

JANUARY 17

# Q1

Central Bank Quarterly Bulletin



Banc Ceannais na hÉireann  
Central Bank of Ireland  
Eurosystem







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# 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-11 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](http://www.centralbank.ie) and by telephone at 353 1 2246380.

Designed by: Essentra plc.

Cover Photograph: Stuart Bradfield

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ISSN 0332-2645



## Forecast Summary Table

	2013	2014	2015	2016 <sup>e</sup>	2017 <sup>f</sup>	2018 <sup>f</sup>
<b>Real Economic Activity</b>						
(% change)						
Personal consumer expenditure	-0.8	1.7	4.5	3.4	2.5	2.0
Public consumption	0.1	5.4	1.2	5.5	2.0	2.0
Gross fixed capital formation	-5.4	18.2	32.7	5.1	7.4	7.0
Exports of goods and services	3.1	14.4	34.4	4.8	4.1	3.9
Imports of goods and services	1.4	15.3	21.7	4.8	4.9	4.7
Gross Domestic Product (GDP)	1.1	8.5	26.3	4.5	3.3	3.0
Gross National Product (GNP)	4.7	9.2	18.7	7.6	2.8	2.5
<b>External Trade and Payments</b>						
Balance-of-Payments Current Account (€ million)	3,857	3,208	26,156	33,455	36,676	39,038
Current Account (% of GNP)	2.1	1.7	10.2	12.4	12.8	12.9
<b>Prices, Costs and Competitiveness</b>						
(% change)						
Harmonised Index of Consumer Prices (HICP)	0.5	0.3	0.0	-0.2	0.8	1.1
<i>of which:</i> Goods	-0.4	-1.7	-3.1	-3.0	-0.6	-0.2
Services	1.6	2.5	3.0	2.5	2.1	2.3
HICP excluding energy	0.6	0.5	1.0	0.4	0.1	1.2
Consumer Price Index (CPI)	0.5	0.2	-0.3	0.0	0.8	1.2
Nominal Harmonised Competitiveness Indicator (Nominal HCI) <sup>1</sup>	-4.0	3.0	0.4	n.a.	n.a.	n.a.
Compensation per Employee	1.6	1.8	2.7	2.3	2.3	2.2
<b>Labour Market</b>						
(% change year-on-year)						
Total employment	2.2	1.9	2.5	2.8	2.2	1.6
Labour force	0.4	-0.3	0.5	1.3	1.0	0.8
Unemployment rate (ILO)	13.1	11.2	9.4	8.0	6.9	6.1
<b>Technical Assumptions<sup>2</sup></b>						
EUR/USD exchange rate	1.33	1.33	1.11	1.11	1.05	1.05
EUR/GBP exchange rate	0.85	0.81	0.73	0.84	0.84	0.84
Oil price (\$ per barrel)	108.58	100.10	53.70	43.14	49.32	54.65
Interbank market – Euribor <sup>3</sup> (3-month fixed)	0.23	0.21	-0.02	-0.18	-0.13	-0.13

<sup>1</sup> Based upon the annual change in the average nominal HCI.

<sup>2</sup> The technical assumption made is that exchange rates remain unchanged at their average levels in mid-December. Oil prices and interest rates are assumed to move in line with the futures market.

<sup>3</sup> Euribor is the rate at which euro interbank term deposits are offered by one prime bank to another, within the euro area. Daily data from 30 December 1998 are available from [www.euribor.org](http://www.euribor.org).

## Comment

The most reliable measures of domestic spending and economic activity suggest that the Irish economy continues to grow at a relatively healthy pace, though there are signs that growth momentum has slowed a little. Looking ahead, while the prospects for sustained, solid growth remain positive, external factors, particularly uncertainties in relation to Brexit, pose risks to the outlook.

Given the highly globalised nature of the Irish economy and the impact of the activities of foreign multinational firms on headline national accounts measures, assessing the performance and prospects for the economy requires the use of supplementary indicators that are more appropriate to the measurement of domestic economic activity. Abstracting from the volatility in the headline trade and investment data in the national accounts, the underlying picture is that recovery continues to be led by the strength of domestic demand which, after a period of robust growth, appears to be gradually moderating. Looking ahead, while projected to grow at a slightly slower pace, domestic demand is set to remain the main driver of expansion over the forecast horizon. However, with a somewhat weaker outlook projected for net export growth, the Bank's latest forecast is for a modest slowdown in growth this year relative to earlier expectations. While the overall outlook remains broadly favourable, external uncertainties are heightening and, given the highly open nature of the Irish economy, risks to the forecasts are firmly weighted to the downside.

Underpinning the recovery of the Irish economy in recent years has been the growth of underlying domestic demand, a measure which excludes the volatile components of investment in intangibles and aircraft. The stronger performance of activity on the domestic side of the economy has been supported by the combination of relatively strong and broad-based growth in employment, modest increases in incomes and more favourable financial conditions. While labour market conditions have continued to improve, some signs of an easing in the pace of consumer spending growth has emerged

over the second half of 2016, consistent with evidence from tax data and some softening in indicators of consumer sentiment. With regard to investment, the evidence suggests that the domestic components continue to grow solidly, although from relatively low bases. On balance, therefore, while some easing in the pace of growth may be emerging on the domestic side of the economy, the extent of the slowing would appear to be relatively modest.

To date, in the absence of any weakening in the UK economy, the impact of the Brexit referendum outcome on the Irish economy has mainly been felt through the volatility in the euro/sterling exchange rate. Uncertainty in the period following the referendum vote was reflected in a marked weakening of business sentiment indicators, which subsequently rebounded strongly, suggesting a muted overall impact from Brexit-related factors over the second-half of 2016. Looked at on a sectoral basis, high frequency industrial production data point to some softening in the output of the traditional manufacturing sector, although as this trend was apparent from earlier in the year, it is difficult to isolate the impact attributable to the Brexit decision alone. Looking ahead, however, this mainly indigenous sector remains vulnerable.

More generally, assessing the outlook for the Irish economy is complicated by Brexit-related uncertainty. As noted in previous Bulletins, both in the short-term and in the longer-term, the economic impact of Brexit on Ireland is set to be negative and material. In the transition period to establishing new arrangements between the UK and the EU, there is the potential for bouts of heightened uncertainty

and risk aversion. During this period, the downside risks for the Irish economy, as is also the case for the UK and European economies, arise from the potential macroeconomic, financial and currency market effects of the increase in uncertainty related to the terms, timing and impact of the new relationship. To take account of these uncertainties, the Bank revised its GDP growth forecasts for 2016 and 2017 in the July 2016 Bulletin, making a downward adjustment of 0.2 and 0.6 per cent, respectively, in 2016 and 2017. These adjustments are maintained in the current forecasts, while the GDP forecast for 2018 incorporates a Brexit-related downward adjustment of 0.2 per cent.

Looking ahead, the main impetus to growth in 2017 and 2018 is projected to come from the continued strength of demand from domestic sources, in the form of solid growth in consumer spending and underlying investment. The main driver of that growth will be continuing gains in employment and incomes, although, in a less benign environment, employment growth is projected to moderate somewhat over the forecast horizon. Notwithstanding this gradual moderation, underlying domestic demand is projected to grow by over 3 per cent in 2017 and by just under 3 per cent next year. On the external side, the outlook for exports is subject to considerable uncertainty, reflecting both the volatility of the trade data in the first three quarters of 2016 and potential Brexit effects. Subject to these uncertainties, export growth is projected to moderate over the forecast horizon.

Taking account of all of the above considerations, GDP is now projected to grow by 3.3 per cent this year, 0.3 per cent lower compared to the forecasts published in the last Bulletin. The downward revision reflects a somewhat weaker outlook for export growth. In 2018, GDP growth is projected to moderate slightly to 3.0 per cent. Risks to these projections are clearly weighted to the downside and, while mainly linked to Brexit-related vulnerabilities, are not confined to this alone. With regard to Brexit, the risks

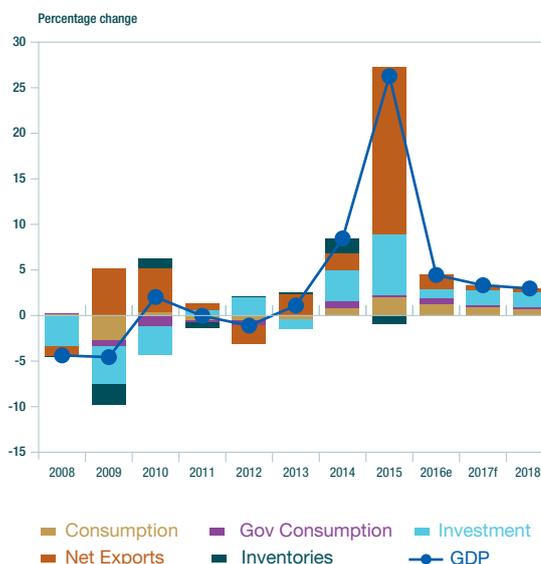
relate to the possibility of adverse UK or European macroeconomic or exchange rate developments or more negative domestic confidence and labour market effects than envisaged. Other external risks stem from the changing international political and economic policymaking landscape. Domestically, reflecting the well-known issues with some of the headline measures of the national accounts, the potential for volatility in the measurement of Irish GDP remains. Given these risks, domestic economic policies should remain firmly focussed on underpinning stability and reducing uncertainty.

# The Domestic Economy

## Overview

- Following estimated growth of 4.5 per cent in 2016, the rate of expansion in Irish GDP is projected to moderate to 3.3 per cent this year. This represents a downward revision of 0.3 per cent relative to the previous Bulletin, mainly reflecting a somewhat weaker outlook for net exports. GDP growth of 3 per cent is forecast for 2018 – close to its long-run sustainable rate. Real GNP growth is projected to average 2.8 per cent this year, moderating to 2.5 per cent in 2018.
- GDP growth in the first three quarters of 2016 was broadly consistent with indicators of activity such as underlying domestic demand and employment. However, this masked offsetting trends in the components of GDP, in particular investment and trade, which were not closely aligned with indicators of activity in the domestic economy, but were mainly accounted for by the off-shore activities of multinational firms.
- The sluggish performance of goods exports was driven by weakness in contract manufacturing activity. This in turn contributed to a weak trend in goods imports. Similarly, volatility in services imports and investment mainly reflected corresponding volatility in imports of intangible assets. As a working assumption, over the forecast horizon, export growth, excluding any volatility that might arise from contract manufacturing, is projected to track demand in Ireland's main trading partners. Accordingly, net exports are forecast to make a small and declining contribution to overall GDP growth.
- Domestic demand is set to remain the main growth driver over the forecast horizon. Following an estimated increase of 3.9 per cent in 2016, underlying domestic demand, is expected to expand by 3.3 per cent in 2017, easing to around 3 per cent in 2018. Overall investment spending, which was particularly volatile in 2016 reflecting the impact of trends in both aircraft and intangible assets, is expected to rebound in 2017, with growth of 7.4 per cent, easing to 7 per cent next year. In the construction sector, both housing and non-residential building investment continue to grow strongly, although from relatively low bases. Underlying machinery and equipment expenditure (excluding aircraft), where weakness in 2016 may in part be related to base effects from the completion of some large projects in the previous year, is likely to recover solidly in 2017 and in 2018.

Chart 1: Contributions to GDP



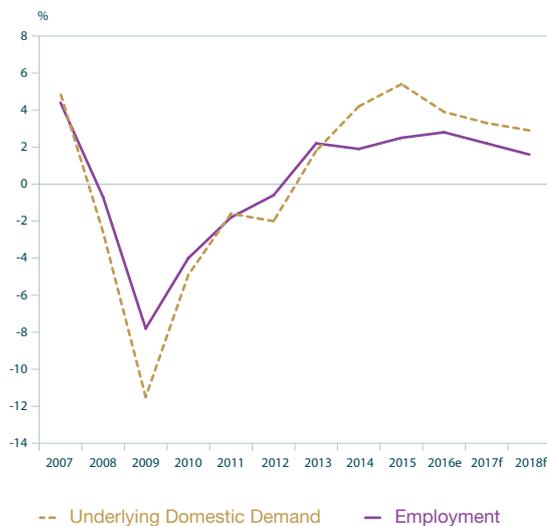
Source: CSO and Central Bank of Ireland.

- Consumer spending, although growing strongly in 2016, has been somewhat weaker than might have been expected given the strength of indicators such as retail sales, consumer sentiment and labour market developments. As indicated in Box A below, initial estimates of consumption in the quarterly national accounts have typically been revised upward when more complete information becomes available in the annual accounts. Nevertheless, the latest forecasts contain a small downward revision to the estimate for consumer spending to 3.4 per cent in 2016. This year, growth in consumer spending, while slowing to about 2.5 per cent, has been revised upwards compared to the previous forecast. This reflects, in part, the more robust outlook for employment, unemployment and earnings. Consumption is forecast to increase by 2 per cent in 2018.
- The labour market has outperformed expectations in the last year. Employment growth, at 2.8 per cent in 2016, was the fastest since 2007 and unemployment, which averaged 8 per cent, declined to 7.2 per cent by year-end. While the pace of employment growth, for this year as a whole, is forecast to moderate in line with prospects for output growth, the strong momentum from 2016 has prompted an upward revision to the labour market outlook. Employment is now

forecast to increase by 2.2 per cent this year, slowing to 1.6 per cent growth in 2018. Unemployment is forecast to average 6.9 per cent in 2017 and 6.1 per cent next year.

- Consumer prices, as measured by the CPI were unchanged on average last year while the HICP declined by 0.2 per cent. Exchange rate appreciation replaced energy as the main source of deflation in the second half of the year as the sharp appreciation of the euro/sterling exchange rate quickly passed through to consumer prices (see Box C below). A modest rebound in inflation to about 0.8 per cent in both CPI and HICP terms is forecast for 2017, reflecting both higher energy prices and a partial reversal of the previous exchange rate appreciation. A further modest increase in HICP and CPI inflation to about 1.1 per cent and 1.2 per cent, respectively, is projected for 2018.
- In considering risks to the projections, it is important to distinguish between the normal, typically external, risks to a small and exceptionally open economy such as Ireland's and the potential for volatility in Irish GDP and GNP growth rates, that reflect measurement issues relating to the highly globalised nature of the Irish economy.
- This year and in 2018 external risks are mainly related to Brexit. The main channels through which the effects of Brexit will be felt include trade via weaker foreign demand, foreign direct investment and the labour market.<sup>1</sup> Since last July, our forecasts have incorporated an adjustment for these negative impacts and projected GDP growth would be about 0.6 per cent and 0.2 per cent lower in 2017 and 2018, respectively, relative to a no-Brexit baseline. Nevertheless, the terms of the eventual exit agreement and, in the interim, the potential for greater pessimism relating to it, constitute a significant downside risk to the Irish economy.
- The potential for volatility in the measurement of Irish GDP reflects the fact that parts of the output recorded in Irish GDP now reflects activity which takes place in other countries. This can result in a significant divergence in headline and underlying GDP and GNP growth. In the trade data, for example, changes in the level of contract manufacturing abroad by multinational firms can have a significant impact on exports and imports. In addition, the large and

**Chart 2: Underlying Domestic Demand and Employment Growth**



Source: Internal calculations.

increasing share of intangible assets, mainly held by multinational firms, and the assets of Irish based aircraft leasing firms, can cause headline investment figures to diverge from underlying investment trends.

- These volatile factors had a significant but largely offsetting impact on GDP in 2016 but contributed to a large divergence between headline and underlying output growth in 2015. While the projections for GDP growth in 2017 and 2018 are predicated on a neutral or at least offsetting impact, the risk remains that headline and underlying growth could again diverge over the forecast horizon.

## Demand

### Domestic Demand Overview

Growth in the economy is expected to be mainly driven by domestic sources over the forecast horizon. The Bank's adjusted measure of domestic demand - *underlying domestic demand*<sup>2</sup> - is projected to grow by 3.3 per cent in 2017 and by 2.9 per cent in 2018. This builds on a likely robust outturn for 2016 (estimated growth in the region of 3.9 per cent). The

<sup>1</sup> For detailed estimates of the impact of Brexit on the Irish economy, using a Bayesian Vector Autoregression (BVAR) approach, see "Box B: The Impact of Brexit on the Short-term Outlook" in the Domestic Economy Chapter of the Central Bank of Ireland *Quarterly Bulletin* No. 3 2016.

<sup>2</sup> Underlying domestic demand is defined as domestic demand, excluding investment in intangible assets and aircraft.

**Table 1:** Expenditure on Gross National Product 2015, 2016<sup>e</sup>, 2017<sup>f</sup> and 2018<sup>f</sup>

	2015			2016 <sup>e</sup>			2017 <sup>f</sup>			2018 <sup>f</sup>
	EUR millions	volume	price	EUR millions	volume	price	EUR millions	volume	price	EUR millions
Personal Consumption Expenditure	92,377	3.4	1.0	96,519	2.5	1.1	100,020	2.0	1.4	103,449
Public Net Current Expenditure	26,985	5.5	0.5	28,610	2.0	1.8	29,706	2.0	1.6	30,778
Gross Domestic Fixed Capital Formation	54,103	5.1	2.7	58,426	7.4	2.4	64,236	7.0	2.4	70,376
<i>Building and Construction</i>	14,244	14.2	3.4	16,825	8.8	4.0	19,053	7.4	4.0	21,288
<i>Machinery and Equipment</i>	16,365	8.9	5.5	18,811	5.4	1.3	20,078	5.4	1.3	21,431
<i>Intangibles</i>	23,495	-3.0	0.0	22,790	8.0	2.0	25,106	8.0	2.0	27,656
Value of Physical Changes in Stocks	1,293			1,293			1,293			1,193
<b>TOTAL DOMESTIC DEMAND</b>	174,758	4.3	1.4	184,847	4.0	1.6	195,256	3.6	1.7	205,795
<i>of which: Underlying Domestic Demand</i>	143,774	3.9	2.4	153,019	3.3	1.6	160,570	2.9	1.8	168,078
Exports of Goods & Services	317,197	4.8	-0.8	329,630	4.1	1.2	347,392	3.9	1.3	365,492
<b>FINAL DEMAND</b>	491,955	4.6	0.0	514,477	4.1	1.3	542,647	3.8	1.4	571,287
Imports of Goods & Services	-235,985	4.8	-1.2	-244,330	4.9	-0.4	-255,399	4.7	0.1	-267,734
<i>Statistical Discrepancy</i>	-155			-155			-155			-155
<b>GROSS DOMESTIC PRODUCT</b>	255,815	4.5	1.0	269,992	3.3	2.9	287,093	3.0	2.6	303,398
Net Factor Income from Rest of the World	-53,173	-7.6	-0.8	-48,706	5.9	1.2	-52,178	5.2	1.3	-55,581
<b>GROSS NATIONAL PRODUCT</b>	202,642	7.6	1.5	221,286	2.8	3.3	234,915	2.5	2.9	247,817

strength in underlying demand is expected to result in further sustained gains in employment across the economy given the strong linkages between the two series (Chart 2).

### **Consumption**

Personal consumption expenditure is forecast to remain a key driver of growth over the projection period, with growth of 2.5 per cent in 2017 and 2.0 per cent in 2018. This follows estimated growth of 3.4 per cent in 2016. This

outlook would see per-capita consumption levels in 2018 closing to within 2 percentage points of their pre-crisis (2007) peak, having declined by 12 per cent between 2007 and 2013. The forecast for consumption is supported by a favourable outlook for incomes and employment (see below).

In 2016, the strength in consumer spending was evident in a number of indicators. Retail sales grew by 6.3 per cent in the first 11 months of last year helped by robust car sales.

Excluding the latter, core sales were up by 4.7 per cent over the same period. Although retail sales growth slowed appreciably in the third quarter, the latest data point to a rebound in the final quarter of the year despite the fact that sentiment indicators have softened somewhat.<sup>3</sup> Consumption data in the Quarterly National Accounts (QNA) in 2016 were volatile

with a weak second quarter more than offset by strong first and third quarters.<sup>4</sup> These data are analysed in more detail in Box A.

### Box A: Recent Trends in Personal Consumption Expenditure

By Paul Reddan, Diarmaid Smyth and Graeme Walsh<sup>5</sup>

Personal consumption expenditure (PCE) accounts for a large share of the economy's output – approximately a third of GDP and nearly two thirds of underlying domestic demand. PCE is also not affected by some of the (inherently unpredictable) factors that impact on other *National Accounts* aggregates, such as investment or exports. This Box examines recent trends in PCE (specifically the *Quarterly National Accounts* (QNA) data), its determinants and some implications for forecasting.

#### Quarterly National Accounts data for personal consumption during 2016

Data for PCE in the QNA in 2016 point to average growth of 3.2 per cent in the first 3 quarters of the year. However, this growth rate was heavily influenced by a very robust first quarter upturn and more recent data have been mixed.<sup>6</sup> For example, on a seasonally adjusted basis, PCE is estimated to have contracted in the second quarter by 0.3 per cent (the initial CSO estimate was -0.5 per cent) before returning to growth in the third quarter (+0.7 per cent). Throughout the course of 2016, the PCE data, at times, also appeared to diverge from other consumption indicators, principally retail sales data as well as consistently robust labour market data. One reason for the gap between PCE and retail sales reflects the fact that the former includes goods and services (with a roughly even split, 45:55) whereas the latter captures purchases of goods. Services include a wide range of categories - transport, communications, housing, recreation, entertainment, education as well as miscellaneous items.<sup>7</sup> Services consumption appears to have been persistently weak during 2016. In the third quarter, services consumption contracted by an estimated 0.3 per cent in the year. In contrast, goods related consumption increased by 5.1 per cent – broadly in line with retail sales data.<sup>8</sup>

A further complicating factor relates to adjustments made to account for tourism spending in computing PCE. Expenditure by visitors to Ireland is accounted for in the exports component of the National Accounts and not included in PCE, while spending by Irish residents abroad is included in PCE. For the first 3 quarters of 2016, a detailed breakdown of consumption spending on a National Accounts basis is not yet available. However, other data – principally the Tourism and Travel series shows that spending by visitors to Ireland was 21 per cent higher than expenditure by Irish residents abroad in the first 3 quarters of 2016. This difference may explain some of the weakness in PCE figures over the same period.

<sup>5</sup> Irish Economic Analysis Division

<sup>6</sup> PCE grew by 5.3 per cent in the first quarter in year-on-year terms.

<sup>7</sup> For more details see Box A; "Consumer spending data and forecasts", in the Domestic Economy Chapter of the [Central Bank of Ireland Quarterly Bulletin No.1, 2015](#).

<sup>8</sup> This breakdown is available in the Quarterly National Accounts media briefing. A similar result was also shown for the second quarter release – services consumption was initially estimated to have declined by 0.8 per cent with goods up 5.0 per cent.

<sup>3</sup> The KBC Bank Ireland/ESRI Consumer Sentiment Index pointed to a more cautious consumer outlook with the index at a 22-month low in December.

<sup>4</sup> In seasonally adjusted terms, personal consumption declined by 0.3 per cent in the 2nd quarter before rebounding with growth of 0.7 per cent in the 3rd quarter.

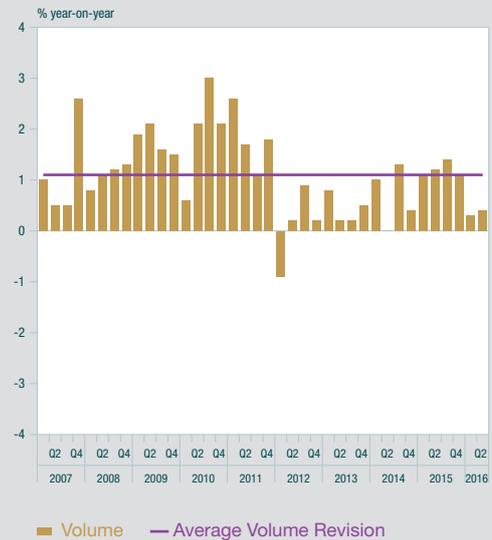
**Box A: Recent Trends in Personal Consumption Expenditure**

*By Paul Reddan, Diarmaid Smyth and Graeme Walsh*

**Magnitude and sources of revisions to PCE data**

The QNA data are provisional and subject to revision. In Figure 1, the difference between the initial and most recent estimates of PCE growth are shown. Over the sample period, annual volume estimates of PCE growth were revised upwards 95 per cent of the time. Analysing seasonally adjusted quarter-on-quarter growth rates also shows a similar pattern of upward revisions.<sup>9</sup> Over the period, the average revision to the annual growth rate was 1.1 per cent, although this is skewed by some large revisions in earlier years (notably 2010 and 2011). The average revision to the growth rate over the past 16 quarters was 0.7 per cent in year-on-year terms.

**Box A Figure 1: Revisions to PCE Growth Rate: Latest - First Estimate**



Source: CSO and authors' calculations.

**Implications for forecasting**

In forecasting consumption, we take account of its key drivers – variables such as disposable incomes, employment, confidence levels, housing developments, etc., and recent quarterly data. In terms of the latter, the likelihood of data revisions need to be taken into account.<sup>10</sup>

<sup>9</sup> Seasonally adjusted volume and value growth rates were revised upwards 66 per cent and 71 per cent of the time, respectively.

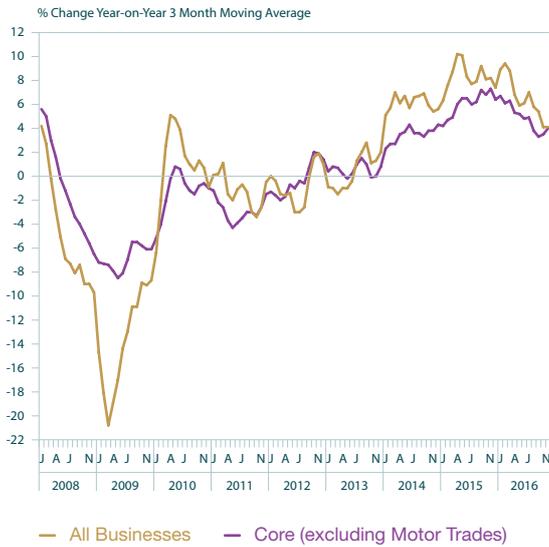
<sup>10</sup> See "Revisions to Macroeconomic Data: Ireland and the OECD", Casey and Smyth (2016).

**Investment**

Following a spike in the second quarter of 2016, investment expenditure declined by 7.2 per cent in the year to the third quarter of 2016. While this decline was partly owing to a jump and subsequent decline in intangible investment – company spending on research and development, patents, trademarks, intellectual property and advertising – investment in machinery and equipment was also weaker than expected. As discussed in previous Bulletins, spending on intangibles often has a limited impact on Ireland's

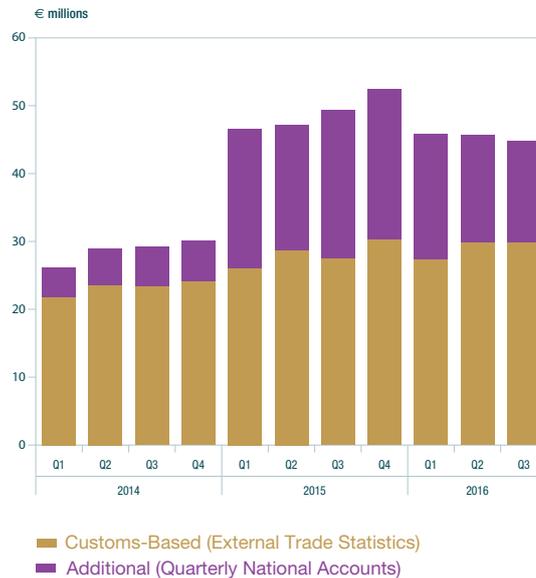
productive potential. Excluding those volatile components of investment that have a limited impact on the domestic economy (intangibles and aircraft), the picture for underlying investment in 2016 is slightly weaker compared to that of the previous Bulletin. Total investment is estimated to have increased by 5.1 per cent in 2016 and looking ahead to 2017 and 2018 is expected to increase by around 7 per cent in both years. The profile for underlying investment is broadly similar with increases of 7.3 and 6.5 per cent expected in 2017 and 2018.

**Chart 3: Index of Volume of Retail Sales**



Source: CSO.

**Chart 4: Year-on-Year Change in Goods Exports (Values)**



Source: CSO.

