in line with nominal GNI* growth from 2015 onwards, it would have been around €4¼ billion - or close to 40 per cent - lower than its actual outturn at the end of last year.

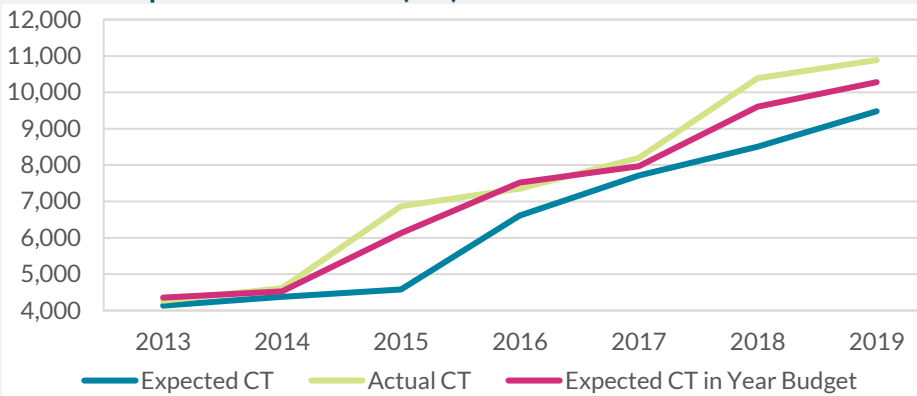
⁴⁹ See, for example, Conefrey, Hickey and Walsh, 'Debt and uncertainty: Managing risks to the public finances', CBI Economic Letter, No 11, 2019. Also 'Box E: The role of Corporation Tax in driving Irish tax growth, 2015 to 2018', CBI Quarterly Bulletin 2 2019.

Chart A: Growth in Major Tax Heads (2012=100)



Source: Department of Finance, Central Bank calculations

Chart B: Expected v Actual CT (€m)



Source: Department of Finance

Note: Expected CT refers to CT which was projected at the time of the corresponding year’s budget.

Chart A illustrates growth in the ‘big four’ tax heads, along with total taxes, since 2012. Total taxes have increased by 62 per cent over this period, which compares very favourably with the broader euro area (22 per cent growth over the period 2012 to 2018) and individual countries in the region (the only countries with higher growth over the period 2012 to 2018 are Malta and Estonia).⁵⁰ Income tax and VAT, the two largest taxes in nominal terms have both increased by around 50 per cent as employment, earnings and consumer spending have recovered. What is striking from Chart A, however, is the very significant growth in CT that has occurred, with a particularly sharp acceleration from 2015 onwards.

⁵⁰ The comparable figure for Ireland over the period 2012 to 2018 is 52 per cent.

While the 4.8 per cent increase in 2019 was lower than in previous years – due to some early payments made in 2018 – it was 15 per cent or €1.4 billion above what had been expected at the time of Budget 2019 (October 2018). CT receipts have more than doubled since end-2014 and this single tax head has been responsible for 35 per cent of total tax revenue growth over this period, a higher contribution than income tax despite the latter's much larger nominal tax base.⁵¹ It should be noted that excluding CT, taxes have grown by around 50 per cent since end-2012, still well above the euro area average, highlighting the strong performance of the economy over this period.

Chart B, meanwhile, shows that a higher than expected CT outturn – as seen last year – has been a general trend since the end of 2014, with an average CT 'windfall' (difference between what the government has projected for the year in the previous October's Budget and the actual outturn) of €1.4bn per annum over this period. The total amount of additional CT revenue collected by the government over this period – in excess of their budgetary projections – has been €6.8bn (or 3.4 per cent of 2018 GNI*). To further highlight the unpredictable nature of CT in recent years, Chart B also shows the expected CT outturn at Budget time (October) in the particular year in question, i.e. just ten weeks prior to the end of the year.⁵² Even though nine months of Exchequer data have been available at this time, the average 'windfall' has still been around €450m. This reflects the very high proportion of CT receipts that are paid in the final two months of the year – 35 per cent of total receipts were expected to be paid in November and December of this year. Prior to 2013 the Budget was published in December, reducing the potential for these intra-year errors.

The exceptional growth in CT revenue since 2015 has been well in excess of the rate of growth in underlying economic activity in Ireland as measured by various indicators. For example, modified Gross National Income (GNI*) is an adjusted measure of national income that strips out the effects of certain multinational activity that does not impact the incomes or employment of Irish residents. From 2015-2019, this is estimated to have grown at an average annual rate of 6½ per cent. In contrast corporation tax revenue increased by an average of around 20 per cent per year over the same period.

⁵¹ Corporation tax has been responsible for 35 per cent of total tax growth since end-2014, compared to 32 per cent for income tax, 22 per cent for VAT and 5 per cent for excise.

⁵² Prior to Budget 2014 the Budget, and corresponding fiscal projections, was published in December.

Accordingly it is worth examining what increase in CT we would expect to have seen had revenue grown broadly in line with underlying economic activity.⁵³ The difference between this and the actual corporation tax outturn can be considered a measure of windfall revenues. It may also be instructive in providing an estimate of how much of the recent inflow could be considered as potentially unsustainable – as it is unrelated to developments in the Irish economy. This is, of course, only one way of trying to identify the potentially unsustainable element of CT, with other methodologies having been employed recently by the IMF, IFAC and the Department of Finance, amongst others.⁵⁴

Having looked at a range of variables, we use modified Gross National Income (GNI*) as the base to determine how far CT receipts have deviated from the level that would be expected based on underlying developments in the economy. Prior to 2015, GNI* performs reasonably well as a predictor of CT receipts. Furthermore, as GNI* has been specifically designed to exclude globalisation effects unrelated to developments in the Irish economy or labour market, it is a more suitable indicator for this exercise than GDP or gross operating surplus. Although gross operating surplus may appear to be a more appropriate macro base given it is a measure of profits in the economy, the 55 per cent annual increase it experienced in 2015 appears disconnected from actual underlying activity that year.⁵⁵ We produce a model based estimate using the equation:

$$\Delta CT_t = \alpha + \beta \Delta GNI^*_t + \varepsilon_t$$

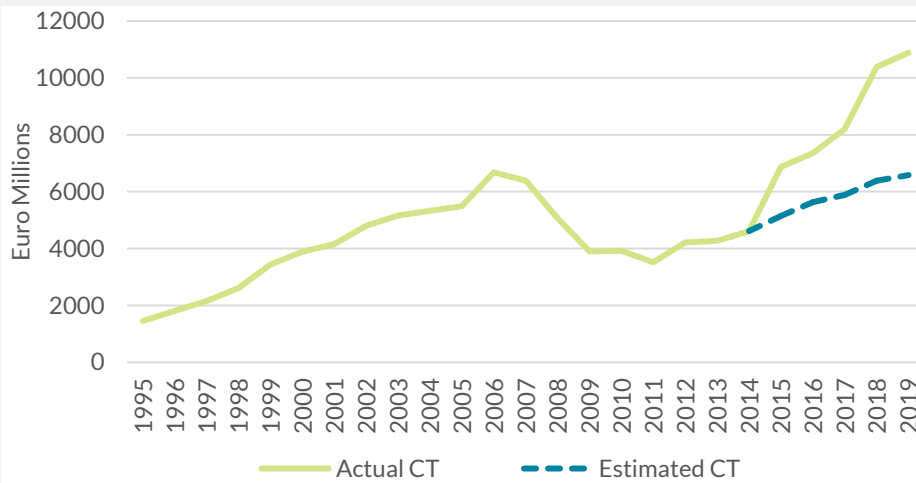
The equation results suggest that, given the historical relationship between CT and GNI*, overall CT revenue was €4¼ billion higher at the end of 2019 than we would have expected given GNI* growth. This figure is broadly in the middle of the recent estimates of the potentially unsustainable part of CT produced by the Department of Finance and IFAC. As Chart C shows, the increase in GNI* in recent years projects strong growth in CT, averaging around 7½ per cent per annum. The actual increase in CT revenue, however, has been considerably stronger, with an annual average increase of almost 20 per cent since the end of 2014.

⁵³ This differs from a forecasting exercise where the objective is to estimate a model which can predict as closely as possible the actual level of corporation tax.

⁵⁴ See IMF 'Ireland 2019 Article IV Consultation', June 2019; IFAC 'Fiscal Assessment Report', June 2019; Department of Finance 'Budget 2020 – Addressing Fiscal Vulnerabilities', October 2019

⁵⁵ Prior to 2015 - and this rapid growth in gross operating surplus (GOS) noted - GNI* has a strong correlation with GOS (0.78).

Chart C: Observed increase in CT since 2015 has been larger than an estimate based on the growth in national income



Source: Central Bank of Ireland calculations

Note: Model based estimate uses GNI* as the base measure

It is important that any 'windfall' or unexpected revenue is saved rather than used to fund long lasting spending commitments. The pattern observed in recent years has been for such spending to occur, with voted primary current expenditure overshooting its budget profile by an average of €870m per annum since end-2014. Given current economic conditions, saving windfalls would help to alleviate overheating pressures while also building up buffers to limit the cost of any future downturns. Fiscal buffers accumulated during times of buoyant tax revenue growth could be used to avoid the need for damaging fiscal tightening in a recession.⁵⁶

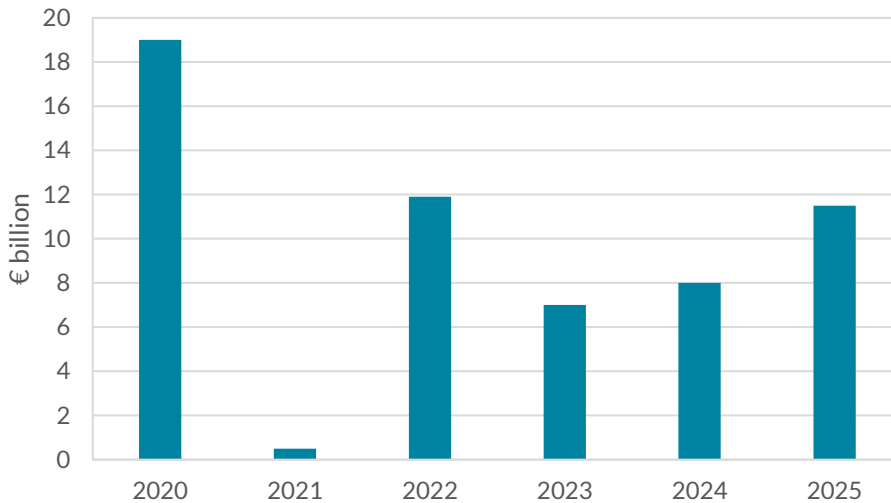
Funding and Other Developments

This year sees the State facing significant bond redemptions of around €19 billion and a planned Exchequer borrowing requirement of €1.5 billion. Pre-funding activity by the National Treasury Management Agency (NTMA), however, means it entered the year with a very healthy positive cash balance, allowing it to reduce planned borrowing activity even against the background of high funding requirements. The sale of a new 15-year benchmark Treasury Bond in January, meanwhile, raised €4 billion, representing a strong funding start to the year. Having faced successive years of high bond redemptions in 2019 and 2020, Ireland's maturity profile is more favourable over the medium term. Total bond redemptions

⁵⁶ See Conefrey, O'Reilly and Walsh, 'Fiscal windfalls: A model based analysis', CBI Economic Letter, No 3, 2019.

for the period 2021 to 2023 as a whole are around €19½ billion, only marginally higher than those occurring this year (see Figure 15).

Figure 15: Recent Trends in Exchequer Finances



Source: National Treasury Management Agency

Box E: Financing Developments in the Irish Economy

By Statistics Division

Credit developments remain largely modest while deposits from both households and non-financial corporations (NFCs) are picking up strongly. The growth in credit to the NFCs has slowed in the later part of 2019, accompanied by very strong growth in deposits from non-financial companies. This is showing some potential precautionary behaviour of NFCs but business sentiment indicators suggest a modest rebound in December may result in a change in the coming months.

Outstanding loans for house purchase increased at a modest and relatively stable rate during last year. Loans for consumption purposes are growing at a faster rate but the pace of growth has also stabilised or slightly declined in recent months. Deposits from both households and businesses continue to increase despite low or negative rates on certain products. The growth is concentrated in overnight deposit categories reflecting the large decline in the additional interest rate premium for term and notice deposit accounts.

While consumer sentiment has improved, most likely due to the decreased levels of uncertainty regarding the United Kingdom's withdrawal from the European Union, downside risks remain. Should these risks reduce further, and confidence improves among households

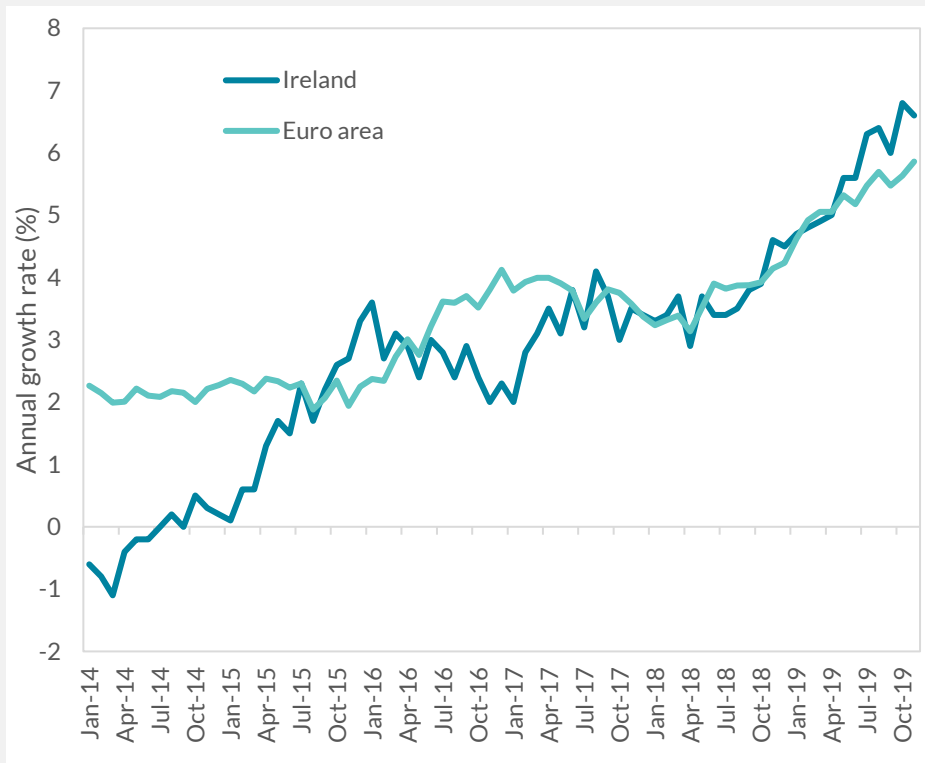
and businesses, a less defensive stance may result in lower savings and result in additional spending and investment at a time when risks of overheating in the Irish economy may already be increasing.

Household Credit and Deposits

Household deposits

While households are continuing to deleverage and pay off their debts, they are simultaneously increasing their savings with the growth rate in household deposits increasing. The growth in household deposits has closely tracked that seen across the euro area since 2017 but there are now tentative signs in recent months that the deposits of Irish household are now increasing beyond those of the euro area as a whole.

Figure 1: Annual Growth in Household deposits

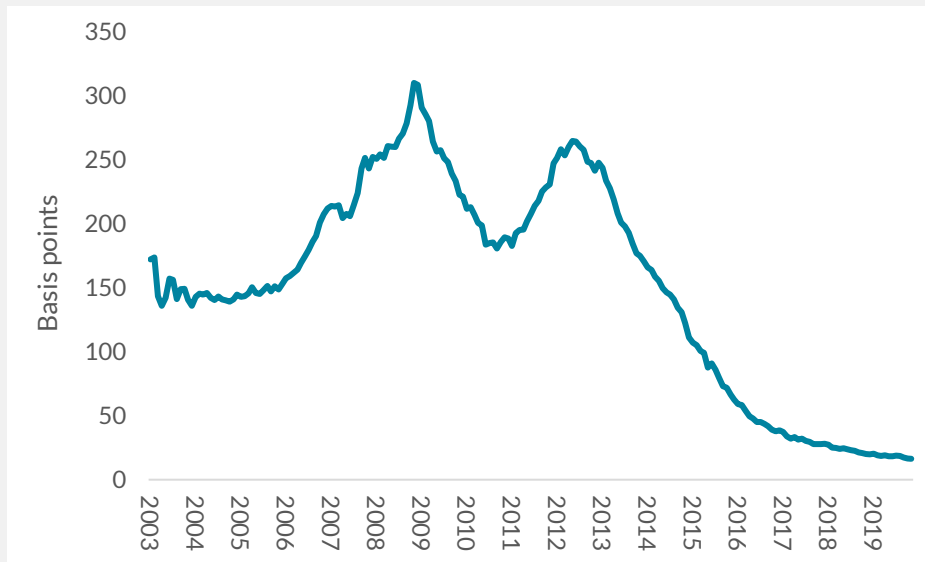


Source: Central Bank of Ireland

A preference for short dated products remains strong. The trend observed over the last number of years of households preferring overnight accounts as opposed to longer-term savings continued in 2019. In the year to end November, the entire growth in household deposits was in the overnight category with term and notice accounts seeing minor declines. The trend of consumer preferences for short-term deposits began in February 2013 and has been consistently observed since. Historically, households received an interest rate premium of at least 140 basis points on term and notice accounts reflecting the lower

levels of liquidity in these products. In recent years, the premium has declined steeply and households are now only receiving a 16 basis points premium. Such pricing behaviour in the market reflects flattening yields curves in financial markets and is likely to be driving the current preference of households for overnight products.

Figure 2. Additional Return on Term and Notice Deposits over Overnight Deposits



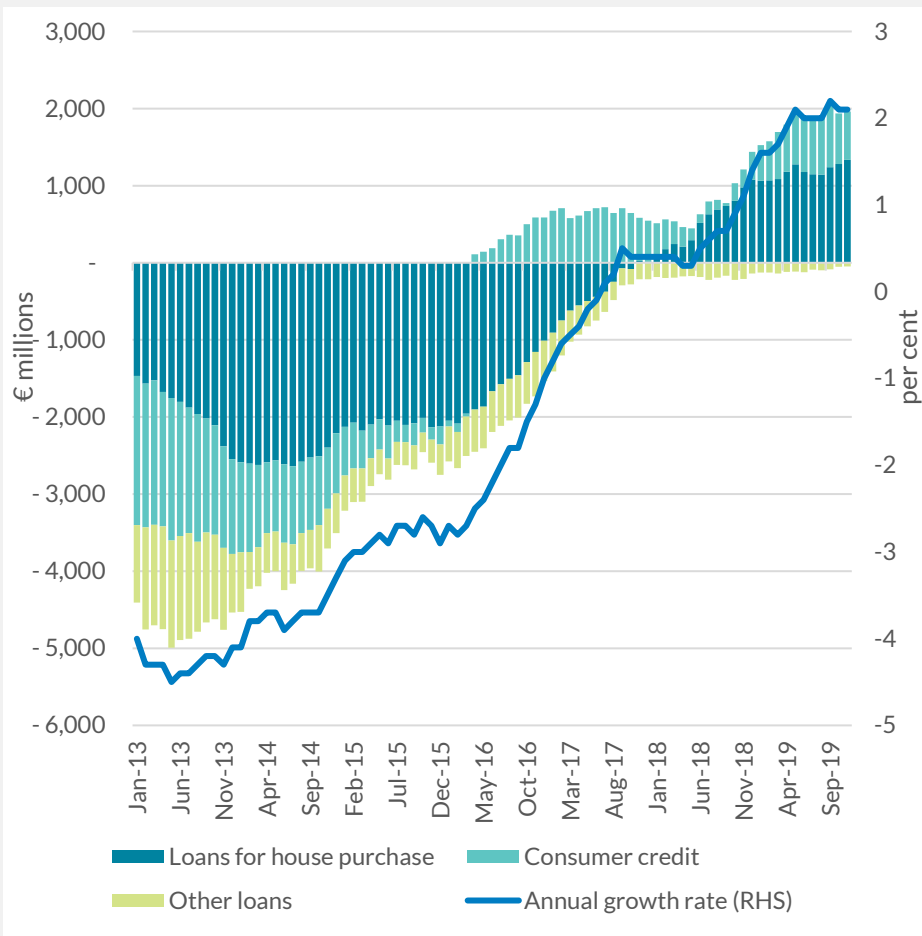
Source: Central Bank of Ireland

Note: Calculated as the weighted average interest rate on term and notice deposits minus the weighted average interest rate on overnight deposits

Household borrowing

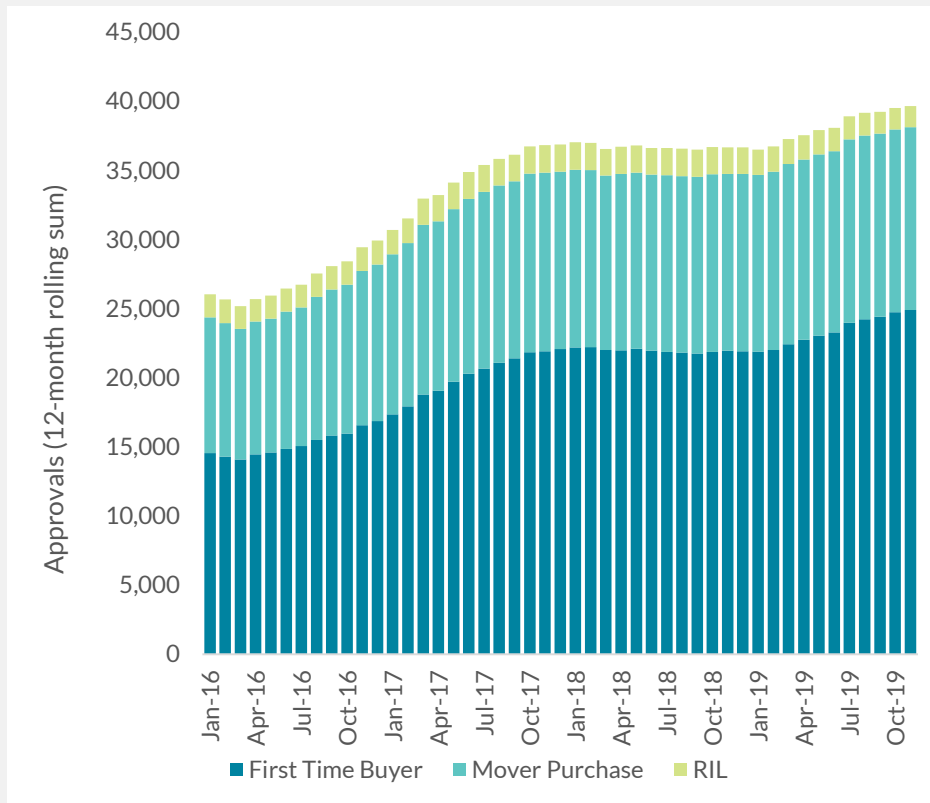
Loans for house purchase comprise the largest component of overall household borrowing at 83 per cent followed by lending for consumption and other loans at 17 per cent. New borrowing by households increased by 2.1 per cent and exceeded loan repayments by €1.9 billion in the year to end-November 2019. This was driven by longer-term loans, and particularly increases in mortgage lending. Loans for house purchase recorded 1.8 per cent growth in the year to end-November. Although this is the highest annual growth rate since October 2009, the rate of growth is still modest and has stabilised at between 1.4 and 1.9 per cent throughout 2019. According to recent data from the Banking Payments Federation of Ireland, the number of mortgage approvals in annual terms at the end of November 2019 continued their upward trend, suggesting further increases in loans for house purchases if these approvals translate into drawdowns in the future.