On the building and construction side, expenditure on both residential and non-residential construction is stronger than anticipated compared to the previous Bulletin. There were an estimated 15,000 new house completions in 2016 and on the basis of forward looking indicators, this figure is forecast to increase to 18,000 and 20,000 in 2017 and 2018, respectively. This level of housing supply, however, remains insufficient to meet current estimates of demand, with rising rents, in particular, indicative of the imbalance between housing supply and demand. Building and construction investment is forecast to increase by 8.8 and 7.4 per cent in 2017 and 2018, respectively.

Overall machinery and equipment (M&E) figures are complicated by large fluctuations in the aircraft sector (which includes the aircraft leasing sector as well as the domestic airline industry). Excluding aircraft, the data points to a somewhat counterintuitive downward trend in underlying M&E investment, (since it usually moves in tandem with building and construction investment). This negative trend may, in part, be due to a base effect relating to the completion in 2015 of large investment

projects by some multinational firms in early 2015. Overall, M&E investment is estimated to have increased by 8.9 per cent last year – the underlying picture, however, is much weaker, as M&E expenditures are estimated to have declined by over 10 per cent. This base effect is projected to wash out in of the figures in 2017 and 2018 with M&E projected to increase by approximately 5 per cent.

Along with assumptions for intangibles, the building and construction and machinery and equipment forecasts point to an increase in overall investment expenditure of 7.4 and 7 per cent for 2017 and 2018, respectively.

**Government Consumption**

The volume of government consumption increased by 5.0 per cent in the first three quarters of 2016 according to the QNA. For the year as a whole, growth of 5.5 per cent is estimated. For 2017 and 2018, the outlook for government spending is guided by the announced measures in *Budget 2017*, with government consumption projected to increase by 2.0 per annum on average.

**Table 2: Goods and Services Trade 2015, 2016<sup>e</sup>, 2017<sup>f</sup> and 2018<sup>f</sup>**

	2015			2016 <sup>e</sup>			2017 <sup>f</sup>			2018 <sup>f</sup>
	EUR millions	% change in		EUR millions	% change in		EUR millions	% change in		EUR millions
Exports	317,197	4.8	-0.8	329,630	4.1	1.2	347,392	3.9	1.3	365,492
Goods	195,592	3.5	-2.0	198,389	3.9	1.0	208,187	3.7	1.3	218,697
Services	121,605	6.8	1.1	131,241	4.5	1.5	139,204	4.1	1.3	146,796
Imports	235,985	4.8	-1.2	244,330	4.9	-0.4	255,399	4.7	0.1	267,734
Goods	85,024	5.3	-2.0	87,706	5.1	-1.0	91,284	4.6	0.0	95,451
Services	150,963	4.5	-0.7	156,624	4.8	0.0	164,115	4.8	0.2	172,284

## External Demand and Balance of Payments

### Exports and Imports

Overall export volume growth slowed sharply during the third quarter of 2016, with the year-on-year growth rate falling from 3.6 per cent in the second quarter to 0.6 per cent. Such a weakened outturn largely reflected an intensification of downward pressure from the goods side, with services exports continuing to make a strong positive contribution. The weaker momentum for goods exports is thought to have been heavily driven by reduced levels of contract manufacturing, as illustrated by the narrowing of the gap between the value of goods exports in the Quarterly National Accounts (QNAs) and the External Trade Statistics (see Chart 4). The acceleration in services export growth in the third quarter was heavily concentrated at a sectoral level, with the business services and the computer services sectors, when combined, accounting for around 95 per cent of the year-on-year increase in services exports. As a result of the fall-off in goods exports during the third quarter, the estimate for goods export growth in 2016 has been revised downwards, with an average annual increase in the region of 3.5 per cent projected, considerably weaker than the predicted 6.8 per cent increase in services export volumes.

The most up-to-date external demand assumptions for Ireland point to a slightly

weaker outlook for exports than assumed in the previous Quarterly Bulletin. Export growth is, however, expected to continue to outpace the growth in external demand throughout the projection period reflecting the ongoing compositional shift in Irish exports (specifically, the move towards services and the prevalence of global value chains). Moreover, sentiment indicators for both the manufacturing and services sectors have proven surprisingly positive in their outlook for new export orders at the turn of the year. Reflecting these developments, export volumes are expected to rise by 4.1 per cent in 2017 followed by 3.9 per cent in 2018. It is anticipated that goods exports will continue to be outpaced by the somewhat more dynamic services side throughout the projection period – goods exports are expected to rise by 3.9 per cent and 3.7 per cent in 2017 and 2018, respectively; the corresponding rates for services exports are 4.5 per cent and 4.1 per cent. The risks to the short-term outlook for Irish exports are tilted to the downside largely in view of the uncertainty surrounding the outlook for external demand and in particular, the impact of Brexit.

A noticeable feature of Ireland's trade performance during the third quarter of 2016 was the strong positive net trade contribution largely due to a falloff in the import of goods and to a much greater extent, services. The weakness of the services outturn may be attributed to the business services sector and specifically, research and development

**Table 3: Balance of Payments 2015, 2016<sup>e</sup>, 2017<sup>f</sup> and 2018<sup>f</sup>**

€ million	2015	2016 <sup>e</sup>	2017 <sup>f</sup>	2018 <sup>f</sup>
Trade Balance	81,209	85,300	91,993	97,758
Goods	110,568	110,683	116,903	123,246
Services	-29,359	-25,383	-24,910	-25,488
Net Factor Income from the Rest of the World	-51,914	-48,706	-52,178	-55,581
Current International Transfers	-3,139	-3,139	-3,139	-3,139
<b>Balance on Current Account</b>	26,156	33,455	36,676	39,038
(% of GDP)	10.2	12.4	12.8	12.9

arising from the sharp decline in the purchase of intellectual property assets. Import growth is estimated to have risen by 4.8 per cent in 2016. Looking ahead to 2017 and 2018, an increase in imports of a similar magnitude is envisaged, underpinned by continued growth in domestic activity. Thus import growth in the region of 4.9 per cent and 4.7 per cent in 2017 and 2018 is currently projected.

### **Net Trade, Factor Incomes and International Transfers**

Despite a pronounced narrowing of the merchandise trade surplus in the year to the third quarter of 2016, the overall trade balance improved as the services deficit narrowed markedly. The overall trade balance for the first three quarters of 2016 was €23.7 billion, an increase of almost 25 per cent on the same period in 2015. Combining the prospective trends across other components, a current account surplus of around 12.4 per cent of GDP is expected for 2016 as a whole. For 2017 the current account surplus is projected to be broadly unchanged, with a surplus of around 12.8 per cent, followed by a further modest improvement to 12.9 per cent in 2018. This represents a sizable upward revision relative to the previous Bulletin reflecting strong recent developments in net factor flows.

### **Supply**

On the output side, the latest QNA data indicates a strong performance in the third quarter of 2016. On the services side, the broad “other services” sector (which

includes distribution, transport, software and communications) grew by 6.6 per cent year-on-year. The agricultural sector saw growth of 4.1 per cent, a slowdown in comparison to an average increase of 16.1 per cent over the previous four quarters. Building and construction continued the strong growth seen in Q2 with a large increase of 17.2 per cent. In contrast, industrial output contracted in the quarter by 1.1 per cent.

The most recent data from the monthly industrial production and turnover series showed a year-on-year increase of 14.8 per cent for the manufacturing sector in November. The modern sector saw growth of 16 per cent. However, these series are volatile and heavily influenced by the activities of multinational corporations. Analysing the first eleven months of the year shows that the modern sector has increased production by a more moderate 3 per cent, while overall manufacturing growth has been subdued at 1.6 per cent. The performance of the traditional sector has been weak throughout 2016. Through the year to November, production has fallen by 1.3 per cent. This is a significant change from the strong performance observed in 2015 when growth of 8.5 per cent was observed for the same period. It is difficult to say whether Brexit has had a large impact on this mainly indigenous sector as production growth was sluggish early in 2016 as well as in recent months. However, this sector clearly remains highly vulnerable to adverse developments related to Brexit.

The Investec Manufacturing Purchasing Managers Index (PMI) suggests that growth

**Chart 5: Volume of Industrial Production**



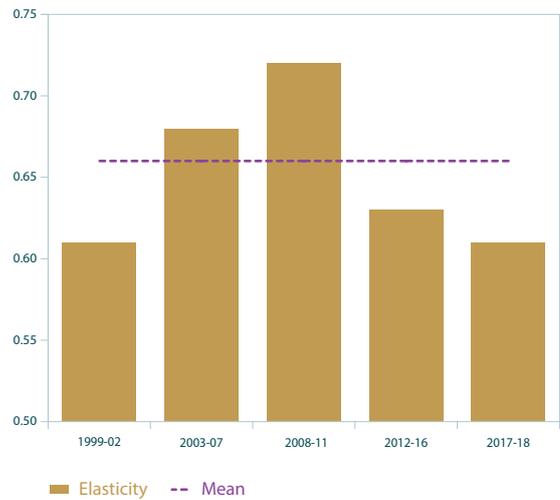
Source: CSO.

strengthened in the final month of the year, with a 17-month high reading of 55.7 (values above 50 signifying expansion) for December. The new export orders component had a positive reading of 57.6 with the employment indicator also signifying expansion with a value of 56.4. On the services side, the latest monthly services index showed growth of 5.5 per cent in the year to end-November (relative to growth of 6.2 per cent over the same period in 2015). All components of the Investec services PMI showed expansion for December with the overall index at 59.1.

**The Labour Market**

The performance of the Irish labour market was exceptionally strong in 2016 with estimated employment growth of 2.8 per cent – the strongest rate of increase since 2007. This translates into an additional 55,000 persons at work. Job gains were broad based with particularly strong gains in industry (including construction) and most services sectors. The unemployment rate continued on its steady

**Chart 6: Employment - Underlying Domestic Demand Elasticity**



Source: Internal calculations.

decline – falling to 7.2 per cent in December and averaging 8.0 per cent for the year (down from 9.4 per cent in 2015).

Annual employment growth is expected to moderate to 2.2 per cent in 2017 and 1.6 per cent in 2018. Still, this should see an additional 77,000 persons at work over the two years 2017 and 2018 and, at the end of the forecast horizon, numbers in employment are set to reach 2.1 million. The responsiveness of employment to demand is expected to tail-off over the forecast horizon (Chart 6).

The unemployment rate is expected to average 6.9 per cent in 2017 and 6.1 per cent in 2018. This would bring the unemployment rate to its lowest level in a decade reflecting robust employment growth and a slightly weaker labour force response. In terms of the latter, the labour force is expected to increase by just under 1 per cent per annum supported by rising labour force participation and net inward migration. (For more detail on labour force developments, see Box B).

**Table 4: Employment, Labour Force and Unemployment 2014, 2015, 2016<sup>e</sup>, 2017<sup>f</sup>, 2018<sup>f</sup>**

	2014	2015	2016 <sup>e</sup>	2017 <sup>f</sup>	2018 <sup>f</sup>
Agriculture	109	110	113	114	115
Industry (including construction)	348	374	397	421	435
Services	1,458	1,481	1,509	1,529	1,547
<b>Total Employment</b>	<b>1,916</b>	<b>1,964</b>	<b>2,019</b>	<b>2,065</b>	<b>2,097</b>
Unemployment	241	203	176	153	137
Labour Force	2,157	2,167	2,195	2,217	2,234
Unemployment Rate (%)	11.2	9.4	8.0	6.9	6.1

Note: Figures may not sum due to rounding.

### Pay

Wages are projected to increase at an annual rate of around 2.3 per cent in each of the years 2016 to 2018. Two countervailing forces are at work here. While there are clear signs of

rising wage demands in the context of strong employment growth, this could be negated by the low inflation environment and significant external risks.<sup>11</sup>

### Box B: Labour Force Participation of the under-25 age group: An Analysis of Recent Developments

By Suzanne Linehan and Tara McIndoe-Calder<sup>12</sup>

One of the most striking features of labour market developments during the second and third quarters of 2016 has been the pronounced jump in the size of the labour force, with year-on-year increases averaging 33,000 persons, the highest since the second quarter of 2008. The number of persons in the labour force is influenced by changes in the size of the working age population (demographics) as well as changes in labour force participation. Splitting recent increases in the size of the labour force into the contributions from demographic and participation developments, it is clear that the latter has been the dominant source of growth, contributing an average of 25,000 persons during the second and third quarters.<sup>13</sup> In an attempt to better understand recent aggregate participation developments, the participation behaviour of detailed age groupings are examined (Table 1); this reveals that while participation rose to varying degrees for most cohorts, the increases were most dramatic amongst the younger age groups. Almost 90 per cent of the net increase in participation during the second and third quarters of 2016 was accounted for by the 15-19 and 20-24 age cohorts. Against this background, this box presents some stylised facts on recent changes in the labour market status of the under-25 age group. Micro data from the Quarterly National Household Survey is used for this analysis as it facilitates the tracking of the movements of the young between inactivity, employment and unemployment. It therefore allows us to shed some light on a variety of issues in relation to the recent increase in participation, specifically, where the younger cohorts entering the labour force are moving to (i.e. employment or unemployment) as well as the sectors in which they are getting jobs.

<sup>12</sup> Irish Economic Analysis Division.

<sup>13</sup> CSO calculations.

<sup>11</sup> A recent IBEC survey noted that 71 per cent of surveyed companies planned median pay increase of 2 per cent in 2017.

**Box B: Labour Force Participation of the under-25 age group: An Analysis of Recent Developments**
*By Suzanne Linehan and Tara McIndoe-Calder*
**Box B Table 1: Participation Change in the Labour force by Age Cohort ('000)**

Age Group	2008-2015 Average	Q2 2016	Q3 2016
15-19	-5.2	12.4	6.7
20-24	-6.3	11.4	13.7
25-34	-3.1	0.9	4.5
35-44	1.0	6.0	4.3
45-54	0.7	-8.9	-5.0
55-59	1.8	3.7	1.7
60-64	1.2	1.1	-0.1
65+	1.0	0.3	-2.4
<b>Total</b>	<b>-8.8</b>	<b>26.8</b>	<b>23.4</b>

Our analysis focuses largely on the labour market flows of those aged 15-19 and 20-24 years over the two most recent quarters, with movements amongst these groups assessed by comparing their performance relative to all other persons (i.e. those aged 25 years and over) as well as their long term average (Table 2). Looking first at those moving from inactivity to the labour force (I – LF), Table 2 confirms that there has been a pronounced upward shift in such flows amongst 15-19 year olds – within this cohort, 17,368 reported a move from inactivity to the labour force in the year to the third quarter of 2016, dramatically exceeding the long-term average of 10,848 as well as the corresponding changes amongst those aged 20-24 years and over 25. The flow of 20-24 year olds exiting inactivity over recent quarters is broadly in line with their long-term average yet is below in the case of those aged 25 and over.

**Box B Table 2: A breakdown of the flows from Inactivity to the Labour Force (I – LF) by age cohort**

		Q3 2016	Q2 2016	2008-15 Average
15-19	<b>I – LF</b>	<b>17,368</b>	<b>13,482</b>	<b>10,848</b>
	I – E	11,530	8,574	6,097
	I – U	5,837	4,908	4,751
20-24	<b>I – LF</b>	<b>11,460</b>	<b>10,729</b>	<b>11,182</b>
	I – E	6,858	7,360	5,997
	I – U	4,602	3,369	5,185
25+	<b>I – LF</b>	<b>31,704</b>	<b>27,928</b>	<b>34,074</b>
	I – E	15,616	13,620	13,852
	I – U	16,087	14,308	20,223

A related and particularly important consideration from a macroeconomic perspective (given the implications for wage and domestic demand developments) is whether those younger cohorts who have moved from inactivity into the labour force have transitioned directly into employment (I – E) or into unemployment (I – U). The decomposition of the movement from inactivity into the labour force presented in Table 2 clearly suggests that those moving from inactivity into employment (I – E) dominated for the younger cohorts – approximately two thirds of 15-24 year olds exiting inactivity entered employment in the second and third quarters of 2016, above their respective long-term averages. Correspondingly, around one third of the younger groupings entered unemployment while the split between employment and unemployment was more even in the case of those aged 25 and over. An upward movement in the numbers flowing into employment relative to the long-term average is evident for all age cohorts and is particularly pronounced for those aged 15-19. Factors likely to have contributed to the increase in the flows from inactivity into employment amongst the youngest cohort include recent robust employment growth and labour market policy, such as the overhaul of the apprenticeship scheme.<sup>14</sup>

<sup>14</sup> The number of persons undertaking apprenticeship training rose by approximately 2,000 in the year to 2016 – <https://www.kildarestreet.com/wrants/?id=2016-12-16a.499>. It is important to note that apprentices in training are classified as employed for the purposes of the QNHS, in line with the ILO definition of employment.

**Box B: Labour Force Participation of the under-25 age group: An Analysis of Recent Developments***By Suzanne Linehan and Tara McIndoe-Calder***Box B Table 3:** Flows from Inactivity to Employment (I – E) by Sector by age cohort

		<b>Q3 2016</b>	<b>Q2 2016</b>	<b>2008-15 Average</b>
<b>15-19</b>	Agriculture	1,020	1,080	425
	Manufacturing	1,316	375	343
	Construction	625	167	211
	Services	8,455	6,782	5,024
	<b>Total</b>	<b>11,530</b>	<b>8,574</b>	<b>6,097</b>
<b>20-24</b>	Agriculture	249	315	211
	Manufacturing	798	500	412
	Construction	227	312	261
	Services	5,511	5,648	5,040
	<b>Total</b>	<b>6,858</b>	<b>7,360</b>	<b>5,997</b>
<b>25+</b>	Agriculture	1,404	1,509	1,087
	Manufacturing	1,832	1,014	1,218
	Construction	1,386	1,092	1,054
	Services	10,656	9,914	10,273
	<b>Total</b>	<b>15,616</b>	<b>13,620</b>	<b>13,852</b>

A sectoral breakdown of the flows from inactivity to employment (Table 3) suggests that the sectors that 15-19 and 20-24 year olds are moving to when entering employment (I – E) differ somewhat. As regards 15-19 year olds, the increase in employment inflows are more broadly based at a sectoral level, with increases across all sectors, albeit to varying degrees. The sharp increase in flows into employment in the manufacturing sector over recent quarters are particularly pronounced and may partly relate to recent changes to the apprenticeship system. In terms of those aged 20-24 years, more modest increases are evident in relation to the manufacturing sector. Somewhat surprisingly, the increased flows into employment in the construction sector appear to be concentrated amongst those aged 25 and over and may reflect the re-hiring of those previously employed in the construction sector prior to its collapse.

An important consideration from a forecasting perspective is whether the recent pronounced upward trend in labour force participation amongst 15-24 year olds is likely to continue. There are a couple of reasons to suggest that scope exists for further participation increases to be realised from the younger cohorts – participation rates for both the 15-19 and the 20-24 age groups remain well below their pre-crisis rates and the inactive as a share of the total population for the younger cohorts, particularly for the 20-24 year olds, remain elevated despite declines being recorded for all other cohorts. Earlier work<sup>15</sup> however suggests that any such increase in labour force participation amongst these age groupings is likely to be short-term or cyclical in nature given that further longer-term declines in the trend labour force participation rate are envisaged over the next decade or so.

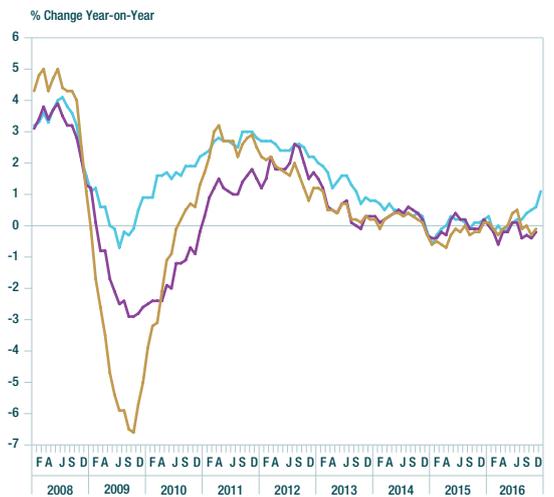
<sup>15</sup> Byrne, S. and O'Brien, M., 2016, Understanding Irish Labour Force Participation, Research Technical Papers 01/RT/16, Central Bank of Ireland, May 2016.

**Table 5: Inflation Measures - Annual Averages, Per Cent**

Measure	HICP	HICP excluding Energy	Services <sup>a</sup>	Goods <sup>a</sup>	CPI
2012	1.9	0.9	1.9	1.9	1.7
2013	0.5	0.6	1.6	-0.4	0.5
2014	0.3	0.5	2.5	-1.7	0.2
2015	0.0	1.0	3.0	-3.1	-0.3
2016 <sup>e</sup>	-0.2	0.4	2.5	-3.0	0.0
2017 <sup>f</sup>	0.8	0.1	2.1	-0.6	0.8
2018 <sup>f</sup>	1.1	1.2	2.3	-0.2	1.2

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

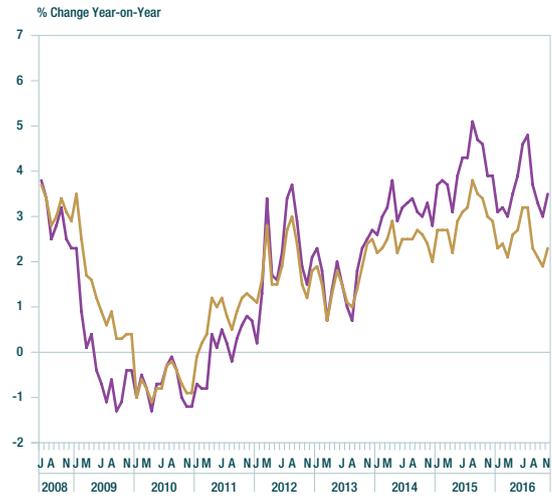
**Chart 7: Consumer Prices**



— Ireland: Consumer Price Index  
 — Ireland: Harmonised Index of Consumer Prices (HICP)  
 — EA-19: Monetary Union Index of Consumer Prices (MUICP)

Source: CSO.

**Chart 8: Services Sector Inflation**



— HICP Services (Overall) — HICP Core Services

Note: Core Market Services equals HICP services excluding telecommunications, alcohol and administered services.

Source: CSO.

## Inflation

### Consumer Prices

Aggregate inflation measures remained subdued or in negative territory last year as goods price declines of approximately 3 per cent outweighed services price increases of about 2.5 per cent. The Harmonised Index of Consumer Prices (HICP) averaged -0.2 per cent in 2016, while the Consumer Price Index (CPI) averaged 0.0 per cent. While growth in the domestic economy is projected to moderate slightly this year, inflation pressures

are likely to pick up, mainly on the back of higher energy prices, which will eventually pass through to broader goods prices. The HICP and CPI are forecast to increase by 0.8 per cent this year.

The negative pressure on goods prices is mainly coming from the external side – weak global commodity prices and a strong exchange rate against the UK pound (see Box C for an analysis of exchange rate pass through to consumer prices). All else being equal, a rise in the value of the euro serves to

decrease the euro price that foreign producers selling in Ireland need to charge to maintain profits in their own currency. While the post-Brexit weakness of the UK pound against the euro unwound somewhat in the latter stages of last year, there are renewed signs of weakness in sterling in the opening stages

of 2017, depreciating by 3 per cent in the first two weeks of the year. These downward price pressures, however, have been somewhat mitigated by weakness in the euro compared to the dollar, which is down approximately 6 per cent in January compared to its most recent peak in September 2016.

**Box C: Exchange Rate Pass-Through to Consumer Prices**

By Jonathan Rice and Paul Reddan<sup>16</sup>

Inflation in Ireland remained subdued throughout 2016 (down 0.2 per cent), with further disinflation observed since June despite recent increases in oil prices and strong domestic demand. The main contributor to this disinflation has been HICP in non-energy goods (see Figure 1). Exchange rate movements are one factor that may explain this weakness. Movements in exchange rates affect the price of traded goods, which then pass through to consumer goods prices. Ireland, a small open economy with a large share of trade outside the euro area, is particularly exposed to the exchange rate channel. The UK and USA make up about 70% of extra-EA imports and therefore fluctuations in the US dollar and sterling are of particular importance when considering exchange rate pass-through to domestic goods prices.

**Recent trends in exchange rate movements**

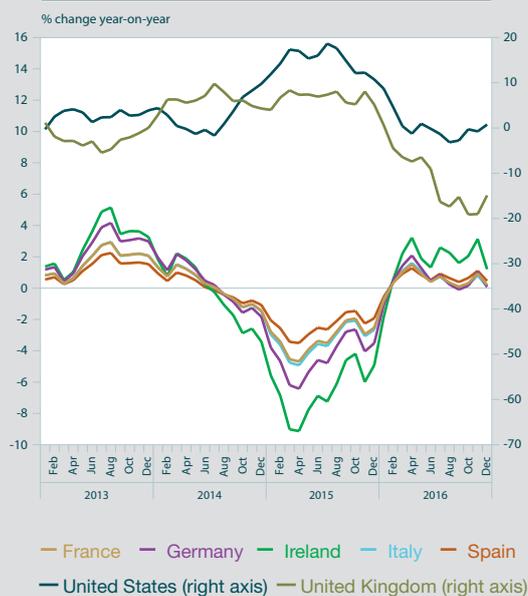
2016 saw significant fluctuation in major world currencies, particularly UK sterling which depreciated by 16 per cent against the euro (using year-end values). The period following the Brexit referendum was particularly volatile, with sterling depreciating by 11 per cent over a very short time span. Recently, these gains in the euro have been partially offset by euro's depreciation against a strengthening US dollar. Given the relative size of Ireland's trade with the US and UK, these exchange rate developments have a larger effect in Ireland than in other euro area countries (see Figure 2 below).

**Box C Figure 1: Recent Contributors to HICP**



Source: Eurostat.

**Box C Figure 2: Nominal Effective Exchange Rates (NEERs)**



Source: Eurostat.

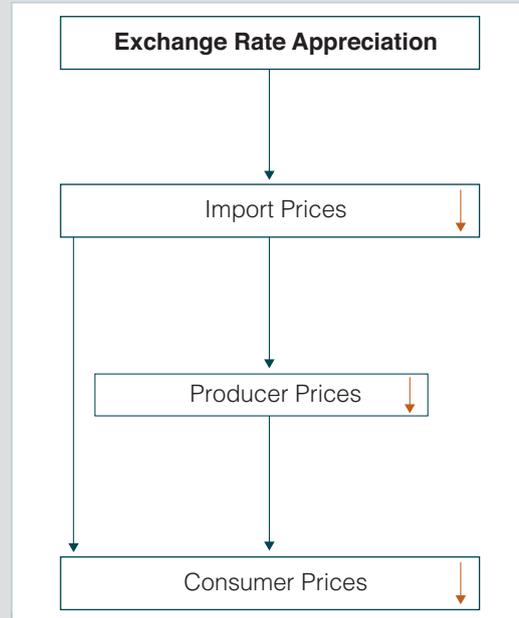
**Box C: Exchange Rate Pass-Through to Consumer Prices**

By Jonathan Rice and Paul Reddan

**Channels of exchange rate pass through**

Figure 3 shows a stylised description of how exchange rate fluctuations pass through to consumer prices. An exchange rate appreciation leads to a fall in the price of imports, because a stronger currency enables foreign goods to be purchased at a lower price. This decrease in import prices feeds through two channels. Firstly, for imported goods purchased directly by consumers, a fall in import prices passes directly through to a fall in consumer prices, as cheaper imported consumer goods put competitive pressures on domestic firms to reduce prices. Secondly, for intermediate goods, which domestic producers use as inputs, a reduction in import prices leads to a fall in producer prices. This fall in producer prices may contribute to increased profit margins for these firms or be passed on to consumers through reductions in the price of final goods.

**Box C Figure 3: Exchange rate pass through**



**Estimating the extent of exchange rate pass through to domestic prices**

In order to better inform internal inflation forecasts it is useful to measure the extent to which fluctuations in the euro exchange rate feed through to domestic non-energy goods prices. To this end we employ an 8-variable Structural Vector Autoregressive model or SVAR(8)<sup>17</sup>, using monthly data from January 1999 to November 2011. We consider both the time-path and magnitude of exchange rate shocks to import, producer and consumer goods prices, while controlling for the effects of global oil and raw material prices, domestic demand and the short-term interest rate. Table 1 displays the response of import, producer and consumer goods prices for a one-month exogenous appreciation of the NEER.<sup>18</sup> Results are expressed as a percentage of the size of the exchange rate shock, which occurs in month 0.

**Box C Table 1: SVAR Impulse Response Results**

Exchange rate pass-through	Short-term (month 1)	Long-term (cumulative)	Duration of pass-through
Import goods prices	-38.9%	-60.7%	4 months
Wholesale goods prices	-30.0%	-33.6%	4 months
HICP goods prices	-0.3%	-15.4%	13 months

While there is clear short-term pass-through to import and producer prices, short-term pass-through to consumer prices is very small within one month following the shock. Long-term pass-through to import prices is incomplete (less than 100 per cent), and is completed within four months of the shock. Pass-through to consumer prices is more protracted, with the negative response increasing in magnitude to 15.4 per cent.

<sup>17</sup> Use of a VAR approach to quantify exchange rate pass-through is preferable to single-equation-based methods, which typically measure pass-through to a single price (e.g. import or consumer prices). A VAR enables us to estimate pass-through responses endogenously for each stage of the price chain.

<sup>18</sup> The NEER is constructed using import trade weights only. For the VAR, cholesky decomposition is used to order variables. The VAR model is in first differences where external variables (oil prices, raw material prices, short term interest rate) and domestic demand are ordered prior to the NEER. The baseline ordering of prices follows the distribution chain (import prices, producer prices, HICP prices) with the assumption that all price variables are affected contemporaneously by shocks to the five previous variables. Results shown vary from the baseline specification in that HICP prices are ordered prior to the NEER (following the assumption that a shock to the NEER has no contemporaneous effect on consumer prices). Importantly, results are robust to this variant in the identification scheme. Responses in import and producer prices are negative at a 1% level of significance for the duration of the pass-through, while the response in HICP goods is negative at a 5% level of significance from month 2 through to month 5.

**Box C: Exchange Rate Pass-Through to Consumer Prices**

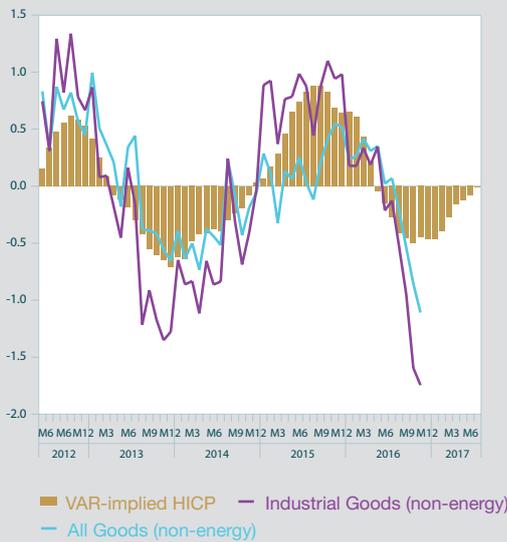
By Jonathan Rice and Paul Reddan

Figure 4 below plots the actual year-on-year growth in consumer goods prices against the year-on-year growth in consumer goods prices implied by the SVAR<sup>19</sup>. In 2015, despite a strong euro depreciation, processed food prices remained unusually low, reducing observed pass-through to total goods in 2015. Consequently, for comparison, we include a series which excludes processed food prices. Fluctuations in the NEER appear to explain the majority of goods inflation up to mid-2016, yet there is a large decline in observed goods inflation thereafter exceeding that implied by movements in the NEER.

**The role of euro-sterling in driving Irish Inflation**

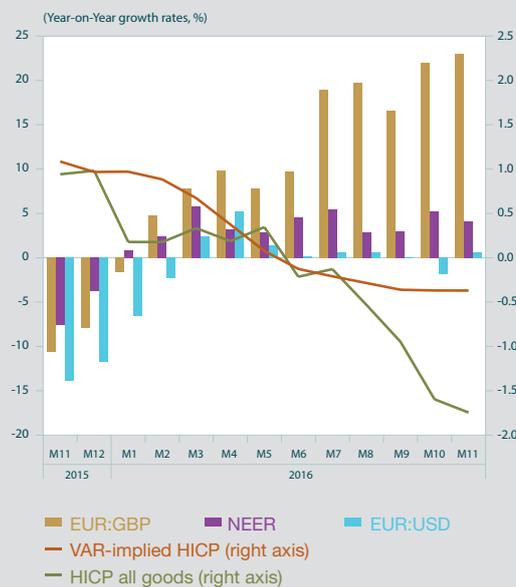
Taking a closer look at movements in sterling reveal a more informative explanation than pass-through from the NEER alone. Figure 5 below plots year-on-year growth in the Irish NEER, EUR:GBP and EUR:USD (left axis) against the VAR-implied and observed HICP for goods (right axis). The rapid appreciation in euro against sterling from July 2016 coincides with the rapid decrease in the price level of goods. Using the NEER as a measure of the exchange rate position appears to understate the exposure of Irish inflation to euro-sterling exchange rate movements. One possible explanation for this under-representation may be that exchange rate pass-through is non-linear, such that large shocks to the currencies of major trading partners result in a larger pass-through than smaller shocks in these same currencies.<sup>20</sup> Another explanation, as discussed below, is the likelihood that pass-through to domestic consumer prices will be limited where imports are used in the production of goods sold outside of Ireland.

**Box C Figure 4: Contribution of exchange rate fluctuations to recent inflationary trends**



Source: Eurostat and authors' own calculations.

**Box C Figure 5: UK Sterling Contribution to Recent Inflationary Pressures**



Source: Bank of International Settlements, Eurostat and authors' own calculations.

<sup>19</sup> Long term trends have been removed for comparative purposes.

<sup>20</sup> Such large-scale shocks may encourage specific changes in purchasing behaviour for consumers and firms.

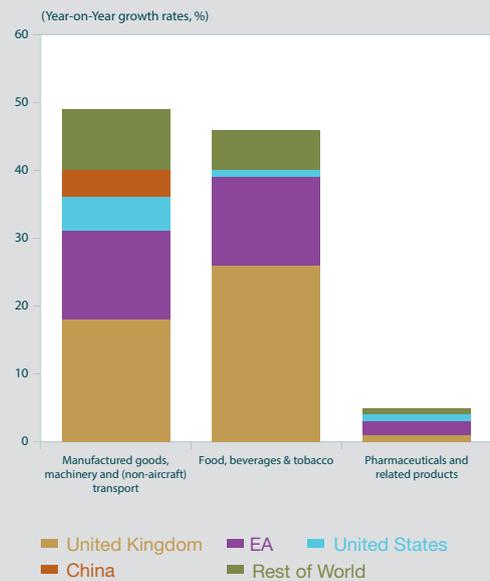
**Box C: Exchange Rate Pass-Through to Consumer Prices**

*By Jonathan Rice and Paul Reddan*

Figure 6 below shows Ireland’s share of imports by trade partner expressed as a share of total HICP goods weights. These weights indicate the importance of each category in determining total Irish consumer goods price inflation, and therefore the figure provides a rudimentary measure of the relative importance of Irish imports by location to Irish goods inflation.

The UK clearly dominates non-energy extra-EA goods imports in the two categories contributing the most to Irish goods inflation. A significant portion (29%) of imports from the USA are in pharmaceuticals and related products and, rather than being sold to Irish consumers, a large majority of these imports are later exported from Ireland – in 2015 pharmaceuticals and chemical goods made up 49.9% of total Irish exports. Furthermore, Ireland imports a large quantity of aircraft and aircraft related equipment from the USA – over the past five years, aircraft and related products made up over 40% of total Irish imports from the USA – and these items are not sold to Irish consumers, and therefore do not contribute to domestic goods inflation.

**Box C Figure 6: Irish non-energy goods imports by HICP weighting (share of imports by location as portion of HICP weights)**



Source: Eurostat.

**Conclusion**

The above results are important for two reasons. Firstly, they quantify the extent to which exchange rate pass-through affects domestic goods inflation. Secondly, they demonstrate the disproportionate contribution of current sterling movements in driving Irish consumer goods prices. In light of recent developments, understanding the significance of present and predicted UK currency movements on the Irish economy is of great importance.

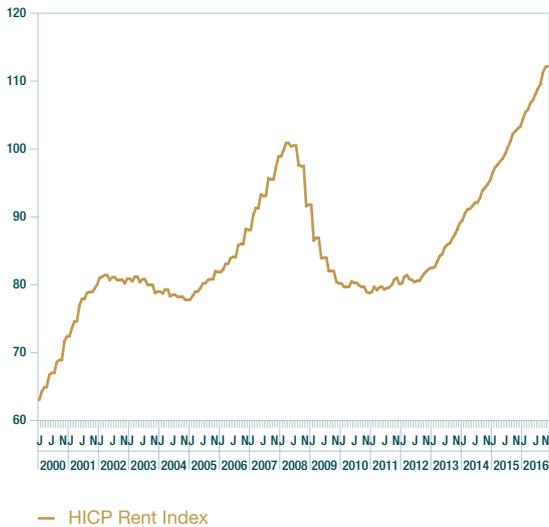
**Residential Property**

Residential property prices increased by 8.6 per cent in November 2016 on an annual basis. Property price growth strengthened in the second half of 2016. From July to November, prices have risen by 7.3 per cent on average in comparison to 5.4 per cent for the first 6 months of the year. While this pick-up is most pronounced for prices excluding Dublin, which are increasing at rates above 10

per cent, inflation in Dublin has also gathered pace. With existing supply constraints and incentives that will increase demand, property price inflation is unlikely to moderate significantly in the short term.

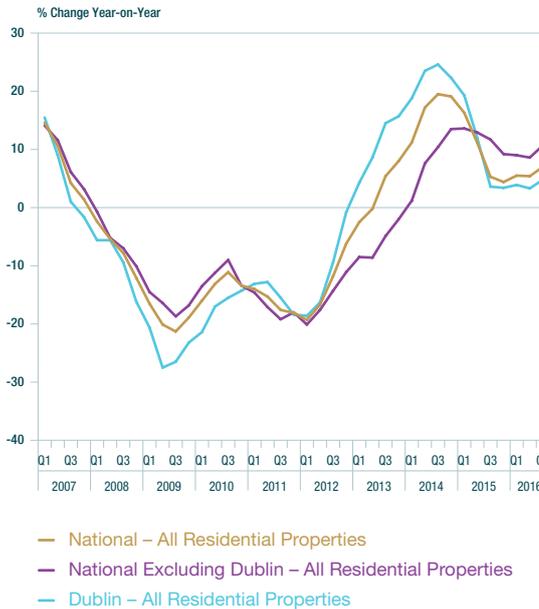
The latest Residential Tenancies Board data for Q3 2016 showed that rents increased nationally by 8.6 per cent on an annual basis. Excluding Dublin, rental prices increased by

**Chart 9: HICP Rent Index**



Source: Eurostat.

**Chart 10: Residential Property Price Indices**



Source: CSO.

9.7 per cent, while prices rose by 7.1 per cent in Dublin.

On the supply side, 11,797 houses were completed in first ten months of 2016. This represents a 17.4 per cent increase on the same period in 2015. Through the first three quarters of 2016, planning permissions were granted for 12,046 units, a 33 per cent increase on the same period in 2015. A large part of this increase is centred on the Dublin region although other areas, such as the South-West, have also seen significant rises.

**Commercial Property**

The latest data from the MSCI/IPD show that commercial property prices continued to grow at a strong, albeit slightly slower, pace in the third quarter of 2016. On an annual basis, the office, retail and industrial sectors recorded increases of 9.8, 10.1 and 12.6 per cent, respectively. Overall commercial property prices expanded by 9.8 per cent. The Bank’s latest Macro Financial Review (December 2016) conducts a more detailed analysis

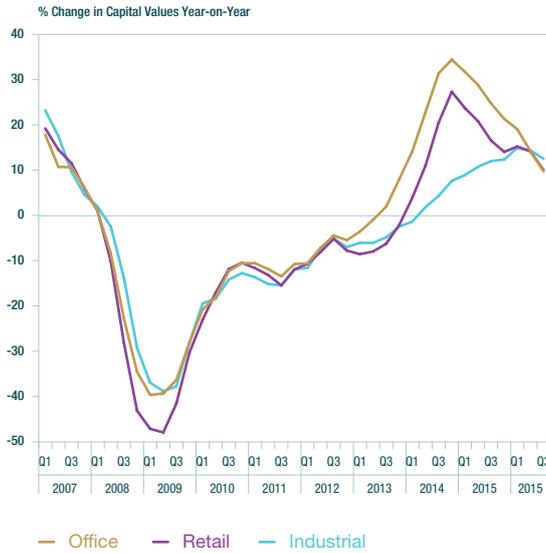
of recent developments in the commercial property sector.

**Competitiveness**

The euro/sterling exchange rate saw significant fluctuations throughout 2016. The main driver of these movements was the outcome of the Brexit referendum; the euro appreciated by 11 per cent against sterling in the weeks following the vote. The euro closed the year at £0.86 which marked a 16 per cent appreciation for the year. Through the first nine months of the year, the euro had appreciated moderately against the US dollar. However, in recent months this trend has reversed. For 2016 as a whole, the euro depreciated by 3.3 per cent against the dollar; closing at \$1.05.

The latest Harmonised Competitiveness Index (HCI) data for November 2016 show that the nominal HCI increased by 3.8 per cent on an annual basis. In real terms, the HCI appreciated by 2.4 per cent when deflated with consumer prices and 1.7 per cent when deflated with producer prices. These increases

**Chart 11: MSCI/IPD Irish Commercial Property Index**



Source: MSCI/IPD.

point to some loss of competitiveness, linked to the strengthening of the euro with respect to sterling. However, at current levels, the nominal and real HCIs are still trading below their long term averages. The real HCIs, in particular, are at relatively low levels in comparison to recent years.

## The Public Finances

### Overview

Government Finance Statistics show that the General Government deficit and debt ratios continued to improve in the first three quarters of 2016. The former decreased to 1.6 per cent of GDP from the same period in 2015 while the latter dropped to below 80 per cent. This trend appears to have continued in subsequent months, with Exchequer returns data revealing a 20 per cent decline in the Exchequer deficit for the year as a whole against the backdrop of robust tax growth. While the latter was primarily driven by developments in the relatively narrow corporation tax head it nevertheless suggests that the deficit

outturn for the year may be lower than the Government's forecast of 0.9 per cent of GDP.

### Exchequer Returns

The Exchequer recorded a stronger than anticipated improvement in 2016 because above profile revenue offset higher than expected Government expenditure. Excluding transactions which do not affect the General Government balance, the Exchequer deficit fell by 19 per cent to just under €3 billion, an outturn that was €0.6 billion better than had been forecast at the time of Budget 2016 (see Table 6). The over-performance moderated over the course of the year – it was €1.3 billion mid-year - against the backdrop of supplemental spending and a moderation in the revenue growth rate.

Revenue grew by 3 per cent on an annual basis in 2016, and was almost €1 billion ahead of profile. Within that, tax revenue was 5 per cent higher relative to the previous year. The two most significant tax trends evident throughout the year – over-performance of corporation tax and weaker than expected VAT returns - continued in the final quarter. While both tax heads recorded solid annual growth, VAT receipts were €439 million below expectations as price pressures remained subdued. This was offset, however, by corporation tax ending the year €737 million above profile, while income tax - which disappointed for much of the year - also finished 2016 ahead of expectations following strong self-employed receipts. Non-tax revenue also ended the year ahead of profile, reflecting favourable developments in appropriations-in-aid and a narrowing in the dividend shortfall.

Expenditure increased by just under 2 per cent last year and as a result was €400 million higher than anticipated. This occurred despite significantly weaker than expected debt repayments. Reflecting a favourable funding environment, interest on the national debt declined by 3½ per cent in 2016, well below its 2013 peak. The stronger than anticipated outturn occurred as the Government

**Table 6:** Analytical Exchequer Statement for December 2016 (€ millions)

	2016 €m	2015 €m	Annual Change (%)	Outturn vs Profile (%)
<b>Revenue</b>	<b>62,099</b>	<b>60,254</b>	<b>3.1</b>	<b>974</b>
– Tax revenue	47,864	45,601	5.0	639
– Appropriations-in-aid	11,995	11,807	1.6	280
– Other Revenue	2,239	2,845	-21.3	55
<b>Expenditure</b>	<b>65,078</b>	<b>63,941</b>	<b>1.8</b>	<b>406</b>
– Current Primary Expenditure	54,146	53,133	1.9	429
– Capital Expenditure	4,194	3,827	9.6	227
– Interest on National Debt	6,739	6,981	-3.5	-249
<b>Balance</b>	<b>-2,979</b>	<b>-3,547</b>	<b>19.2</b>	<b>568</b>

**Source:** Department of Finance

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

introduced supplemental spending in June (€540 million) and October (€310 million) – primarily for the Health sector and to support capital projects. Capital spending ended 2016 almost 10 per cent higher compared to the previous year, with current primary spending 2 per cent stronger on the preceding 12 months.

### **Funding and Other Developments**

The National Treasury Management Agency (NTMA) raised a further €1.75 billion through bond sales in the final quarter of last year, with auctions continuing to be oversubscribed. This brought the total raised in 2016 to €8.25 billion, around the midpoint of the Agency's target range of €6-10 billion for the year as a whole. In addition, €1 billion of floating rate Treasury bonds due to mature in 2043 were cancelled in the final months of the year. As a result, €3 billion of bonds linked to the liquidation of IBRC were cancelled in 2016. The State's funding requirements for 2017 are relatively modest, with €6.3 billion of bonds set to mature and an Exchequer deficit of just over €2 billion projected in Budget 2017. The NTMA has set an issuance target of €9-13 billion for the year, with €4 billion of this raised at a syndicated sale of a new 20-year Treasury bond in January.

## An Timpeallacht Gheilleagrach

Leis na tomhais is iontaofa ar chaiteachas intíre agus ar ghníomhaíocht eacnamaíoch, tugtar le fios go leanann geilleagar na hÉireann de bheith ag fás ar luas measartha maith, cé go bhfuil comharthaí ann go bhfuil moilliú áirithe tagtha ar fhuinneamh an fháis sin. Ag féachaint romhainn, cé go bhfuil na hionchais d'fhás láidir, inmharthana dearfach i gcónaí, cuireann tosca seachtracha, go háirithe na héiginnteachtaí a bhaineann le Brexit, an t-ionchas sin i mbaol.

I bhfianaise chineál domhandaithe gheilleagar na hÉireann agus i bhfianaise na hiarmharta a bhíonn ag gníomhaíochtaí gnólachtaí ilnáisiúnta eachtracha ar thomhais príomha na gcuntas náisiúnta, is gá táscairí forlíontacha a úsáid chun measúnú a dhéanamh ar fheidhmíocht agus ar ionchais an gheilleagair, ar táscairí iad atá níos oiriúnú do thomhas a dhéanamh ar an ngníomhaíocht eacnamaíoch intíre. Cé is moite de luaineacht na sonraí príomha trádála agus infheistíochta sna cuntais náisiúnta, is é an léargas bunaidh go bhfuil an téarnamh á stiúradh i gcónaí ag neart an éilimh intíre. Is cosúil go bhfuil an t-éileamh intíre sin ag maolú de réir a chéile i ndiaidh tréimhse láidir fáis. Ag féachaint romhainn, cé go meastar go bhfásfaidh an t-éileamh intíre ar luas beagáinín níos moille, is cosúil gurb é an t-éileamh intíre príomhspreagadh an fhorleathnaithe thar thréimhse na réamhaisnéise seo. Ar a shon sin, meastar sa réamhaisnéis is déanaí ón mBanc go mbeidh moilliú neamhthoirtéiseach ar fhás i mbliana i gcomparáid leis na hionchais roimhe seo agus tá ionchas níos laige réamh-mheasta don fhás ar ghlan-onnmhairí. Fad atá an t-ionchas foriomlán fabhrach tríd is tríd, tá éiginnteachtaí seachtracha ag géarú agus, toisc gur geilleagar an-oscailte é geilleagar na hÉireann, is rioscaí ar an taobh thíos iad na rioscaí do na réamhaisnéisí.

Bhí an fás ar an mbunéileamh intíre, tomhas lena n-eisiatar na gnéithe luaineacha den infheistíocht i sócmhainní doláimhsithe agus in aerárthaí, mar bhonn taca faoin téarnamh ar gheilleagar na hÉireann le blianta beaga anuas. Bhí an fheidhmíocht ní ba láidre gníomhaíochta ar an taobh intíre den gheilleagar tacaithe ag an bhfás measartha láidir, leathan-bhunaithe ar fhostaíocht i dteannta le méaduithe neamhthoirtéiseacha ar ioncam agus coinníollacha airgeadais níos fabhraí. Cé go leanann dáláí i margadh an tsaothair de bheith

ag feabhsú, tá comharthaí áirithe tagtha chun cinn sa dara leath de 2016 go bhfuil maolú ag teacht ar luas an fháis ar chaiteachas tomhaltóirí, rud atá ag teacht leis an bhfianaise ó shonraí cánach agus le maolú áirithe ar tháscairí seintiminte custaiméirí. Maidir le hinfeistíocht, tugann an fhianaise le tuiscint go leanann na gnéithe intíre de bheith ag fás go láidir, cé go bhfuil boinn an fháis sin sách íseal. Tríd is tríd, mar sin, cé go bhfuil maolú áirithe ag teacht ar luas an fháis ar an taobh intíre den gheilleagar, is cosúil go bhfuil an moilliú sin measartha neamhthoirtéiseach.

Go dtí seo, agus d'uireasa aon lagú ar gheilleagar na Ríochta Aontaithe, bhí iarmhairt thoradh reifreann Brexit ar gheilleagar na hÉireann le brath go príomha tríd an luaineacht i ráta malairte euro/steirling. Léiríodh an éiginnteacht sa tréimhse i ndiaidh an reifrinn le lagú suntasach ar tháscairí seintiminte gnó, ar tháinig aispheabadh láidir orthu ina dhiaidh sin, rud a thugann le tuiscint go raibh iarmhairt mhaothaithe fhoriomlán ag tosca a bhain le Brexit sa dara leath de 2016. I dtéarmaí earnála, tugann sonraí ardmhínicíochta maidir le táirgeadh tionsclaíoch le tuiscint go bhfuil maolú áirithe ag teacht ar aschur na hearnála traidisiúnta déantúsaíochta, ach toisc go raibh an treocht seo le feiceáil ní ba luaithe sa bhliain, is doiligh an iarmhairt atá inchurtha do chinneadh Brexit amháin a scaradh amach. Ag féachaint romhainn, áfach, tá an earnáil seo, ar earnáil dhúchasach don chuid is mó í, leochaileach i gcónaí.

I dtéarmaí níos ginearálta, tá sé casta measúnú a dhéanamh ar an ionchas do gheilleagar na hÉireann mar gheall ar an éiginnteacht a bhaineann le Brexit. Mar a tugadh le fios i bhFaisnéisí Ráithiúla roimhe seo, is cosúil go mbeidh iarmhairt eacnamaíoch dhiúltach ábhartha ag Brexit ar Éirinn, sa ghearrthéarma

agus san fhadtéarma araon. San idirthréimhse sula ndéanfar socrúithe nua a bhunú idir RA agus AE, d'fhéadfadh go mbeadh babhtáí éiginnteachta agus drogaill roimh rioscaí ann. Le linn na tréimhse seo, eascróidh rioscaí ar an taobh thíos do gheilleagar na hÉireann as éifeachtaí ionchasacha maicreacnamaíocha, airgeadais agus mhargadh na n-airgeadraí a bheidh ag an méadú ar éiginnteacht a bhaineann le téarmaí, tráthúlacht agus iarmhairt an chaidrimh nua, rud atá fíor i gcás gheilleagar na RA agus gheilleagair eile na hEorpa chomh maith. Chun na héiginnteachtaí seo a chur san áireamh, rinne an Banc athbhreithniú san Fhaisnéis Ráithiúil i mí Iúil 2016 ar a chuid réamhaisnéisí don fhás ar OTI in 2016 agus 2017 le coigeartú 0.2 agus 0.6 faoin gcéad anuas do na blianta 2016 agus 2017 faoi seach. Táthar ag cloí leis na coigeartuithe sin sna réamhaisnéisí reatha, fad a ionchorpraítear coigeartú 0.2 faoin gcéad anuas sa réamhaisnéis don OTI in 2018 mar gheall ar Brexit.

Ag féachaint romhainn, meastar go dtiocfaidh príomhspreagadh an fháis in 2017 agus 2018 ó neart leanúnach an éilimh ó fhoinsí intíre i bhfoirm dlúthfháis ar chaiteachas tomhaltóirí agus ar bhuninfheistíocht. Beidh an méadú ar fhostaíocht agus ar ioncam mar phríomhspreagadh an fháis sin, ach meastar go maolóidh an fás ar fhostaíocht de réir a chéile, i dtimpeallacht níos neamhurchóidí, thar thréimhse na réamhaisnéise. D'ainneoin an mhaolaithe chéimsigh seo, meastar go dtiocfaidh fás de bhreis ar 3 faoin gcéad in 2017 ar an mbunéileamh intíre agus fás díreach faoi bhun 3 faoin gcéad an bhliain seo chugainn. Ar an taobh eachtrach, tá éiginnteacht mhór ag baint leis an ionchas d'onnmhairí, rud a léiríonn luaineacht na sonraí trádála sna trí ráithe tosaigh de 2016 mar aon le héifeachtaí ionchasacha Brexit. Faoi réir na n-éiginnteachtaí seo, meastar go maolóidh an fás ar onnmhairí thar thréimhse na réamhaisnéise.

Ag féachaint do na gnéithe sin thuas, meastar anois go dtiocfaidh fás 3.3 faoin gcéad ar OTI i mbliana, is é sin le rá 0.3 faoin gcéad níos ísle ná na réamhaisnéisí a foilsíodh san Fhaisnéis Ráithiúil dheireanach. Léiríonn an t-athbhreithniú anuas seo ionchas níos laige don fhás ar onnmhairí. In 2018, meastar go dtiocfaidh maolú beag ar an bhfás ar OTI go dtí 3.0 faoin gcéad. Is léir gur rioscaí ar an taobh thíos iad na rioscaí do na réamh-mheastacháin

seo agus, cé go bhfuil siad nasctha go príomha le leochaileachtaí a bhaineann le Brexit, níl siad teoranta dóibh. Maidir le Brexit, baineann na rioscaí leis an bhféidearthacht go mbeidh forbairtí díobhálacha maicreacnamaíocha nó rátaí malairte ann nó éifeachtaí níos diúltaí ná mar a bhíodhas ag súil leo ar mhuintir intíre agus ar mhargadh an tsaothair. Eascraíonn rioscaí seachtracha eile as tírdhreach polaitiúil idirnáisiúnta agus ceaptha beartais eacnamaíoch, ar tírdhreach é atá i mbun athraithe. Ar an taobh intíre, d'fhéadfadh go mbeadh luaineacht sa tomhas ar OTI na hÉireann, rud a léiríonn na saincheisteanna a bhain le roinnt de thomhais phríomha na gcuntas náisiúnta. I bhfianaise na rioscaí seo, ba cheart go ndíreofaí leis na beartais eacnamaíocha intíre ar bhonn taca a chur faoin gcobhsaíocht agus ar éiginnteacht a laghdú.

# Financing Developments in the Irish Economy

## Overview

Recent months have seen a measured improvement in financing conditions in the Irish economy. Economic growth coupled with European Central Bank (ECB) monetary policy has ensured a more stable funding position for both the financial and non-financial sectors. Debt sustainability in the household sector has improved in recent months with household debt levels remaining at the lowest level since Q4 2008. However, based on debt as a proportion of total assets, Irish households are the fourth most indebted in the European Union (EU). While the number of mortgage accounts in arrears has declined consistently over the last three years, the level of accounts in arrears over 720 days remains high.