Figure 3: Loans to Irish households, net flows 12-month sum and annual growth rate



Source: Central Bank of Ireland

Figure 4: Total Mortgage approvals (excluding refinancing), 12-month sum



Source: Banking and Payments Federation of Ireland

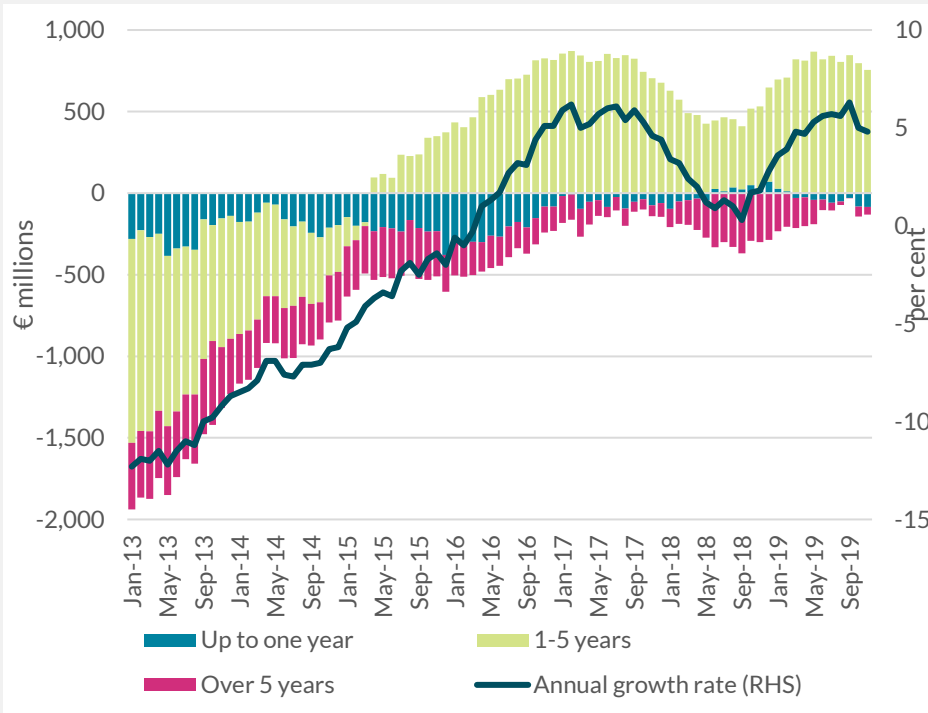
Borrowers continue to favour fixed rate mortgages at levels not seen in the past, with fixation periods of three to five years being the most popular amongst borrowers. The cost of credit facing new Irish resident mortgage borrowers remains high relative to their European peers. The average rate recorded for new mortgage lending in October 2019 was the second highest in the euro area at 2.93 per cent. The average rate for the euro area stood at 1.37 per cent, although the rate varied considerably across countries. Fixed rate mortgages comprised 75 per cent of all new agreements by loan amount on a three-month rolling basis to October.

Consumer credit

Loans to households for the purpose of consumption also recorded annual increases, amounting to €631 million of new drawdowns exceeding repayments by end November, representing growth of 4.8 per cent. This growth was driven by medium term loans (€760 million). The KBC Irish consumer sentiment index notes that the first back-to-back monthly gains in four years in consumer sentiment were recorded in December 2019. The concerns of consumers have eased due to a more favourable outlook on the departure of the United Kingdom from the

European Union, with one in three respondents expecting circumstances to improve in 2020 when compared with 2019.

Figure 5: Consumer Credit, 12-month sum net flows and annual growth rate



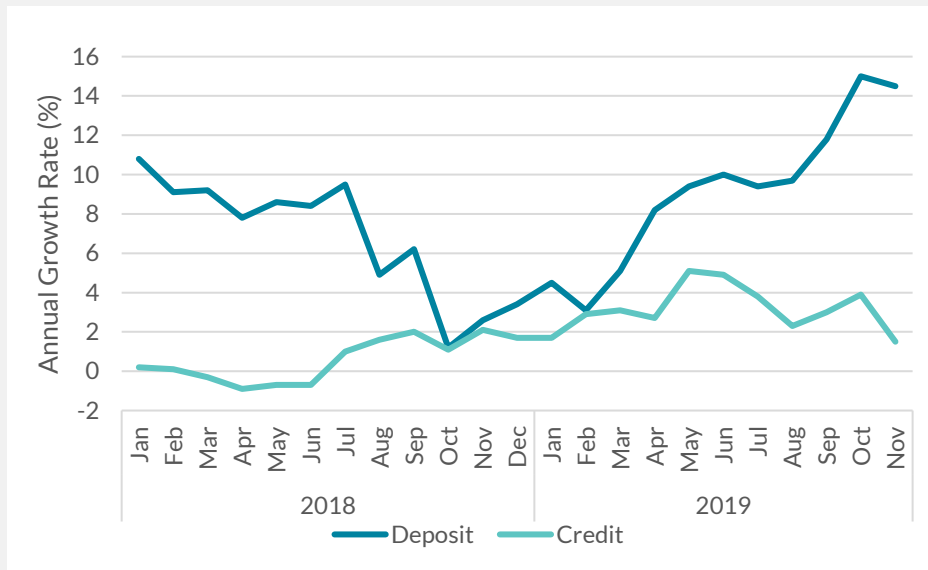
Source: Central Bank of Ireland

Irish Private Sector Enterprises Credit and Deposits

The behaviour of Irish non-financial corporations (NFCs) exhibited potential defensive traits in the second half of 2019. Overall, credit growth to NFCs increased by 1.3 per cent in the year to November 2019, down from 5.4 per cent in the middle of the year. Many Irish NFCs have been able to self-fund investment and working capital requirements in recent years without recourse to bank funding and it may be the case that this is increasingly occurring⁵⁷. However, we are now seeing the decline in lending being accompanied by very strong increases of 14.5 per cent in deposits from NFCs.

⁵⁷ See Financial Stability Review 2019: 1 <https://www.centralbank.ie/docs/default-source/publications/financial-stability-review/financial-stability-review-2019-i/financial-stability-review-2019-i.pdf?sfvrsn=9>

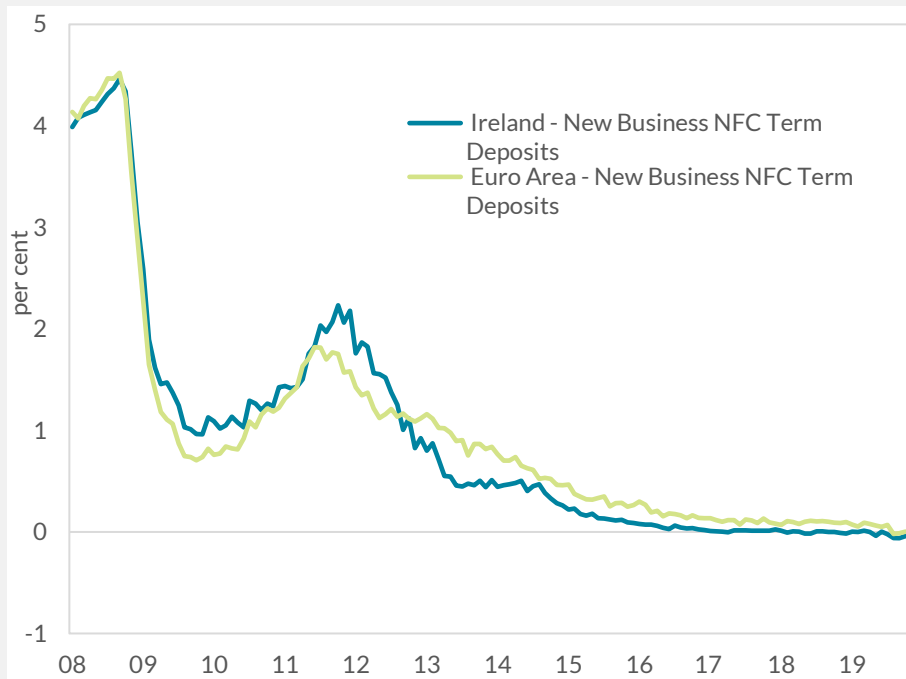
Figure 6: Non-Financial Corporate Credit and Deposit Trends (annual growth rate)



Source: Central Bank of Ireland

The underlying driver of the high NFC deposit growth was seen in overnight deposits, which recorded annual growth in November of 18.3 per cent. Similar to households, the premium on term deposits has significantly declined in recent years. In addition, some NFC deposits are attracting negative interest rates, in particular in the short-term agreed maturity categories. Despite these low, and occasionally negative, deposit interest rates, the volume of deposits continued to grow strongly. This could be due to overall economic uncertainty over the past year leading up to the Brexit deadlines, rising trade tensions and the potential adverse macroeconomic spillovers in Ireland. There are tentative sentiment indicators showing that businesses outlook improved in December, in particular in the services sectors. Recent data from the CSO Retail Sales Index shows that sales in November slowed slightly when compared with October, however an increase of 1.4 per cent is evident when compared with the same period in 2018. This could represent consumer uncertainty in anticipation of a Brexit deadline approaching, which may have been alleviated somewhat by the end of 2019. Should this sentiment continue to improve, it may result in a return to lower deposit growth and a pick-up in credit demand as confidence and investment plans grow.

Figure 7: Interest rates on New Household and Business Term Deposits

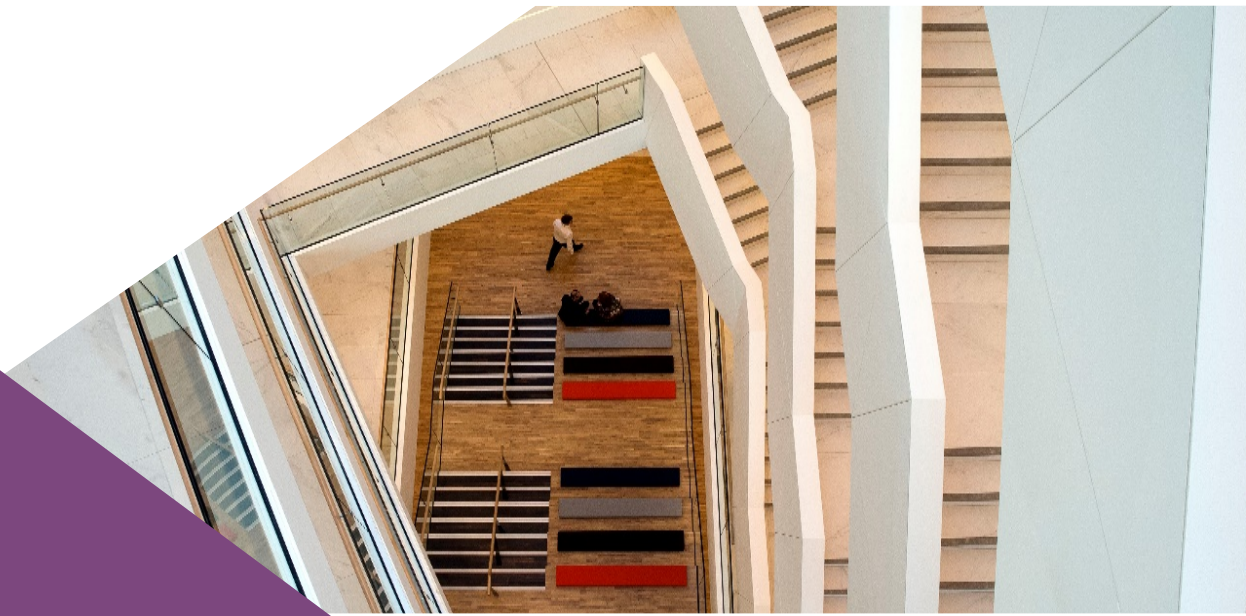


Source: Central Bank of Ireland

Gross new lending to all SMEs increased by €5.3 billion in the year to end-September 2019, with property-related lending accounted for just under one-third of gross new lending at €1.7 billion. Repayments by SMEs were high in the third quarter at €2 billion, surpassing the same periods in 2017 and 2018. The latest [SAFE data](#) show that external funding availability and needs are broadly balanced in Ireland. Overall, SMEs in Ireland were among the most upbeat about their external financing environment. The SAFE data also indicate increases in interest expenses for Irish SMEs, with Ireland reporting the highest net percentage of SMEs reporting an increase in interest expenses, along with increases in labour and other costs. Interest rates on new NFC loans of under €1 million, which typically include SME loans, recorded a weighted average interest rate of 4.51 per cent in October 2019. This is markedly higher than the euro area average of 1.88 per cent.

Overview of Financial Developments in the Irish Economy

The Overview of Financial Developments Chapter presents a summary of the latest financial trends in Ireland. The Financial Statistics Summary Table and accompanying graphs provide key insights for understanding important trends, utilising the latest data for the household sector, small and medium sized enterprises, the financial sector and the public finances. Links to the relevant source data are provided below each chart.



Financial Statistics Summary Table

	2016	2017	2018	2019
Lending - Outstanding, € billion				
	73.5	74.8	76.1	76.4**
Irish Households for House purchase	-1.3%	0.0%	1.4%	1.8%**
	14.7	15.1	15.3	15.6**
Irish Households for Consumer and Other credit	0.4%	2.2%	1.5%	3.9%**
	42.3	41.3	40.9	39.7**
Irish Non-Financial Corporates	-3.3%	-0.6%	1.7%	1.5%**
	28.3	26.4	23.5	21.7*
Irish resident Small and Medium Sized Enterprises	-8.4%	-4.0%	-3.8%	-4.8%*
	147.5	148.4	150.0	147.9**
Irish Private Sector ¹	-2.5%	0.7%	1.1%	-0.2%
Deposits - Outstanding, € billion				
	97.1	99.5	104.0	110.3**
Irish Households	2.3%	3.4%	4.5%	6.6%**
	45.6	50.5	52.4	59.6**
Irish Non-Financial Corporates	9.0%	9.8%	3.4%	14.5%**
	89.3	93.2	95.7	105.8*
Irish Resident Private-Sector Enterprises	0.7%	6.3%	2.1%	8.7%
New Business Interest Rates, %				
Lending for House purchase ²	3.4	3.2	3.0	2.9**
Non-Financial Corporate Lending	2.6	2.9	2.3	3.7**
Irish Small and Medium Sized Enterprises Lending	4.3	4.1	4.0	3.9*
Household Term Deposits	0.1	0.07	0.04	0.04**
Households - € billion				
Household Debt to Disposable Income	143%	130%	123%	117%***
Household Net Worth	655	721	753	780***
Financial Sector Assets - Outstanding, € billion				
Credit Institutions	590.3	552.1	599.8	685.5**
Investment Funds	1,938.4	2,241.8	2,327.8	2,867.5*
Money Market Funds	485.2	500.6	502.1	573.8**
Special Purpose Entities	740.4	732.3	734.5	851.4*
Insurance Corporations ³	301.4	312.1	304.6	351.9*
Securities - € billion				
Securities Held by Irish Residents	2,484	2,736	2,786	3,110***
Government Bond Debt	121.6	127.0	131.2	129.5**
Debt Securities Issued by Irish Residents ⁴	732.0	719.7	687.9	731.6**

¹ Includes lending to households, Non-Financial Corporates, Insurance Corporations and Pension Funds, and Other Financial Intermediaries

*Ref. September 2019

²Ex. Renegotiations

**Ref. November 2019

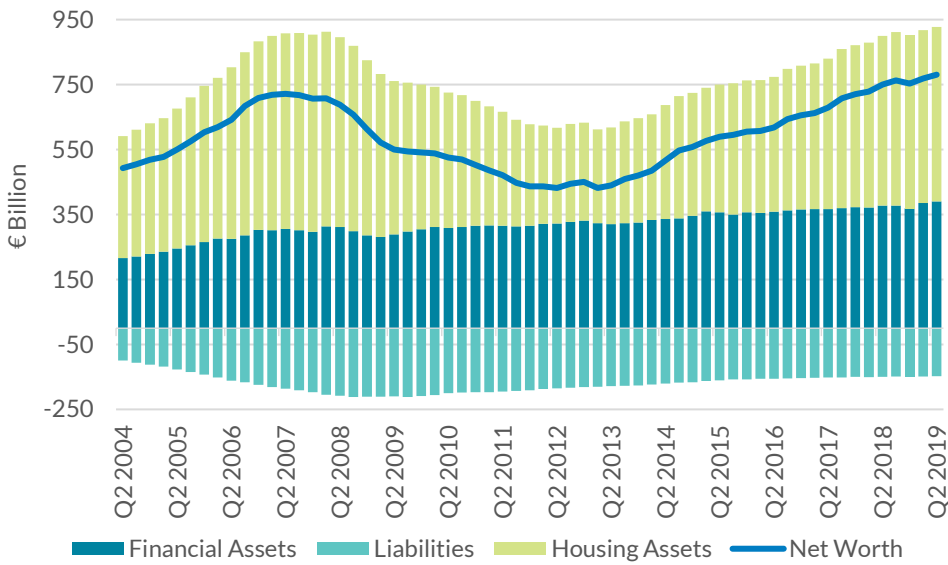
³First reporting commenced in 2016

***Ref. Q2 2019

⁴Debt Securities: all currencies

Household Sector

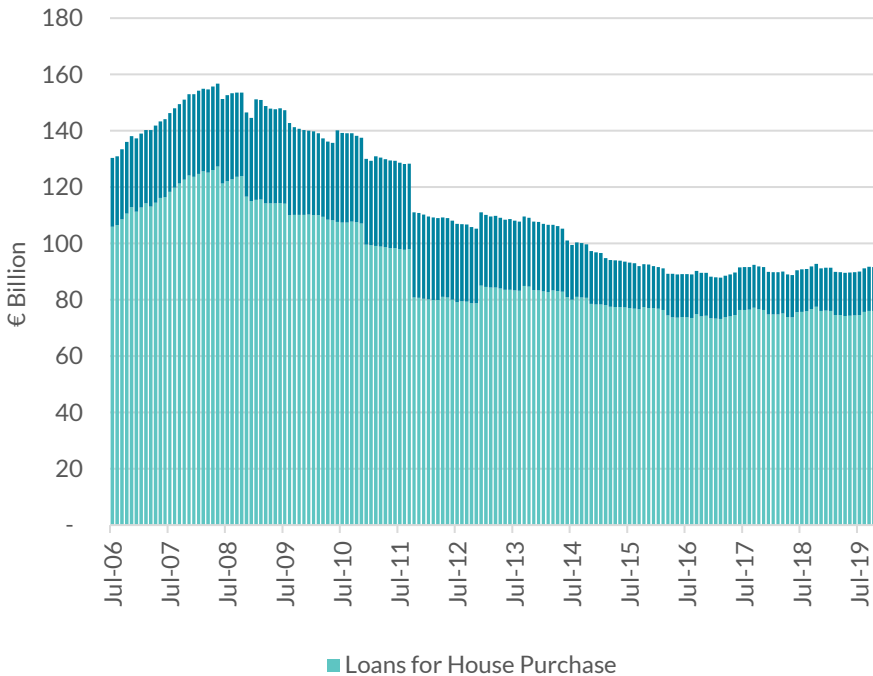
Chart 1: Household Net Worth



The value of housing assets increased marginally to €537bn in June 2019 following declines in the previous two quarters.

Source: [Quarterly Financial Accounts](#), Central Bank of Ireland

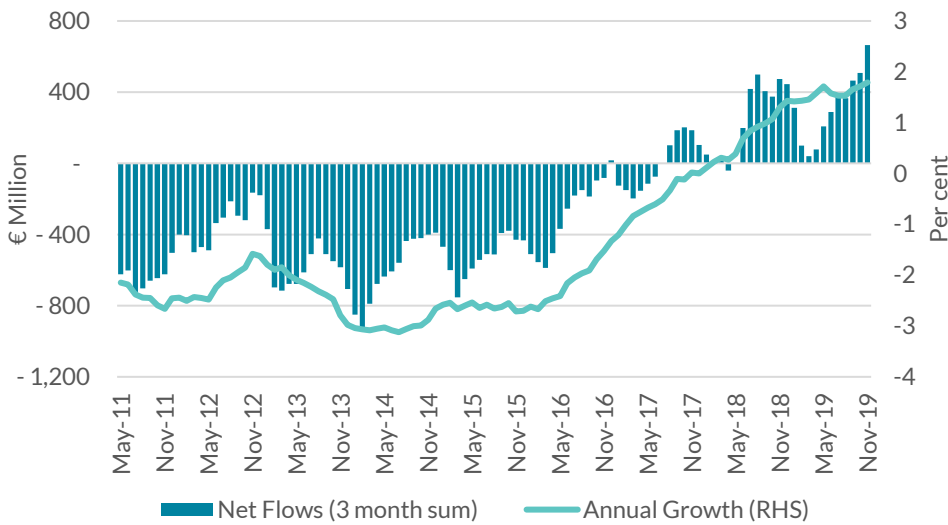
Chart 2: Outstanding Bank Loans to Irish Households



Irish bank loans to households remains at a subdued level relative to its historical highs.