Deposits with Irish resident credit institutions remained unchanged in the year to November 2016 with strong inflows recorded from the non-financial corporation (NFC) and household sectors offset by outflows from the non-bank financial sector. Although net credit flows from domestic credit institutions to the NFC sector are still negative, the improved economic conditions are reflected in increased levels of new lending. While reliance on domestic funding has fallen, NFCs have increased their dependence on foreign financing, with debt provided by non-residents representing 75.1 per cent of total NFC debt. This trend, however, relates primarily to the activities of multinational corporations (MNCs). While the more domestically focused small- and medium-sized enterprise (SME) sector are continuing to repay debt overall, gross new lending to non-financial, non-property related SMEs has grown by 11.6 per cent in the year to October 2016. Borrowing costs incurred by SMEs and households, although still elevated by euro area standards, have also fallen in recent months.

Despite global geopolitical uncertainty, the cost of borrowing for Government has remained historically low, partly due to the impact of non-conventional monetary policy on euro area sovereign bond yields.

Growth of the non-bank financial industry remained strong with the net asset value of investment funds (IFs) resident in Ireland increasing by 5.6 per cent over the third quarter of 2016, reaching €1,538 billion.

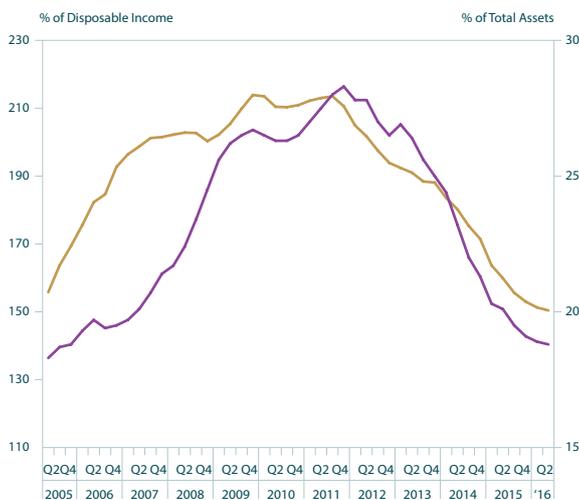
## Household Sector

The ongoing recovery in the Irish economy is evident from the *Quarterly Financial Accounts*<sup>1</sup> which indicate improvements in the household balance sheet. Household indebtedness has

consistently declined quarter on quarter since Q4 2008 although at a much slower pace in recent quarters. During Q2 2016, household debt levels fell by €0.2 billion to €148.4 billion, a lower pace of decline than seen in previous quarters. Still, household debt remains at its

<sup>1</sup> See [Quarterly Financial Accounts](#) for further details.

Chart 1: Household Debt Sustainability



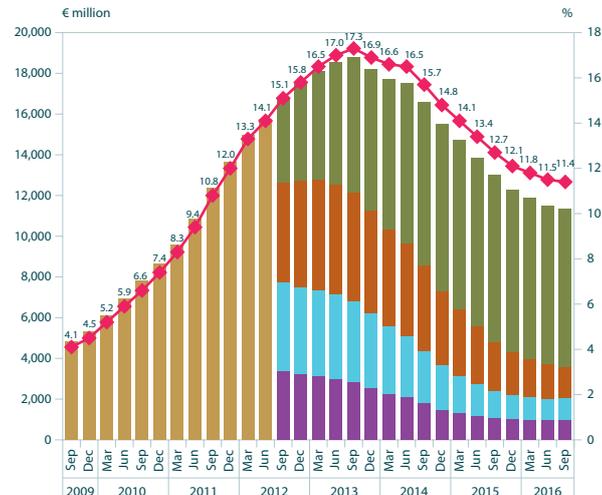
— Debt to Disposable Income (LHS)  
— Debt to Total Assets (RHS)

Sources: Quarterly Financial Accounts, Central Bank of Ireland; Quarterly National Accounts, CSO.

lowest level since the first quarter of 2006. In addition, indicators of household debt sustainability have improved since Q2 2015 (Chart 1). Debt as a proportion of total assets decreased from 20.1 to 18.8 per cent over the year while Irish household debt as a proportion of disposable income fell by 9.3 percentage points to 150.4 per cent. However, this ratio still remains high, as Irish households are the fourth most indebted in the EU.

Household net worth<sup>2</sup> grew by 0.9 per cent over the quarter to reach €633.9 billion or €135,622 per capita in the second quarter. This reflected a rise in financial assets of €3.3 billion combined with an increase in housing assets of €1.9 billion. The former rose largely due to increases in the value of insurance technical reserves (€3.6bn), as well as, increased holdings of currency and deposits (€1bn) by households. The increase in housing assets is primarily due to valuation increases. Household liabilities remained largely unchanged during the quarter falling by just

Chart 2: PDH Accounts in Arrears over 90 Days



■ Outstanding balance on accounts in arrears >90 days  
■ Outstanding balance on accounts in arrears 91-180 days  
■ Outstanding balance on accounts in arrears 181-360 days  
■ Outstanding balance on accounts in arrears 361- 720 days  
■ Outstanding balance on accounts in arrears >720 days  
◆ Value of accounts in arrears >90 days as a % of total (RHS)

Source: Residential Mortgage Arrears and Repossessions Statistics, Central Bank of Ireland.

€0.5 billion. In comparison to a post-crisis low of €454.1 billion in Q2 2012, household net worth has risen by 39.6 per cent – however this remains 11.7 per cent lower than the pre-crisis peak of €718 billion in Q2 2007.

In line with improving economic trends, the second quarter of 2016 marked the 13th consecutive quarterly decline in the number of mortgages on principal dwelling houses (PDH) in arrears (Chart 2). 11 per cent of mortgages were in arrears at end-September, a decline of 3.1 per cent relative to the previous quarter. The majority of maturity categories of arrears, including the over 720 days category, declined in Q3. The fall in arrears over 720 days was 1.2 per cent, representing the fifth consecutive decline in this category. Nevertheless, this remains a significant policy issue with the outstanding value of PDH mortgage accounts in arrears over 720 days more than €7.7 billion at the end of the second quarter, which represents 8 per cent of the total value of all PDH mortgage loans.

<sup>2</sup> Household net worth is defined as the sum of housing and financial assets minus financial liabilities.

While the economy is growing and the number of non-performing loans have fallen, households continue to repay more than they borrow. Loans to households<sup>3</sup> declined by 2.8 per cent in November 2016 compared with the same period in 2015. However, transactions in consumer credit were positive during October and November 2016. One component of consumer credit, namely credit and debit card debt is further explored in Box A. Outstanding mortgage loans, which account for 83 per cent of on-balance sheet loans, declined by €150 million in November 2016. Quarterly data reveal that reductions in mortgage loans are driven by declines in both PDH and Buy-to-Let (BTL) floating rate loans<sup>4</sup>. In Q3 2016, PDH floating rate mortgages declined by €379 million reflecting falls within tracker mortgages

and loans fixed for up to one year. In contrast, there was an increase in standard variable mortgages of €423 million which is the largest quarterly increase in this sub-category since Q4 2013.

The latest available interest rate data indicates that borrowing costs are falling for households. The weighted average interest rate on new mortgage agreements (excluding renegotiations) stood at 3.38 per cent at end-October 2016. This represents a decline of 32 basis points over the past 12 months. New variable rate mortgages, which stood at 3.34 per cent in October, accounted for over two thirds of all new agreements in Ireland.<sup>5</sup>

#### Box A: Developments in Data Collection on Credit and Debit Cards

By Stephen Byrne and Colman McGann<sup>6</sup>

##### Introduction

Irish consumers continue to increase their use of cards as a means of payment. Various factors, including technological advances have resulted in a widening of their use for smaller transactions. In light of this, it is important for central banks to monitor developments in credit card debt. This data also provides useful indications regarding patterns in consumer spending. In this regard, in 2015 the Statistics Division introduced a new monthly return for entities engaged in the provision of credit and debit cards to Irish residents. Using this return, the division releases a time series which provides a breakdown of card transactions by sector, e-commerce, spending abroad, and data pertaining to the use of debit cards. This Box explores the methodology used to collect the data and examines some of the trends evident in the series thus far.

##### The Data

The aim of the data collected is to inform national and euro area policy making, and to enhance understanding of the role of credit/debit cards in the domestic financial and payment systems. Data are collected on euro-denominated cards issued to Irish residents. The data are provided directly by reporting entities engaged in the provision of credit/debit services to Irish residents.

Spending is broken down in the data by type of expenditure. This is compiled using the Merchant Category Code (MCC) system for transactions. An MCC code is a four-digit number assigned to a business by credit card companies when an entity begins to accept cards for payment. The MCC is used to classify the business by the type of goods or services it provides.

<sup>6</sup> Statistics Division, Central Bank of Ireland.

<sup>3</sup> Adjusted for loan sales and securitisations.

<sup>4</sup> Floating rate mortgages include variable rate loans and loans fixed for up to one year.

<sup>5</sup> Includes up to 1-year initial rate fixation loans. Excludes renegotiations.

**Box A: Developments in Data Collection on Credit and Debit Cards**

By Stephen Byrne and Colman McGann

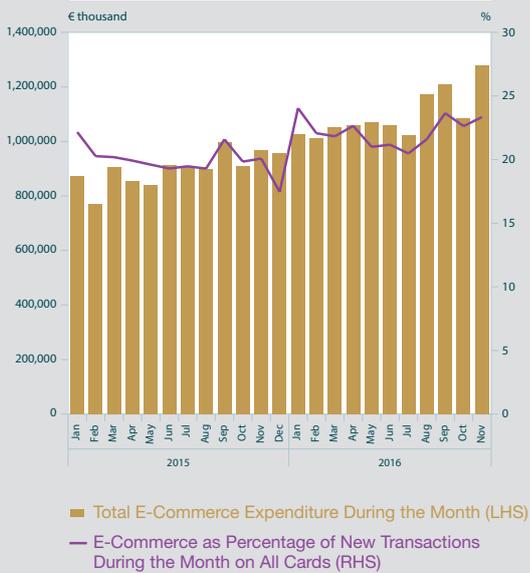
**What Can We Learn?**

Firstly, the data provides insight into the extent to which card use is developing over time in Ireland. The most recent data shows that there were 1.9 million credit cards in issue in Ireland, and 4.9 million debit cards. Of the credit cards, 91 per cent are personal cards, while the remainder are business cards. In November 2016, there were 15 debit card transactions on average per card, 12 of which were point-of-sale (POS) payment transactions.

At the highest level, the data provides a monthly time series for the total value of transactions on credit and debit cards. For debit cards, data can be split between POS payments or an ATM withdrawal. As one would expect, the value of transactions for both credit and debit cards exhibits a strongly seasonal pattern with transactions in 2015 and 2016 greater in November and December than during the rest of the year.

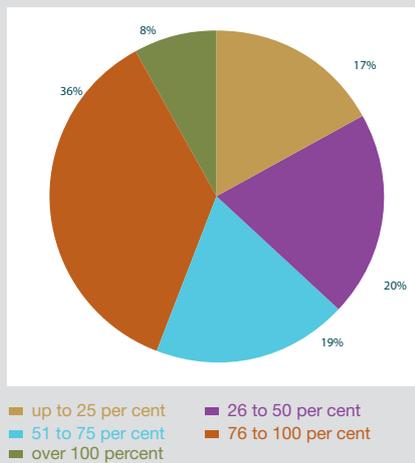
By using POS transactions where the physical credit or debit card is not present as a proxy, we can estimate what proportion of card transactions are attributable to e-commerce, as illustrated in Box A, Chart 1. The value of debit card e-commerce spending is roughly double the value of e-commerce credit card spending.

**Box A Chart 1: E-Commerce Spending**



Source: Table A.13, Money and Banking Statistics, Central Bank of Ireland.

**Box A Chart 2: Distribution of Credit Cards' Outstanding Balance as a Percentage of the Credit Limit (November)**



Source: Table A.13, Money and Banking Statistics, Central Bank of Ireland

The credit card data identifies those cards where the outstanding balance includes accrued interest. Box A, Chart 2 shows the breakdown of interest bearing balances as a percentage of credit card limits. The data shows that 8 per cent of cards exceeded their credit limit, while just over a third of cards had balances between 76 and 100 per cent of their limit. These proportions have remained virtually unchanged over the past year.

**Box A: Developments in Data Collection on Credit and Debit Cards**

By Stephen Byrne and Colman McGann

The data identifies the value of credit and debit card transactions that take place outside of Ireland. For debit cards, these data can again be broken down into ATM and POS transactions. In November 2016, €343 million was spent on debit cards abroad, while €162 million was spent outside Ireland on credit cards. The series exhibits the expected seasonal pattern, peaking in August during both 2015 and 2016.

Finally, a breakdown by type of expenditure is also identified for both credit and debit card spending. Box A Table 1 shows that the majority of debit card expenditure occurs in the retail sector, which includes groceries, clothing, electrical goods and hardware. In September 2016, 74 per cent of new spending on credit cards was accounted for by the retail and services sectors (Chart 3).

**Box A Chart 3: New Spending on Credit Cards – Sectoral Breakdown**



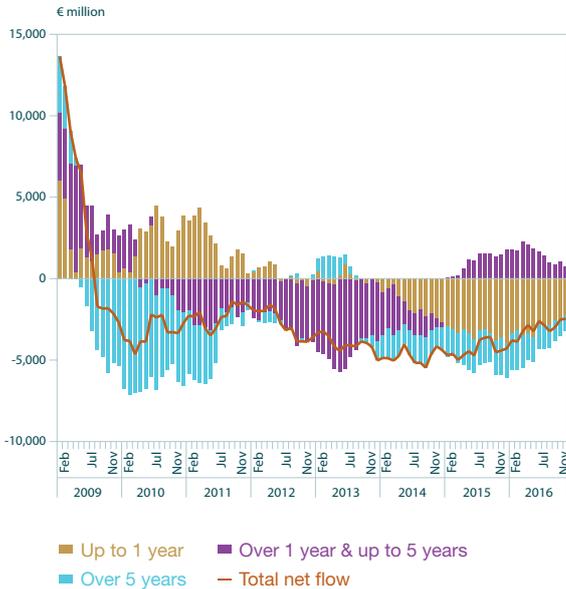
Source: Table A.13, Money and Banking Statistics, Central Bank of Ireland.

**Box A Table 1: New Spending on Debit Cards – Sectoral Breakdown**

	Nov-15	Nov-16
<b>Total Debit Card POS Spending</b>	<b>2,385,696</b>	<b>2,922,031</b>
<i>of which:</i>		
<b>Total Retail</b>	<b>1,267,019</b>	<b>1,521,234</b>
Groceries/Perishables	644,647	661,144
Clothing	180,764	202,441
Electrical Goods	66,484	82,980
Hardware	175,593	192,791
<b>Total Services</b>	<b>450,981</b>	<b>547,014</b>
Transport	173,052	146,120
Accommodation	64,350	83,825
Education	39,734	23,866
Health	33,254	63,841
Utilities	54,879	100,449
Professional Services	83,906	125,512
<b>Total Social</b>	<b>242,212</b>	<b>272,152</b>
Restaurants/Dining	119,596	148,706
Entertainment	116,621	112,892

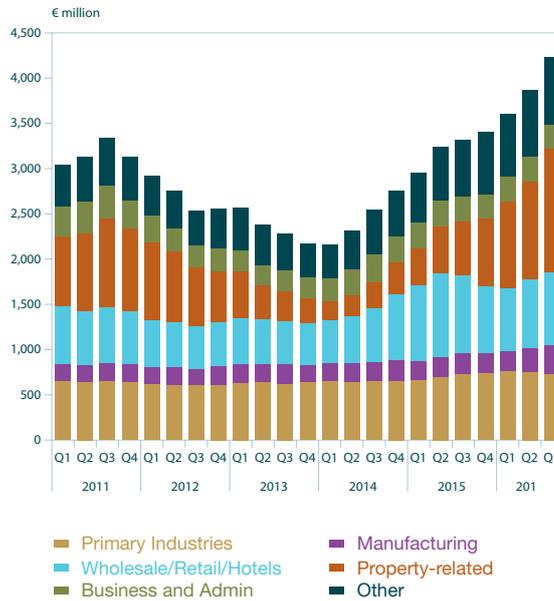
Note: Subsector items will not sum to the total.

**Chart 3: Loans to NFCs – Net Flows by Category of Original Maturity**



Source: Money and Banking Statistics, Central Bank of Ireland.

**Chart 4: Gross New Lending to SMEs by Sector (12 Month Moving Average)**



Source: Business Credit and Deposits Statistics, Central Bank of Ireland.

### Non-Financial Corporation Sector

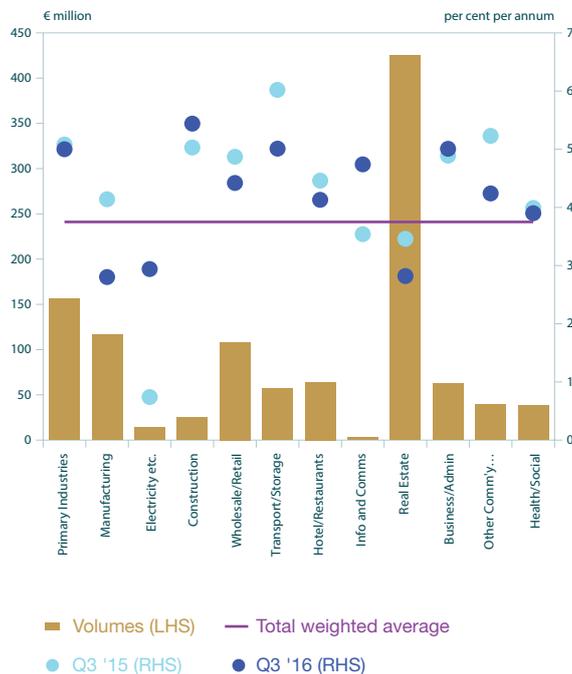
The NFC sector is significantly impacted by the activities of large resident MNCs. Consequently, the NFC balance sheet can vary significantly quarter-on-quarter. Following on from a contraction last quarter, NFC debt increased by €16.8 billion during the second quarter. This reflected both positive net transactions of €7.5 billion and positive valuation changes of €9.5 billion related to exchange rate movements. Debt as a percentage of GDP rose by 6 percentage points to 264 per cent, as the growth of NFC debt outpaced the growth of GDP. Irish NFC debt as a percentage of GDP was the second highest in the EU during the second quarter. Luxembourg, which also has a large MNC sector relative to the size of its economy, had the highest debt at 363 per cent of GDP.

According to the Quarterly Financial Accounts, this increase in debt over the quarter is

attributable to the large rise in foreign funding of NFCs with 75.1 per cent of NFC debt held by non-residents at end-Q2 2016. This represents a 36.7 percentage point increase compared with Q1 2012. The substantial rise in debt held by non-residents is reflective of the activities of MNCs which have access to international sources of finance, often in non-euro currencies. This gives rise to valuation effects of exchange rate fluctuations in addition to standard financial flows. In contrast, domestic financing of NFCs has been on a downward trend in recent years standing at €166.2 billion in Q2 2016, a decrease of 25.6 per cent from Q1 2012. This reflects NFC deleveraging and loan sales by Irish credit institutions.

Despite recent increases in NFC debt held by non-residents, direct investment by foreign-owned MNCs into their Irish operations decreased by €5 billion in the third quarter of 2016. This related to a decrease in other

**Chart 5: SME New Lending Interest Rates and Corresponding New Lending Drawdowns**



Source: Business Credit and Deposits Statistics, Central Bank of Ireland.

capital of €27.8 billion which was partially offset by increases in equity and reinvested earnings of €8.5 billion and €8.1 billion, respectively.

In Q3 2016, foreign direct investment (FDI) by Irish-owned MNCs abroad increased by €1 billion with direct investment income earned abroad by this sector remaining steady at €3.1 billion over the quarter. FDI abroad by Irish resident companies and associated income flows predominantly reflect the operations of multinational NFCs who have established their corporate headquarters in Ireland.

Lending by Irish resident credit institutions to Irish resident NFCs declined by 5.1 per cent on an annual basis in November 2016 (Chart 3). There have been divergent trends in the different maturity categories, however, with a move away from overdrafts and shorter-term loans in favour of medium-term loans (1 to 5 years). Quarterly data on trends in business

credit show that gross new lending to non-financial, non-property related SMEs was €671 million in Q3 2016, 13.2 per cent higher than in the same period in 2015. 44 per cent of outstanding credit to SMEs in Q3 was property related, while the sector accounted for 40 per cent of gross new non-financial drawdowns during the quarter (Chart 4).

The cost of borrowing has remained broadly unchanged for Irish NFCs with the average cost of 2.49 per cent on new NFC loans in October 2016. The weighted average interest rate on new non-financial SME loans during the third quarter of 2016 was 3.75 per cent (Chart 5). This represents an 81 basis point decline over the year. Rates on new lending are nevertheless higher than those applying to the outstanding stock of Irish SME loans, which averaged 3.12 per cent at end-Q3.

## Government

Financing conditions have continued to improve for the Irish Government in recent months. Government debt<sup>7</sup> fell by 2.1 per cent to €231.2 billion in the second quarter. The decrease in debt was primarily reflected in a €5.6 billion decline in long-term debt securities issued by the government, as debt redemptions exceeded issuance during the quarter.

Yields on Ireland's 10-year benchmark government bonds, which reached a historical low of 0.34 per cent in August, have continued to remain under 1 per cent. Following German bond yields turning negative in June, the spread between Irish and German 10 year bonds reached close to 1 per cent, however this spread has narrowed to 0.59 per cent in mid-January. There have been some minor fluctuations in recent months related to, among other factors, uncertainty surrounding the implications of the UK referendum result, an increase in global inflation expectations following the US presidential elections, and the Federal Reserve increasing US interest

<sup>7</sup> As per the Quarterly Financial Accounts, which differs from the Excessive Deficit Procedure (EDP) measure as it is calculated on a non-consolidated basis, and employs different valuation criteria.

rates. However, the ECB's non-conventional monetary policy, and volatility in equity markets has, in general, contributed to the downward pressure on European sovereign bond yields.

## Financial Sector

The funding position of Irish resident credit institutions remained relatively stable in November 2016, with deposits from the private sector decreasing by 0.1 per cent over the year. While Irish households and NFCs continued to record strong annual deposit inflows, large outflows from other financial intermediaries (OFIs), and insurance corporations and pension funds (ICPFs) largely offset these increases. On a monthly basis, deposits from households experienced a decline in November, with withdrawals €1 billion higher than lodgements. This seasonal effect is consistent with similar net withdrawals in previous years. Developments in loans and deposits mean that Irish households continued to be net funders of the Irish banking system for the 17th consecutive month with banks holding €6.8 billion more household deposits than loans at end-November. By contrast, in early 2009 household loans exceeded deposits by €53.5 billion. Reliance on funding from the Central Bank of Ireland has remained relatively stable in recent months, amounting to €8 billion at the end of November.

Ireland's significant non-bank financial sector includes investment funds (IFs), money market funds (MMFs) and OFIs. The net asset value of IFs resident in Ireland increased by 5.6 per cent over the third quarter of 2016 reaching €1,538 billion. This was due to positive revaluations of €39 billion, coupled with strong inflows of €42 billion, continuing the positive trend which began in Q1 2012. IF's total assets stood at €1,867 billion at end-September 2016. Over Q3, IFs experienced a positive revaluation of 2 per cent overall, although this was higher for equity funds at 4 per cent. Revaluations were generally positive across fund types in the third quarter.

The investment fund types covered in the published statistics include bond funds, equity funds and exchange traded funds (ETFs). ETFs are further explored in Box B.

Positive revaluations of €24 billion in equity holdings of IFs over the third quarter were in line with global equity market movements. Shares issued by Japanese NFCs experienced a positive revaluation of €3.8 billion. In contrast, holdings of shares issued by US insurance companies recorded a negative revaluation of €1 billion. Overall, debt holdings experienced a 7 per cent increase over the quarter, driven by strong transaction inflows of €40 billion. IF's held €193 billion in UK government debt, accounting for 52 per cent of total government debt holdings, at end-September 2016. Inflows into UK government bonds were €11 billion, continuing a positive trend evident in recent quarters.

The net asset value of MMFs resident in Ireland decreased by 3 per cent to €444 billion at end-September. This decrease was driven by negative revaluations of €9 billion largely due to currency fluctuations, as 43 per cent of resident MMFs are denominated in sterling. The €14 billion transaction outflow in July was largely due to re-domiciling and merger activity. Total debt securities held by MMFs at end-September amounted to €337 billion, reflecting transaction outflows of €9 billion over the quarter. The largest outflow of €6.9 billion was from US debt securities, primarily US government debt. In contrast, holdings of Dutch debt securities increased by €2.1 billion.

The OFI sector includes financial vehicle corporations (FVCs) and special purpose vehicles (SPVs). The size of the Irish FVC sector was largely unchanged in Q3 2016, with total assets rising marginally to €390 billion from €389 billion in Q2 2016. Securitisation vehicles continue to be characterised by significant redemptions in a number of longer-established vehicles holding a legacy of bank assets. The number of small FVCs not linked

to banks, fell marginally to 821 in Q3, following a period of steady growth. The total assets of non-securitisation SPVs rose marginally to €322.8 billion in Q3 2016 from €320.8 billion in Q2 2016. These vehicles cover 14 different types of activity although intra-group financing,

external financing and fund-linked investment activities are predominant, accounting for 69 per cent of total assets in Q3 2016.

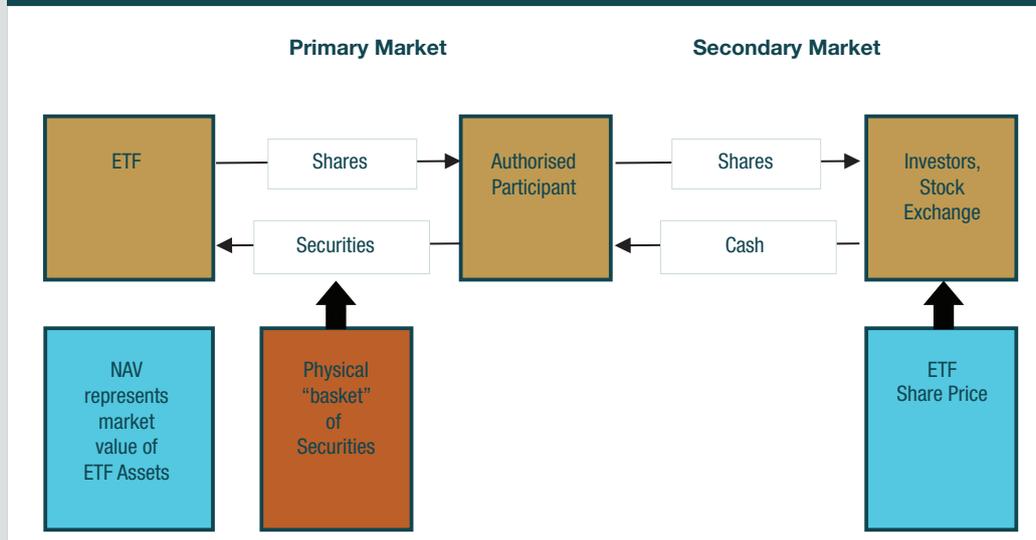
**Box B: Exchange Traded Funds – Insights from Statistical Reporting**

*By Siobhán O’Connell<sup>8</sup>*

Exchange Traded Funds (ETFs) are investment funds which track a basket of securities, reflecting a certain sector of the economy or market index. They can be defined as physical (holding a basket of securities that proportionally replicate a given index); synthetic (using derivatives to proportionately replicate an index); combination (a mix of both physical and synthetic); or actively managed.

The structure of ETFs (Box B, Table 1) allows investors to buy a share in an ETF through a market participant, who then uses these proceeds to purchase securities to form the physical “basket” of securities, and repackages these as shares/units to investors. Similarly, the market participant may also take a position in a derivative trade to leverage up the exposure, while still tracking an index or a certain sector of the economy. ETFs are traded on a daily basis and shares/units of an ETF are easily redeemable by the investor. However, the ETF share/unit can trade in secondary markets at a discount to the actual net asset value (NAV) of the ETF when markets are under generalised stress<sup>9</sup>.

**Box B Table 1: Structure of Exchange Traded Funds**



Source: Global Financial Stability Report April 2015, IMF.