Source: [Bank Balance Sheet Statistics](#), Central Bank of Ireland

Chart 3: Net flows for Loans for House Purchase

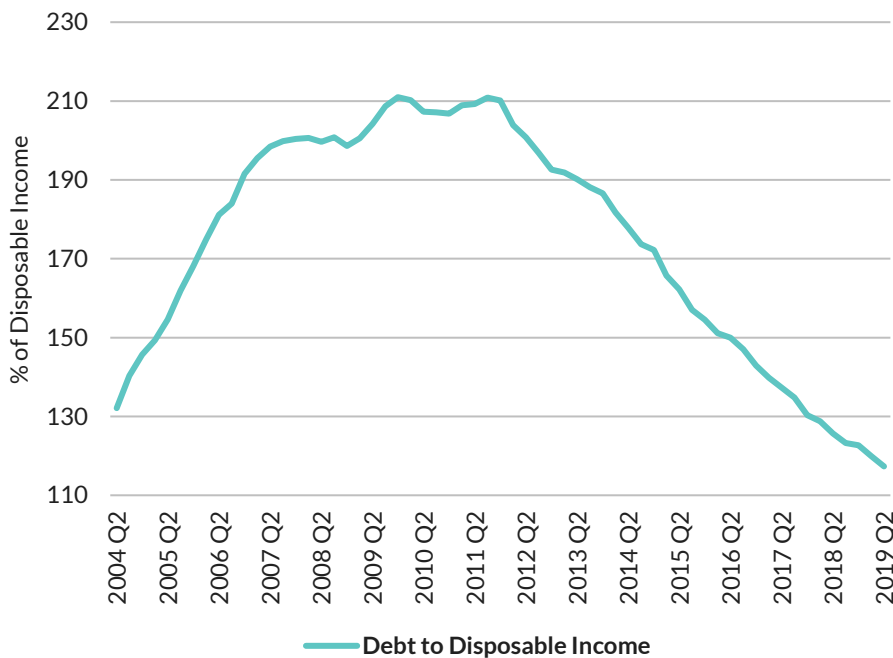


Loans for house purchase continued their long-run upward growth trend in Q3 and Q4 after a period of stability.

Source: [Bank Balance Sheet Statistics](#), Central Bank of Ireland

Note: Data encompass Irish resident bank on balance sheet net lending for the purpose of house purchase.

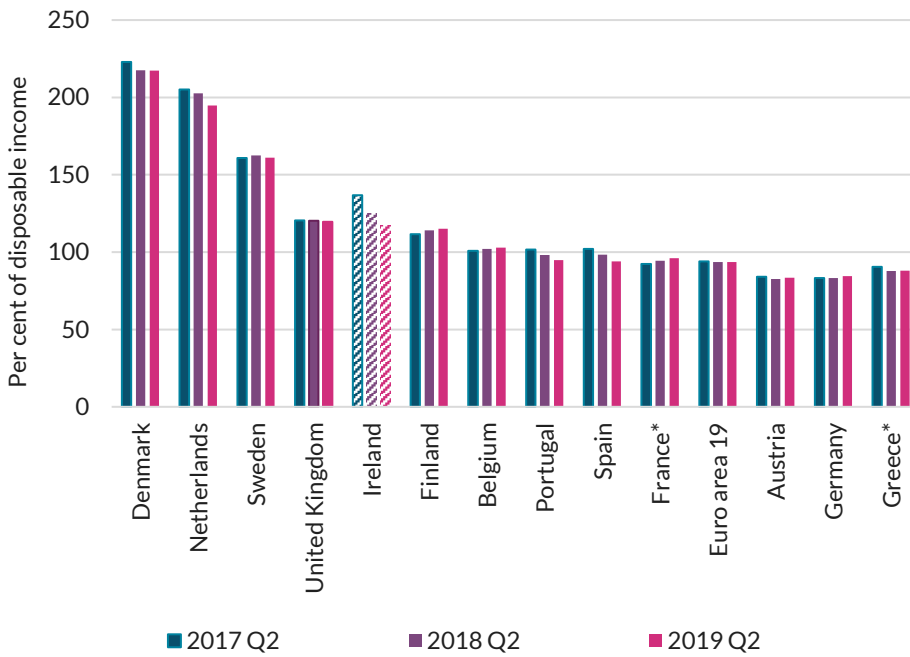
Chart 4: Household Debt to Disposable Income



Households are continuing to deleverage – debt to disposable income is at its lowest point since 2004.

Source: [Quarterly Financial Accounts](#), Central Bank of Ireland

Chart 5: EU Cross Country Comparison of Household Indebtedness

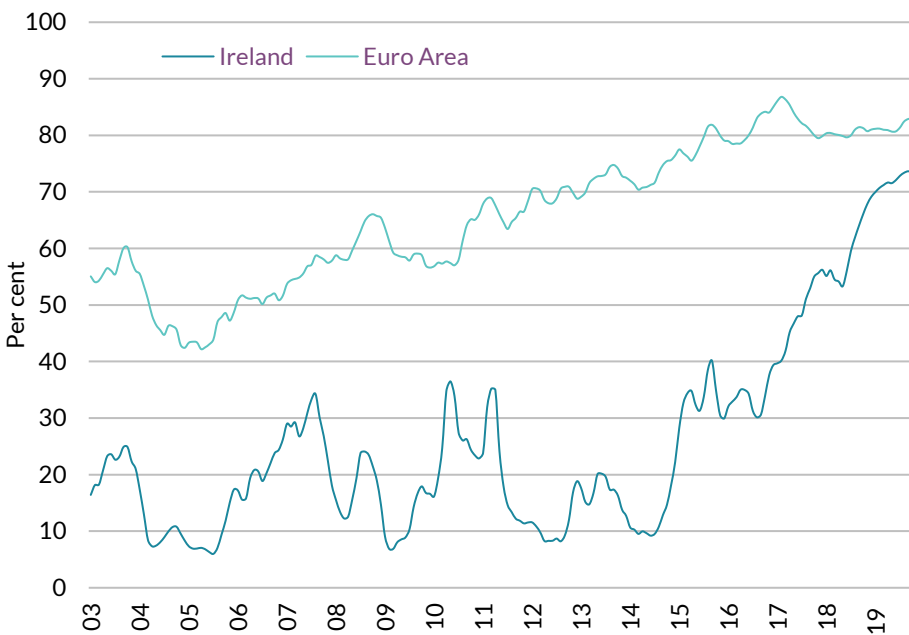


Ireland ranks fifth among European countries when comparing ratios of household debt to disposable income.

Source: [Quarterly Financial Accounts](#), Central Bank of Ireland

Note: *Data are from Q4 2018.

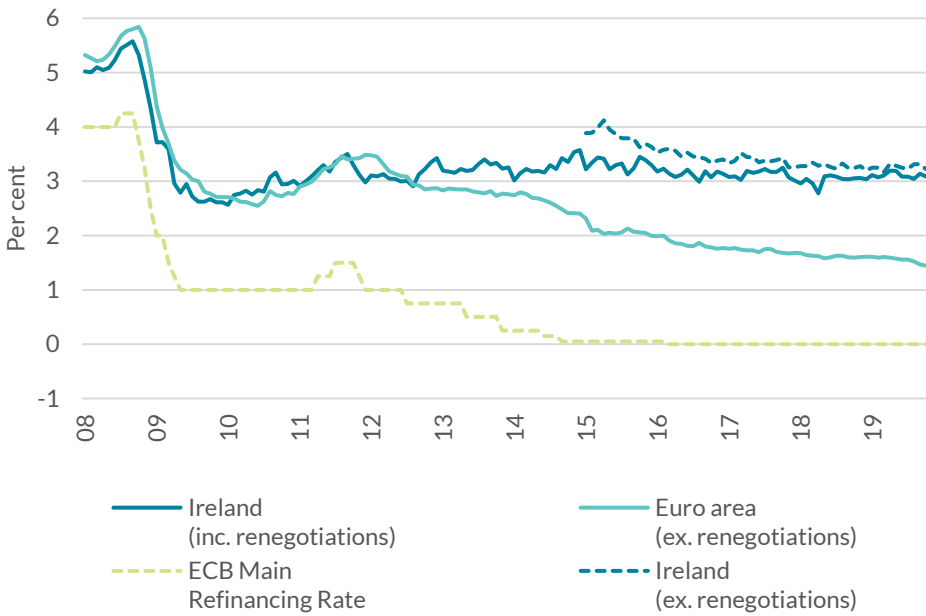
Chart 6: New Mortgage Agreements: Share of Fixed Rate Mortgages (3 Month Rolling Average)



The share of fixed rate mortgages continues to converge with the Euro Area, although fixed rate terms remain shorter in Ireland.

Source: [Interest Rate Statistics](#), Central Bank of Ireland, [ECB Statistical Data Warehouse](#)

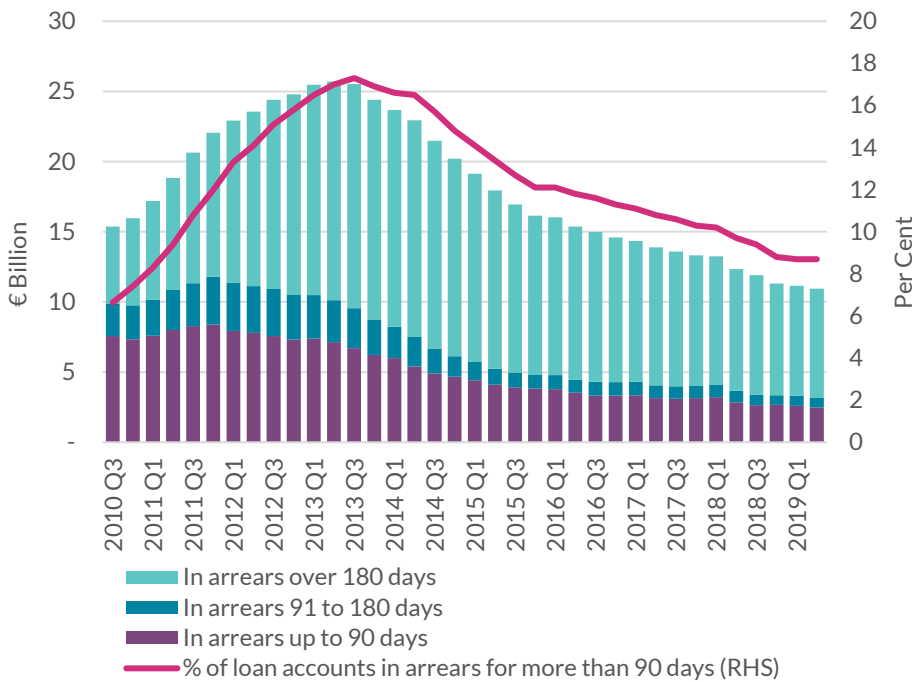
Chart 7: Interest Rates on New Variable Rate Loan Agreements to Households for House Purchase



New variable mortgage interest rates remain above the Euro Area rate, which continues to decline.

Source: [Interest Rate Statistics](#), Central Bank of Ireland

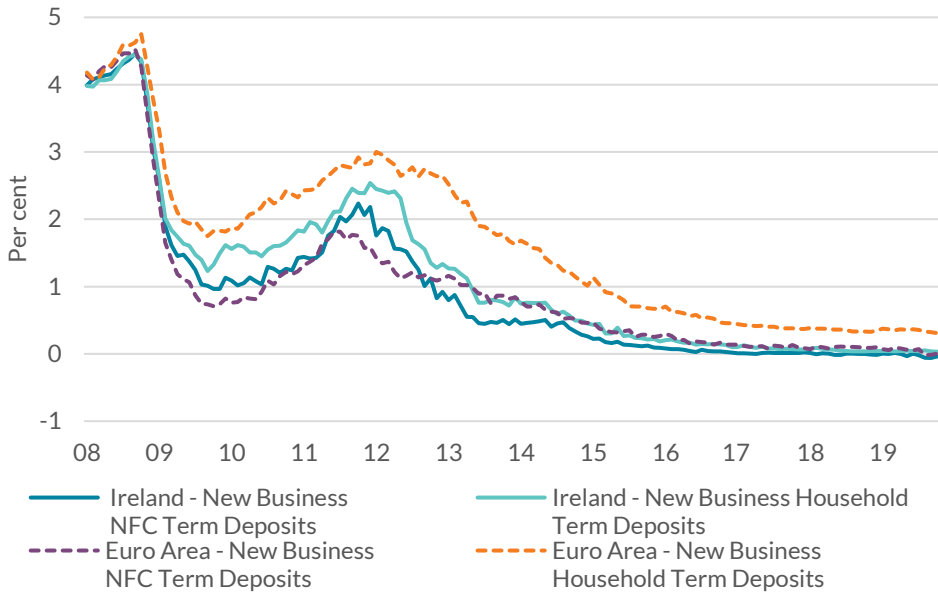
Chart 8: Mortgage Arrears (Primary Dwelling House)



The decline in the number of accounts in arrears has slowed in recent quarters.

Source: [Mortgage Arrears Statistics](#), Central Bank of Ireland

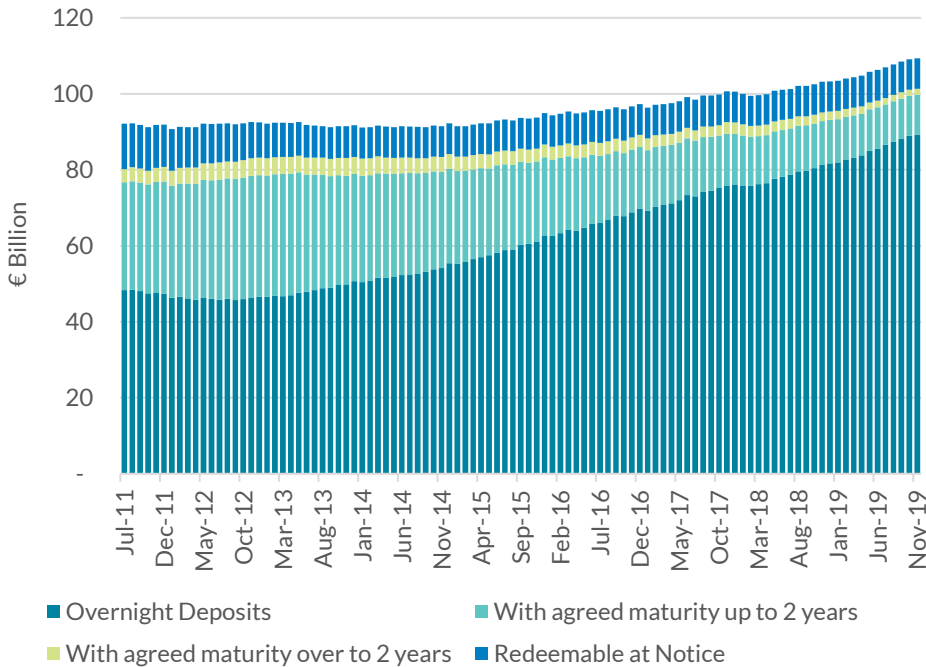
Chart 9: Interest Rates on Household & NFC Term Deposits



Interest rates on Irish new household term deposits were 0.04 per cent in November 2019.

Source: [Interest Rate Statistics](#), Central Bank of Ireland

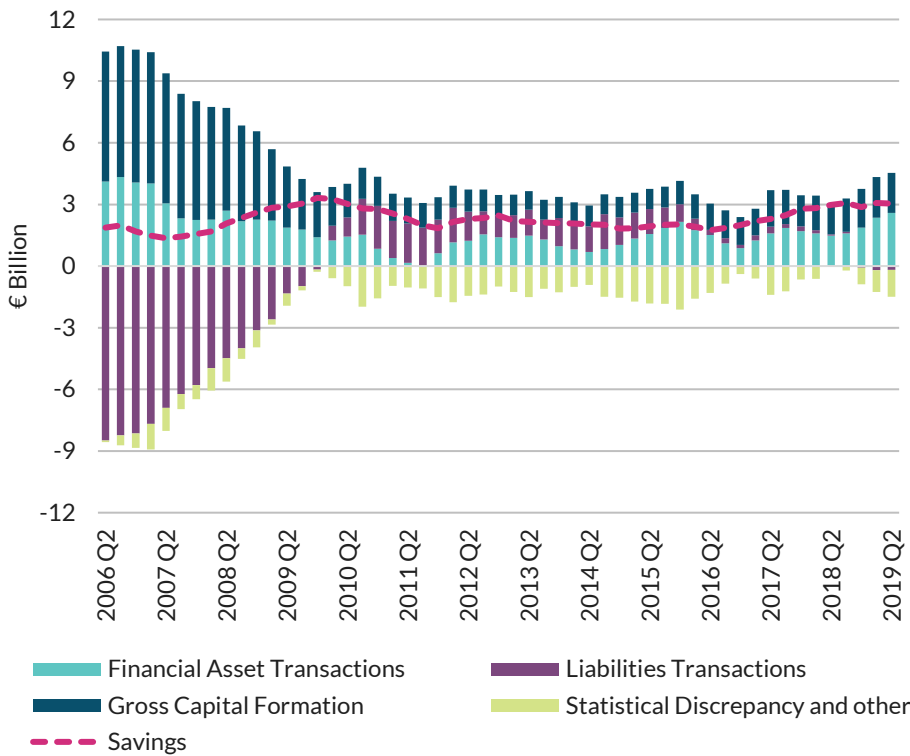
Chart 10: Deposits of Irish Households by Category of Deposit



Overnight deposits are driving the increase in total household deposits.

Source: [Bank Balance Sheet Statistics](#), Central Bank of Ireland

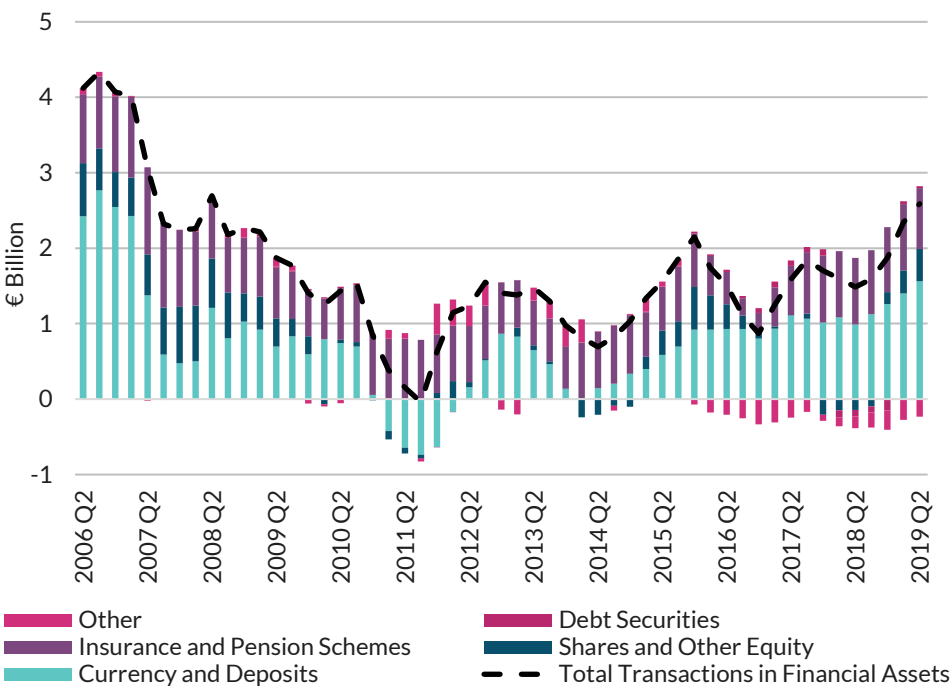
Chart 11: Household Savings by Use (4-Quarter Moving Average)



Households saved €3.6bn in Q2 2019. This saving consisted of €2.7bn of financial asset transactions and a €2.1bn investment in gross capital formation.

Source: [Quarterly Financial Accounts](#), Central Bank of Ireland

Chart 12: Household Transactions in Financial Assets (4-Quarter Moving Average)

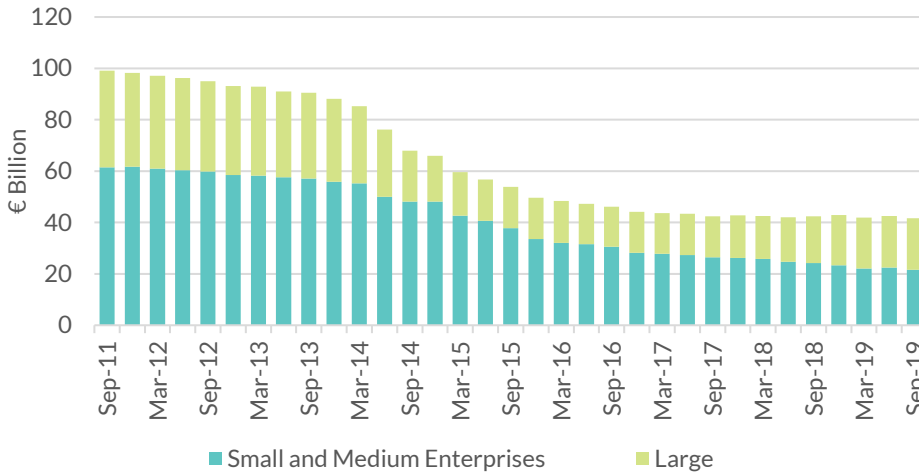


Households are investing primarily in currency and deposits and in insurance and pension policies.

Source: [Quarterly Financial Accounts](#), Central Bank of Ireland

Non-Financial Corporate Sector

Chart 13: Credit Extended to Small and Medium (SME) and Large Non-Financial Enterprises

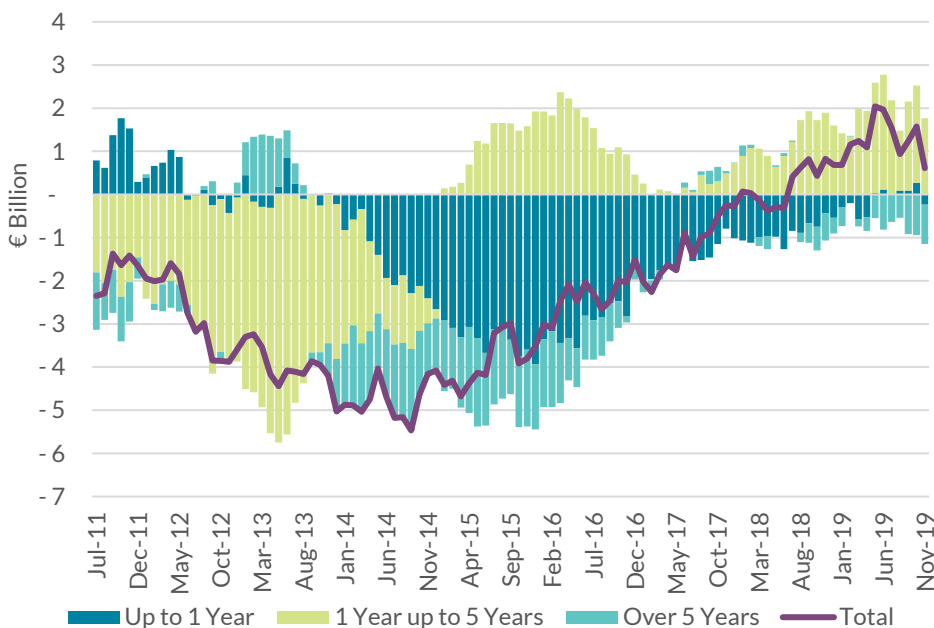


Bank lending to SMEs declined in Q3, while lending to large enterprises remained flat.

Source: [SME and Large Enterprise Credit and Deposits](#); Author’s Calculations, Central Bank of Ireland

Note: SMEs are defined as enterprises with fewer than 250 employees and whose annual turnover does not exceed €50 million and/or whose annual balance sheet does not exceed €43 million. This is the standard EU definition of an SME.

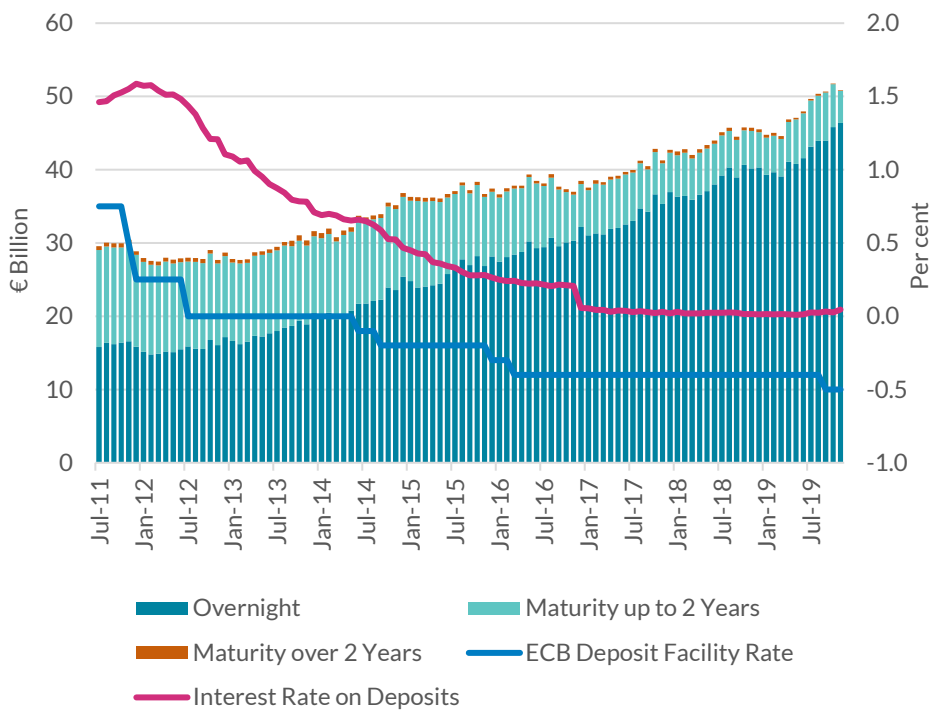
Chart 14: Loans to NFCs; Net Flows (12-Month Sum) by Original Maturity Category



Growth in annual net lending to NFCs has continued to slow in Q3 2019.

Source: [Loans to Irish Private Sector Statistics](#), Central Bank of Ireland

Chart 15: Deposits of Irish NFCs by Category of Deposits

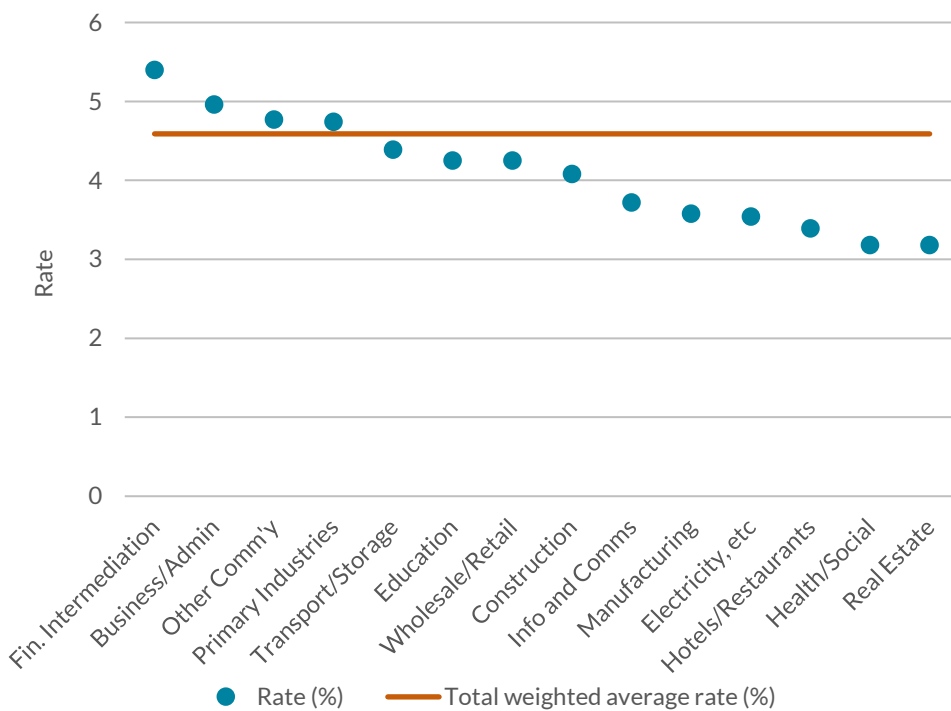


Deposits from NFCs continue to increase. This growth is driven by deposits of overnight maturity.

Source: [Bank Balance Sheet Statistics](#), Central Bank of Ireland

Note: Interest rate on deposits is a weighted average across maturity categories.

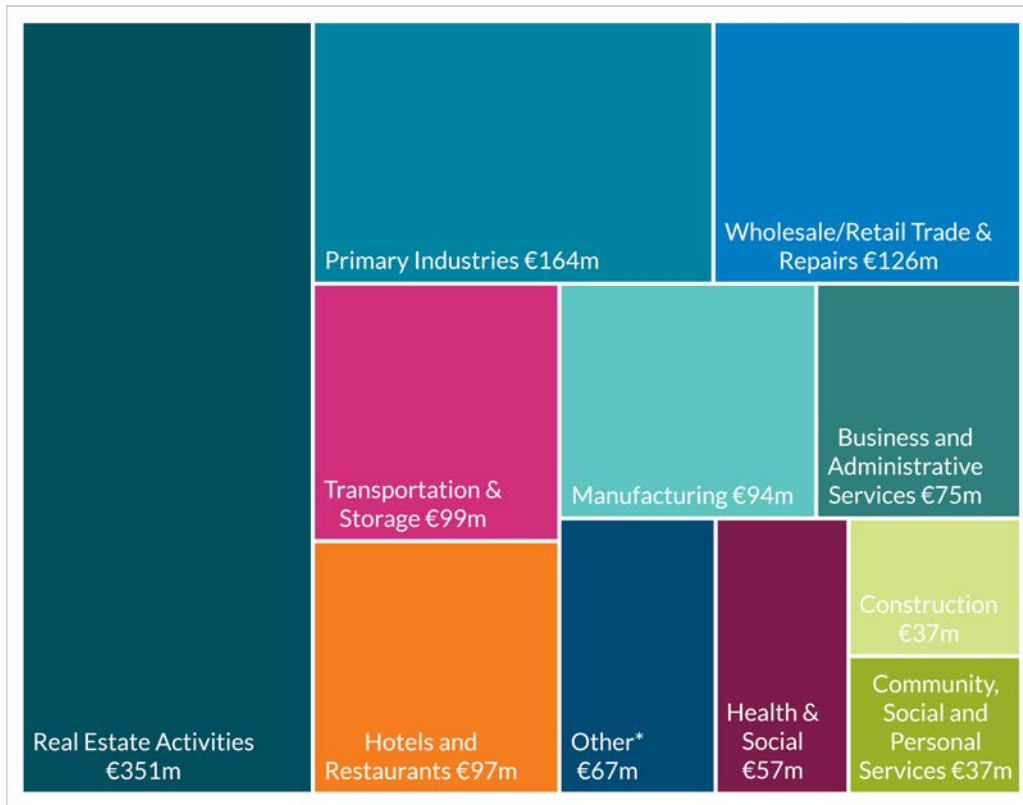
Chart 16: SME New Lending Interest Rates by Business Sector, Q3 2019



Business and Administration Services and Financial Intermediation SMEs saw the highest interest rates for new lending in Q3 2019.

Source: [SME and Large Enterprise Credit and Deposits](#), Central Bank of Ireland

Chart 17: Gross New Lending to SMEs, Q3 2019

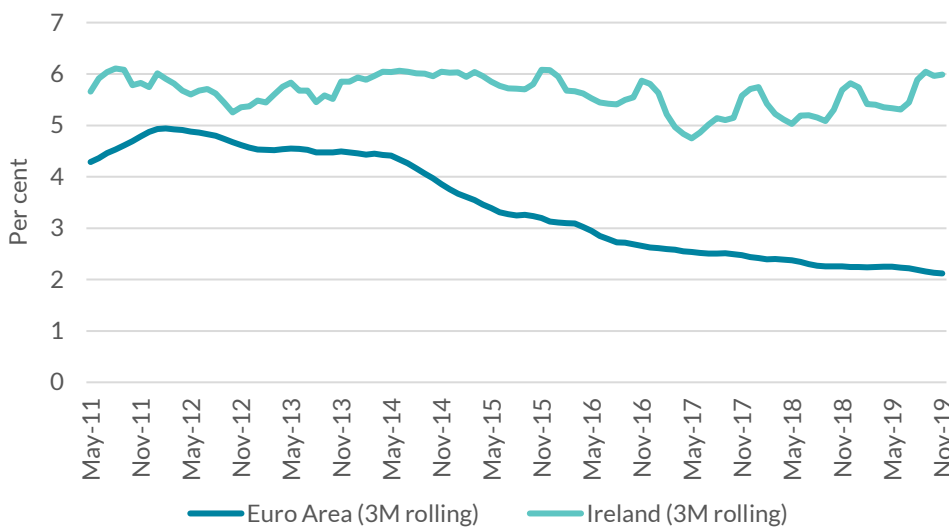


Real Estate Activities received the greatest amount of new lending in Q3 2019.

Source: [SME and Large Enterprise Credit and Deposits](#), Central Bank of Ireland

Note: Other includes Education, Information & Communications, Electricity, Gas, Steam and Air Conditioning Supply

Chart 18: Interest Rates on Small Loans to Non-financial Corporations



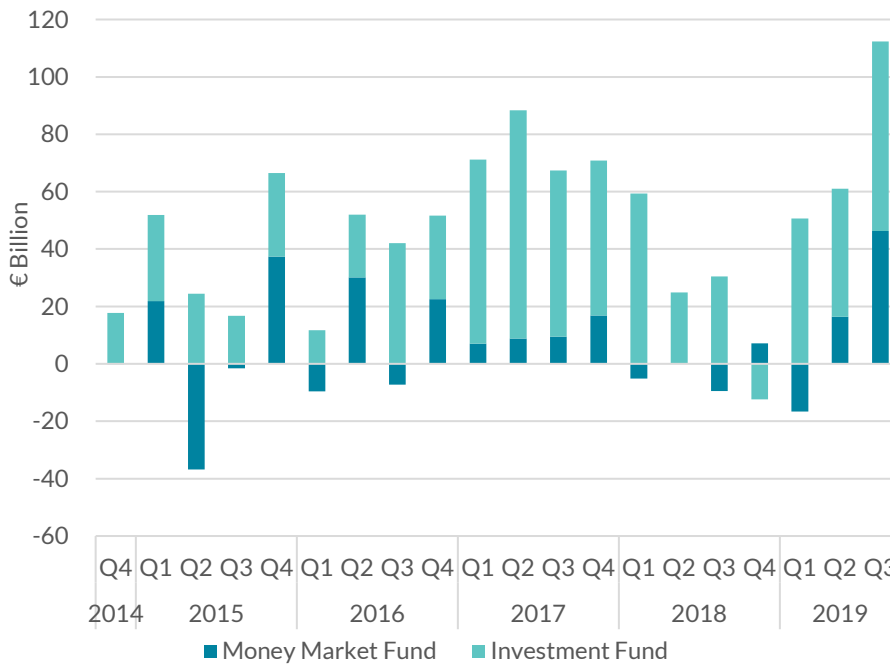
Irish NFCs face higher funding costs than the euro area average for bank loans.

Source: [Bank Interest Rate Statistics](#), ECB Statistical Data Warehouse

Note: Only includes interest rates charged on new bank lending to NFCs of amount <€250k

Non-Bank Financial Sector

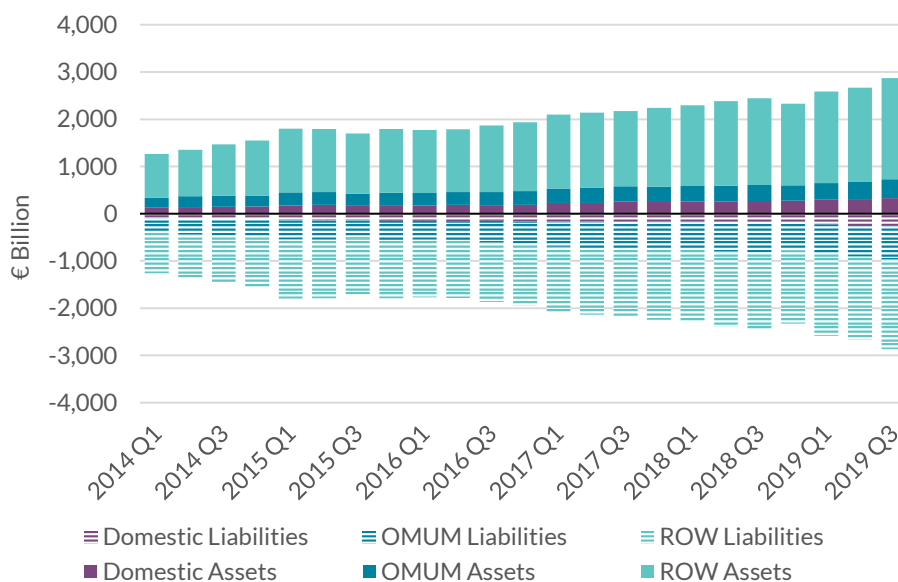
Chart 19: Net Subscriptions of Money Market and Investment Funds



Investment Funds and Money Market Funds saw strong inflows in Q3 of 2019.

Source: [Investment Funds Dataset](#), Money Market Funds Dataset, Central Bank of Ireland

Chart 20: Total Assets and Liabilities of Investment Funds - by Region

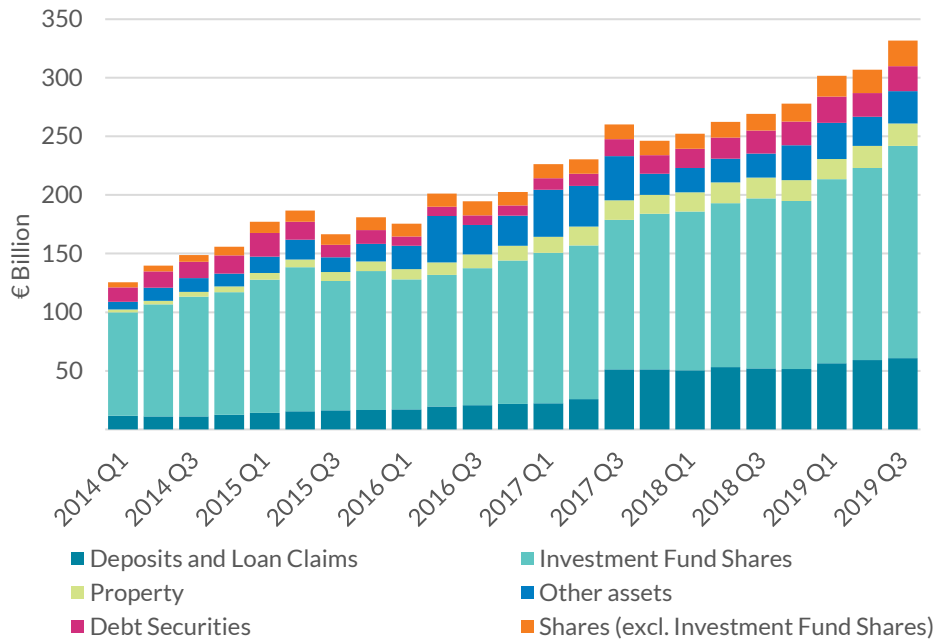


Investment funds are mainly used by foreign investors to invest in foreign assets.

Source: [Investment Funds Dataset](#), Central Bank of Ireland

Note: OMUM= Other Monetary Union Member, ROW=Rest of World.

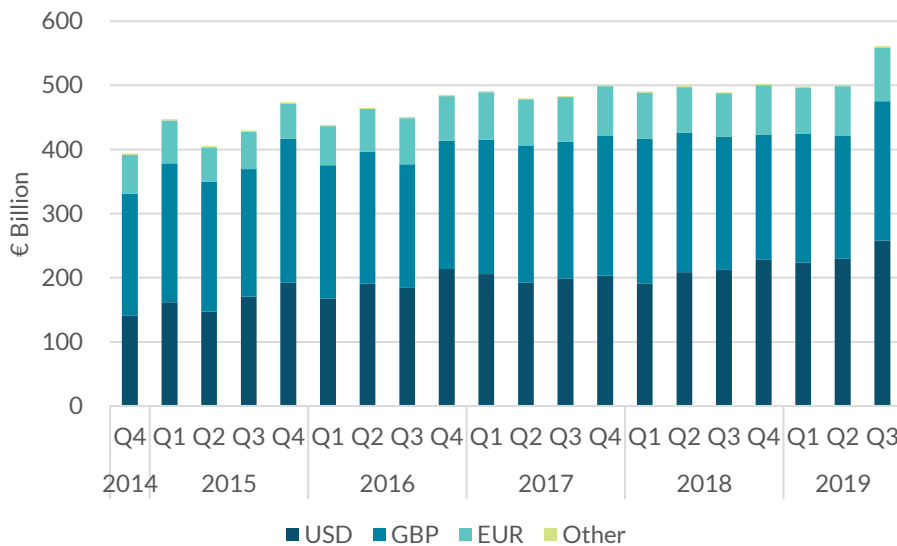
Chart 21: Total Irish Assets of Irish Resident Investment Funds, by Asset Class



Investment in other Irish funds constitutes the majority of Irish assets held by Irish resident investment funds.

Source: [Investment Funds Dataset](#), Central Bank of Ireland

Chart 22: Total Assets of Money Market Funds, by Currency

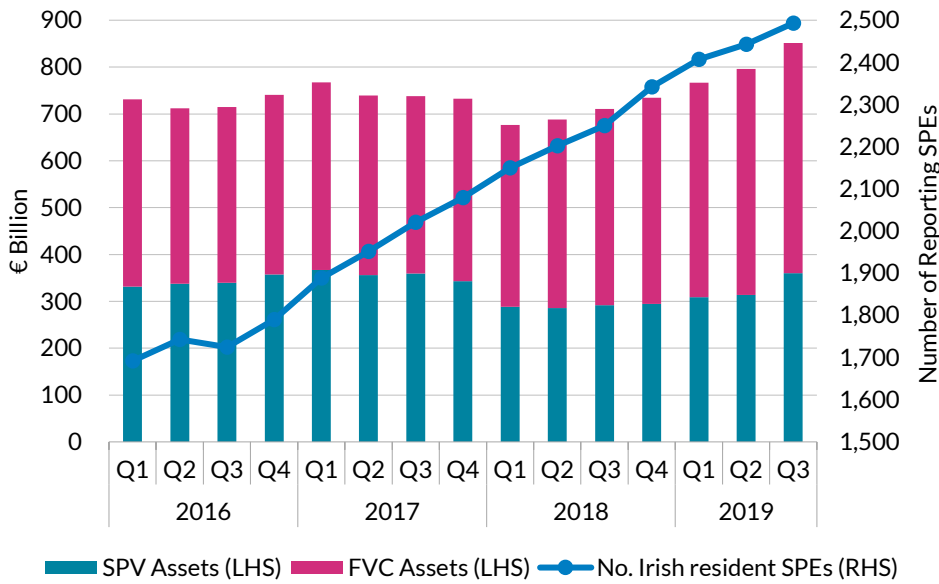


Money Market Funds mainly satisfy demand from GBP and USD investors.

Source: [Money Market Funds Dataset](#), Central Bank of Ireland

Note: Source excludes other assets and equity held by money market funds, and thus does not exactly match chart.

Chart 23: Total Assets and Number of Irish Resident SPEs

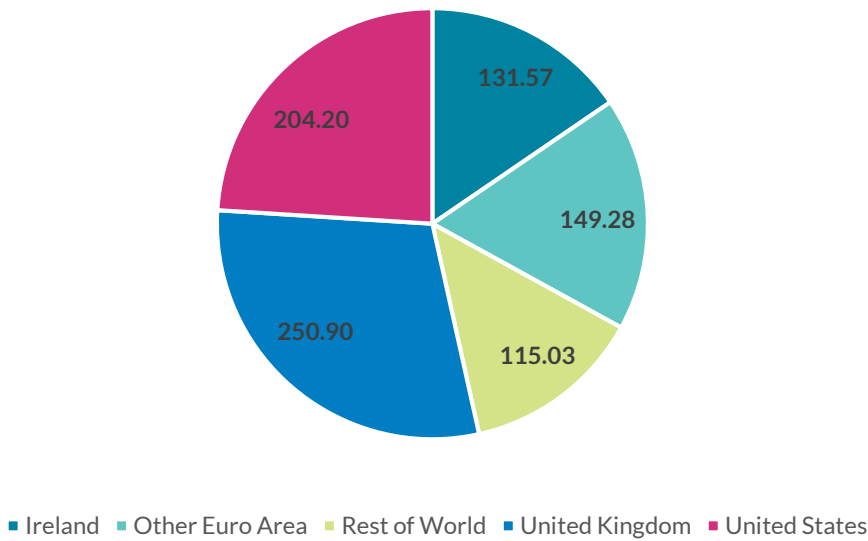


Total assets of both FVCs and SPVs continued to grow in Q3 2019.

Source: [Special Purpose Entities Dataset](#), Central Bank of Ireland

Note: A Special Purpose Entity (SPE) is a legal entity created to fulfil narrow, specific or temporary objectives. The population of SPEs consists of FVCs (Financial Vehicle Corporations) and SPVs (Special Purpose Vehicles).