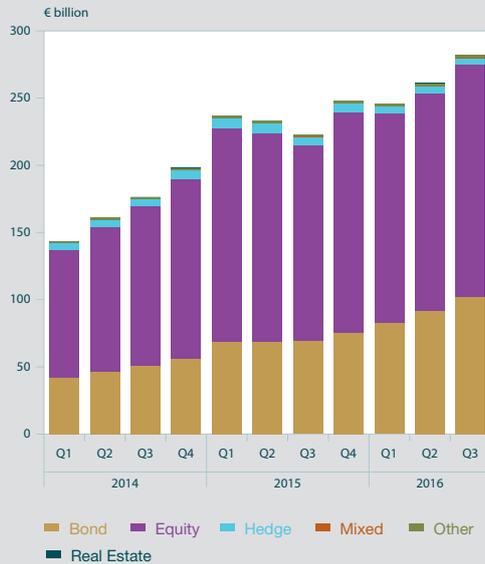
The Central Bank enhanced security-by-security statistical reporting, applicable to all investment funds, allows the identification of ETFs from Q1 2014. As of end-September 2016, there were 594 ETFs domiciled in Ireland, accounting for total assets of €282 billion (15 per cent of total Irish investment funds assets), compared to €144 billion in Q1 2014 (Box B, Chart 1). Equity ETFs accounted for 61 per cent of the total ETF population at end-September 2016. In terms of country and sector counterparts, the largest exposures within equity ETFs are to United States securities (€70 billion) and non-financial corporations (€129 billion), respectively. For Bond ETFs with total assets of €102 billion, the largest geographic exposure is vis-à-vis United States debt (€29 billion) with government bonds (€39 billion) representing the largest sectoral holding.

<sup>8</sup> Statistics Division, Central Bank of Ireland.

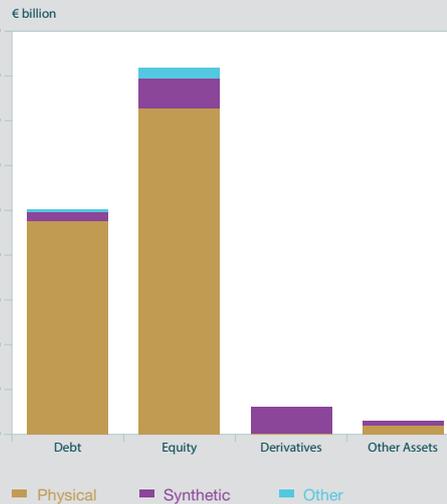
<sup>9</sup> Box 3.2, Chapter 3, Global Financial Stability Report, IMF, April 2015.

**Box B: Exchange Traded Funds: — Insights from Statistical Reporting**

By Siobhán O'Connell

**Box B Chart 1: Exchange Traded Funds by Underlying Fund Type Resident in Ireland**

Source: Investment Funds Statistics, Central Bank of Ireland.

**Box B Chart 2: Breakdown of Asset Holdings by Type of ETF (Q3 2016)**

Source: Investment Funds Statistics, Central Bank of Ireland.

While the vast majority (87 per cent) of ETFs domiciled in Ireland are physical ETFs, the remainder employ derivative trading, to a greater or lesser extent, to replicate an index and to magnify returns through synthetic leverage. Average leverage for synthetic ETFs, measured by the ratio of total assets over net asset value, was 134 per cent at end-September 2016, almost entirely arising from the use of derivatives. This leverage can greatly magnify gains, with a small number of ETFs leveraged up by two or even three times NAV, but can equally cause increased declines in the opposite direction.

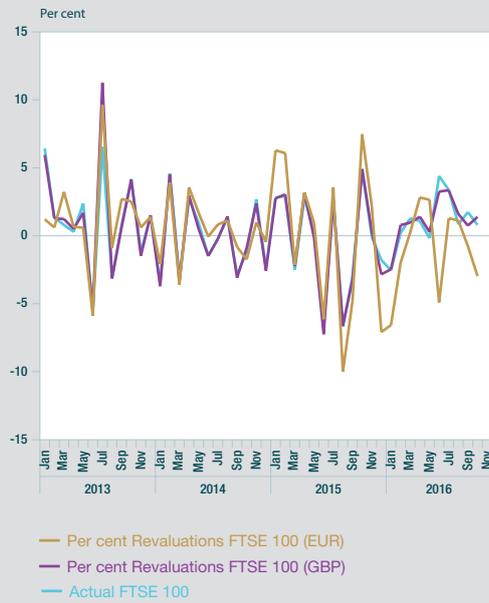
ETF shares/units are generally highly liquid, allowing investors to engage in daily transactions. They are also attractive to investors as they tend to charge significantly lower fees than other investment funds. Nevertheless, such liquidity can result in maturity or liquidity transformation. This occurs where the assets of the ETF have longer maturities or less liquidity than the liabilities of the ETF in the form of shares/units redeemable by investors. Consequently, in periods of market stress, this can have implications for both investors and ETF providers. This is particularly the case for bond ETFs where, for example, bonds maturing in two to five years account for 43 per cent (€42 billion) of total debt securities held by the ETFs.

An analysis of a sample of ETFs reporting to the Central Bank suggests that ETFs which largely track market indices, mirror the monthly returns of the index in most cases. Monthly revaluations within ETFs tracking the FTSE 100 and S&P 500 follow the market although some differences do exist. These differences may reflect transaction costs when the constituents of an index change, or may arise from sampling when it is not possible to fully replicate the index.

**Box B: Exchange Traded Funds: — Insights from Statistical Reporting**

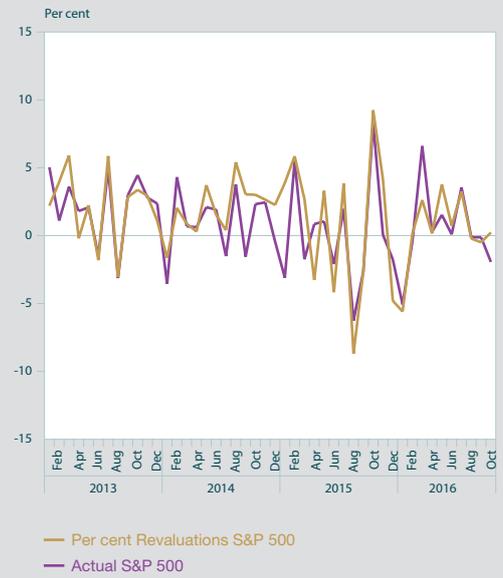
*By Siobhán O'Connell*

**Box B Chart 3: ETF FTSE 100 Trackers versus FTSE 100 Market Changes**



Source: Central Bank of Ireland and Bloomberg.

**Box B Chart 4: ETF S&P 500 Trackers versus S&P 500 Market Changes**



Source: Central Bank of Ireland and Bloomberg.



# Developments in the Euro Area Economy

## Overview

Euro area growth continues to be steady. GDP increased by approximately 1.7 per cent in 2016 and is expected to grow at a similar pace this year and next. The prospects for the euro area are reasonably favourable in the short term as the factors that constrained economic growth and job creation in recent years continue to recede. Nonetheless the euro area's current recovery still faces considerable headwinds including uncertainty as to what the new economic and political arrangements between the EU and UK will look like after Article 50 has been invoked. Further risks to the euro area's recovery now include: a pick-up in sovereign bond yields in some euro area countries, a faster than expected rebound in energy prices, and a heightened level of geo-political tensions.

HICP inflation increased in the second half of 2016, as the influence of very low energy prices in 2015 continues to fade. In spite of the ongoing recovery and the decline in unemployment, domestic price pressures, including wage growth remain muted. In recognition of this, at its December meeting, the ECB's Governing Council decided to extend the Asset Purchase Programme out to December 2017, with the volume of asset purchases returning to €60 billion per month from April. If, in the meantime, the outlook becomes less favourable, or if financial conditions become inconsistent towards the sustained path of inflation, the Governing Council intends to increase the programme in terms of size and/or duration.

## Section 1: Growth and Inflation

### ***Euro Area Growth and Inflation Developments***

Although it was difficult to judge the short-term impact of the Brexit vote, euro area economic activity has proved more resilient than most anticipated in the second half of 2016. All nineteen countries across the euro area recorded an expansion in activity during the third quarter, which was not the case in the second quarter. Overall, euro area GDP increased by 0.3 per cent quarter-on-quarter during the third quarter of 2016 (Chart 1). As in the second quarter, this increase in output was primarily driven by domestic demand including household consumption. In contrast,

export growth slowed more sharply than import growth, with the result that net exports subtracted from third quarter growth. Both the hard data and sentiment data relating to the fourth quarter of 2016 point to a further increase in activity. Retail sales increased by 1.1 per cent month-on-month during October, while the Composite Purchasing Managers' Index (PMI) for the euro area recorded a sixty-seven month high of 54.4 in December underpinned by increases in both manufacturing and services.

HICP inflation increased to 1.1 per cent year-on-year in December from 0.6 per cent in November according to Eurostat's flash estimate, its highest level since September 2013 (Chart 2). HICP inflation has been

**Table 1: Latest Forecasts of euro area Real GDP Growth and Inflation**

	Date	2017		2018		2019	
		GDP	Inflation	GDP	Inflation	GDP	Inflation
<b>ECB</b>	Dec 2016	1.7	1.3	1.6	1.5	1.6	1.7
<b>EU</b>	Nov 2016	1.5	1.4	1.7	1.4	–	–
<b>IMF</b>	Jan 2017	1.6	–	1.6	–	–	–
<b>OECD</b>	Nov 2016	1.6	1.2	1.7	1.5	–	–

**Sources:** ECB December 2016 Broad Macroeconomic Projection Exercises, European Commission European Economic Forecast Autumn 2016, IMF World Economic Outlook Update, January 2017; OECD Global Economic Outlook November 2016.

**Chart 1: Contributions to Euro Area Real GDP Growth**

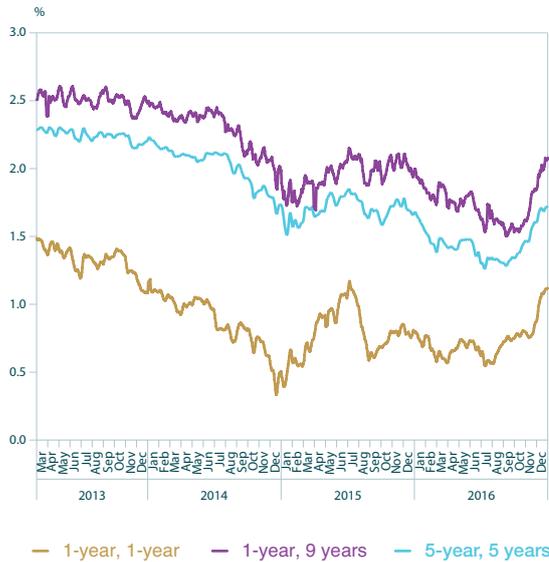
Source: Eurostat.

Note: Domestic Demand is calculated as the sum of the contribution of (i) Final Consumption Expenditure of General Government (ii) Households and Non Profit Institutions of Serving Households Final Consumption Expenditure and (iii) Gross Fixed Capital Formation.

increasing steadily since May due to rising energy prices, although domestic price pressures remain muted. Compensation per employee and negotiated wages increased by just 1.2 per cent and 1.4 per cent respectively year-on-year in the third quarter of 2016 but have struggled to gain further momentum following the large drop in unemployment over the past three years. Looking ahead, wage growth is expected to continue increase only gradually in the coming years.

**Chart 2: Euro Area Inflation**

**Chart 3: Market's Future Inflation Expectations Based on Implied Forward Inflation Swap Rates**



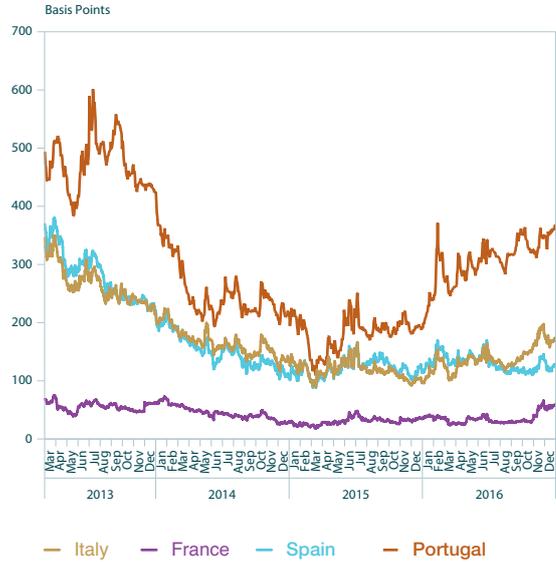
Source: CBI staff calculations, data extracted from Bloomberg.

Note: The chart displays 5 days moving averages and the data extends up to the 30th December. "1 year, 1 year" refers to swap rates with a maturity of 1 year beginning in 1 year; "1 years, 9 years" refers to swap rates with a maturity of 1 year beginning in 9 years; and "5 years, 5 years" refers to swap rates with a maturity of 5 years beginning in 5 years.

fall in unemployment since 2013 even though latest data point to a stabilisation in the euro area's unemployment rate.

Against this background, the ECB's December 2016 BMPE projections indicate that euro area GDP is likely to expand by around 1.6-1.7 per cent each year until 2019. This is in the same range as the forecasts of a number of other international institutions (Table 1). Nonetheless, the euro area still faces substantial headwinds including, uncertainty as to what post-Brexit economic and financial relations between the EU and the UK will look. Elsewhere, the incoming US administration has signalled a shift towards more expansionary fiscal policy and a more restrictive trade policy up to and including the imposition of tariffs on US imports. The precise impact of these measures on the euro area is difficult to estimate as the incoming administration's policies are still unclear. Furthermore, the response of other

**Chart 4: Selected Euro Area 10 Year Sovereign Bond Spreads Over Germany**



Source: Thomson Reuters, Datastream.

Note: The last observation corresponds to 30 December 2016.

economies to any trade restrictions initiated by the US are unknown. However, any shift towards protectionism is likely to further delay the recovery in global trade and this is discussed in further detail below.

Turning to inflation, the ECB's December 2016 projections indicate that euro area HICP inflation is expected to reach 1.3 per cent year-on-year in 2017, 1.5 per cent in 2018 and 1.7 per cent in 2019. The expected pick-up in inflation is in turn attributed to three main factors: the rebound in oil prices, increases in wage growth as labour markets start to tighten, and bigger profit margins. The ECB's most recent Survey of Professional Forecasters was little changed from the third quarter. HICP inflation is expected to climb to 1.2 per cent this year before reaching 1.4 per cent in 2018, while longer term inflation expectations are at 1.8 per cent<sup>1</sup>. However, market based inflation expectations started to increase towards the

<sup>1</sup> Long term inflation expectations refer to 2021.

end of 2016, reversing some of their previous decline. The five-year in five-year ahead forward inflation swap rate has increased from 1.25 per cent in July to just over 1.70 per cent by end December (See Chart 3).

### Risks to the Outlook for the Euro Area

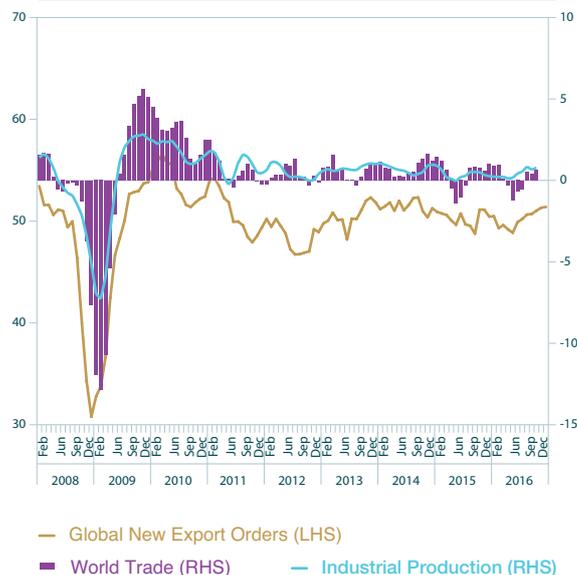
The main internal risks to the euro area's recovery have changed in recent months. Sovereign yield spreads have increased somewhat in a number of countries, most notably Portugal and Italy (See Chart 4), following market concerns over the implementation of their fiscal consolidation plans, heightened political uncertainty and increased concerns about their long term potential growth. These increases could lead to higher debt servicing costs and steeper fiscal consolidation requirements. Furthermore, uncertainty over the resolution of banking difficulties in Italy continues to linger.

More broadly, the outcome of the referendum in Italy and the UK may reflect a wider shift in voter preferences across the EU. Elections in several major euro area countries in 2017 will throw further light on the electorates' views on the continuing process of integration in the euro area and EU more widely.

The principal external risks to the euro area's recovery include a sharper than expected rebound in energy prices, as well as an increase in geopolitical tensions between major economies, particularly as this may manifest itself in a further shift away from free trade. Other risks include a slowdown in China as it attempts to re-balance economic activity and an unexpected shift in capital flows away from the emerging markets.

Turning to the first of these external risks, a faster than expected rebound in energy prices will lead to higher production costs for euro area producers. Beyond this, the impact of an oil price shock is difficult to foresee,

**Chart 5: Changes in World Trade, Industrial Production, and Global New Export Orders PMI**



Source: Thomson Reuters Datastream and Central Planning Bureau.

Note: The data for world trade and Industrial Production extends up until October. The PMI data extends up until December.

and depends on the broader economic environment (See Box A for a discussion on how the impact of oil price shocks on inflation differs in uncertain and tranquil periods).

Regarding the second of these external risks, global trade volumes remain sluggish following the sharp contraction that took place between 2008 and 2009 (See Chart 5). Although some of this decline can be attributed to compositional factors including changes in the composition of aggregate demand, structural factors including a shrinkage in global value chains also explain some of this persistent weakness (See Box B for a discussion on the extent to which the change in the relationship between global trade and global economic activity is temporary versus lasting). Even though world trade is expected to pick up somewhat in the short term, the outlook for global trade more generally is subject

to substantial risks, particularly geopolitical risks. Any rise in protectionist measures would lessen the ability of foreign demand to support the euro area's ongoing recovery in the medium to long term. Beyond this, a shift away from global trade risks undermining long term productivity growth as trade acts as an important channel for technological transfer across borders.

## Section 2: Euro Area Monetary Policy Developments

Since the last Quarterly Bulletin, the ECB's Governing Council held two further monetary policy meetings during 2016 on 20 October, and 8 December. The Governing Council left policy unchanged following the October meeting but this was followed an extension

### Box A: Do all oil price shocks have the same impact? Evidence from the Euro Area

By Anastasios Evgenidis

During the euro area financial and sovereign debt crisis, oil price shocks drove inflation up, while since mid-2014, large negative oil price shocks have contributed to deflationary pressures in the euro area. This Box considers whether the impact of oil price shocks is different in periods of heightened uncertainty, such as the financial crisis, and whether positive and negative, large and small oil price shocks affect inflation differently.

Turning first to the issue of uncertainty, it is possible that the economy responds differently to oil price shocks during periods of high uncertainty, such as the financial and sovereign debt crisis and tranquil periods. Accordingly, Hamilton (2008) found that ten out of the last eleven recessions were preceded by oil price increases. However, periods of high economic growth did not usually follow reductions in oil prices. Consistent with this evidence, a nonlinear relationship between oil price shocks and the macroeconomy should be considered. Therefore, this Box first considers the impact of an oil price shock on a number of variables including output, HICP, interest rates, the stock market, and economic sentiment, in periods of high and low uncertainty. This is implemented by using a threshold vector autoregression (TVAR) method<sup>1,2</sup>. The threshold in the model identifies when the economy is in a period of high uncertainty, such as the financial and sovereign debt crisis, and when it is in a more tranquil period<sup>3</sup>. This allows us to compare the impact of shocks in both periods. Chart 1 presents the impact of an oil price shock in a tranquil period and Chart 2 shows the impact of an oil price shock in a period of high uncertainty.

- 1 Specifically, the model used here is a Bayesian TVAR, which includes, in addition to the variables in Charts 2 and 3 the following variables: producer price index (PPI), nominal effective exchange rate (EER), yield spread (yield) – which is calculated as the 10 year government bond yield minus the three month interbank rate - and the eur/usd exchange rate (DXR). The series are in monthly frequency. The estimation period is from 2000 to 2015. I use one lag, as indicated by the Bayesian information criterion (BIC). The model is estimated by implementing a Gibbs algorithm. I use a natural conjugate prior with dummy observations (see Banbura et al. 2010; Blake and Mumtaz, 2012). The TVAR coefficients are drawn from the conditional normal distribution, while the covariance matrix of the residuals is drawn from the conditional inverse Wishart distribution. To sample the threshold variable, I consider a random walk Metropolis Hastings algorithm, which is added as an extra step within the Gibbs algorithm.
- 2 The oil price shock is identified through a standard Cholesky decomposition. The ordering is as follows: industrial production, oil price, HICP, PPI, economic sentiment, one month interbank rate, yield spread, EER, ESTOXX, DXR and the VSTOXX index.
- 3 The threshold variable is the Vstox index; which is a measure of uncertainty in equity markets (specifically, the implied volatility of Eurostoxx 50 option prices).

**Box A:** Do all oil price shocks have the same impact? Evidence from the Euro Area  
By *Anastasios Evgenidis*

**Box A Chart 1:** Effect of an Oil Price Shock in a Period of Low Uncertainty

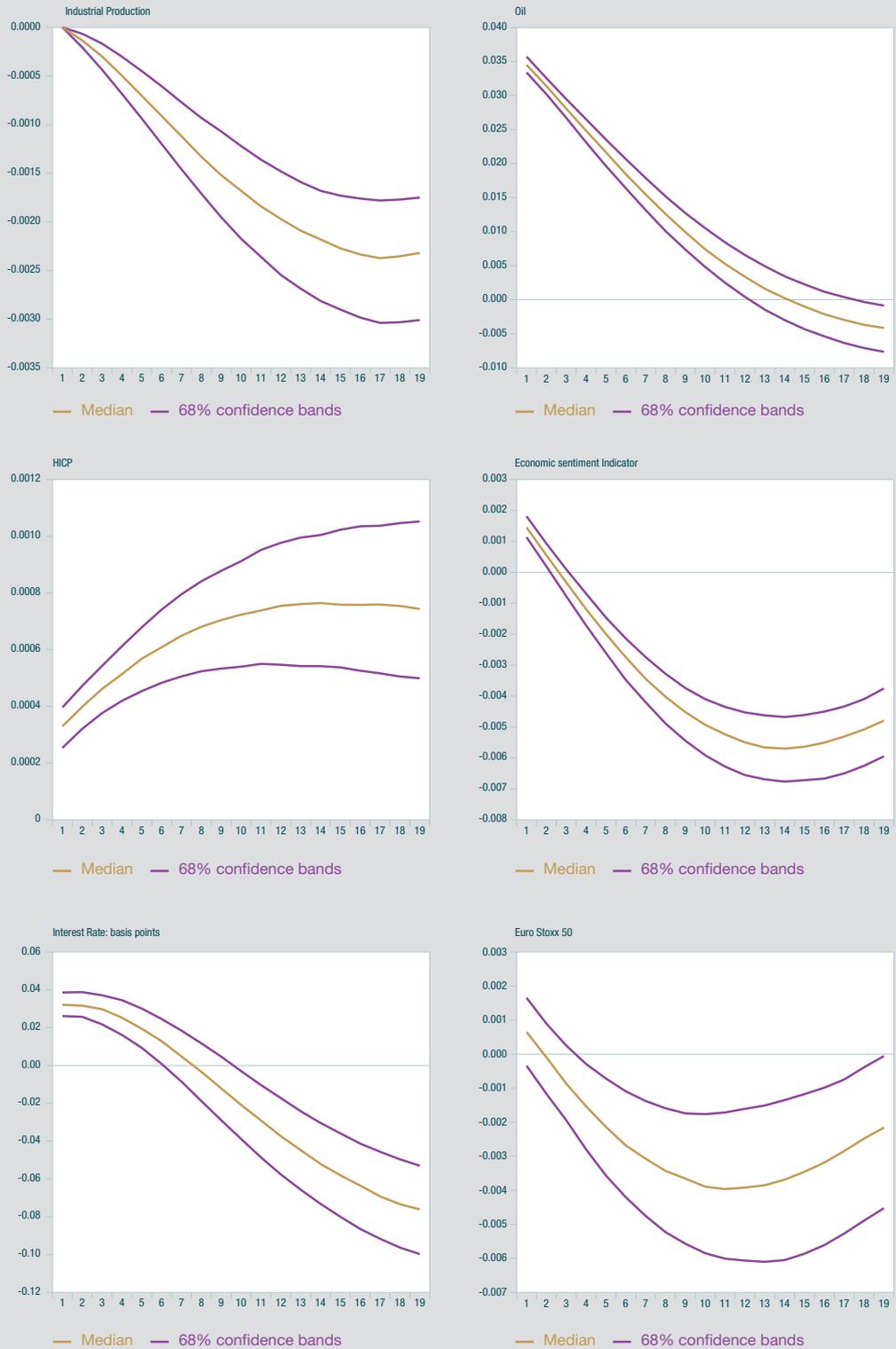


Source: Author's calculations.

Note: The 6 charts above correspond to the impulse response function for each variable. The impulse response function shows how each variable responds to approximately a three per cent shock to oil prices in a period of low uncertainty. The orange line represents the median of the response and the purple lines correspond to the 68 per cent confidence bands.

**Box A: Do all oil price shocks have the same impact? Evidence from the Euro Area**  
 By Anastasios Evgenidis

**Box A Chart 2: Effect of an Oil Price Shock in a Period of High Uncertainty**



Source: Author's calculations.

Note: The 6 charts above correspond to the impulse response function for each variable. The impulse response function shows how each variable responds to approximately a three per cent shock to oil prices in a period of high uncertainty. The orange line represents the median of the response and the purple lines correspond to the 68 per cent confidence bands.

**Box A: Do all oil price shocks have the same impact? Evidence from the Euro Area***By Anastasios Evgenidis*

As is evident from Chart 1, in a tranquil period, a 3 per cent increase in oil prices leads to an immediate increase of 0.06 per cent in the HICP. Interest rates rise gradually to counteract the rise in inflation; after 10 months the increase is approximately 3 basis points. Despite remaining flat initially, output declines since the cost of production is higher. By the end of the forecasting horizon, output has fallen by 0.1 per cent. Finally, financial markets re-evaluate the earnings prospects of firms, and the stock market begins to decline. Similarly, economic sentiment also declines.

Chart 2 shows the impact of the same shock during a period of high uncertainty. Now, although the immediate increase in HICP is slightly lower compared with the tranquil period, the subsequent increase is stronger: after ten months, the increase in the HICP is approximately 0.07 per cent during a period of high uncertainty compared to an increase of 0.03 per cent after ten months during a period of low uncertainty. Interest rates also react more strongly immediately after the shock, increasing by 3 basis points, compared with the negligible initial increase in the tranquil period. Interestingly, economic sentiment and the stock market begin to decline much more quickly in the stressed period compared to the tranquil period. This indicates that sentiment is more fragile when there is uncertainty, as might be expected. As a result, output declines much more quickly when the economy is stressed than when it is tranquil. This finding is in line with Van Robays (2012), who finds that economic activity in large major economies reacts more aggressively to oil price shocks when uncertainty is already high.

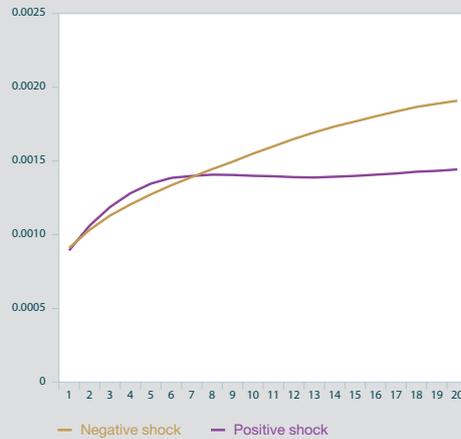
Overall then, the impact of oil price shocks is significantly different in tranquil periods as opposed to more uncertain periods. Furthermore, the type of oil price shocks that euro area economy has experienced during the financial and sovereign debt crisis has also varied as noted previously. It is therefore important to also understand the impact of different types of oil price shocks on the HICP. In addition to the role of economic uncertainty, the impact of an oil price shock on the HICP is likely to also depend on the direction of the underlying shock, as well as its size. This is due to the nonlinear relationship between oil price shocks and the macroeconomy which suggests that HICP might respond differently to large versus small shocks, as well as positive versus negative shocks.