Chart 24: Total SPE assets by sponsor region in Q3 2019, € Billion

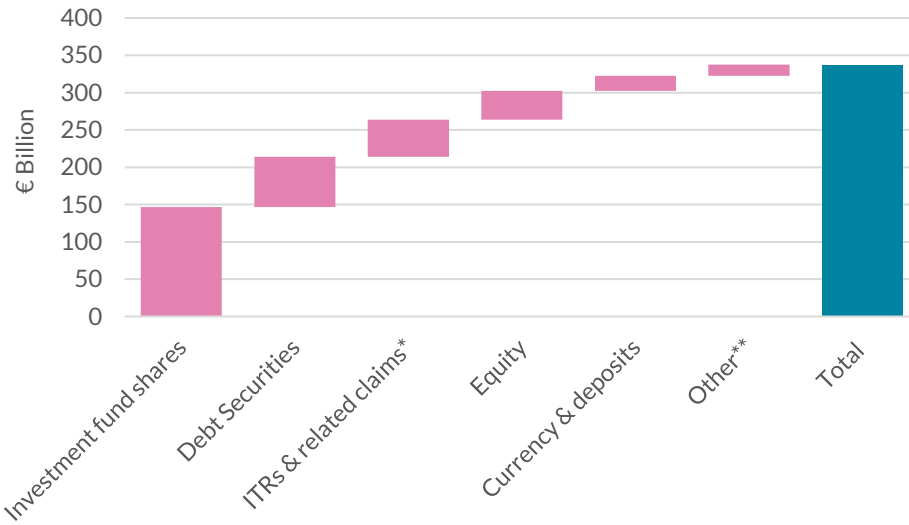


United Kingdom and United States sponsors have set up the majority of SPEs (by assets).

Source: [Special Purpose Entities Dataset](#), Central Bank of Ireland; Authors own calculations

Note: The sponsor of an SPE is the institution that has set it up.

Chart 25: Irish Insurance Corporations (ICs) Financial Instrument breakdown, Q3 2019



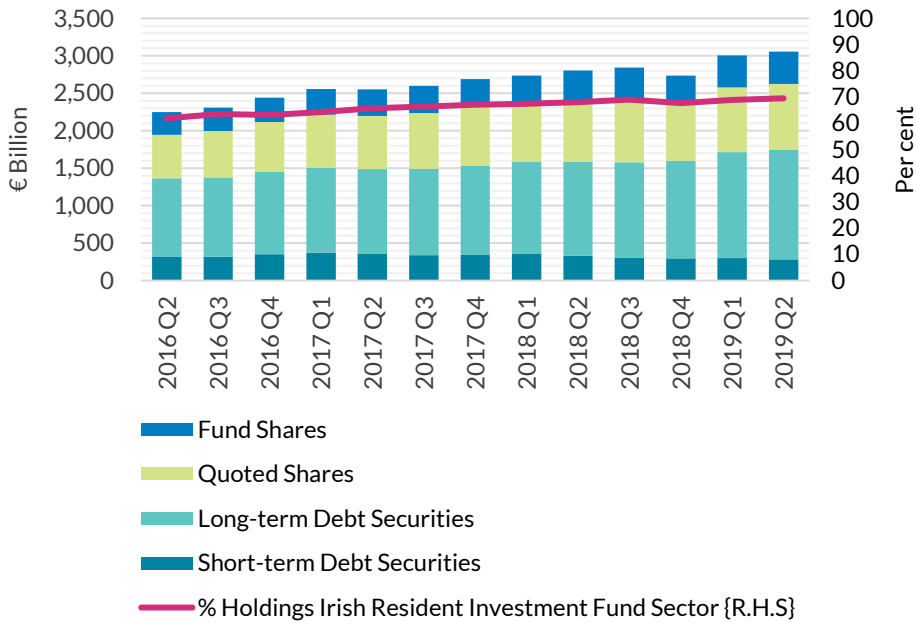
Insurance Corporations predominantly hold Investment Fund Shares.

Source: [Insurance Corporation Statistics](#), Central Bank of Ireland.

Note: *Insurance Technical Reserves and Related Claims. **Other includes Loans and Financial Derivatives.

Other Statistics

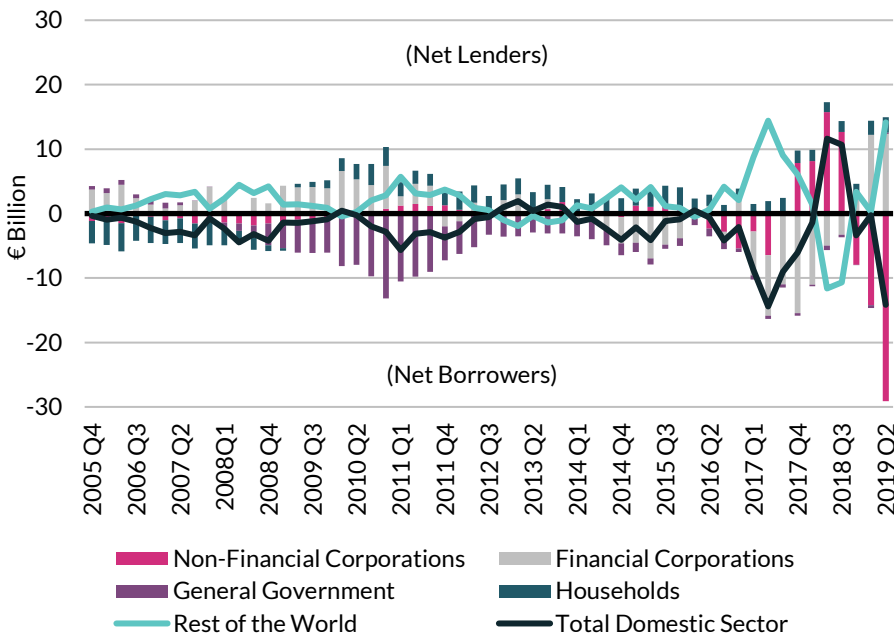
Chart 26: Total Securities Holdings of Irish Residents



Investment Funds hold the majority of debt and equity held by Irish residents.

Source: [Securities Holdings Statistics](#), Central Bank of Ireland, Author's calculations

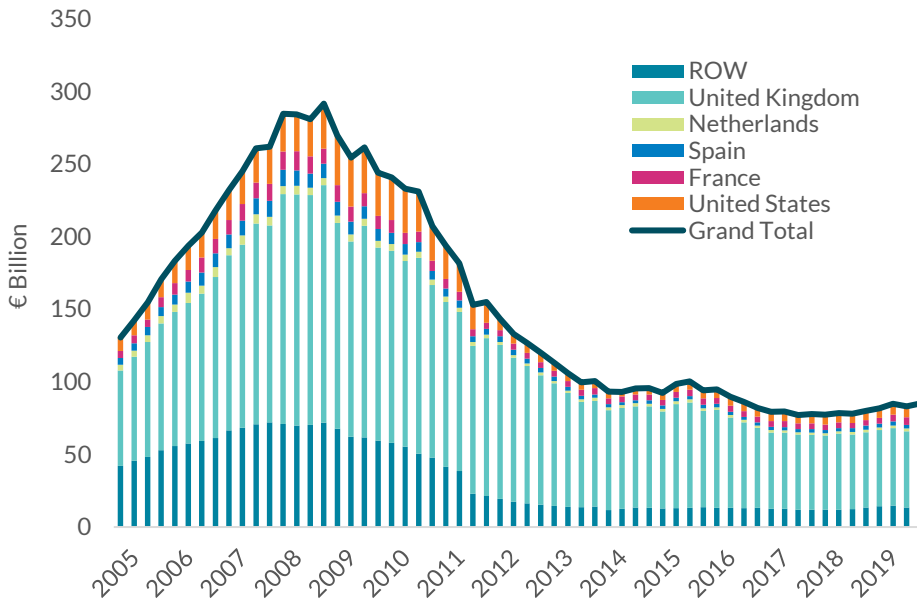
Chart 27: Net lending/borrowing of Irish residents (4 quarter moving average)



Net borrowing by the domestic economy rose to €14bn in Q3 2019.

Source: [Quarterly Financial Accounts](#), Central Bank of Ireland

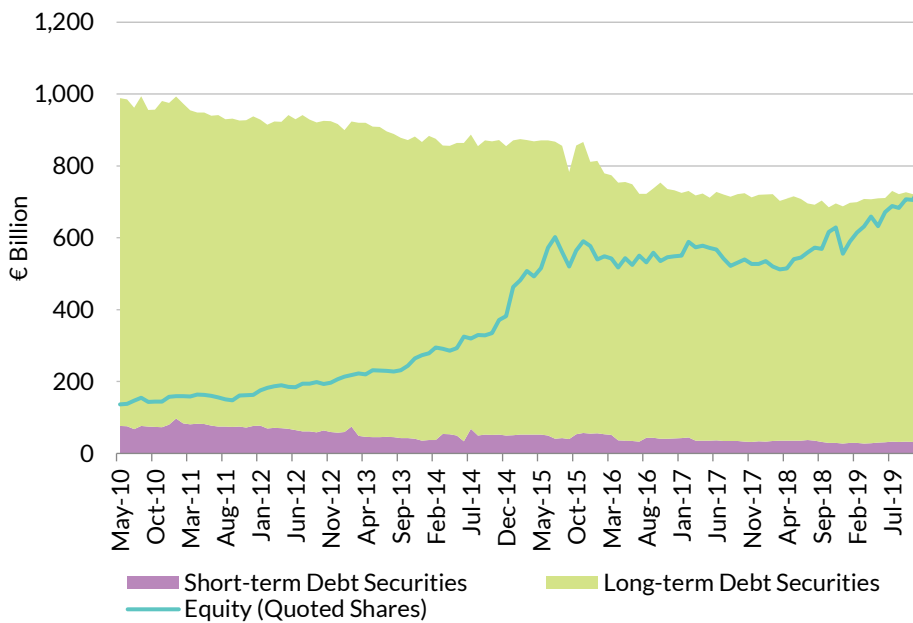
Chart 28: Location of Irish Foreign Claims



Domestic banks' largest foreign claims continue to be on the United Kingdom.

Source: [Consolidated Banking Statistics](#), Central Bank of Ireland

Chart 29: Issuance of Debt and Equity by Irish Financial and Non-Financial Corporations

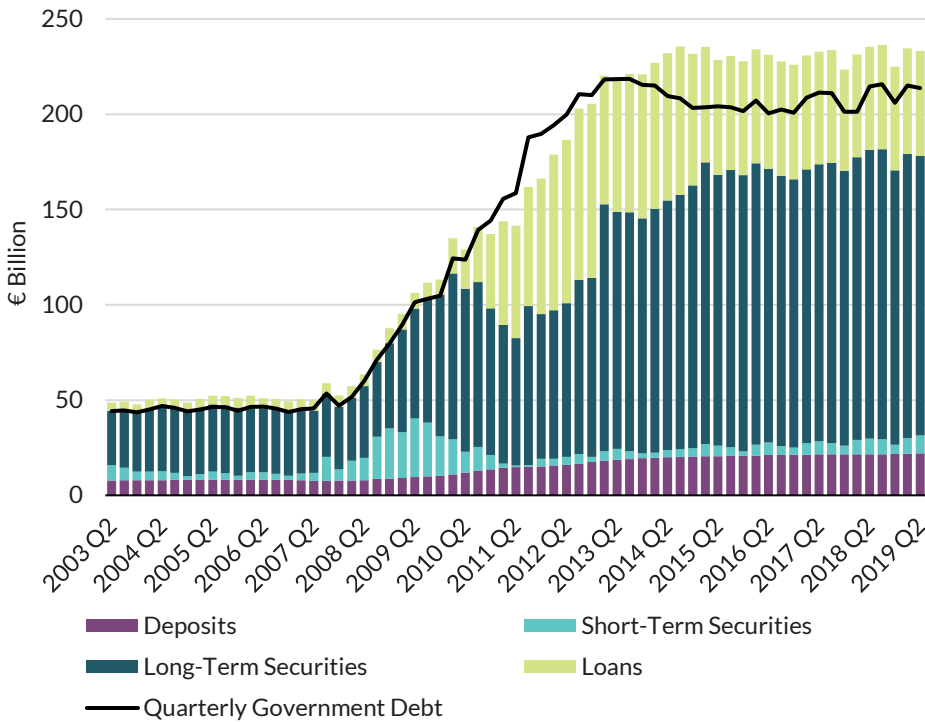


Total equity issued by Irish financial and non-financial corporations surpassed total debt issued in November 2019.

Source: [Securities Issue Statistics](#), Central bank of Ireland

Government Sector

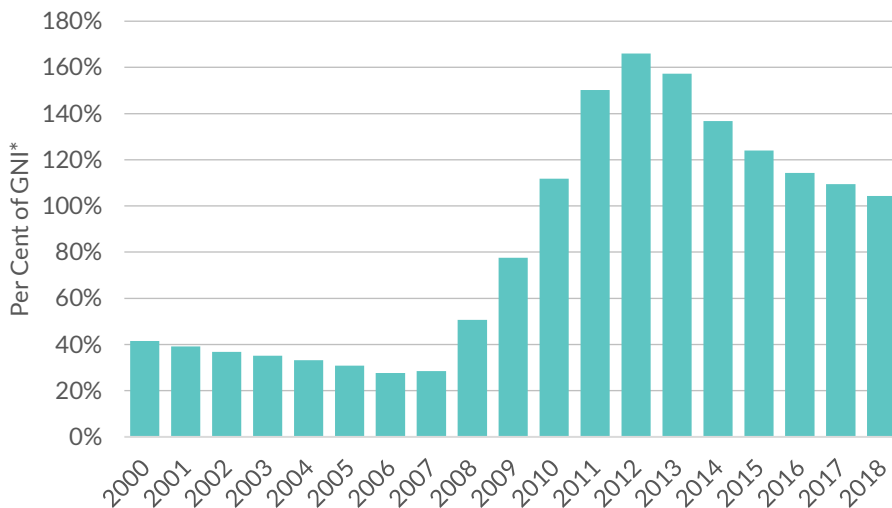
Chart 30: Irish Government Debt - by Category



Quarterly Government Debt decreased by €1bn to €214bn in Q2 2019.

Source: [Quarterly Financial Accounts](#), Central Bank of Ireland

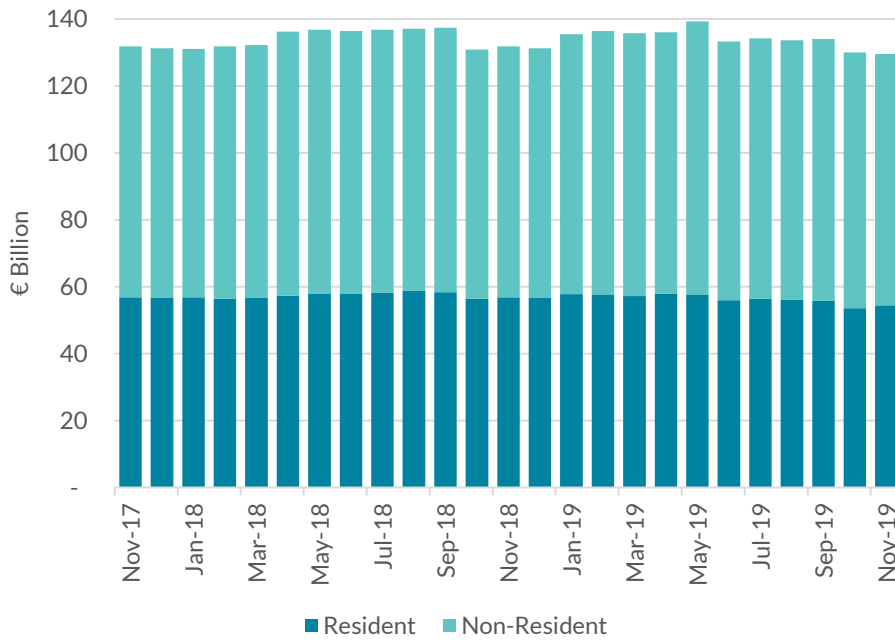
Chart 31: Irish Government Debt-to-GNI*



The ratio of General Government Debt to GNI* was 104 per cent in 2018.

Source: [Annual Government Financial Statistics](#) and [National Income and Expenditure Results](#), Central Statistics Office

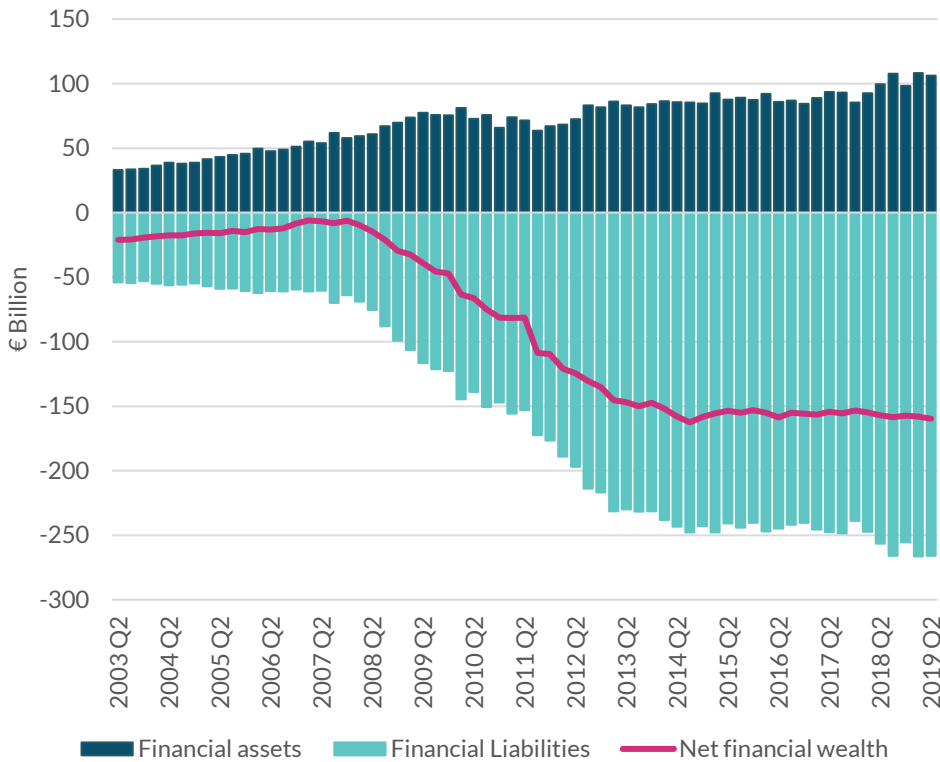
Chart 32: Breakdown of Holders of Government Bonds



Non-resident investors' holdings of Irish government bonds was €75bn in November 2019.

Source: [Holdings of Long Term Government Bonds](#), Central Bank of Ireland

Chart 33: Government Net Financial Wealth



Government net financial wealth fell by €2bn during Q2 2019 as stock of financial assets declined in the quarter.

Source: [Quarterly Financial Accounts](#), Central Bank of Ireland

Section 2 Signed Articles

The articles in this section are in the series of signed articles on monetary and general economic topics introduced in the autumn 1969 issue of the Bank's Bulletin. Any views expressed in these articles are not necessarily those held by the Bank and are the personal responsibility of the author.

Dealing with Friction: EU-UK Trade and the Irish Economy after Brexit

Thomas Conefrey and Graeme Walsh ⁵⁸

Abstract

Following the UK's exit from the EU on 31 January 2020, negotiations have commenced to determine the nature of its economic and trading relationship with the EU in the future. The latest information indicates a UK preference for a Free Trade Agreement (FTA) with the EU after Brexit. This *Article* examines the possible impact on the Irish economy of an EU-UK FTA. The analysis finds that an orderly move to a FTA would result in smaller upfront losses than associated with a disorderly no-deal Brexit, but a basic FTA would still imply significantly higher trade frictions than exist today. We estimate that a transition to an EU-UK FTA after 2020 would lower Irish output by around 3.5 per cent in the long run. A more comprehensive EU-UK agreement than the FTA we model would reduce these losses. In contrast, if the UK moves to trading on WTO terms after 2020 this would lead to a larger decline in Irish output of over 5 per cent. Whatever the precise nature of any future deal, no arrangement will replicate the degree of trade and economic integration of EU membership, creating significant challenges for exposed sectors, particularly agri-food. As more details emerge as to the ultimate EU-UK trading relationship after Brexit, further analysis will be required to estimate the impact on the Irish economy.

⁵⁸The authors work in the Irish Economic Analysis Division. The views expressed in this article are those of the authors only, and do not necessarily reflect the views of the Central Bank of Ireland. The authors would like to thank Stephen Byrne, John Flynn and David Horan for helpful comments and suggestions.

Introduction

On 17 October 2019 the UK Government and the EU concluded negotiations on a revised Withdrawal Agreement and Political Declaration. The UK parliament passed the revised agreement and on 31 January 2020, the UK formally left the EU. A stand-still transition period applies until 31 December 2020 during which time it is intended that the UK will negotiate a new future trading relationship to replace EU membership. Beyond 2020, the UK will trade with the EU under the terms of the new arrangement or default to trading on World Trade Organisation (WTO) terms, barring an extension of the transition period.

In this article we aim to quantify the macroeconomic impact of the UK leaving the EU compared to what would happen if the UK remained a member of the EU. This is not a straightforward exercise since the exact nature of the UK's trade and broader economic relationship with the EU in the future is yet to be decided. The revised Political Declaration agreed in October 2019 sets out the broad framework for future UK-EU trade. It envisages that the UK will leave the EU single market and customs union with the ambition of operating a free trade agreement.

The revised Political Declaration appears to envisage a more distant EU-UK trading relationship after Brexit than the version negotiated by Prime Minister May's Government. Under Prime Minister May's original Political Declaration, for trade in goods the parties envisaged "a trading relationship [...] that is as close as possible". The relevant passage in the Political Declaration has been replaced by "an ambitious trading relationship [...] on the basis of a Free Trade Agreement". In addition, a number of analysts have pointed out that commitments to so-called level playing field provisions have been weakened in the revised Political Declaration (Hantzsche *et al.*, 2019; UK in a Changing Europe, 2019). These apply in areas such as state aid, competition, taxation, environmental standards and labour and social protection. The aim of these provisions is to prevent undercutting of EU standards to gain a competitive advantage. The less stringent commitment to these provisions in the new Political Declaration implies greater scope for regulatory divergence between Great Britain and the EU.⁵⁹ Greater regulatory divergence would in turn make it more difficult to agree a comprehensive FTA with the EU and would therefore result in higher barriers to trade.

⁵⁹ Under the revised Protocol on Ireland and Northern Ireland, to ensure that the north-south border remains open, NI will stay aligned to EU rules on customs and will follow certain EU Single Market rules and regulations which affect trade in goods. This alignment does not apply to Great Britain. See Hayward (2019): <http://qppl.gub.ac.uk/the-revised-protocol-on-ireland-northern-ireland/>

Our analysis published in 2019 assessed the impact of a disorderly no-deal Brexit. In this article, we focus on modelling the effect of a basic free trade agreement as this appears to be the current preferred outcome of the UK Government. Drawing on previous work, we also outline the impact on the economy if the UK reverts to trading on WTO terms after the end of the transition period. We compare the effect of a FTA outcome to the impact on the economy of other Brexit scenarios, namely a customs union agreement and, for reference, our disorderly Brexit scenario published in 2019. Although there is a high degree of uncertainty attached to the various estimates, the scenarios are informative about the *relative* economic impact of various economic relationships and transitions to them.

A number of studies have estimated the impact of a FTA on the UK economy. UK in a Changing Europe (2019) and Hantzsche (2019) focus specifically on modelling the type of FTA envisaged in the revised Political Declaration. Both studies find that the reduction in market access for goods and services under a FTA would lead to a loss of GDP compared to a scenario where the UK remained in the EU. In the Hantzsche (2019) study, the long run reduction in GDP is estimated at 3.5 per cent. IMF (2018) estimate that moving from EU membership to a FTA would reduce UK GDP by between 2 and 3.3 per cent in the long run. Analysis published by the UK treasury on the impact on the UK economy of an average FTA estimated a long-run loss of output of 4.9 per cent.

Regarding the impact on Ireland, Bergin *et al.* (2017) estimate that an EU-UK FTA would lower output by around 2.7 per cent after ten years. Copenhagen Economics (2020) find that a Brexit outcome based on the revised Political Declaration would reduce Irish GDP by between 3.2 and 3.9 per cent by 2030 compared with a baseline where the UK remains a member of the EU.

As with all modelling exercises of this type, the estimates in this paper should be treated with caution. We examine how the different Brexit scenarios would affect the Irish economy using the latest information and best available modelling techniques. At the same time there are several unavoidable sources of uncertainty: our models do not provide a complete picture of all economic relationships, there is uncertainty around the scale and pace of decline in UK trade in each scenario and how key economic variables such as foreign direct investment and productivity will be affected by Brexit. Moreover, as the UK is the first country to leave the EU there is no historical precedent for the scenarios we are attempting to model.

The article is organised as follows. Section 2 provides a description of the different possible future EU-UK trading options and outlines the specific

modelling assumptions used for the scenario analysis, focussing on the implications for trade in goods and services. Section 3 describes the main results. Section 4 outlines challenges for specific sectors in managing the impact of a FTA or WTO arrangement. Section 5 concludes.

Options for EU-UK Trade after Brexit

In this Section, we outline three options for EU-UK trade after Brexit: a FTA, trading on WTO terms and a Customs Union (CU). We discuss the main characteristics of each arrangement and the key modelling assumptions used to estimate the macroeconomic impact of each scenario on the UK economy and on Ireland (Table 1). Although it appears unlikely at present that the trade relationship between the UK and EU after Brexit will take the form of a customs union, we include it in the analysis as it is useful to consider the relative macroeconomic impact of the different trading options.

Brexit will affect the economy through a number of key channels including trade in goods and services, migration and investment. The magnitude of the impact will depend on the precise form of the future EU-UK relationship after Brexit. Figure 1 provides an illustrative overview of the extent of the possible restrictions to trade, migration and investment under different Brexit outcomes.

Figure 1: Overview of the Effect of Brexit Scenarios on Key Transmission Channels

	EU Membership	Customs Union	Free Trade Agreement	WTO Terms
Tariffs on goods	None	None	None	Highest
Non-tariff restrictions on goods and services	None	Medium	High	Highest
EU-UK migration	High mobility	Some restrictions	Some restrictions	Lowest mobility
EU-UK investment	High	Reduced	Reduced	Lowest

Source: Based on Dhingra *et al.* (2017), European Commission (2018) and Hantzsche *et al.* (2018).

Free Trade Agreement

As noted, the current preference of the UK Government as reflected in the October 2019 Political Declaration is to conclude a FTA with the EU before the end of the transition period. This preference was reiterated by Prime Minister Johnson in his speech of 3 February 2020 setting out the UK Government's proposed approach to the negotiations with the EU.⁶⁰ Free trade agreements typically allow for tariff- and quota-free trade in goods and in this regard a FTA is an improvement relative to trading under WTO terms (see below). Nevertheless, UK firms would still face significantly more frictions in trading with the EU than under current arrangements. A basic free trade agreement would lead to higher non-tariff barriers to EU-UK trade due to the introduction of customs procedures, rules of origin requirements and other trade costs as UK and EU economic regulations diverged over time.⁶¹ Because the UK would no longer be part of the EU customs union, exporters would need to prove that their products meet the "rules of origin" criteria of the EU-UK FTA. The purpose of these criteria are to verify that goods entering the EU from the UK were produced in the UK (and not, for instance, in China). Compliance with these rules comes with complications, paperwork and cost (see Lowe, 2019).

Moving from EU membership to a FTA is likely to introduce other administrative burdens. As outlined by Lowe (2019), businesses trading between the EU and UK will be required to manage new import and export formalities, including customs and security declarations, risk-based inspections and the payment of tariffs (for any goods not covered by the FTA) and other taxes payable on import such as VAT and excise duty. In relation to EU-UK trade in products of animal origin, significant new frictions will arise. Unless in circumstances where the UK agrees to adhere fully to the EU's sanitary and phytosanitary regime (for food and plant hygiene), trade in agri-food products will require export health certificates and there will be a need for veterinary border inspections. Taken together, these additional non-tariff restrictions mean that although a FTA could eliminate tariffs and quotas on most products, UK firms would face substantially increased trade costs relative to the status quo.

⁶⁰ In the Prime Minister's speech, he states that the UK Government will aim for a "comprehensive free-trade agreement covering substantially all trade". See <https://www.gov.uk/government/speeches/the-future-relationship-between-the-uk-and-the-eu>

⁶¹ Non-tariff barriers refer to any measure that raises the costs of trade but does not take the form of a tariff. It covers everything from quantitative trade restrictions such as import licensing to border costs of complying with customs procedures and behind the border costs caused by regulatory or product standard differences across countries. The EU Single Market has reduced non-tariff barriers between member states by removing customs procedures and harmonising regulations and product standards (Dhingra and Sampson, 2017).

Moreover, in relation to services trade a standard FTA would not provide the same level of market access as membership of the single market. As discussed by Dhingra *et al.* (2017), it is currently only countries that are members of the European Economic Area (EEA) that have passporting rights for financial services. As a result, it is likely that the UK financial services sector would lose its ability to trade freely across EU member states and there would be new regulatory barriers to trade. Some recent FTAs such as the Canada-EU FTA go beyond tariff-free goods trade and include some provisions to increase trade in services, however, even this arrangement enables significantly less comprehensive trade in services than is possible with Single Market membership. The reality of the new trade frictions that would apply even with a comprehensive free trade agreement were outlined clearly in a statement by Michel Barnier on 3 February.⁶²

Based on this evidence, Hantzsche *et al.* (2019) assume that under an EU-UK FTA, UK-EU goods trade would be lower by 40 per cent and services trade by 60 per cent relative to continued EU membership (Table 1). These effects are assumed to build up gradually over time after the end of a transition period in 2021. The UK would be free to restrict immigration to a greater extent than under EU membership leading to an assumed reduction in net migration of 50,000 people per year. Foreign direct investment is assumed to be lower by over 20 per cent.⁶³ As a result of reduced EU trade and migration, UK productivity would be lower by 1.3 per cent in the long run. Leaving the EU customs union would provide the UK with flexibility to negotiate FTAs with the rest of the world. Following Ebell *et al.* (2017), the simulation assumes that agreements with main Anglosphere trading partners (USA, Canada, Australia, New Zealand) bolster bilateral goods trade by around 25 per cent. The assumed increase in UK trade with these countries would provide a marginal offset to the reduction in UK-EU trade amounting to around 0.2 per cent of GDP.

⁶² In the statement, Barnier states “It is important, however, to understand that, even if we do achieve such a ‘best-in-class’ free trade agreement, it will not be ‘business as usual’”. See

https://ec.europa.eu/commission/presscorner/detail/en/SPEECH_20_185

⁶³ Brexit could result in an increase in FDI to Ireland either from the diversion of some existing UK FDI or by attracting new FDI to Ireland that would otherwise have been destined for the UK. Based on the estimates in Lawless and Morgenroth (2016), the FTA, WTO and customs union scenarios in this paper assume that in the long run, some of the negative effect of Brexit is partially offset by higher FDI inflows to Ireland.

Box A: The Duration of Trade Negotiations

Following the UK's exit from the EU on 31 January 2020, the next stage of the Brexit process will involve the UK negotiating a new trading relationship with the EU, which accounted for 49 per cent of total UK trade in 2018. Under the current timeline, there is an 11-month transition period, which ends on 31 December 2020, for these negotiations to take place. This box takes a closer look at the duration of trade negotiations and provides some examples involving the EU and US.⁶⁴

Determinants of the duration of trade negotiations

The duration of trade negotiations can vary for a wide range of reasons, including political, economic, cultural, and geographic factors.^{65,66} For example, trade negotiations are completed more quickly when the countries involved have democratic political systems, are more open to trade and share a common language or common border. Bilateral trade negotiations also tend to take less time when compared to multilateral trade negotiations, which can involve many countries with different preferences. In a study of 123 trade agreements, Mölders (2012) found that the average duration of bilateral trade negotiations took 40 months while multilateral trade negotiations lasted 48 months.

Trade negotiations involving the EU

Trade negotiations tend to be prolonged when the EU is a participant due to the increased number of countries involved (Mölders, 2012). A recent trade agreement involving the EU and an English-speaking small open economy is the Comprehensive Economic and Trade Agreement (CETA) with Canada. This trade deal took 89 months to complete.⁶⁷ As a comparison, the US and Canada reached a trade deal after 20 months.

⁶⁴ In this box, the duration of trade negotiations refers to the length of time taken from the start of negotiations to the signing of the trade deal. This definition does not take into account the subsequent time taken for the trade deal to be implemented.

⁶⁵ See Mölders (2012). Available at:

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2152283

⁶⁶ See Moser and Kose (2012). Available at:

<http://faculty.haas.berkeley.edu/arose/ON1111.pdf>

⁶⁷ While the negotiation period lasted 64 months, it took an additional 11 months for the deal to be implemented on a provisional basis in September 2017. See Webb (2019). Available at: <https://researchbriefings.files.parliament.uk/documents/CBP-7492/CBP-7492.pdf>

Case study: EU-Canada trade deal known as CETA

Start of negotiations	May-09
End of negotiations	Sep-14
Deal signed	Oct-16
Trade deal duration	89 months

Trade negotiations involving the US

On average, it takes 18 months for the US to negotiate bilateral trade deals.⁶⁸ A recent example involving the US and an English-speaking small open economy country is the Australia–United States Free Trade Agreement (AUSFTA), which took 14 months. Trade negotiations with the US tend to be more rapid during years in which there is a US election (Mölders, 2012).

Trade deals beyond the EU

It is important to note that, by the end of the transition period, the UK will not only need to have trade agreements in place with the EU but, in addition, with all of the countries covered by the existing EU trade agreements. There are currently over 40 such EU agreements covering around 90 countries.⁶⁹ If a deal is not in place with a particular country, trade between the UK and that country will be carried out under WTO rules. To date, the UK has signed 20 trade deals covering 50 countries, which accounted for 8.2 per cent of total UK trade in 2018.⁷⁰ The UK has also signed “mutual recognition agreements” with the US, Australia, and New Zealand, which together account for 16.4 per cent of total UK trade (Table A1).⁷¹ Trade negotiations between the UK and other non-EU countries that are ongoing (including, Canada, Japan, and Turkey) account for 6.2 per cent of total UK trade.

⁶⁸ See <https://www.pii.com/blogs/trade-investment-policy-watch/how-long-does-it-take-to-conclude-trade-agreement-us>

⁶⁹ See Bank of England (2018). Available at: <https://www.bankofengland.co.uk/report/2018/eu-withdrawal-scenarios-and-monetary-and-financial-stability>

⁷⁰ See <https://www.gov.uk/guidance/uk-trade-agreements-with-non-eu-countries-in-a-no-deal-brexite> for the list of trade deals and The Pink Book (ONS, 2019) for the trade statistics, available at:

<https://www.ons.gov.uk/economy/nationalaccounts/balanceofpayments/datasets/9geographicalbreakdownofthecurrentaccountthepinkbook2016>

⁷¹ These MRAs do not represent FTAs. For example, the UK-US MRA maintains the effects of the operational aspects of the EU-USA agreement in a bilateral context; however, it is expected that the UK and US will try to negotiate a FTA during the transition period. See <https://www.gov.uk/guidance/uk-usa-mutual-recognition-agreement>

Table A1: UK Trade Statistics and Coverage of Trade Deals (based on 2018 data)

	2018	Share of Total UK Trade in 2018
	£ million	%
Total UK Trade (exports and imports)	1,322,189	100
EU	648,390	49
Non-EU	673,799	51
Non-EU Trade Deals	407,057	30.8
Signed	108,964	8.2
In discussion	81,640	6.2
MRAs	216,453	16.4

Source: ONS and own calculations.

Overall, examining the average duration of trade negotiations in the past, particularly those involving the EU, the 11-month transition period appears to be an ambitious timeframe for the UK to negotiate and finalise trade deals not only with the EU, but also a large number of non-EU countries.

WTO

If the EU and UK fail to conclude a FTA in 2020, it appears likely that the UK will trade with the EU and most of the rest of the world on World Trade Organisation (WTO) terms from 1 January 2021.⁷² As noted in Box A, the 11-month timeframe to conclude a new EU-UK trade deal is ambitious based on the length of time it has typically taken to negotiate FTAs in the past. Under WTO rules, each member must grant the same “Most Favoured Nation” (MFN) market access, including charging the same tariffs, to all other WTO members. The only exceptions are for countries that agree to enter into free trade agreements such as membership of the EU or EFTA.

WTO terms would mean that the UK’s exports to the EU and other WTO members would be subject to the importing countries’ MFN tariffs. Compared with EU or European Free Trade Association (EFTA) membership, this would raise the cost of exporting to the EU for UK firms (Ottaviano *et al.*, 2014). The UK’s services trade would also be subject to WTO rules. Since the WTO has made significantly less progress than the EU in liberalising trade in services, this would mean reduced access to EU

⁷² The EU has stated previously that it is possible to extend the transition period. The current stated position of the UK Government is that it will not request such an extension beyond 2020.

markets for UK service producers (Dhingra *et al.*, 2017). With the UK outside the Single Market and not constrained by any bilateral trade agreement with the EU, it would have scope to diverge from EU regulatory standards. Any such divergence would increase non-tariff barriers and further restrict EU-UK trade.

The combination of higher tariff and non-tariff barriers mean that a WTO arrangement after 2020 is assumed to result in the largest decline in trade compared to all other potential trade deal options (Table 1). Hantsche *et al.* (2019) assume that overall EU-UK trade would be around 56 per cent lower with a WTO arrangement relative to scenario where the UK remained an EU member. Under WTO arrangements there are no provisions for free movement of labour and as a result this scenario would see the largest assumed reduction in inward migration compared to either a customs union or FTA. Foreign direct investment (-24 per cent) and productivity (-1.6 per cent) are also assumed to experience more sizable declines relative to the customs union or FTA options (Table 1).

Table 1: Modelling assumptions for UK economy under different trade options

	Customs Union	Free Trade Agreement	WTO Terms
EU-UK Trade	-30%	-46%	-56%
Goods	-25%	-40%	-50-60%
Services	-50%	-60%	-65%
Net migration	-50,000 p.a.	-50,000 p.a.	-100,000 p.a.
FDI	-18%	-20%	-24%
Productivity	-1.0%	-1.3%	-1.6%
Anglo FTAs	-	+25% goods (0.2% of GDP)	-
EU budget contribution	0.001% of GDP	0.001% of GDP	0.001% of GDP
UK GDP	-3.0%	-3.5%	-5.6%

Source: NIESR.

Note: baseline in each case is continued EU membership. The assumptions refer to long-run effects.

Customs Union

Under the original Brexit Withdrawal Agreement proposed by Prime Minister May, if the UK and EU had failed to reach agreement on a new trade deal before the end of the transition period, the whole of the UK would have stayed in a single customs territory with the EU. This was the original backstop contained in the Protocol on Northern Ireland in the

Withdrawal Agreement negotiated by Prime Minister May.⁷³ A customs territory would remove tariffs and quantitative restrictions (i.e. taxes) in bilateral trade between all EU Member States and the UK for the goods covered by the agreement. Membership of a common customs territory would also set a single external tariff, that is, the EU and UK would charge the same duties on imports from third countries (i.e. countries other than EU Member States and the UK).

As well as reducing tariffs, a customs territory arrangement would likely give rise to lower non-tariff barriers than an FTA or WTO deal. The common external tariff would eliminate the need for “rules of origin” checks as required under a FTA (or WTO). In addition, the original customs territory proposal constrained regulatory divergence between the EU and UK. This was because the UK committed to remaining aligned to EU rules in areas of taxation, environmental, social, labour, state aid and competition policy as required to avoid any frictions to North-South and East-West trade.

Taken together, Hantzsche *et al.* (2018) estimate that a customs union deal would reduce UK-EU trade by around 30 per cent in the long run, a smaller decline than under a FTA or WTO arrangements (Table 1). Services trade is assumed to fall by more than goods since customs union agreements typically do not cover services.

Scenario Results

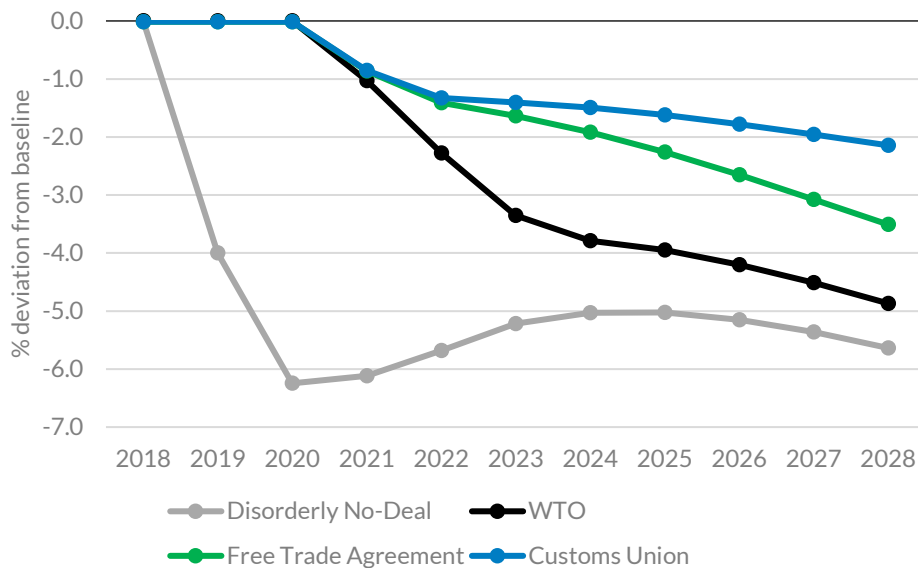
Drawing on the assumptions set out in Table 1, we estimate the macroeconomic impact of the different post-Brexit trade deal scenarios outlined in the previous section. The disorderly no-deal scenario is included for reference along with the three scenarios discussed above. The disorderly no-deal scenario is the same as that published in Conefrey *et al.* (2019).

This analysis is carried out in two steps. In the first stage, we estimate the impact of each scenario on the UK economy and broader external environment using the NiGEM model of the National Institute for Economic and Social Research (NIESR) in the UK. This part of the analysis is largely based on the work by Hantzsche *et al.* (2018) and Hantzsche *et al.* (2019). In the second stage, we then take the simulation results from the NiGEM model and run these through the Central Bank’s macroeconomic model of the Irish economy called COSMO. This approach allows us to capture the impact of changes in the external environment (UK GDP, exports, imports etc.) on the Irish economy in an internally consistent manner. We focus on

⁷³ See https://ec.europa.eu/commission/sites/beta-political/files/the_withdrawal_agreement_explained.pdf

the medium to long-term effects of the scenarios rather than the short-run impacts. The evidence from the literature (on which the assumptions in Table 1 are based) refers to long-run changes in trade and FDI but there is more uncertainty over the short-run adjustment.

Figure 2: Effect of Brexit Scenarios on Irish Output



Source: Own calculations using COSMO.

The estimated impact of the different Brexit scenarios on overall output over a long-run horizon is illustrated in Figure 2. The simulation results show that all three orderly Brexit scenarios – a customs union, FTA or WTO arrangement – would result in a smaller loss of output in the Irish economy than could have occurred in the event of a disorderly no-deal Brexit. In particular, the transition to an orderly new trade arrangement after a transition period means that the severe upfront losses associated with a disorderly no-deal outcome can be significantly mitigated. The existence of an approved Withdrawal Agreement and the time afforded by the transition period helps to reduce the negative cliff-edge effects of a no-deal outcome such as possible financial market turbulence, physical congestion at ports and abrupt rupturing of supply chains. An orderly transition to a new trading relationship also means that firms and households have more time to prepare for new trading arrangements. Whereas a disorderly no-deal outcome could have resulted in a sharp decline in consumer sentiment and a rise in uncertainty, these effects are likely to be somewhat less acute with an orderly transition.

Focussing on the long-run effects of the scenarios (Figure 2), the results show that under a FTA the level of Irish output would be around 3.5 per cent lower than if the UK remained an EU member. If a FTA cannot be concluded before the end of 2020 and WTO rules apply, the estimated fall

in output would be around 5 per cent. This is similar to the estimated reduction in output in a disorderly no-deal outcome because both a disorderly no-deal and a WTO arrangement after 2020 involve the UK trading on WTO terms. The two scenarios therefore assume a similar long-run decline in EU-UK trade. A customs union deal with a degree of regulatory alignment would result in the smallest estimated reduction in output of just over 2 per cent in the long-run. This is because the increase in trade frictions in such an arrangement would be lower than in either a FTA or WTO outcome. Unlike the estimated impact of a disorderly no-deal Brexit which is frontloaded, the loss of output under the other three scenarios takes place gradually over time.

Table 2: Long-run impact of Brexit scenarios on the Irish economy, per cent deviation from baseline

	Long-Run Impact*			
	Customs Union	Free Trade Agreement	WTO Terms	Disorderly No Deal
Output	-2.1	-3.5	-4.9	-5.6
Traded Sector	-2.6	-4.4	-5.9	-6.6
Non-Traded Sector	-1.8	-2.9	-4.3	-5.5
Personal Consumption	-1.9	-3.0	-4.7	-6.3
Investment	-2.8	-4.5	-6.2	-6.4
Exports	-2.9	-4.9	-6.6	-7.5
Imports	-3.2	-5.3	-6.8	-7.9
Employment	-1.6	-2.5	-3.8	-4.9
Unemployment Rate**	0.7	1.2	1.6	2.1

* The long-run impact refers to the estimated effect in 2028. The baseline in each case is continued UK membership of the EU.
** The effect on the unemployment rate refers to the percentage point deviation from baseline.