Chart 3 contrasts the impact of a positive oil price shock such as those experienced during the sovereign debt crisis compared to the negative shocks such as those experienced since mid-2014<sup>4</sup> (note that the negative shock has been inverted for comparison). For the first 8 periods there is a negligible difference in the size of the effect on HICP. However, from the 8th period onward, the negative oil price shock has a bigger impact on HICP such that, after 20 months the HICP is 0.20 per cent higher compared with the 0.15 per cent in the case of a positive shock. This suggests that the negative oil price shocks experienced since mid-2014 had a bigger role in driving down inflation than the positive oil price shocks experienced during the sovereign debt crisis had in boosting inflation.

<sup>4</sup> In this section, the model used is a frequentist TVAR. The primary reason for this is that, unlike the Bayesian model, the frequentist model requires no restriction on the symmetry of the impact of shocks, thus allowing positive and negative shocks (or large and small shocks) to impact the economy differently. In addition, this framework allows for the possibility of regime switches after the shock. Specifically, if the economy lies in a low uncertainty regime, an oil price shock might lead to increased uncertainty and then regime-switching can occur. However, this approach can only handle a smaller number of variables, and I therefore use only output, inflation, interest rates and the threshold variable.

**Box A: Do all oil price shocks have the same impact? Evidence from the Euro Area**  
 By Anastasios Evgenidis

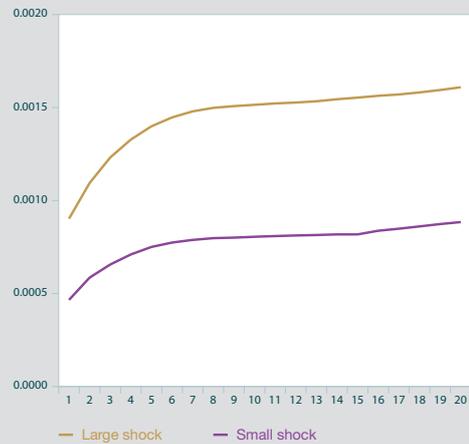
**Box A Chart 3: Effects of Positive and Negative Oil Price Shocks on HICP in Periods of High Uncertainty**



Source: Author's Calculations.

Note: The above chart depicts the impulse responses of the HICP following approximately a three per cent oil price shock in a period of high uncertainty. The latter is approximated by the VSTOXX index. The orange line represents the HICP response to a negative oil price shock while the purple line represents the HICP response to a positive oil price shock.

**Box A Chart 4: Effect of Large and Small Oil Price Shocks on HICP in Periods of High Uncertainty**



Source: Author's Calculations.

Note: The above chart depicts the impulse responses of the HICP following a large and a small oil price shock in a period of high uncertainty. The latter is approximated by the VSTOXX Index. The orange line represents the HICP response to a large oil price shock while the purple line represents the HICP response to a small oil price shock. The size of the small oil price shock is approximately 3 per cent whereas the large shock is twice as large at 6 per cent.

Finally, the impact of large versus small oil price shocks is contrasted and Chart 4 depicts the results. Here a large shock is twice as big as a small shock. Initially, a large shock has almost twice the effect on HICP compared to a small shock: approximately 0.09 per cent compared to 0.045 per cent in the first month. Over time, the large oil price shock has a slightly bigger impact on HICP: after 10 months the increase in the HICP is 0.15 per cent higher compared with an increase in the HICP of approximately 0.07 per cent following a small oil price shock.

**Conclusions**

Evidence in this Box suggests that there is a considerable difference between the impact of oil price shocks in uncertain and tranquil periods. In particular, in response to oil price shocks, output, economic sentiment and stock markets decline much more rapidly when there is a heightened level of uncertainty. At the same time, inflation and interest rates increase more strongly. Considering the type of the shock, it is shown that, unsurprisingly, larger oil price shocks have a disproportionately bigger effect on HICP than smaller shocks. Similarly, negative oil price shocks have a bigger effect on HICP compared with positive shocks. Overall, the findings in this box suggest that policymakers need to consider not just the economic situation in which an oil price shock is occurring, but also the size and direction of the shock, when choosing a policy response.

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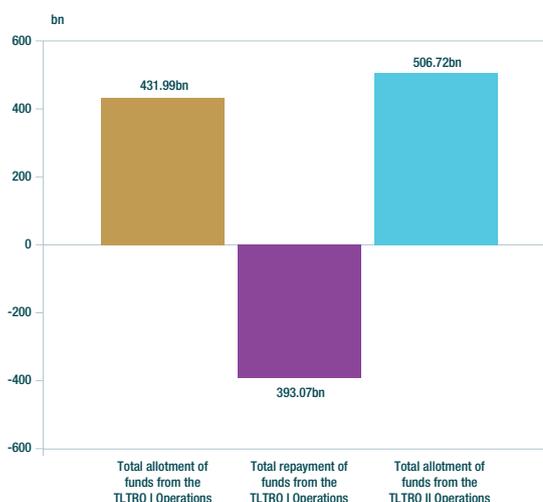
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of the Asset Purchase Programme (APP) that was announced at the December meeting. From April until December, the volume of purchases will return to €60 billion per month (down from €80 billion currently) as the risks of deflation to the euro area are now considered to be broadly similar to what they were when the APP programme commenced. The Governing Council also reiterated its previous guidance in relation to both the reinvestment of principal payments from the securities already purchased, and the expectation that its main policy rates will remain at or below current levels for an extended period of time and well past the horizon of the net asset purchases.

In addition, the Governing Council announced a broadening of the range of assets eligible for purchase by decreasing the minimum remaining maturity for eligible securities from from two to one year. Also, purchases of securities with a yield to maturity below the ECB's deposit facility will be permitted to the extent necessary. Both measures will ensure that the Eurosystem can continue to purchase assets in all countries for an extended period.

In mid-December, euro area eligible counterparties were allotted €62.16 billion from the third of the Targeted Long Term Refinancing Operations (TLTRO) II operations. TLTRO II operations offer eligible counterparties long term funding with favourable conditions in order to reinforce the ECB's accommodative monetary policy stance and strengthen the transmission of monetary policy. The pricing mechanism of TLTRO II is intended to incentivise banks to pass on the accommodative funding conditions to borrowers and unlike the TLTRO I operations, counterparties are not subject to mandatory early repayments if their lending does not exceed the benchmarks. In total, €545.6 billion in funds are now outstanding from the various

**Chart 6: Allotment and repayment of funds from the Previous TLTRO Operations**



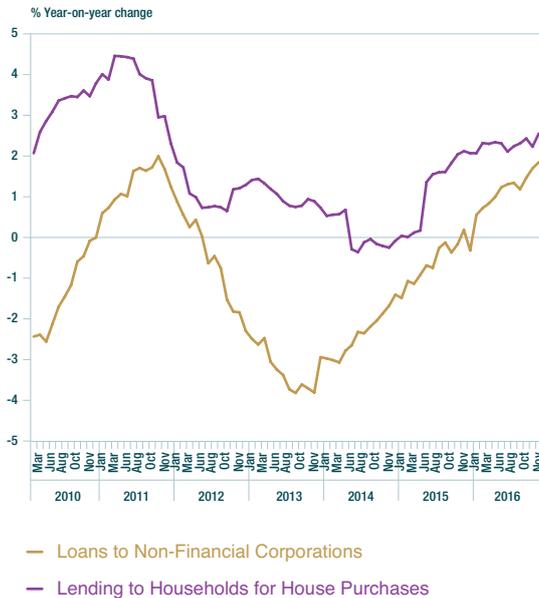
Source: ECB and staff calculations.

TLTRO operations when the repayment of funds is taken into account (chart 6)<sup>2</sup>.

The exact contribution imparted by the previous TLTRO operations towards higher lending to NFCs and households is difficult to estimate. Nonetheless, survey as well as anecdotal evidence suggests that the TLTRO operations are boosting lending to NFCs and households. According to the responses to the euro area Bank Lending Survey (BLS), around 50 per cent of the banks that complete the BLS each quarter have participated in previous rounds of the TLTRO operations. Furthermore, the ad-hoc responses to the BLS indicate that between 50 per cent to 60 per cent of the funds draw-down from the previous TLTRO operations have been used for granting loans to NFCs and households. Since the first TLTRO operation in September 2014, loan growth to NFCs and households has continued to increase (Chart 7) and this pattern is expected to continue throughout 2017.

<sup>2</sup> The first eight TLTRO operations (TLTRO I) took place between September 2014 and June 2016 and €431.99bn of funds were allotted as part of these operations. On March 2016, the Governing Council announced a second series of TLTRO operations (TLTRO II) which consists of four operations between June 2016 and March 2017. One of the main differences between TLTRO I and TLTRO II is that counterparties will not be subject to mandatory early repayments. An additional voluntary repayment of funds from the TLTRO I operation was introduced in June 2016 and €393.07bn of funds from TLTRO I was repaid. So far, €506bn of funds has been allotted from the three TLTRO II operations.

**Chart 7: MFI Loans to NFCs and Households**



Source: Thomson Reuters, Datastream and ECB.

In the US, the Federal Open Market Committee raised the target for the Federal Funds Rate to between 0.50 and 0.75 per cent at its December meeting. In raising the Federal Funds rate, the committee cited the ongoing strengthening of labour markets, the recent increase in household spending, and the pick-up in market-based measures of inflation compensation. In contrast, the Bank of England’s Monetary Policy Committee voted in December to maintain its main policy rate at 0.25 per cent and to continue with the £70billion of bond purchases announced in August.

**Box B: Is there a ‘new normal’ relationship between trade and global growth?<sup>1</sup>**

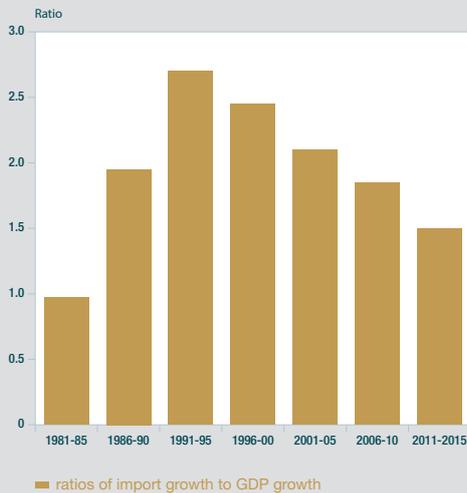
*By Mary Keeney*

Global trade has been exceptionally weak over the past five years. Annual imports grew at approximately twice the rate of global GDP prior to the global financial crisis but the ratio of global trade to GDP growth has declined since. To put this change in context, if world trade volumes grew according to the optimistic IMF forecast of September 2011, trade would have been nearly 25 per cent higher than actual (Freund, 2016). Even if trade had expanded at the pre-crisis (1990-2007) trend, trade volumes could be 15 per cent higher today. In this box, we review the evidence as to whether a structural change has occurred, and this lower trade-growth relationship is the “new normal”, or if it can be considered a temporary deviation from its pre-crisis trend (IRC Taskforce, 2016).

<sup>1</sup> Mary Keeney, MPOL. Material for this Box is drawn from work undertaken as part of an ESCB International Relations Committee Taskforce. The report is published as an IRC Trade Task Force 2016 “Understanding the weakness of in global trade: What is the new normal?”, ECB Occasional Paper No. 178, September 2016 available at <https://www.ecb.europa.eu/pub/pdf/scpops/ecbop178.en.pdf>

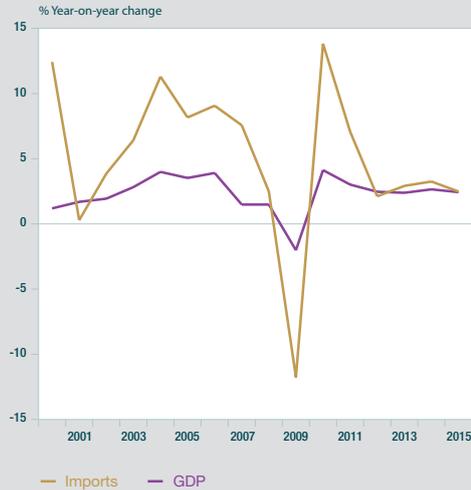
**Box B: Is there a 'new normal' relationship between trade and global growth?**

By Mary Keeney

**Box B Chart 1: Ratios of Import Growth to GDP Growth**

Source: IMF WEO.

Note: Imports of goods and services. Global GDP is at market exchange rates. The last observation refers to 2015.

**Box B Chart 2: Global Imports and GDP Growth**

Source: IMF WEO.

Note: Imports of goods and services. Global GDP is aggregated with market exchange rates. Last observation is 2015.

As shown in Chart 1, since the second half of the 1980s, trade grew at a faster rate than global GDP and implied a gross income elasticity of trade - defined as the average growth rate of world trade divided by the average growth rate of world GDP - of above unity prior to the Great Recession.<sup>2</sup> During the crisis period, the decline in trade was about five times as large as the decline in global output. It recovered and grew at over 12 per cent alone in 2010 and by 2011 it returned to close to long-term rates. Since then, however, world trade weakened substantially and has grown at only around 3 per cent which is about the half the pre-crisis average and close to the GDP growth rate (Chart 2).

There are two conceptual approaches to explain the change in global income elasticity between the pre-crisis period and more recent years: compositional shifts and structural factors. Compositional change, such as a geographical shift in location of the growth of trade and increased trade intensity, and changes in the composition of aggregate demand towards less trade-intensive components may explain some of the change in trade-activity relationship. These kinds of compositional shifts are more likely to at least partially reverse over the medium term. The other set of explanatory factors relates to structural aspects that alter the fundamental relationship between trade and economic activity. Of these, the most widely-cited structural factors is the degree of trade liberalisation and changes in the reliance on global value chains (GVCs) (see Constaniscu et al., 2015). As structural changes tend to be slow-moving, they are not easily reversed and are believed to more fundamentally affect the relationship between trade and economic activity at the level of individual countries.

<sup>2</sup> See US International Trade Commission (1997). This gross measure abstracts from the effect of relative prices and other variables.

**Box B: Is there a 'new normal' relationship between trade and global growth?***By Mary Keeney***Compositional factors**

Our analysis confirmed that national compositional effects, especially the rising weight in the world economy of emerging markets which typically have a lower trade intensity than advanced economies, have implied a weaker relationship between trade and economic activity at the global level (ECB, 2016). To a lesser extent, demand composition effects also contributed as import-intensive GDP components, such as investment, are no longer growing more strongly than overall GDP (see Bussière et al, 2013). This latter effect was strongest for advanced economies and less so for EMEs. As the global economy recovers further, some strengthening of advanced economy investment and thus an increase in the trade elasticity is possible. Finally, and contrary to expectations the increasing share of services – both in GDP and in global trade – does not appear to have been a major explanatory factor, not least because the decline in services trade growth was less pronounced as compared to goods trade. However, this finding may be subject to some measurement bias (ECB, 2016).

**Structural factors**

The reduction in trade elasticities may be explained by the fact that most of the efficiency gains due to lower transportation costs, the removal of trade barriers through lower tariffs and the wider World Trade Organisation (WTO) membership have been reached.

Another key structural explanation relates to the moderation in the expansion of global value chains (GVCs)<sup>3</sup> and maturing financial sectors in emerging market economies (EMEs).<sup>4</sup>

The process of fragmenting production across countries has been slowing since the Great Recession as shown by the share of intermediates in total trade which is no longer increasing. By reducing double counting in gross trade numbers, the apparent slowdown in GVC-expansion is therefore an important driver of the weakness in global trade growth. This GVC outcome also reflects rising labour costs in key emerging markets and an increasing move towards on-shoring of production to export markets.

Finally, there is also some evidence of a weaker role for other factors that supported global trade in the last couple of decades – declining transportation costs, trade liberalisation measures including the sharp reduction in tariffs and large flows of FDI. These influences have levelled off in recent years and are no longer boosting the global trade elasticity. For example, the scope for further reductions in transportation costs and tariff rates seems limited.

**3** The concept of a value chain covers the full range of activities required to bring a product from its conception, through its design, its sourced raw materials and intermediate inputs, its marketing, its distribution and its support to the final consumer. Specifically, when activities must be coordinated across geographies, the term global value chain (GVC) is used in the development and international trade literature.

**4** Crozet et al. (2013) argue that financial stress may have increased the uncertainty associated with foreign trade relationships, for example through more difficult access to trade finance or through decreased confidence in the financial health of trading partners. The Crisis period, as well as specific events such as the Japanese earthquake and the Thai flooding in 2011, may have led a number of firms to reconsider the cost of finely splitting their value chains across countries.

**Box B: Is there a 'new normal' relationship between trade and global growth?**

By Mary Keeney

**Summary Table:** Assessment of factors driving the recent weakness in global trade

Factors	Quantitative impact (1995-2007 vs 2012-2015)	Outlook: temporary or longer lasting?
<b>Compositional factors</b>	<b>0.4-0.6</b>	
Shift from AE (high trade elasticity) to EME (low elasticity)	Large	Longer lasting. EME contribution to global demand high.
Shift away from trade-intensive components of global demand (e.g. investment)	Small/Medium	Temporary. If global investment recovers as expected (modestly), trade intensity of demand could pick up. Investment not likely to return to rapid growth rates of 2000s.
Shift in global trade from manufacturing to services	Small	Ongoing and gradual. Difficult to measure.
<b>Structural developments</b>	<b>0.3-0.4</b>	
Less global value chain participation	Medium	Longer lasting and depending on pace of technological process and trade liberalisation (e.g. reversion to protectionism)
Transport costs	Small	Permanent as a feature of technological progress, developments in energy prices. Limited room for further large reductions in trade costs.
Trade liberalisation and increased non-tariff protection measures	small	Trade liberalisation moves considered permanent.
Financial deepening/less support for trade expansion	Small/medium	Largely permanent. Opportunities largely exhausted from rapid financial deepening in the past i.e. FDI, trade credit

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## 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.

# The Aircraft Leasing Industry in Ireland: Cross Border Flows and Statistical Treatment

Jenny Osborne-Kinch, Dermot Coates and Luke Nolan<sup>1</sup>

## Abstract

This Article examines the development of Ireland as a hub for the global aircraft leasing industry. Alongside the US, Ireland has become one of the two major centres in the world for aircraft leasing multinationals, with a significant number of the largest global entities operating here. Using a newly created internal Central Bank of Ireland database on aircraft leasing, we present the results following an analysis of leasing payments, funding flows, and counterparties. The scale of the aircraft leasing sector relative to the size of the Irish economy has the capacity to impact official statistics such as National Accounts and Balance of Payments and complicates the interpretation of movements in these measures over time. As part of this research, the Article examines changes in the statistical treatment of this sector over time arising from the introduction of new statistical methodologies and its implications for official national statistics. Finally, we summarise the possible economic contribution of the industry to Ireland's macroeconomy and the outlook for the industry.

<sup>1</sup> The authors are Senior Economists in the Statistics Division and a Trainee Actuary in the Insurance 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 or the European System of Central Banks. The authors would like to acknowledge the useful comments received from Gabriel Fagan, John Flynn, Joe McNeill, Rory McElligott and Peter Dunne. We would also like to acknowledge the assistance of Patrick Quill, John Sheridan and Mark Manto of the Central Statistics Office.

## 1. Introduction

Alongside the US, Ireland has become one of the two major centres in the world for aircraft leasing firms. A number of industry reports have found that 50 per cent of the world's leased commercial aircraft are managed from Ireland with an Irish-leased aircraft taking-off every two seconds somewhere across the globe (UCD Smurfit School/IDA Ireland, 2016; PwC, 2014). The number of global aircraft leasing companies operating in Ireland now exceeds 30 and these include most of the largest operators (Dillon Eustace, 2013).

The scale of the industry is now such that industry-specific developments have the capacity to impact Irish official statistics (i.e. National Accounts, Balance of Payments and the International Investment Position (b.o.p./i.i.p.), etc.). The Central Statistics Office (CSO) have previously noted that the 2016 data revisions to macroeconomic statistics arose on foot of a number of factors. These included, but were not limited to, corporate restructuring both through imports of individual assets and also reclassifications of entire balance sheets across a number of institutional sectors, and an increase in the number of new aircraft imports into Ireland for international leasing activities (CSO, 2016). This leasing activity can add to the recorded capital stock for Ireland and leads to increases in investment, imports and over time, boosts services exports through higher leasing income flows, as well as affecting estimates of operating surplus and the consumption of fixed capital.

The objectives of this research are to enable the reader to better understand why Ireland has come to develop such an internationally-orientated and fast-growing industry, and the applicable treatment of this industry in Ireland's official statistics. We also seek to explore the cross-border flows and inter-linkages of the industry in Ireland and the associated economic contribution.

This Article is structured as follows: Section 2 examines the scale and structure of the aircraft leasing industry in Ireland today and some of the factors that have facilitated its growth. Section 3 outlines the methodology and data sources used in mapping the operations and cross-border flows of the industry. Section 4 summarises the findings with regard to funding and counterparties. Section 5 examines the statistical treatment of the industry in Ireland's official statistics whilst Section 6 examines the economic contribution – and the potential risks to – the industry. Section 7 concludes.

## 2. Scale and Structure of the Industry in Ireland

The foundation of the aircraft industry can be traced back to the establishment of Guinness Peat Aviation (GPA) in Shannon in 1975 but it has since grown significantly, although estimates of scale have varied. Recent estimates put the total value of the aviation *assets under management* at between €83 billion<sup>2</sup> and €113 billion (TSG, 2012; PwC, 2014; UCD Smurfit School/IDA Ireland, 2016)<sup>3</sup>. There are a number of reasons why Ireland has come to attract investment from this industry. These factors have facilitated Ireland in becoming an important location through which to finance and lease aircraft.

### 2.1 What Makes Ireland Attractive?

Ireland's significant presence in the global aircraft industry can be attributed to many factors including the following: (i) a taxation regime which provides for a low headline rate of corporation tax and a depreciation write-off period of eight years; (ii) a comprehensive double tax treaty network with approximately 70 countries where many of the latter provide for zero withholding tax on inbound lease rentals; (iii) flexibility in the adoption of recognised accounting standards (i.e. IFRS, US GAAP or Irish GAAP) for financial

<sup>2</sup> The Federation of Aerospace Enterprises in Ireland (FAEI) had previously estimated the value of total assets under management at €83 billion in 2008.

<sup>3</sup> An information note issued by the UCD Smurfit School/IDA Ireland put aviation finance assets under management from Ireland at €106 billion (\$120 billion) whereas the Tax Strategy Group report puts the figure at closer to €113 billion (\$150 billion).

reporting; and (iv) being recognised as a centre of excellence in this sector, with a skilled workforce.

With regard to the write-off provisions, a recent industry analysis has considered the economic life of commercial jet aircraft. This indicates that the average retirement age of fleets is increasing and that aircraft retirement ages are close to 25 years with some 50 per cent of the total fleet likely to remain in service beyond this timeframe (Forsberg, 2015). The useful economic life, then, tends to be considerably longer than the depreciation period allowable for tax purposes.

Furthermore, the applicability of the securitisation provisions of Section 110 (S110) of the Taxes Consolidation Act, 1997 to the aircraft leasing industry has been expanded in recent years. Under changes to these provisions enacted in the Finance Act 2011, aircraft and aircraft engines are now designated as a qualifying asset under S110. This provides an opportunity for new entrants to the market to establish aircraft finance special purpose vehicles (or 'S110 aircraft SPVs') (Bedell Trust, 2015).

## 2.2 Types of Aircraft Lessors

There are two types of aircraft lessors in Ireland: the longstanding incumbents in the industry (plus aircraft assets redomiciled to Ireland over time<sup>4</sup>) and more recently established SPVs.

### 2.2.1 Non-SPV Aircraft Leasing Companies

These are long established in Ireland (sometimes redomiciled here) with substantive trading activity that pre-date the changes introduced in the Finance Act, 2011. These lessors avail of bank borrowing – primarily from international banks – in addition to asset-backed borrowing.

### 2.2.2 Usage of Special Purpose Vehicles

The Finance Act, 2011 designated aircrafts and aircraft engines as qualifying assets and allows tax treatment as a trading entity, creating a new class of aircraft financing structures. This provides a new incentive for those without existing trading platforms to establish in Ireland. These legal provisions allow taxable profits to be computed on the same basis as a trading company (notwithstanding that it will not meet usual trading principles).

More specifically, a SPV can claim tax deductions for all financing expenses. In such cases, the SPV acquires aircraft using senior and junior debt provided on an arm's length basis. These are 'orphan' SPVs with, typically, 100 per cent of issued share capital (equity) held on trust. The term 'orphan' SPV implies that the security (bond) issuer is bankruptcy-remote (i.e. outside of the leasing group). This entity issues bonds (i.e. asset-backed financing) but as an 'orphan' structure, the underlying security is separate from the group in the event of a collapse. The aircraft assets (tangible) are then vested in the S110 SPV, and the income flow generated from leasing the aircraft is used to pay the bondholders.

## 3. Methodology and Data Analysis

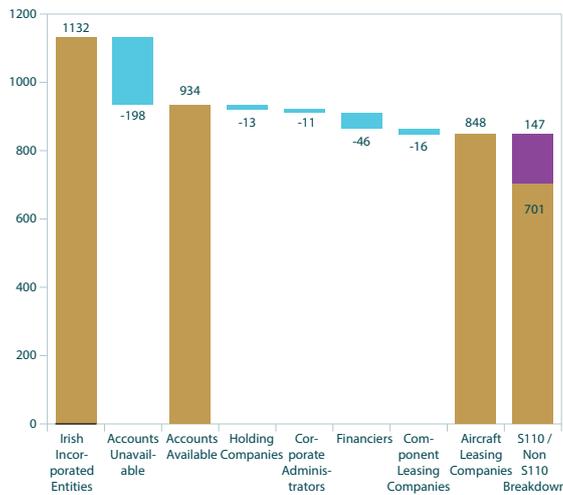
### 3.1 Overview of Data Sources

Research undertaken on the aircraft leasing industry in Ireland was motivated by the noticeable growth in this activity as evidenced in the statistical data reported by the SPV sector<sup>5</sup> to the Central Bank of Ireland. This included entities engaged in operational and finance leasing with regard to aircraft and aircraft engines. Within this dataset, there were approximately 300 SPVs whose designated area of business was aircraft leasing.

<sup>4</sup> For example, it has previously been reported that AerCap redomiciled aircraft assets to Ireland over the period 2014-2015 on foot of its acquisition of International Lease Finance Corporation (ILFC) (Reuters, 2013; O'Halloran, 2015). Redomiciled entities relates to multinational corporations relocating residency to another country, i.e. Ireland.

<sup>5</sup> Data collection commenced from reference period Q3 2015.

**Chart 1: Outline of the Composition of the Industry Population**



Source: Authors' calculations.

Although the SPV data provided certain indicators, further information was required to arrive at a more comprehensive understanding of the aircraft leasing industry in Ireland. The Companies Registration Office (CRO) was the main source used to augment data on aircraft leasing activity conducted through SPV-type structures. Data from both sources was then merged into a unitary database on the aircraft leasing industry in Ireland.

The financial statements for these entities were studied with key indicators identified and exported to create an aircraft leasing database. This database covers attributes such as number of aircraft held and book value (BV), leasing income, counterpart country (i.e. source of lease income inflows), parent company, and sources of funding used to purchase the aircraft, amongst others.

As the combined book value of this cohort of SPVs was less than €10 billion (or represented coverage of up to 10 per cent of the overall industry at 2014) a significant data gap still remained. This data gap was attributable to the fact that not all Irish-resident leasing is conducted via SPV-type structures. In

particular, the largest companies operated outside the SPV framework.

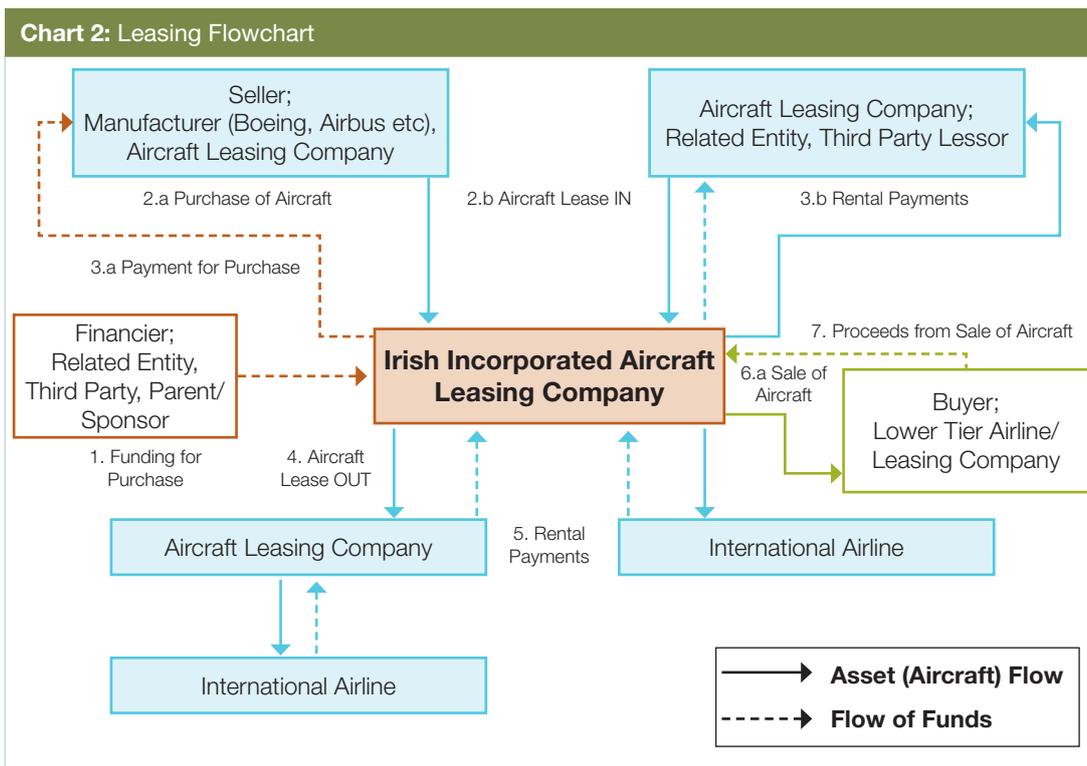
To develop the dataset further the financial statements of the 'Top 15 Aircraft Lessors' (Airfinance Journal, 2015), ranked by fleet size, were obtained and the entities located in Ireland identified. Once identified, the financial statements of these Irish-incorporated companies and associated entities were added to the database.

The number of Irish-incorporated entities found with activities linked to the aircraft leasing industry was 1,132 in total. However, data limitations restricted the usable database to 848 entities involved directly in the leasing of aircraft and for which accounts were available. This is composed of 147 SPVs classified as S110 companies plus a further 701 entities who fall outside the S110 designation (Chart 1).

### 3.2 Data Limitations

Reflecting the data limitations of this analysis and the use of multiple data sources to compile a compound schedule of aircraft leasing entities, the population frame used in this analysis is not exhaustive and all aggregate data presented should be considered as a lower-bound estimate for the industry.

Secondly, data compilation was subject to the availability and consistency of the year-end financial statements for each of the identified entities. The information varied across companies in terms of coverage and quality. Whereas some statements provided the number of aircraft held, others did not. Similarly, the geographic location of leasing activity (i.e. the country where the lessee is based) was given on a country-specific basis by some entities, but reported by continent/region in other instances. Useful indicators such as lease duration, aircraft age and leasing counterparty would facilitate deeper analysis of the industry but were at times unavailable. Nonetheless, the database collated does enable us to present a high-level overview of the aircraft leasing industry in Ireland.



## 4. Results

Using the database of the accounts available for the 848 Irish-resident aircraft leasing companies, we undertook a range of analyses, the results of which are presented below. In the first instance, we estimate that the book value (BV) of the aircraft stock owned by Irish-resident lessors stood at approximately €81 billion (or \$97 billion) by 2014.<sup>6</sup> This relates to some 1,400 aircraft owned by Irish-resident lessors.<sup>7</sup> This BV was sourced from CRO filings and relates to the economic ownership of aircraft stock, as per said filings. This is broadly consistent with previous industry estimates.

As the estimated asset holdings of the sector relate to 2014, this does not capture more recent activity within the industry here – as seen in the increase in new aircraft imports into Ireland – and the impact of any additional

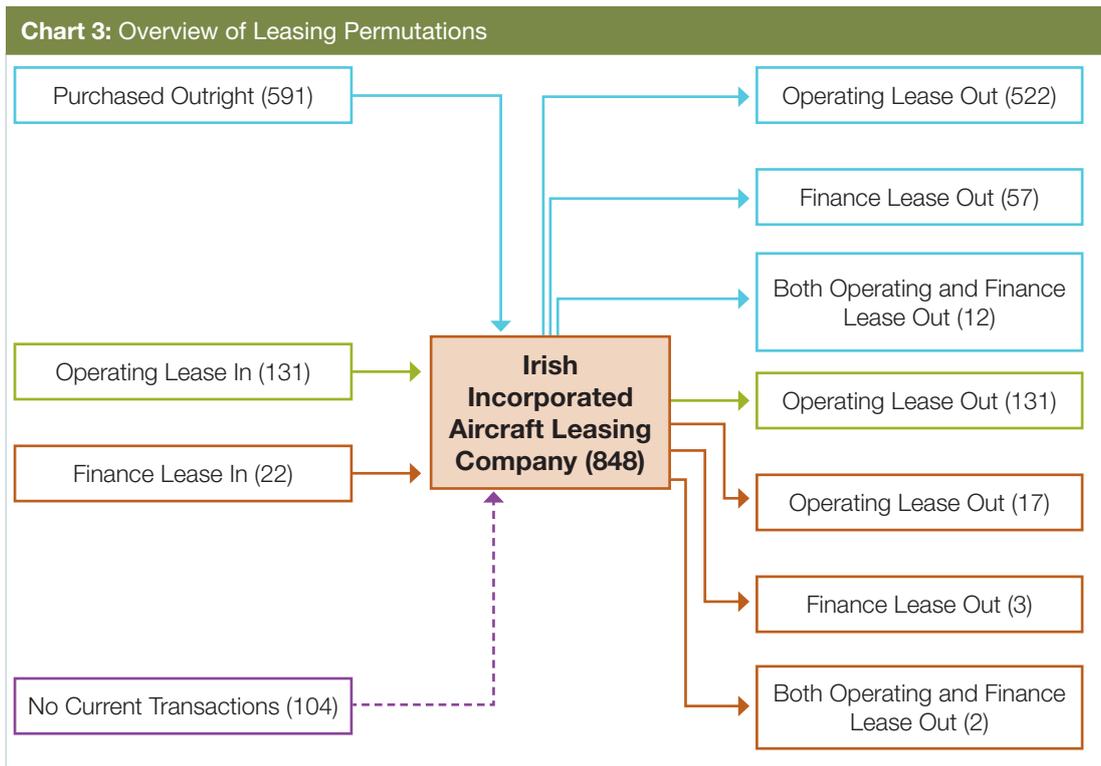
merger and/or redomiciling activities. The recent acquisition of ILFC by AerCap is one such example. Consequently, we would expect that the current size of the sector is higher than the estimates derived in this analysis.

### 4.1 Modalities of Leasing

Chart 2 presents a stylised outline of the movement into Ireland of aircraft assets and the onward leasing (or sale) of those same aircraft out of Ireland. Aircraft are acquired through a purchase or an inward lease (*lease in*). As these acquisitions are generally cross-border in nature, they impact on imports and investment for the purposes of the macroeconomic statistics, although the treatment is determined by the type of lease adopted. The statistical treatment is further elaborated in Section 5.

<sup>6</sup> This relates to the economic ownership of these aircraft assets. Assets owned is a sub-set of total assets managed. In a small number of cases, the year-end of the latest available accounts did not fall in 2014 and so the cumulative BV of the aircraft owned was converted into euro amounts, where necessary, taking into account the various applicable year-end exchange rates (using the end-December rate in all cases). Some 300 aircraft leasing companies identified for the purposes of this research reported no current BV. This may be attributable to either a divestment of assets over time and/or the leasing model under operation (i.e. operating lease in and finance lease out).

<sup>7</sup> These are necessarily minimum estimates as some 100 aircraft leasing companies did not report the number of aircraft owned.



Source: Authors' calculations

Notes: (i) Data presented here are estimates based upon a database of Irish-resident aircraft lessors constructed by the authors.

An Irish-resident aircraft leasing company then leases these assets out of Ireland (lease out). These aircraft can be leased to either an airline or to another leasing entity. Leasing arrangements can take the form of either an operating or a finance lease. Similar to aircraft acquired, onward leasing (or the sale of aircraft) impacts exports for services and merchandise.

The different accounting frameworks applying to operational and finance leases is an important consideration here. At present, the applicable accounting treatment of an operating lease by the lessor stipulates that the leased asset be recognised on the Balance Sheet of the lessor as a tangible fixed asset and depreciated over time. By contrast, under a finance lease the leased asset is not capitalised on the Balance Sheet of the lessor but rather, it is recognised by the lessee alongside a corresponding liability (Deloitte, 2012).

Our database indicates that 591 aircraft leasing companies (70 per cent) directly acquire aircraft via purchases before leasing these assets out. These results show that the most common arrangement is for an aircraft lessor to purchase an aircraft (import) and then onward lease this asset using an operating lease with 522 companies (62 per cent) using this model.

In a small number of cases (131 companies), aircraft are acquired by Irish-resident leasing companies via an operating lease but in all such cases, these assets were then leased out by these same companies, using an operating lease also (Chart 3). Indeed, some 153 companies (18 per cent)<sup>8</sup> covered by this research undertook transactions using a Li-Lo (lease in-lease out) model.

The database compiled indicates that operating leases were the predominant

<sup>8</sup> This refers to cases where a company's aircraft assets are both leased in and leased out (irrespective of the lease type used for either leg of a given transaction).

**Chart 4: Aircraft Leasing Companies by Lease (Out) Type**

Source: Authors' calculations.

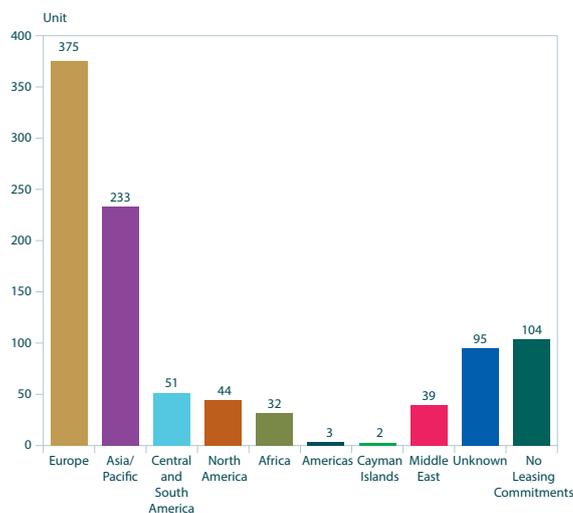
Notes: Data presented here are estimates based upon a database of Irish-resident aircraft lessors constructed by the authors.

business model utilised with 670 aircraft leasing companies (79 per cent) using this approach to lease out aircraft (Chart 4). Only 7 per cent of companies used finance leases with less than 2 per cent using a combination of both.

#### 4.2 Counterparty by Geography

An analysis of geographic counterparty is useful as this provides some insights into the cross-border relationships that feed into statistical measures such as b.o.p./i.i.p. This helps to illuminate the direction of the flows on aircraft and leasing income. Chart 5 presents data on the region of business of each lessor in our database. This relates specifically to the location where the aircraft are leased out to.<sup>9</sup>

Europe is the principal geographic counterparty with almost 400 Irish-resident companies leasing out to entities across the continent. The next most prevalent region is Asia/Pacific. It is our understanding that certain

**Chart 5: Aircraft Leasing Companies by Region of Geographic Activity**

Source: Authors' calculations.

Note: The count here does not sum to the 848 lessors in the authors' database as each company can be represented more than once above.

European countries are intermediate steps into other global markets, such that aircraft assets may effectively be routed from Ireland to their ultimate lessee via Europe.

Finally, it is not feasible to provide a detailed commentary with regard to counterparty by economic sector (and by country) as the data do not provide this level of detail. Typically, aircraft – and engines – are leased out to airlines (non-financial corporations sector) and other aircraft lessors (other financial intermediaries sector).

#### 4.3 Funding Flows

The sourcing of funds to finance the purchase of aircraft has, at times, been challenging. Post the global financial crisis, when bank funding was scarce, Export Credit Agencies (ECAs) guaranteed financing. With ECA guarantees, banks were seen to be more willing to provide debt and, with reduced risk, were able to price more competitively. In more recent

<sup>9</sup> The data indicates that certain lessors are active across multiple regions.

years, investors from Asia have moved into the sector, replacing banks from Europe, with banks such as Japanese Bank Sumitomo Mitsui, Development Bank of Japan, and Bank of China involved in numerous deals (PwC, 2013).

In the context of this research, the flow of leasing income and access to funding by Irish-resident aircraft lessors was analysed. With regard to the former, leasing payments to Irish lessors are predominantly cross-border (Chart 5). These are recorded as Operational Leasing inflows in the Current Account (b.o.p.). Cumulative net leasing income was estimated at €9 billion (\$11 billion) in 2014. The SPV subset of lessors accounted for just 8 per cent of this income.

Funding by Irish-resident aircraft leasing entities to finance purchases of aircraft assets is another important consideration. This funding will accrue from various sources spanning sovereign wealth funds, capital markets, private bank lending<sup>10</sup> and inter-group borrowings. In the case of capital markets, the issuance of certain note types – for instance, profit participating notes (PPNs) – by SPVs is one source of funding.

'S110 aircraft SPVs' allows for the issuing of PPNs where the interest expense is deductible for tax purposes (Bedell Trust, 2015). This facilitates tax-deductible profit extraction in structured finance transactions (McCann FitzGerald, 2013; Dillon Eustace, 2012).

## **5. Statistical Treatment of the Industry**

This section examines the methodological changes introduced under the European System of Accounts 2010 (ESA 2010) for the aircraft leasing sector and provides some insight into the impact of industry expansion and relocation of lessors in recent years. The methodologies underpinning the statistical treatment of this sector in Ireland's official data have changed in recent years following

the introduction of ESA 2010. Firstly, it should be noted that under the *transfer of economic ownership* approach which was adopted under ESA 2010, those aircraft that are purchased (or leased inwards under a finance lease) by an Irish-resident entity are deemed to be Irish assets and imports into Ireland, regardless of whether they physically enter Irish territory or not.

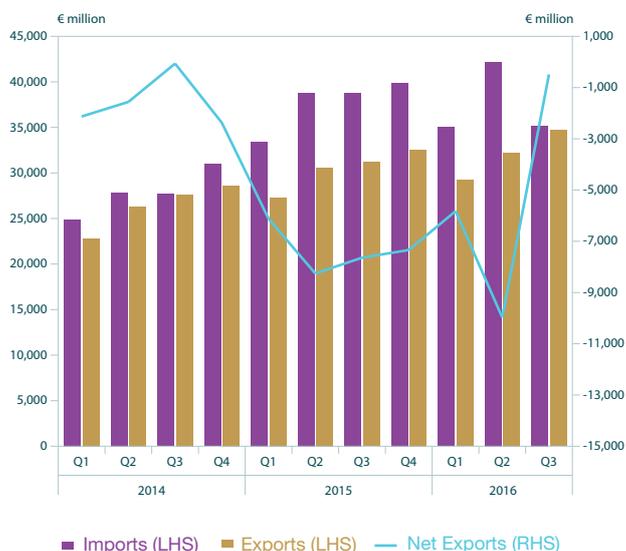
On foot of the methodological changes, the CSO amended its treatment of trade in aircraft from 2015 to incorporate the concept of economic ownership and revised its data back to 2000 for trade in goods, b.o.p./i.i.p. and the National Accounts series. Consequently, trade in aircraft is now recorded when economic ownership of the aircraft is transferred '*... regardless of where the aircraft is registered for aviation purposes*' (CSO, 2015).

In the CSO's quarterly publication on b.o.p./i.i.p., outright purchases or acquisitions via finance lease of aircraft appear in the Current Account (b.o.p.) under merchandise imports, while leasing income from an operational lease acquisition is recorded as service exports under Operational Leasing in the Current Account. Under the change in methodology, the main effects will be to add to imports of goods into Ireland, thereby decreasing in the Current Account balance (b.o.p.), although this should be more than offset over time by increasing services export revenue coming from the leasing income earned over the lifetime of the aircraft.<sup>11</sup> Under the new approach '*the balance sheets of operational leasing companies who relocate to Ireland are included in Ireland's Balance Sheet at the time of relocation and their aircraft fleets are also added to Ireland's capital stock*'.

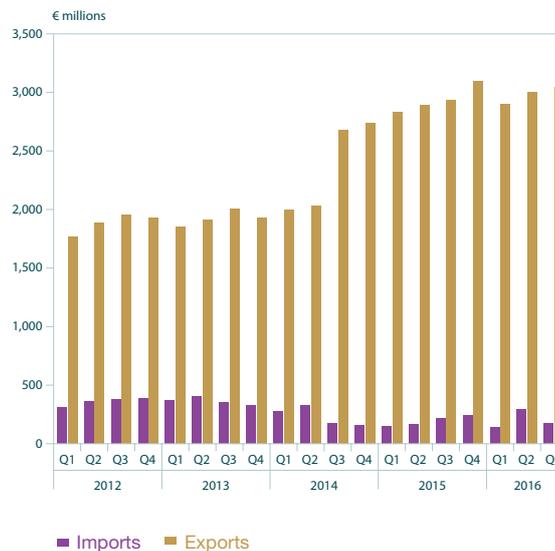
Aside from changes in the statistical treatment, in recent years the aircraft leasing sector has also experienced organic growth with an increase in the number of new aircraft imports into Ireland. In addition, there is also evidence of the relocation of lessors by way of new entrants into the Irish market and corporate

<sup>10</sup> It is our understanding that such bank lending is typically sourced from non-resident credit institutions.

<sup>11</sup> The changes in the Current Account balance at this time, relate to numerous factors, including changes in the methodology for aircraft leasing, but also includes contract manufacturing. See note on contract manufacturing: <http://www.cso.ie/en/media/csoie/surveysandmethodologies/documents/pdfdocs/ContractManufacturingInformationNotice.pdf>

**Chart 6: Current Account - Services, Exports and Imports**

Source: Central Statistics Office.

**Chart 7: Services - Operational Leasing, Exports and Imports**

Source: Central Statistics Office.

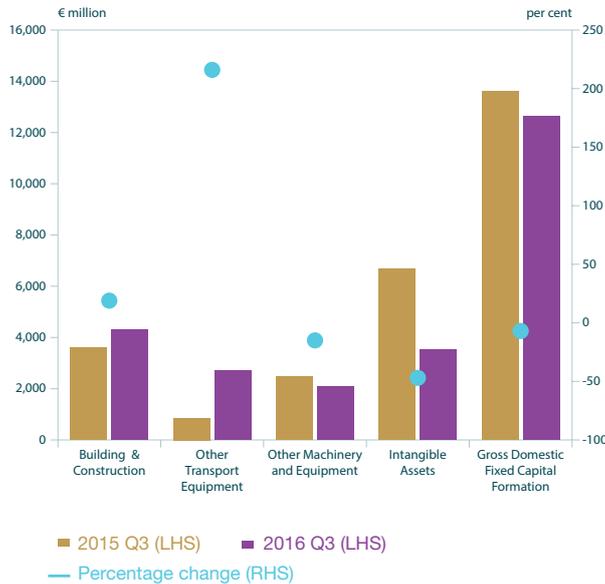
restructuring whereby global lessors transfer assets (aircraft) onto the Balance Sheet of their Irish operations. Within the National Accounts framework, we can endeavour to examine how these developments have impacted the data but given the global nature of the economy and other developments in the multinational sector, it is difficult to separate out pure aircraft leasing. While the aircraft leasing sector was not the predominant contributor to recent revisions in Irish macroeconomic statistics, it is nonetheless informative to focus on a specific set of metrics that are impacted by developments in this sector over time. For example, based on the higher capital stock, there will be a resulting increase in capital formation and in the provision for depreciation. However, for the purpose of this article our focus is primarily on the contribution to external statistics.

As already mentioned, metrics such as exports and imports under Merchandise and Services in the Current Account will be impacted by developments in the aircraft leasing sector.

In the case of aircraft acquired (excluding operating leases), these movements are an input into Merchandise Imports. In the case of leasing charges (payable and receivable), these are an input into the Operational Leasing sub-component under Services.

Furthermore, the impact of the aircraft leasing sector on Gross Domestic Product (GDP) is visible through the published b.o.p. data, specifically with regard to the inflow of Operational Leasing revenues on the Current Account. These revenues expanded significantly with an increase of approximately €2.4 billion recorded under exports of Operational Leasing between 2014 (€9.4 billion) and 2015 (€11.8 billion). The level shift in this metric initially occurred in mid-2014: for instance, these inflows stood at approximately €2 billion in both Q1 and Q2 2014 but had increased by some 35 per cent to €2.7 billion in the subsequent quarters of 2014. By Q3 2016, the equivalent figure was closer to €3 billion (Charts 6 and 7). The aforementioned increase of €2.4 billion under Operational

**Chart 8: Components of Gross Domestic Fixed Capital Formation**



Source: Central Statistics Office.

Leasing (exports) implies a rise of some 25 per cent over a one-year period but it is important to put this in its necessary context. Over the same period, Services (exports) increased by €16 billion with components such as Computer Services increasing significantly. Over the same period, Merchandise (imports) increased by €11 billion.

Finally, developments for this sector can also be seen in the official statistics relating to capital formation. Gross Domestic Fixed Capital Formation fell back by approximately €1 billion (or 7 per cent) between Q3 2015 and Q3 2016, primarily on foot of a reduction in Intangible Assets. At the same time, Machinery and Equipment – including ‘*other transport equipment*’ – increased by close to €1.5 billion and this represented an increase of 44 per cent. This increase was driven by the Other Transport Equipment sub-component of this series (Chart 8) which rose by €1.9 billion to €2.7 billion by Q3 2016. In the case of aircraft

specifically, capital formation increased by €1.4 billion between Q3 2015 and Q3 2016.<sup>12</sup> However, it is important to bear in mind that this figure also includes aircraft activity outside the leasing sector.

## 6. Economic Contribution and Risks

### 6.1 Contribution of the Industry in Ireland

Recent employment estimates for this sector in Ireland have varied. A survey of the cross-border aviation leasing sector commissioned by the FAEI in 2008 estimated that there were almost 1,000 people employed in this sector, with direct employment accounting for 60 per cent of these jobs. Keaveney and Murray (2011) put the number of people employed in the industry at over 2,000 (direct and indirect<sup>13</sup>). More recent estimates, however, suggest that there are over 1,200 people employed in the industry in Ireland (UCD Smurfit School/IDA Ireland, 2016).<sup>14</sup>

In terms of tax contribution, the aforementioned FAEI survey found that the sector contributed approximately €270 million in Corporation Tax – deferred and current – to the Exchequer in 2007. The total tax contribution was closer to €310 million and included €5 million in VAT revenues generated by consumption by this sector.<sup>15</sup> Keaveney and Murray (2011) put the Corporation Tax contribution at more than €300 million per annum.

Such metrics must be put in context, however, and other research has questioned the contribution of the industry to Ireland’s economy: FitzGerald (2015) found that they ‘*employ a relatively small number of people in Ireland, they buy a limited range of services locally...*’

<sup>12</sup> According to the CSO’s Quarterly National Accounts & Balance of Payments Q3 2016 Media Briefing (9th December 2016).

<sup>13</sup> These are support services to the sector such as legal and accounting.

<sup>14</sup> This figure likely refers to direct employment.

<sup>15</sup> Said survey estimated that a ‘*further €132.8 million was injected into the economy in the form of expenditure on professional services, physical infrastructure including rent, telecoms etc. and on other day to day running expenditure.*’

Addressing the value added of the aircraft leasing sector is challenging, particularly as aircraft is not separated out in the Supply and Use tables published by the CSO.<sup>16</sup> Moreover, as the sector has a limited impact on domestic economic activity, the Gross Value Added is likely to be distorted, arising from the treatment of depreciation. The metrics discussed here are probably more representative of the contribution to the domestic economy. However, it would be extremely helpful if these could be enhanced by data on the compensation of employees, and purchases of domestic services.

## 6.2 Outlook for the Industry and Possible Implications for Ireland

The data indicates that this is a resilient industry with strong growth prospects into the future. There are, however, potential headwinds. These include, but are not limited to, the risk of a regional slowdown in emerging markets and the possible implications for both demand and external funding sources; increased competition over time from other European countries; demand for new technologies, specifically in terms of fuel efficiency; proposed changes to the international accounting treatment with regard to leases; and uncertainty related to the OECD Base Erosion and Profit Shifting (BEPS) process(es), which will see possible changes to the international tax regime.

Separately, future trends and implications for developments in official statistics over the medium- to long-term are an important issue, however it is difficult to project forward for such a dynamic globalised industry such as aircraft leasing. Recent industry commentary, however, may provide some plausible insights. For instance, Boeing and Airbus forecasts estimate that the future demand pipeline for new aircraft is \$5-\$6 trillion over the next 20 years with approximately 50 per cent of this to be leased (KPMG, 2015).

Assuming that the industry in Ireland is to continue to account for some 50 per cent of the leased output (as per current estimates), this would imply approximately €1.4 trillion (\$1.5 trillion<sup>17</sup>) in new assets – either acquired or via finance leases inward – held by the sector in Ireland. In other words, this would add €68 billion (\$75 billion) per annum to the Balance Sheet imports of the Irish aircraft leasing sector. If that were to occur, this could have significant implications for National Accounts and b.o.p./i.i.p. in terms of a range of metrics such as depreciation, investment, imports, exports and operating lease income.

## 7. Conclusions

This Article provides information on a significant and growing sector within the Irish economy which generates a certain degree of employment and tax revenues but also cross-border flows ranging from funding, lease payments receivable and/or payable, and imports and exports where these flows are an important factor in Ireland's official statistics. However, interpreting the impact on Irish National Accounts against the background of an economy affected by many new facets of the globalisation process is challenging. Here, we have attempted to examine the Irish-resident aircraft leasing industry in this context, facilitated by a newly created database on aircraft leasing, in order to provide information on an important and expanding sector within Ireland's economy.

<sup>16</sup> The GVA at a four-digit level on NACE code 77.35 (renting and leasing of air transport equipment) is unpublished.

<sup>17</sup> Based upon the prevailing exchange rate at end-October 2016.

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# Securities Holdings Statistics in Ireland: Introducing the Enhanced Quarterly Statistics

Dermot Coates, Jenny Osborne-Kinch and Brian Power<sup>1</sup>

## Abstract

This Article presents the recently introduced *Securities Holdings Statistics* published by the Central Bank of Ireland, including holdings of debt securities; quoted shares; and investment fund shares and units. During the financial crisis, the availability of only limited information on holdings of securities made it difficult to identify the exposures of market participants and hindered swift policy action. This served to underscore the need for granular, security-by-security information on the operation of financial markets. The collection of data on the holdings of securities was commenced by the European System of Central Banks in early 2014 in order to close these data gaps. In order to meet growing demand for information, this new data release provides detailed insights into the holdings of various financial instrument classes by Irish residents, including households and non-financial corporations. This Article examines the links between the holders and issuers of securities at a granular counterparty sector, country, and instrument level, and it explores the ongoing expansion of the reporting population.

<sup>1</sup> The authors are Senior Economists and a Securities Analyst in the Statistics Division. The views expressed in this article are solely the views of the authors and are not necessarily those held by the Central Bank of Ireland or the European System of Central Banks. The authors would like to thank Joe McNeill, Rory McElligott and Gabriel Fagan for their useful comments.

## 1. Introduction

With the onset of the global financial crisis in 2008, the need for granular information on the holdings of individual securities became clear. As the crisis unfolded, policy-makers were faced with limited information making it difficult to identify exposures of market participants, or sectors, to particular issuers. The absence of such data hindered swift policy responses and underscored the need for granular information on securities holdings. The collection of Securities Holdings Statistics (SHS) was undertaken in order to address these gaps. The purpose of this new data is to provide comprehensive statistical information on the exposure of economic sectors to specific classes of securities and on the links between the economic sectors of holders and issuers of securities. Such information will also support both the monitoring of the transmission of risks from financial markets to the real economy, and the ongoing analysis of financial market developments. This is particularly important, given the increased interconnectedness of financial markets, both domestically and across borders.