Table 2 shows the effects of the Brexit scenarios on key Irish macroeconomic variables in the long run. The effect of Brexit is transmitted to the Irish economy via the same channels in each scenario. The scale of the impacts are strongest for the disorderly no-deal scenario and weakest for the customs union. In each scenario the impact of Brexit is initially transmitted to the Irish economy via the traded sector. The reduction in traded sector output would arise due to the fall in demand for Irish exports (mainly from the UK). The fall in output in the traded sector and resulting decline in firm profitability would lead to a fall in investment and output in the non-traded sector. The fall in traded and non-traded

sector output would reduce employment and the unemployment rate would rise.

Overall, the scenario illustrates the potential negative impact of Brexit on the economy, with all scenarios resulting in a significant decline in output in the long run.

Selected Sectoral Issues

The analysis in the previous section using macroeconomic models is useful for deriving estimates of the overall impact of Brexit scenarios at an aggregate level. Given different exposures to the UK market, any future EU-UK trade deal will affect some sectors of the Irish economy more than others. This section briefly outlines some of the specific implications of either a FTA or WTO outcome for the agri-food sector.

A large number of studies have pointed to the particular vulnerability of the agri-food sector to any version of Brexit due to that sector's high dependence on the UK market as well underlying structural weaknesses, particularly in primary agriculture (Conefrey, 2019). In the event that the UK moves to trading on WTO terms after 2020, the agri-food sector would face several acute difficulties. As shown by Lawless and Morgenroth (2016) and Teagasc (2018) agricultural goods would attract the highest tariffs in a WTO scenario. The average implied WTO tariff on meat is estimated at close to 50 per cent. The average implied tariff on dairy products is over 30 per cent. The imposition of tariffs on this scale would substantially reduce, or potentially eliminate, UK demand for Irish exports of these goods (Hanrahan *et al.*, 2017). Non-tariff barriers would also be highest in a WTO arrangement. Byrne and Rice (2018) show that non-tariff barriers have a particularly large negative effect on trade in agri-food products.

Even if a FTA agreement is concluded which removes all tariffs and quotas, agri-food trade between Great Britain and Ireland would not be as frictionless as it is today. The UK is a key source of Irish imports. As outlined by Lawless (2018), more than one fifth of Irish-owned firms rely on the UK for over 75 per cent of their imports. One-third of the imports of Irish-owned firms from the UK are food products, consisting of goods both for final consumption and for use as intermediate inputs to further processing. Since Great Britain will no longer be part of the single market, these imported food products will be subject to new checks on entry into Ireland, including the possible imposition of veterinary and sanitary and phytosanitary controls.

More generally, imports of other non-food manufacturing goods from Great Britain will be subject to new import procedures as apply when an EU

member trades with a country from outside the EU.⁷⁴ This could create complications for firms whose supply chains involve importing goods from Great Britain.⁷⁵ It is possible that exports to the UK would also be affected by non-tariff barriers which could make trading with the UK more cumbersome. Faced with these enhanced frictions, firms could decide to reduce their trade with Great Britain or withdraw from participation in the market.

A further risk to the agri-food sector arises from new trade agreements entered into by the UK with non-EU countries. Agri-food products in the EU in general enjoy a high level of protection such that imports of these products, in particular beef, lamb and some dairy products, from countries outside the EU face relatively high tariffs. It is possible that future trade deals negotiated by the UK could result in a rise in UK agri-food imports from outside the EU. This would lead to higher competition for Irish food exporters in the UK market. Given the low margins earned by some parts of the agri-food sector currently, its capacity to withstand further competition in the UK market is likely to be limited.

Conclusions

With EU-UK trade negotiations about to commence, this article estimates the impact of potential future EU-UK trading arrangements on the Irish economy. The approval of the revised Withdrawal Agreement and Political Declaration by the UK parliament is a positive development as it removes the risk of a cliff-edge no-deal Brexit which had hung over the Irish economy throughout 2019. Nevertheless, the analysis points to several ongoing risks to the Irish economy from the work out of the Brexit process.

Our simulation results show that an orderly transition to a FTA arrangement would result in a smaller fall in output than a disorderly no-deal Brexit but would still have a significant negative effect on the Irish economy and employment in the long run. Our estimates indicate that under this scenario, Irish output would be around 3.5 per cent lower and the unemployment rate over 1 percentage point higher than if the UK remained an EU member.

The 11 month timeframe to conclude an EU-UK FTA is ambitious when benchmarked against the typical duration of successful trade negotiations between countries and trading blocs in the past. If a EU-UK FTA is not concluded by the end of 2020 and there is no extension of transition period,

⁷⁴ The EU customs code is the set of rules covering customs matters in trade with non-EU countries. See here for details: <https://trade.ec.europa.eu/tradehelp/eu-import-procedures>

⁷⁵ See <https://www.centralbank.ie/docs/default-source/tns/events/brexit-and-supply-chain-disruption-in-the-import-channel.pdf?sfvrsn=2>

the UK will revert to trading on WTO terms in 2021. Although a move to a WTO trading relationship after a transition period and with an approved Withdrawal Agreement would be less damaging than disorderly no-deal outcome, the long-run loss of output for the Irish economy would be severe at over 5 per cent with the unemployment rate permanently higher by around 2 percentage points.

The scenarios we have modelled take into account as much as possible the current stated policy positions of the UK Government and the EU. However, as the negotiations proceed the ultimate nature of the UK's trading relationship beyond 2020 will become clearer. At that point further analysis will be required to ascertain the implications for the Irish economy.

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The foreign exchange and over-the-counter interest rate derivatives market in Ireland – Results of the BIS Triennial Survey 2019

Simone Saupe⁷⁶

Abstract

The Central Bank of Ireland participated in the most recent survey of global turnover in foreign exchange (FX) and over-the-counter (OTC) single-currency interest rate derivatives that the Bank of International Settlements (BIS) coordinates every three years. The survey is a key source of information on the size and structure of global FX and OTC interest rate derivatives markets. Ireland has participated since 1995, collecting comprehensive information on the activities of credit institutions' derivatives sales desks that are resident in Ireland. Given the international character of derivatives markets, such information is of interest from a supervisory perspective and can provide additional information about external financial stability risks facing the Irish economy through the lens of financial market activity.

The 2019 survey results for Ireland show a substantial increase in FX and OTC interest rate derivatives trading during the last three years. The Irish trading volumes recovered from the downward trend recorded in the previous two surveys, and the growth rate of Irish derivatives turnover between 2016 and 2019 outpaced the global growth rate. As this article will show, the main factor behind the strong Irish growth was that large global derivatives dealers opened or reactivated derivatives sales desks in Ireland as part of their overall business strategy and in preparation for Brexit. Other driving factors also contributed to the strong growth between 2016 and 2019. For example, the rise in electronic and automated trading facilitated the growth of trading both in foreign exchange and in

⁷⁶ The author is an Economist in the Statistics Division of the Central Bank of Ireland. The views expressed in this article are solely the views of the author and are not necessarily those held by the Central Bank of Ireland or the European System of the Central Banks. The author would like to thank Deirdre Finn, Aisling Kerr, Rory McElligott, Aisling Menton and Maria Woods for their helpful comments.

over-the-counter interest rate derivatives markets, and increased the participation of non-bank dealers in both markets. The growth in the FX market was mainly driven by an increase in FX swaps, used for hedging foreign exchange risks and managing funding liquidity, in an environment of increasing economic uncertainties and excess liquidity in the euro area. The growth in US dollar and euro trading outpaced the growth in pound sterling. OTC interest rate derivatives markets additionally benefited from structural developments like clearing and compression, and from changing expectations about US short-term interest rates that incentivised hedging and speculation activities.

Introduction

This article outlines the results of the 2019 BIS Triennial Survey of FX and OTC interest rate derivatives markets for Ireland, and compares these with previous surveys and with the global results, published by the BIS. The BIS triennial survey is a key source of information on the structure and size of global FX and OTC interest rate derivatives, which should help Central Banks, Regulatory Authorities and other market participants assess risks and inform policy discussions. Following the Global Financial Crisis, for which OTC derivatives have been recognised as one of the amplifiers, bridging data gaps is a priority particularity in the area of systemic risk assessment.

In 2019, the global survey covered 53 jurisdictions and close to 1,300 reporting agents. As previous surveys, it was organised in two parts: the collection of turnover data in April and of data on notional amounts and gross market values outstanding at end-June.⁷⁷ This article focuses on the turnover, given the comprehensive coverage of credit institutions' sales desks that are resident in Ireland. Detailed analyses on the global results are published by the BIS (BIS 2019b and c), while this article aims to provide users with a guide to understanding the Irish results.

The 2019 survey results for Ireland show an increase in the growth rate in derivatives turnover above the global average growth rate. After the Irish results recorded declines in the 2013 and 2016 surveys, there was a remarkable increase in the average daily turnover of FX derivatives in April 2019, and an even stronger growth in OTC interest rate derivatives turnover. Despite this significant growth, the Irish share in both the global FX and OTC interest rate derivatives market remained small, with each at 0.1 per cent in April 2019. At the same time, the entities operating in the Irish derivatives market are highly integrated in the global derivatives markets, which are concentrated and interconnected, with a small number of big players. As this article will show, the majority of trades are with cross-border counterparties in the financial sector. Thus, the survey results provide insights into activities of resident credit institutions in the global derivatives market. Such information is of interest from a supervisory perspective and can provide additional information about external financial stability risks facing the domestic economy through the lens of financial market activity.

⁷⁷ The BIS uses the triennial data on amounts outstanding only to supplement the OTC derivatives statistics, in which the largest banks and other derivatives dealers report data every six months on a consolidated basis. Institutions headquartered in Ireland are not included in the semi-annual OTC derivatives statistics. End-June 2019, the 71 large dealers accounted for the majority of outstanding positions, with 92 per cent of notional amounts and 87 per cent of gross market value (BIS 2019d).

In 2019, the Central Bank of Ireland surveyed 14 credit institutions operating FX and OTC interest rate derivative sales desks in Ireland. The survey participants provided details of their gross turnover for the 21 business days in April 2019, broken down by instrument type, counterparty, maturity and currency.⁷⁸ Turnover is defined as the gross value of all new deals during a given period, and is measured in terms of the nominal or notional amount of the contracts. The data cover both the proprietary and commissioned business⁷⁹ of the reporting institutions. There is no distinction between sales and purchases. Therefore, the survey data cannot be used to gauge the expectations of investors regarding the future evolution of exchange rates or interest rates (Boneva et al., 2019). All transactions were reported in US dollar equivalents. The turnover survey is conducted on a sales desk location basis, and on an unconsolidated basis. Thus, all transactions concluded by offices or sales contracts located in Ireland are covered, including trades between the reporting institutions and their related parties that are part of the same group. To offset the risk that the survey results may not be representative of broader trends, given the low frequency of the survey of every three years, the reporting institutions are required to provide information on market conditions during the survey month, and how these conditions compared with the preceding six months. The majority of the Irish respondents considered the market conditions in April 2019 and in comparison to the preceding six months as normal.

The activities of new survey participants are the main drivers behind the Irish growth between 2016 and 2019, in particular because most of them are subsidiaries of large globally active derivatives dealers. Therefore, the multiple drivers behind the global increase in FX and OTC interest rate derivatives volumes also help explain the Irish trends. The article will discuss the results for FX turnover and OTC interest rate derivatives turnover separately.

Section 2 presents the details on Irish FX turnover and the drivers behind the large growth. First, the largest increase was attributable to FX swaps, mainly in the USD/EUR cross. The need for hedging of currencies and incentives for speculations incentivised the use of these instruments. Another important driver for the increase in FX derivatives turnover was the rise in electronic and automated trading systems, which also enabled more non-dealers to participate in the Irish market. This so-called electronification also boosted the increase in OTC interest rates

⁷⁸ For details on survey structure, definitions and breakdowns see BIS, 2019a.

⁷⁹ Commissioned business refers to reporting institutions' deals as agent or trustee in their own name, but on behalf of third parties.

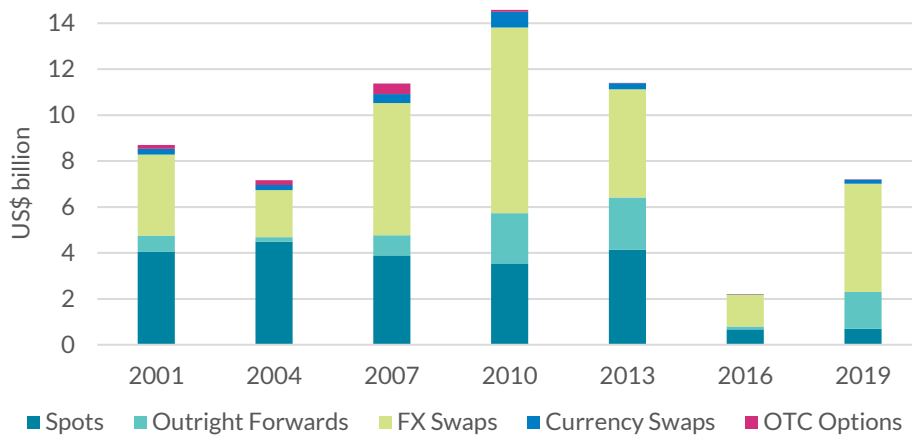
derivatives trading. Section 3 will present the details on this market segment in Ireland. Section 4 concludes.

Foreign Exchange Derivatives Turnover

Overview

The results of the 2019 survey of foreign-exchange derivative turnover show a major increase in activity by reporting institutions resident in Ireland, when average daily turnover increased by 228 per cent between the two surveys, returning from the low level of US\$2.2 billion in 2016 (Chart 1).⁸⁰ The continued decline in FX turnover among Irish reporting entities in 2016 had two driving factors. Firstly, the landscape of the Irish banking sector has changed dramatically, with banks exiting the Irish market through liquidation or wind down. There has also been significant restructuring of the Irish banking system, with deleveraging of overseas assets. As these banks downsized their ownership of foreign banks, and reduced their foreign lending, the size of foreign claims on their consolidated balance sheet declined, resulting in a reduced need for foreign-exchange derivatives for hedging currency risk.

Chart 1: Average daily turnover in foreign exchange derivatives in Ireland, 2001 - 2019



Source: Central Bank of Ireland

In April 2019, the average trading volume in FX derivatives per day was 3.3 times higher than it was in the same month in 2016, reaching US\$7.2 billion. The global results recorded an increase of 30 per cent, from US\$5.1 trillion

⁸⁰ All figures and percentages in this article are unadjusted for exchange rate adjustments. As BIS calculations show, exchange rate movements had only minor impacts on the aggregate turnover figures between 2016 and 2019 (see BIS, 2019b and c). Furthermore, all figures and percentages are adjusted for inter-dealer double counting unless otherwise stated. Double counting arises because both reporting dealers record the transactions between them, i.e. twice. Therefore, the survey asks reporters to distinguish deals with other dealers. These data on other reporters are divided by two, and subtracted from total data.

per day in April 2016 to US\$6.6 trillion per day in April 2019, following a dip in 2016. With US\$ 534 billion in 2016 and US\$ 540 billion in 2019, euro area turnover remained more or less constant.

The key driving factor behind the strong growth in Ireland was a significant change in the reporting population. While six institutions ceased trading derivatives between April 2016 and April 2019 without exiting the Irish market completely, five institutions have opened or reactivated derivatives sales desks in Ireland. In April 2016, these five newly reporting banks were already active in Ireland, but did not operate derivatives sales desks. Four of the five new reporters are subsidiaries of large globally active derivative dealers, including G16 dealers⁸¹, and therefore part of their overall business strategies. Some of the new survey participants confirmed that derivative trades with EU clients were migrated to Ireland in the months before April, on the assumption of a hard Brexit at the end of March 2019. In contrast, some banks that have already participated in the 2016 survey reported transfers of sales activities to their parent institutions, which also explains why the nine institutions that have already participated in the 2016 survey (constant reporting population) lost importance in the Irish FX and OTC interest rate derivatives markets. The average daily turnover in FX derivatives of the constant reporting population declined by 13 per cent (Table 1). In April 2019, the new survey participants accounted for a market share of 76 per cent in the Irish FX market, and therefore for the majority of the trends in the breakdowns by instruments (section 2.2), currency (section 2.3) and counterparty (section 2.4) that are described below. Section 2.5 analyses the impact of advances in technology on the increase in Irish FX derivatives turnover.

Instruments and maturities

With a share of 65 per cent, FX swaps were the most important instrument in the Irish FX derivatives market in 2019 (Table 1). The turnover in these instruments increased by US\$.3.3 billion or 240 per cent over the last three years, and accounted for 66 per cent of the increase in total FX turnover between 2016 and 2019. Foreign exchange swaps are used by credit institutions to hedge against currency risk and to manage funding costs across different currencies (Schrimpf and Shushko, 2019a).⁸² In terms of the macroeconomic and monetary environment, the need for hedging of currencies or interest rates and incentives for speculation increased during

⁸¹ The parent institutions of these four Irish reporters are regular reporting dealers in the semi-annual OTC derivatives statistics that the BIS collects from the largest banks and dealers in 12 advanced economies. The G16 industry group comprises the 16 dealers that dominate global derivatives trading.

⁸² With a foreign-exchange swap, the foreign-exchange risk is removed from the balance sheet during the short leg of the swap, whereas with currency swaps, some risk is retained as a currency swap is an agreement to exchange streams of interest payments.

the last three years. April 2019 can be characterised by economic policy uncertainty because of trade tensions between the US and its trading partners, combined with the ongoing uncertainty about Brexit, and slowing growth prospects for the European and global economy amid market expectations of divergent monetary policies (ECB, 2019a).

Irish turnover in outright forwards increased remarkably by US\$1.5 billion or 1,115 per cent, and became the second most important FX instrument in 2019, with a share of 22 per cent. This increase was fuelled by the greater demand from non-bank financial institutions (Schrimpf and Shushko, 2019a). Turnover in spots increased by 5 per cent to an average daily turnover of US\$0.7 billion. With a share of 10 per cent in 2019, these instruments have lost their relative importance in favour of outright forwards. Currency swaps and OTC Options remained relatively insignificant in Irish FX trading. Also globally, trading in FX swaps and outright forwards gained in market share, while the share of spots declined. The global share of spot trades was 30 per cent in 2019 (down from 33 per cent), while FX swaps accounted for 49 per cent (up from 47% in 2016) of the total global FX market turnover in April 2019.

Table 1: Average daily turnover of FX derivatives in Ireland, by instrument

	amounts in US\$ million (share in % in brackets)				% change, 2016-2019	
	2016		2019		total	constant reporting pop.
Total instruments	2,197	100%	7,204	100%	227%	-13%
Spots	666	30%	702	10%	5%	-27%
Outright forwards	131	6%	1,598	22%	1115%	53%
of which: maturity up to 7 days	32	1%	987	14%	2974%	211%
FX Swaps	1,386	63%	4,709	65%	240%	-9%
of which: maturity up to 7 days	870	40%	2,743	38%	215%	-15%
Currency Swaps	4	0%	190	3%	4545%	-7%
OTC Options	10	0%	4	0%	-53%	-71%

In terms of the maturity profile of FX derivatives, data are collected for outright forwards and FX swaps.⁸³ When trading of short-term instruments grows faster than that of long-term instruments, turnover mechanically increases because such contracts need to be replaced more often (Wooldridge, 2019). Both the global and the Irish results show that short-term instruments grew faster than instruments with longer maturities, and that the majority of turnover in outright forwards and FX swaps in April 2019 was in short-maturity instruments. For Ireland, the largest product contributor behind the increase in total reported FX turnover was the increase in FX swaps with the short-term maturity of up to 7 days.

Currencies and currency pairs

The US dollar remained the dominant currency in Irish FX derivatives markets. It was on one side of 84 per cent⁸⁴ of all trades in April 2019, up from 67 per cent in 2016 (Chart 2a). Turnover in euro, the second most traded currency in Ireland, increased from 65 per cent of all trades in 2016 to 73 per cent in 2019. In contrast, pound sterling lost relative importance in terms of one side of a currency pair between the two surveys, when its share in total trading fell from 36 per cent to 19 per cent over the three years to 2019. Despite this decline, pound sterling remained the third most traded currency in Irish FX markets. This is unsurprising given both the strong links between Ireland and the UK. In absolute numbers and unadjusted for exchange rate movements, turnover in pound sterling increased, from US\$789 million per trading day in April 2016 to US\$1.3 billion in April 2019, but trading of the USD/EUR cross increased at a much faster pace than the USD/GBP and EUR/GBP crosses. With a market share of 58 per cent in 2019, the USD/EUR cross was the most traded currency pair in Ireland, up from 34 per cent in 2016 (Chart 2b). This evolution was mainly driven by the divergent monetary policies in the US and euro area (ECB, 2019b). The strong liquidity in the euro area incentivised banks to swap their excess euro liquidity into US dollars (Schrimpf and Shushko, 2019, and ECB 2019b).

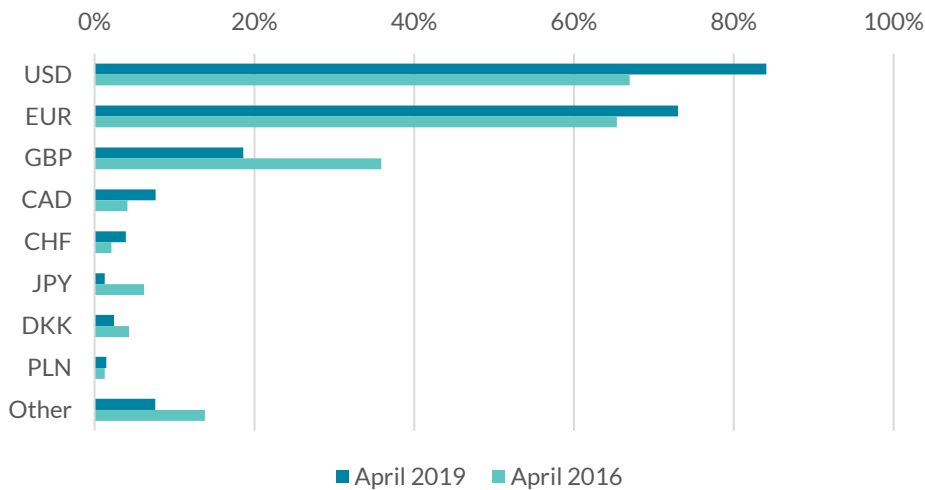
The next most traded currencies in Ireland in 2019 were Canadian dollar and Swiss franc. The market shares of both currencies have approximately doubled since the 2016 survey to 8 per cent and 4 per cent respectively. The Japanese yen's market share dropped from 6 per cent in 2016 to just over 1 per cent in April 2019. With each accounting for 2 per cent of total

⁸³ In comparison to the 2016 survey, the maturity breakdown for outright forwards and FX swaps has been expanded, affecting the categories for medium and longer tenors.

⁸⁴ The volume is broken down on a single-currency basis, i.e. the turnover of each contract is reported twice, according to the currencies making up the two legs of the contract. Thus, the currencies' market shares will sum to 200 per cent of the total turnover.

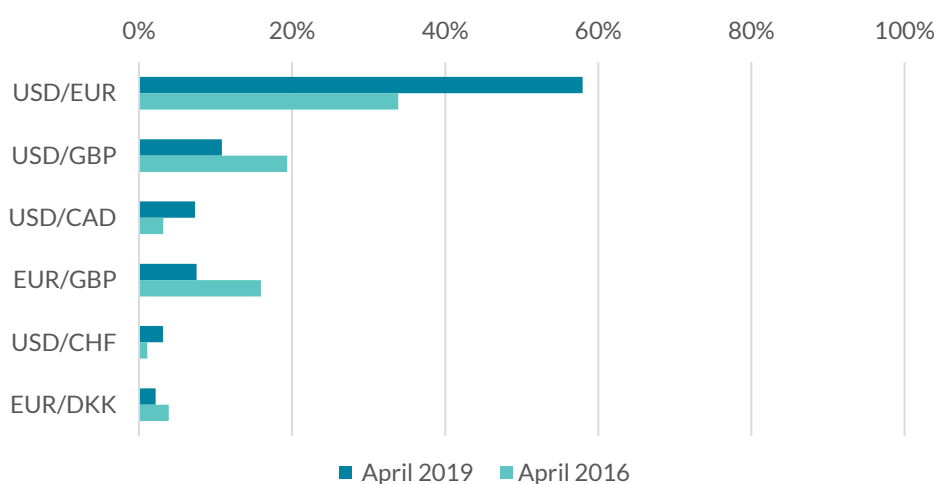
turnover, Danish krone and Polish zloty were more traded than Japanese yen. Trading with other currencies remained insignificant in Irish FX derivatives markets. The combined market share of all remaining currencies declined between the two surveys, from 14 per cent in 2016 to 8 per cent in 2019.⁸⁵

Chart 2a: FX market turnover in Ireland by currency, Market shares of selected currencies



Source: Central Bank of Ireland

Chart 2b: FX market turnover in Ireland by currency, Market shares of selected currency pairs



Source: Central Bank of Ireland

Counterparties

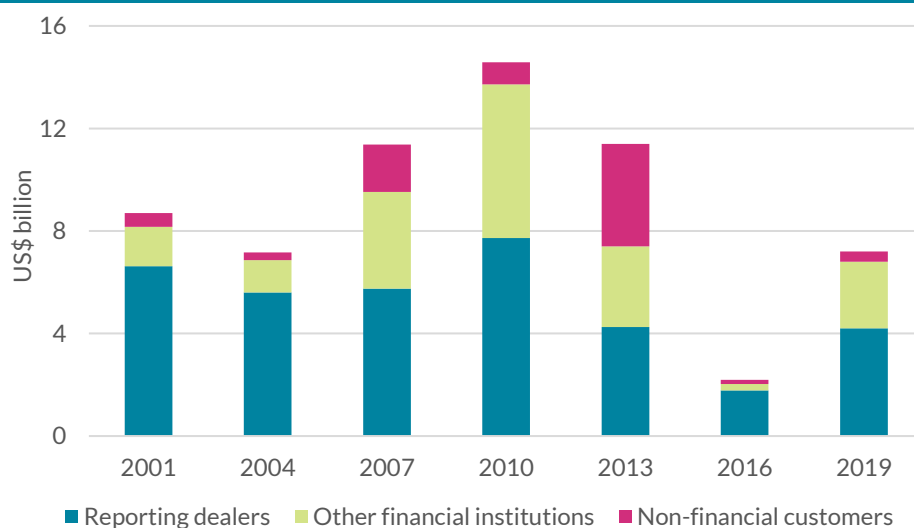
In the 2019 survey, trades with reporting dealers accounted for US\$4.2 billion, or 58 per cent of FX derivatives turnover in Ireland, down from 81 per cent of turnover in the previous survey. 38 per cent of total FX turnover

⁸⁵ See Footnote 9.

in April 2019 was with related parties.⁸⁶ Trades with other financial institutions⁸⁷ gained in relative importance, reaching US\$2.6 billion or 36 per cent of Irish total FX turnover in April 2019. This reverses the development that was observed in the 2016 survey, when trading with other financial institutions had reduced to 11 per cent (Chart 3).

The relative importance of trade with non-financial customers, including non-financial corporations that are most closely linked to global trade in this segment, fell from 8 per cent in 2016 to 6 per cent in 2019. This small share indicates that financial motives caused the trends in FX trading rather than needs arising from global trade and developments in the real economy (Schrimpf and Shushko, 2019a).

Chart 3: FX turnover in Ireland, by counterparty, 2001-2016



Source: Central Bank of Ireland

Most transactions were cross-border. Transactions taking place via cross-border counterparties had reached 92 per cent in 2019, up from 85 per cent in 2016. Nearly all reporting dealer trading in April 2019 was cross-border, while 15 per cent of all FX trades with other financial institutions, and 40 per cent of trades with non-financial customers were local. The survey provides no information on countries or regions.

⁸⁶ Related party trades are contracts with own branches and subsidiaries and between affiliates, and can fall in the categories reporting dealers and other financial institutions. The survey provides no counterparty breakdown of related party trades.

⁸⁷ The counterparty 'other financial institutions' includes non-reporting banks. Therefore, this definition is different from other financial intermediaries as defined in international statistical manuals, such as ESA 2010.

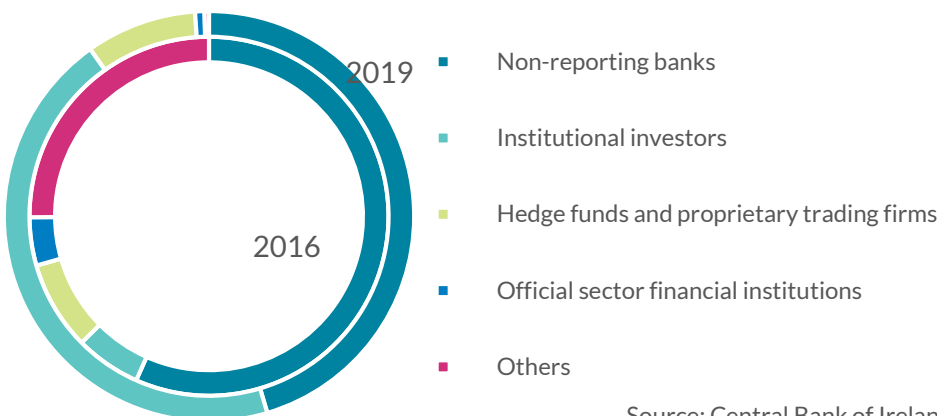
Chart 4: FX turnover in Ireland , by instrument and counterparty, 2019



Source: Central Bank of Ireland

FX swaps dominated inter-dealer trading, while trading with other financial institutions was mainly via outright forwards (Chart 4). Trading with other financial institutions includes non-reporting banks, hedge funds and proprietary trading firms (PTFs), institutional investors as well as official sector financial institutions. The relative importance of trading with institutional investors increased between 2016 and 2019, from 6 per cent to 45 per cent of the total turnover with other financial institutions (Chart 5). Institutional investors, such as insurance companies and pension funds, typically use longer maturity FX derivatives to hedge the currency risks of their foreign bond holdings bonds (ECB, 2019b).

Chart 5: FX market turnover in Ireland, Breakdown of other financial institutions, 2016 and 2019



Source: Central Bank of Ireland

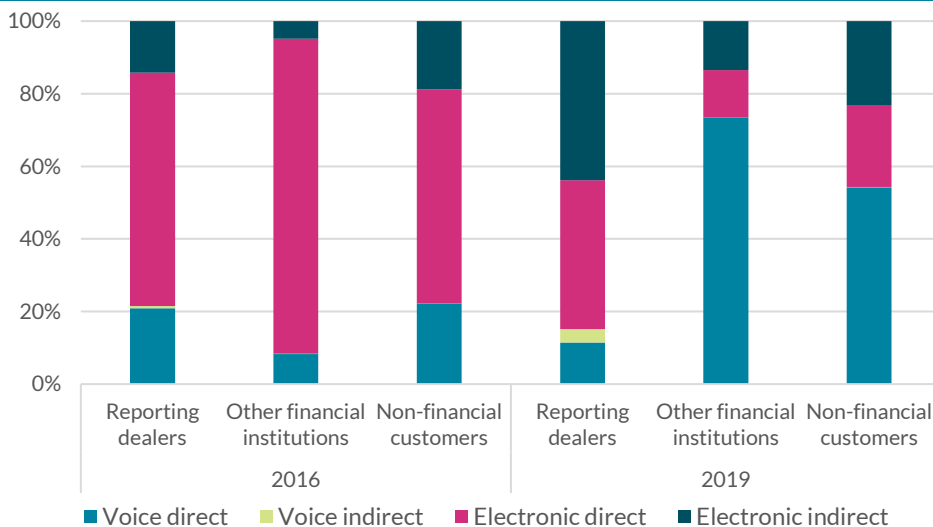
In the global results, trading with institutional investors has contracted as a flattening yield curve since late 2016 made US Treasuries less attractive

(Schrimpf and Shushko, 2019a). Globally, the relative importance of non-reporting banks, hedge funds and PTFs increased notably over the last three years, accounting for 24 per cent of total FX market turnover and 9 per cent, respectively. In Ireland, hedge funds and PTFs also accounted for 9 per cent of the 2019 FX turnover, up from 8 per cent in 2016. The relative importance of non-reporting banks, typically smaller banks which do not engage in market making and serve as clients of large derivatives dealers, fell from 57 per cent in 2016 to 45 per cent in 2019.

Execution method

Electronic and automated trading systems boost turnover by reducing trading costs and other barriers to entry, enhancing pricing transparency and liquidity provision (Wooldridge, 2019). The reduction in transaction costs particularly enabled non-dealer banks to participate in the FX markets (Schrimpf and Shushko, 2019b). Traditionally, most business was conducted via direct trading, i.e. verbal contract. In 2013, nearly half of all trades in Ireland were conducted via voice methods, either direct or indirect. In the 2019 survey, this had fallen to 19 per cent (Chart 6), with indirect voice trading accounting for just 0.4 per cent of total turnover. Electronic direct trading had a share of 69 per cent, up from 36 per cent in 2016. The share of electronic indirect trading – execution intermediated by a third party electronic platform, e.g. Reuters Matching/EBS – declined from 39 per cent to 13 per cent over the last three years.

Chart 6: Irish FX turnover, by execution method and counterparty, 2016 and 2019



Source: Central Bank of Ireland

In April 2019, 45 per cent of spot volumes were executed via electronic indirect trading, while for all other instruments electronic direct trading was the dominating execution method. Particularly for other financial

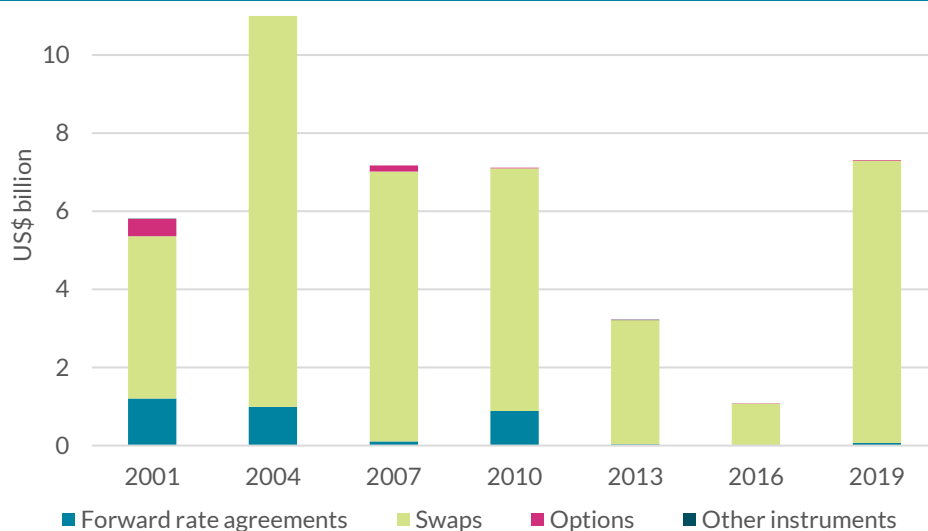
institutions, the main execution method changed from voice direct in 2016 to electronic direct trading in 2019. For these counterparties, turnover via electronic direct methods increased from 13 per cent in 2016 to 87 per cent in 2019. For non-financial customers, electronic direct methods accounted for 59 per cent of turnover in April 2019, compared to 23 per cent three years earlier. The rise in electronic and automated trading was one important driver behind the increase in Irish FX turnover, and helped increase OTC interest rate derivatives volumes.

OTC Interest Rate Derivatives

Overview

The BIS triennial also collects data on OTC single-currency interest rate derivatives. These instruments are contracts whose value depends on the value of an underlying interest rate or of another interest rate contract. The 2019 survey results for Ireland show an increase of average daily turnover by 577 per cent between the last three years (Chart 7). This is the first time since 2004 that turnover in OTC interest rate derivatives exceeds the turnover in FX derivatives. Between April 2010 and April 2016, the Irish average daily turnover tended downwards, reaching US\$1.1 billion in 2016. As in FX markets, the sharp fall in OTC interest rate derivatives turnover between 2013 and 2016 was driven by banks exiting the Irish market and by the decline in cross-border exposure. Mainly driven by the changes in the survey population, in April 2019, average daily turnover in OTC interest rate derivatives jumped to US\$7.3 billion. Globally, with an increase of 143 per cent between 2016 and 2019, OTC trading experienced the highest growth rate since the introduction of the Triennial Survey, and outpaced the growth of trading of interest rate derivatives on exchanges. In contrast, the total euro area turnover grew by 8.7 per cent between the last three years, reaching US\$256 billion, or 3.5 per cent of the global turnover in 2019.

Chart 7: Average daily turnover in OTC interest-rate derivatives in Ireland, 2001-2019



Source: Central Bank of Ireland

The five new survey participants accounted for 88 per cent of the Irish OTC interest rate derivatives turnover in April 2019. The turnover of the nine banks that have already participated in the 2016 survey increased by only 1.3 per cent. The booking of contracts with EU customers in assumption of a hard Brexit end of March 2019 was one of the main reasons given by the new survey participants for the opening or reactivation of sales desks for interest rate derivatives in Ireland.

Traditionally the concentration in the OTC interest rate derivatives market is high. Institutions operating derivatives sales desks for FX derivatives do not necessarily trade interest rate derivatives. In April 2016, nine of the fifteen Irish reporting institutions recorded OTC interest rate turnover. This number declined down to six in April 2019, with three institutions accounting for 99 per cent of total turnover and therefore for the trends in the breakdowns by instrument (section 3.2), by currency (section 3.3) and counterparty (section 3.4) described below. Section 3.5 analyses the impact of compression trades and central clearing on the Irish growth in OTC interest rates derivatives between 2016 and 2019.

Instruments and maturities

As can be seen in Chart 7, interest rate swaps (IRS), including overnight index swaps (OIS), continued to dominate the Irish OTC interest rate derivatives turnover. Turnover of these contracts accounted for 98.9 per cent of the total interest rate turnover in April 2019, slightly down from 99.5 per cent in the previous survey. IRS are used for a wide range of purposes, including the hedging of interest rate risks on banks and other market participants' balance sheets, e.g. risks arising from duration gaps

(Boneva et al., 2019). In addition to hedging, changing expectations about future interest rate movements, in particular about US short-term interest rates, also incentivised speculative activity (Ehlers and Hardy, 2019). In the global survey, the share of IRS decreased from 69 per cent to 64 per cent over the past 3 years.

With an average daily turnover of US\$ 63 million in April 2019, forward rate agreements (FRAs) were traded again in Irish OTC interest rate derivatives markets, after they disappeared as an instrument in 2013. The turnover of OTC options in Ireland increased by 210 per cent between the 2016 and 2019 survey, albeit remaining on a low level, with an average daily turnover of US\$ 14 million in April 2019.

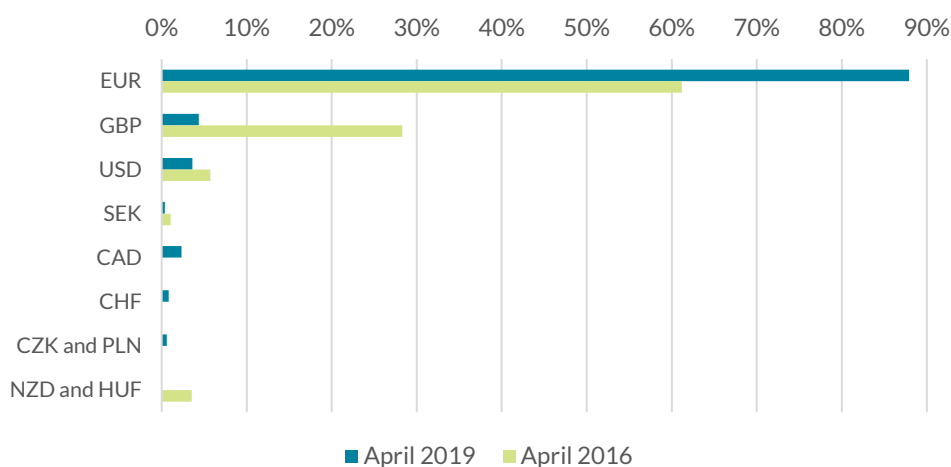
The 2019 survey distinguished for the first time between OIS and other interest rate swaps. Turnover of OIS in Ireland in April 2019 was US\$ 0.6 billion. OIS and FRAs are instruments typically of short maturities. With a combined average daily turnover of 8.9 per cent of total turnover in all OTC interest rate derivatives, their contribution to the market growth was moderate. In contrast, these shorter maturity instruments accounted for 60.7 per cent of the total turnover in all interest rate derivatives instruments in the global results. Trading in the euro area increased at a slower pace due to continuously relatively low and stable shorter-term rates in the euro area (Ehlers and Hardy, 2019).

Currencies

Irish institutions reported the use of just eight currencies in the single-currency interest rate derivatives markets in the 2019 survey, one more currency than in 2016. Irish turnover in euro-denominated contracts came to US\$ 6.4 billion per day in April 2019, accounting for 88 per cent of total turnover in all currencies, up from 61 per cent in 2016 (Chart 8). The proportion of turnover in interest rate derivatives denominated in pound sterling declined between the two surveys, to 4 per cent in 2019 from 28 per cent in 2016. In contrast, the share of global turnover in pound sterling decreased only slightly, from 9 per cent to 8 per cent over the last three years. Controlling the Irish results for a constant reporting population, the share of OTC interest rate derivatives denominated in pound sterling declined just from 24 per cent to 21 per cent. For the new reporting institutions, only 2 per cent of all trades were denominated in pound sterling, while 92 per cent are denominated in euro.

The share of US dollar declined to 4 per cent in 2019, down from 6 per cent three years earlier. The other currencies traded in April 2019 were Canadian dollar, Swiss franc, Swedish krona, Czech koruna and Polish zloty, while Hungarian Forint and New Zealand dollar were no longer used.

Chart 8: OTC interest rate derivatives market turnover in Ireland, by currencies



Source: Central Bank of Ireland

Counterparties

In terms of the counterparties, the picture has changed between the two surveys. While in April 2016 trading with other reporting dealers accounted for 92 per cent of total interest rate derivatives turnover, three years later 99 per cent of interest rate derivatives trading was with other financial institutions. In the global survey, the share of trading among reporting dealers was 24 per cent. The survey provides no further information on other financial institutions. Other sources than the survey show that investment funds and other asset managers have become more important players in interest rate derivative markets as these institutions use interest rate derivatives to manage their risks, particularly when they invest in fixed income securities, or to replicate their portfolio (Ehlers and Hardy, 2019). The Irish reporting institutions reported almost all of the transactions in April 2019 as with cross-border counterparties. While the BIS identified an increase in related party trades, particularly back-to-back trades⁸⁸, as one of the factors behind the growth in interest derivatives markets, with 2 per cent of total OTC interest rate derivatives turnover in April 2019, the share of related party trades in Ireland was small.

Compression and central clearing

Compression trades⁸⁹ are seen as another important contributor to the large increase in OTC interest rate derivatives turnover (Wooldridge,

⁸⁸ In back-to-back deals the liabilities, obligations and rights of the second deal are exactly the same as those of the original ones. They are usually conducted within financial groups to facilitate either internal risk management or internal bookkeeping.

⁸⁹ In a compression trade one single new contract replaces two or more contracts with offsetting positions, but leaving the economic exposure materially unchanged.

2019). Both the original and the compression trade are reported in the survey, thereby increasing the turnover.

Although the turnover survey provides no hard data, compression trades may account for a good portion of the increase in Irish turnover given the regulatory environment. The European Market Infrastructure Regulation (EMIR) includes requirements for compression and the central clearing of fixed-to-float interest rate swaps, FRAs and OIS in EUR, GBP, JPA and USD. In addition, the Basel III leverage ratio requirements account derivatives on a gross basis, which can be reduced via portfolio compression (Ehlers and Hardy, 2019). For the majority of instruments that are traded in Ireland, EMIR requires central clearing. As the data from the second part of the BIS Triennial Survey show, 65 per cent of all notional amounts of single-currency interest rate derivatives outstanding at the end of June 2019 in Ireland were with Central Counterparties (CCPs), compared to only one per cent that was reported end-June 2016⁹⁰. As trade compression limits notional growth (Aramonte and Huang, 2019), the increase of outstanding notional amounts of OTC interest rate derivatives in Ireland between 2016 and 2019 by only 16 per cent (compared to the 577 per cent jump in turnover) can be considered a further indicator for trade compression in Ireland.

Conclusion

The 2019 BIS triennial survey results for Ireland show a substantial increase in both foreign exchange and OTC interest rate derivatives since the last survey in 2016, which is consistent with the global trend. There are multiple drivers behind the increase in FX and OTC interest rate derivatives volumes globally, and these have helped increase Irish volumes. The rise in electronic and automated trading was one important driver for the increase in FX and OTC interest rate derivatives trading during the last three years. Hedging and speculation activities, incentivised by growing economic uncertainties, changing expectation about monetary policies, and an excess liquidity in the euro area benefited an increased use of FX and interest rate swaps. In addition, OTC interest rate derivatives markets benefited from structural developments like clearing and compression. By influencing the activities of global market players, these factors influenced the trends in the Irish derivatives markets, in particular because large derivatives dealers opened or reactivated their sales desks in Ireland during the last three years. Mainly the activities of these new participants in the Irish market drove the Irish growth above the global average.

⁹⁰ Please note that due to the conceptual differences between the turnover and the outstanding amounts part of the triennial survey, mainly reporting population and reporting basis, the survey results for Ireland are not directly comparable.

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