The collection of SHS data commenced in 2014 with the first data referring to holdings at end-2013. Data is collected on a granular, security-by-security basis (s-by-s)<sup>2</sup> and covers the following instrument types: short-term debt securities; long-term debt securities; quoted shares; and investment fund shares and units. The collection also spans three distinct modules: Sector<sup>3</sup>, Group, and Eurosystem. At the outset, the actual reporting population<sup>4</sup> consisted of resident monetary financial institutions (MFIs)<sup>5</sup>, investment funds (IFs), and financial vehicle corporations (FVCs) in addition

to custodians. This has been expanded over time. Some additional material with regard to legal frameworks, the various modules and the data compilation process is presented in an Annex.

The Central Bank of Ireland has commenced the publication of a new quarterly *Securities Holdings Statistics* release in order to meet the increasing demand for information in this area. The release provides information on holdings by each resident institutional sector with detailed breakdowns by financial instrument type and currency of denomination, in addition to information on the exposures of Irish holders of securities by issuer sector and issuer country.

These statistics include heretofore unpublished information on the market value of the debt securities, quoted shares, and investment fund shares and units held by Irish-resident households<sup>6</sup> and non-financial corporations (NFCs). The new data will facilitate enhanced research, particularly in the area of household wealth dynamics. The new time-series covers a two-year period spanning 2014 to Q2 2016 and will be published quarterly. The data refers to the market value of securities held at each quarter-end. Changes over time relate to movements in Balance Sheet closing positions which reflect both transactions and valuation changes<sup>7</sup>. The focus of this Article will be the sector module which relates to aggregate holdings by each resident institutional sector within a country. The magnitude of the holdings data collected are significant across the euro area (EA). By mid-2014, the total holdings of EA investors exceeded €23 trillion<sup>8</sup>. Within this, the estimated total holdings of Irish-resident investors were approximately €1.7 trillion

2 The presentation in the new quarterly Statistical Release relates solely to s-by-s data and, as such, this is not directly comparable to the extant monthly release on *Holders of Irish Government Bonds* where the latter is not based on an s-by-s compilation methodology. The existing monthly dataset includes both a nominal add-back and a derived residual, and it is intended to revise and update this release over the coming quarters.

3 This module excludes holdings by national central banks (NCBs) throughout this article.

4 This represents the population of direct reporters at the outset and this has been expanded over time. Direct reporters also included 'heads of banking groups' where these had been both designated as Reporting Banking Groups by the Governing Council and notified of their reporting obligations. The Central Bank of Ireland has not undertaken data collection from a Reporting Banking Group at the time of writing.

5 This relates to holdings by credit institutions (CIs) and money market funds (MMFs) but excludes holdings by NCBs.

6 This sector encompasses the holdings of non-profit institutions serving households (NPISH) throughout this article.

7 Valuation changes will include foreign exchange (FX) movements.

8 This relates to the sector module only.

and this figure has increased over time. We estimate that Irish-resident households held securities valued at some €10 billion.

The rest of the Article is organised as follows. Section 2 examines who holds what across the various institutional sectors resident in Ireland, and addresses the issue of direct data collection from the insurance corporations sector. Section 3 focuses specifically on the holdings of the household and NFC sectors and considers the instrument composition and counterparty of these holdings. This section also examines the scope for Third-party Holdings (TPH) data to assist data users in addressing data gaps, whilst Section 4 concludes.

## 2. Who Holds What?

The SHS sector module provides aggregate information on the holdings of institutional sectors resident in individual countries where this data is provided by a combination of direct reporters – MFIs, IFS, and FVCs – and custodians. The dataset has come to be used for a range of analytical purposes. The ECB has commenced the publication of EA aggregates and has used this data to undertake a range of analytical tasks, including an examination of the interconnectedness of EA sectors and an investigation of the differences in investment patterns across EA sectors. ESCB data users have undertaken research across themes such as holdings of particular asset classes as well as liquidity, currency preferences, and market concentration in European bond markets (Coates and Dooley, 2016; Boermans, Frost and Steins Bisschop, 2016; Boermans and Vermeulen, 2016; Boermans, 2016). The availability of s-by-s data also has the potential to facilitate a range of further analytical tasks. For instance, this contributes to the enhancement of integrated euro area financial and non-financial accounts by institutional sector (EAA) by enabling an extension of the

whom-to-whom coverage to all marketable instruments. Furthermore, this can be used to examine how the portfolio holdings of each sector differ across financial instrument types, including the original (or residual) maturity of debt securities held.

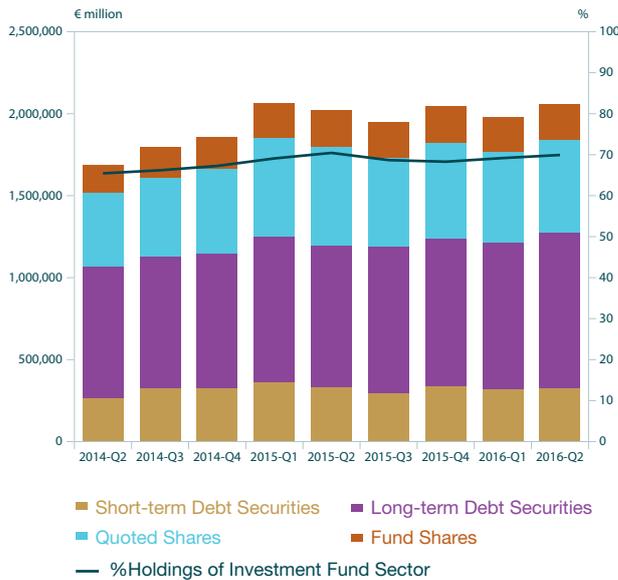
By mid-2014, total holdings by EA investors amounted to some €23 trillion. This covered both securities issued by EA residents (€18 trillion) and non-EA residents (€5 trillion) (ECB, 2015). In this section, we present aggregate statistics on the holdings of securities by Irish residents using the quarterly statistics introduced by the Central Bank of Ireland in early 2017. We also explore extant data gaps with regard to holdings by the insurance corporations sector in Box A below.

### 2.1 Comparative securities holdings across holder sectors

The estimated market value of holdings of securities by all Irish residents stood at just over €2 trillion by Q2 2016<sup>9</sup> compared to less than €1.7 trillion in the same period in 2014. This represents an increase of 22 per cent over a two-year period. Holdings of debt securities remained the predominant asset class throughout but eased back slightly from 63 per cent to 62 per cent of the total over this period. By contrast, holdings of quoted shares increased by 1 per cent to 28 per cent of the total between 2014 and 2016 whilst holdings of investment fund shares and units remained static at approximately 10 per cent. The IF sector was by far the largest holder sector by Q2 2016 accounting for some 70 per cent of total holdings (in euro terms) compared to 65 per cent two years previously (Chart 1). For comparative purposes, Chart 2 illustrates the absolute value of holdings by resident holder sector as at Q2 2016. This very clearly demonstrates the disparity in the size of each holder sector and the capacity for the IF sector to shape any analysis by issuer counterparty or currency at the aggregate level.

<sup>9</sup> This does not include any securities held by the Central Bank of Ireland or by Irish Government entities such as the Ireland Strategic Investment Fund (ISIF). Quoted shares held by the FVCs are not included at present and unquoted shares are not included for any institutional sector.

**Chart 1: Total Holdings of Irish Residents by Instrument Type Q2 2014 - Q2 2016**



Source: Securities Holdings Statistics, Central Bank of Ireland.

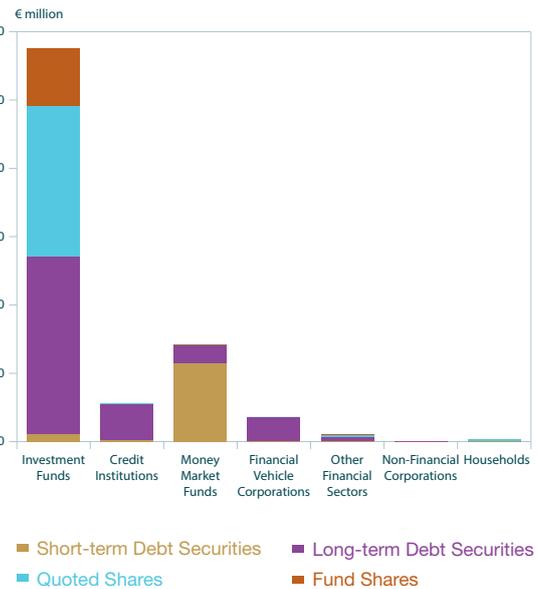
Notes: (i) Data only relates to holdings reported to the Central Bank of Ireland.

There are significant differences in the size of holdings across sectors. This ranges from IFs at €1.4 trillion to households at less than €10 billion<sup>10</sup>. Comparing institutional sectors at the level of aggregate holdings, however, only provides limited information. An analysis of securities held by instrument type provides information on variations in terms of portfolio composition (Chart 3). The credit institutions and MMFs sub-sectors hold 99 per cent of their securities in the form of debt securities<sup>11</sup>. Conversely, Irish-resident households have a marked preference for quoted shares, as these instruments account for 74 per cent of total holdings. The IF sector has a more balanced portfolio of securities holdings with no instrument type accounting for more than 50 per cent of the total. In light of the dominance of debt securities and quoted shares as a proportion of total securities held by all Irish residents, the remainder of this section will

<sup>10</sup> In part, this difference may arise due to the fact that resident IFs are direct reporters at present, whereas household and NFC holdings data is sourced from resident custodian reporting. The latter will provide incomplete coverage (see Box B).

<sup>11</sup> In the case of credit institutions, these may include intra-group (or own) holdings.

**Chart 2: Total Holdings of Irish Residents by Holder Sector & Instrument Type Q2 2016**



Source: Securities Holdings Statistics, Central Bank of Ireland.

Notes: (i) Data only relates to holdings reported to the Central Bank of Ireland.

(ii) Holdings of quoted shares by the FVC sector are not available at present. Unquoted shares are not included for any institutional sector.

(iii) The 'Other Financial Sectors' category includes data for insurance corporations, pension funds and other financial intermediaries' sub-sectors and the data source is resident custodian reporting.

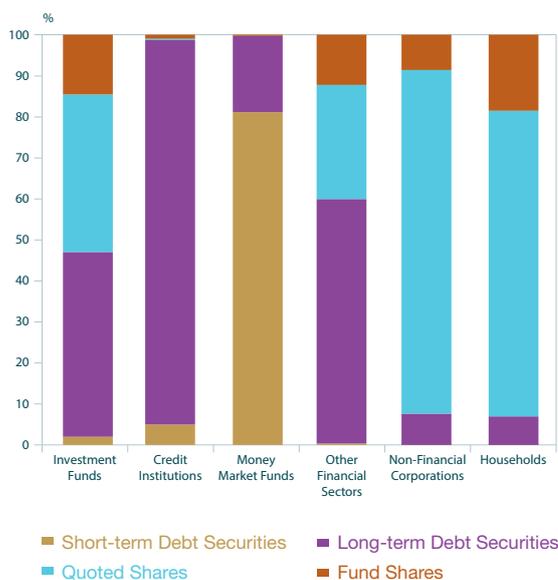
(iv) Holdings for households and NFCs relate solely to data reported by Irish-resident custodians.

focus on the issuers of debt securities and quoted shares held by Irish residents.

## 2.2 Analysis by issuer counterparty and currency

### 2.2.1 Holdings by issuer region

An analysis by the region of issuer — and regardless of instrument type — indicates that most holder sectors demonstrate a clear distance effect with securities' holdings concentrated in the EU. Similar to Galstyan et al (2016), this sensitivity applies in the case of holdings by credit institutions and households but it is less clear for IFs. In the case of debt securities held, the data indicates that resident IFs and MMFs have broadly similar exposures as they hold a large portion of these instruments issued by non-EA (or rest of the

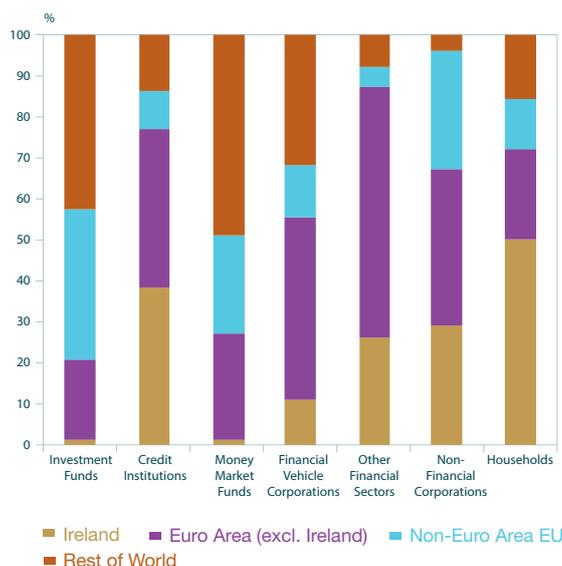
**Chart 3: Proportionate Distribution of Holdings of Irish Residents by Holder Sector & Instrument Type Q2 2016**

Source: Securities Holdings Statistics, Central Bank of Ireland.

- Notes: (i) Data only relates to holdings reported to the Central Bank of Ireland.  
(ii) Holdings of quoted shares by the FVC sector are not available at present. Unquoted shares are not included for any institutional sector.  
(iii) The 'Other Financial Sectors' category includes data for insurance corporations, pension funds and other financial intermediaries' sub-sectors and the data source is resident custodian reporting.  
(iv) Holdings for households and NFCs relate solely to data reported by Irish-resident custodians.

world) countries (Chart 4). Credit institutions, NFCs and, in particular, the household sector hold a much larger proportion of Irish-issued debt securities. An analysis of the holdings of debt securities issued by EA issuers suggests some interesting variations by holder sector and the level of exposure to peripheral EA countries. For instance, 24 per cent of all holdings of EA-issued debt securities<sup>12</sup> consisted of issuance by entities in Greece, Italy, Spain and Portugal. The equivalent figure, however, was far higher in the case of Irish-resident credit institutions where this cohort of countries accounted for 55 per cent of their holdings of EA-issued debt securities in Q2 2016.

An analysis by issuer region (Chart 5) for quoted shares also indicates a notable variance by holder sectors. In the case of quoted shares, IFs held a large proportion of shares issued outside the EU (72 per cent)

**Chart 4: Proportionate Distribution of Holdings of Debt Securities by Irish Residents by Holder Sector & Issuer Region Q2 2016**

Source: Securities Holdings Statistics, Central Bank of Ireland.

- Notes: (i) Data only relates to holdings reported to the Central Bank of Ireland.  
(ii) The 'Other Financial Sectors' category includes data for insurance corporations, pension funds and other financial intermediaries' sub-sectors and the data source is resident custodian reporting.  
(iii) Holdings for households and NFCs relate solely to data reported by Irish-resident custodians.

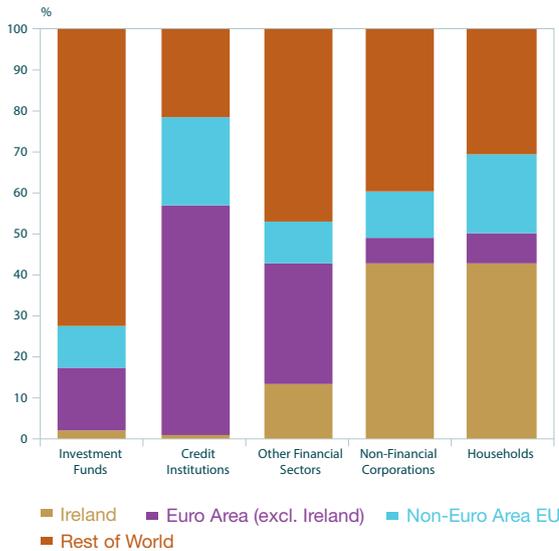
as at Q2 2016. The majority of these are US issuance. By contrast, Irish-issued quoted shares are the most predominant instrument class amongst Irish-resident households. Irish-issued quoted shares accounted for 43 per cent of holdings for this sector. Conversely, credit institutions hold a higher proportion of shares issued by EA countries (excluding Ireland), albeit these are still a small proportion of their total holdings.

### 2.2.2 Holdings by issuer sector

Although IFs and MMFs seem to have similar profiles in the case of exposures by issuer region for debt securities, this does not hold true in the case of the issuer sectors. A significant majority of the MMF-held debt securities were issued by the credit institutions sector (64 per cent) whereas this sector only accounts for 12 per cent of IF holdings of debt

<sup>12</sup> In this case, EA issuance excludes issuance by Irish-resident entities.

**Chart 5: Proportionate Distribution of Holdings of Quoted Shares by Irish Residents by Holder Sector & Issuer Region Q2 2016**



Source: Securities Holdings Statistics, Central Bank of Ireland.

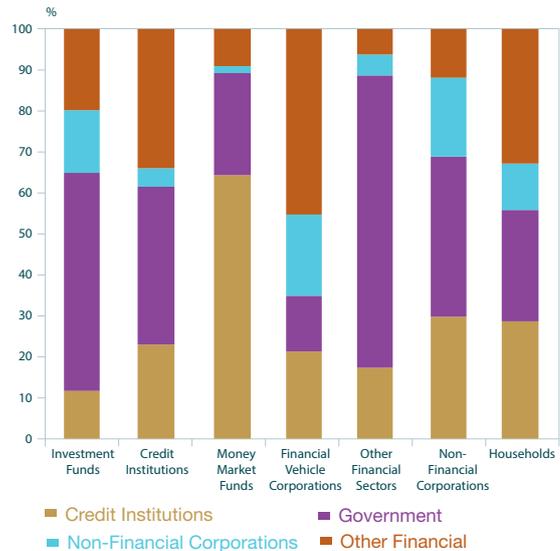
- Notes: (i) Data only relates to holdings reported to the Central Bank of Ireland.  
(ii) Holdings of quoted shares by the FVC sector are not available at present. Unquoted shares are not included for any institutional sector.  
(iii) The 'Other Financial Sectors' category includes data for insurance corporations, pension funds and other financial intermediaries' sub-sectors and the data source is resident custodian reporting.  
(iv) Holdings for households and NFCs relate solely to data reported by Irish-resident custodians.

securities. Sovereign bonds account for more than half of the holdings of debt securities by the IF sector (Chart 6). The 'Other Financial Sectors' category shows a marked inclination towards holdings of sovereign debt. In the case of quoted shares (Chart 7) the issuer sector tended to be similar across all holder sectors as at Q2 2016. NFC issuance of quoted shares accounted for at least 75 per cent of issued shares held in each case but the overall exposure to this instrument class does vary significantly by holder sector<sup>13</sup>.

### 2.2.3 Holdings by currency of denomination

There are some marked variances with regard to the currency of denomination of debt securities held. For the IF sector, only 20 per cent of total holdings are in the form

**Chart 6: Proportionate Distribution of Holdings of Debt Securities by Irish Residents by Holder Sector & Issuer Sector Q2 2016**



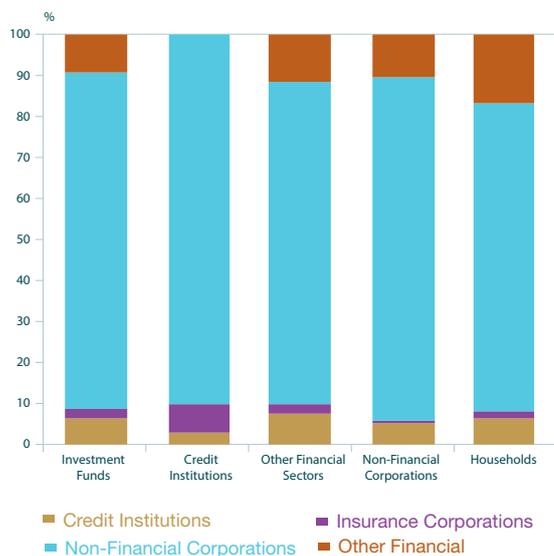
Source: Securities Holdings Statistics, Central Bank of Ireland.

- Notes: (i) Data only relates to holdings reported to the Central Bank of Ireland.  
(ii) The 'Other Financial Sectors' category includes data for insurance corporations, pension funds and other financial intermediaries' sub-sectors and the data source is resident custodian reporting.  
(iii) Holdings for households and NFCs relate solely to data reported by Irish-resident custodians.

of euro-denominated debt securities. This is low when compared to other institutional sectors but it may simply reflect the broader diversity of the IF sector<sup>14</sup>. For instance, euro-denominated holdings account for close to 90 per cent of debt securities held by Irish-resident households and NFCs. IFs and MMFs, however, are more likely to hold GBP£-denominated debt securities. In the case of holdings of quoted shares at Q2 2016, a similar pattern emerges with approximately 50 per cent of holdings by households and NFCs denominated in euro. The equivalent figure for IFs is less than 20 per cent as they are significantly more likely to hold US\$-denominated quoted shares.

<sup>13</sup> For instance, the market value of quoted shares held ranged from €551 billion for IFs to €0.4 billion for credit institutions.

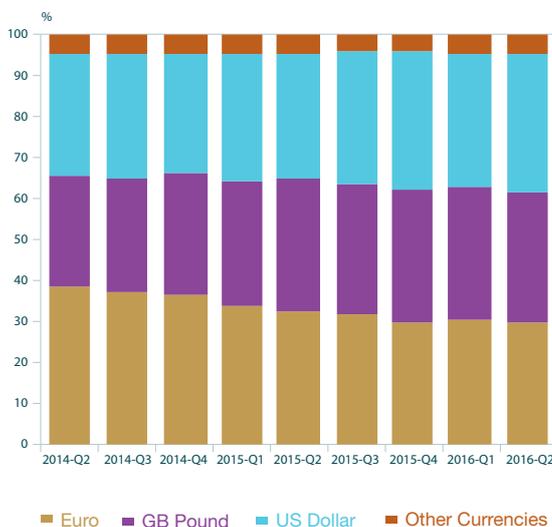
<sup>14</sup> Resident IFs in Ireland may be authorised in currencies other than the euro and it may be the case that where a fund is authorised in a non-euro currency, they are more likely to hold investments in the base (or matching) currency.

**Chart 7: Proportionate Distribution of Holdings of Quoted Shares by Irish Residents by Holder Sector & Issuer Sector Q2 2016**

Source: Securities Holdings Statistics, Central Bank of Ireland.

Notes: (i) Data only relates to holdings reported to the Central Bank of Ireland.

- (ii) The 'Other Financial Sectors' category includes data for insurance corporations, pension funds and other financial intermediaries' sub-sectors and the data source is resident custodian reporting.
- (iii) Holdings for households and NFCs relate solely to data reported by Irish-resident custodians.

**Chart 8: Proportionate Distribution of Holdings of Debt Securities by Irish Residents by Nominal Currency Q2 2014 - Q2 2016**

Source: Securities Holdings Statistics, Central Bank of Ireland.

Notes: (i) Data only relates to holdings reported to the Central Bank of Ireland.

### Box A: Custodian (Indirect) Reporting and Estimates of the Holdings of the Insurance Corporations Sector

The foregoing includes data relating to the insurance corporations sector only insofar as this is covered by custodian reporting. The original legal frameworks concerning statistics on holdings of securities came into effect from end-2013 and specified direct reporting across a limited range of institutional sectors. These did not cover the insurance corporations sector, so data initially collected with regard to securities holdings by this sector was based on custodian reporting<sup>15</sup>. It was not until the legal frameworks were amended in 2015 that the insurance sector was obliged to report directly.<sup>16</sup> This change reflects the ongoing process of improved coverage for the SHS data. In order to limit the administrative burden and to avoid the duplication of tasks associated with the new reporting requirements, the updated Regulation also permitted NCBs to derive the necessary SHS quarterly statistics – with supplementary annual reporting, as required – from data collected for supervisory purposes under the Solvency II Directive<sup>17</sup>.

<sup>15</sup> This data is currently included under the heading 'Other Financial Sectors' in our published time-series. Data for insurance corporations will be presented separately in due course.

<sup>16</sup> Guideline of the European Central Bank (ECB/2015/19) amending ECB/2013/7 concerning statistics on holdings of securities; and Regulation of the European Central Bank (ECB/2015/18) amending ECB/2012/24 concerning statistics on holdings of securities.

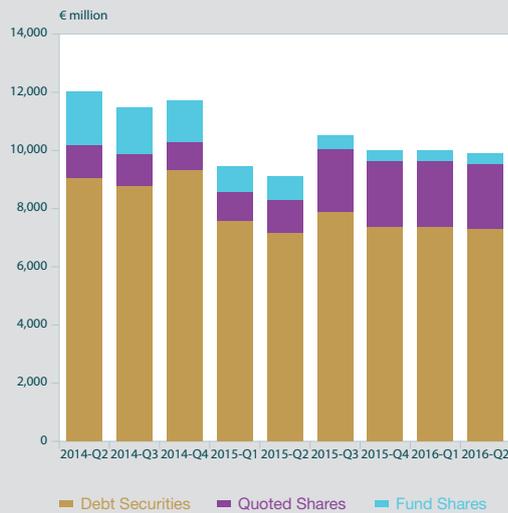
<sup>17</sup> Directive 2009/138/EC of the European Parliament and of the Council on the taking-up and pursuit of the business of Insurance and Reinsurance (Solvency II).

**Box A: Custodian (Indirect) Reporting and Estimates of the Holdings of the Insurance Corporations Sector**

Similar to other institutional sectors, the required insurance corporations' SHS data relates to end-quarter positions on an s-by-s basis. Direct reporting commenced in 2016<sup>18</sup> but, to date, this new information has not been included in the published series produced by the Central Bank of Ireland. It is intended to commence inclusion of this data from late 2017 in order to facilitate the production of an initial time-series. The available custodian reported data may provide useful indicators of trends in holdings of securities but does not capture the total quantum of holdings of insurance corporations.

The available custodian data for this sector in Ireland indicates that the total holdings have fallen from €12 billion to €10 billion (or by 18 per cent) over a two-year period (Box A, Chart 1). Over the same period, the composition of instrument type has also shifted somewhat from debt securities and investment funds shares and units to quoted shares. The latter now account for approximately 23 per cent of the *reported* total compared to 9 per cent two years previously.

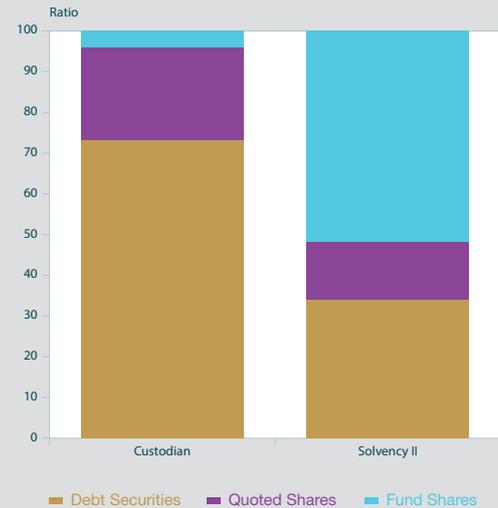
**Box A Chart 1: Total Holdings of Irish Resident Insurance Corporations (Custodian Reporting Only) by Instrument Type Q2 2014 - Q2 2016**



Source: Securities Holdings Statistics, Central Bank of Ireland.

Note: (i) Data only relates to holdings reported to the Central Bank of Ireland.

**Box A Chart 2: Instrument Type Composition for Irish Resident Insurance Corporations – Custodian (Indirect) versus Solvency II (Direct) Reporting Q2 2016**



Source: Securities Holdings Statistics, Central Bank of Ireland.

Note: (i) Data only relates to holdings reported to the Central Bank of Ireland.  
(ii) Direct reporting data for the insurance corporations sub-sector are provisional only and subject to revision.

Resident-custodian reporting provides only partial coverage for insurance corporations, as non-resident custodians are extensively used. The recent introduction of direct reporting will ensure a much more comprehensive coverage of the sector. A provisional estimate<sup>19</sup> of actual holdings, based upon the new direct reporting template, indicate that current (resident) custodian data accounts for approximately 5 per cent of total holdings of the insurance corporations sector. The instrument composition appears to be quite different between the two data sources (Box A, Chart 2). The direct reporting data (Solvency II) indicates that a much larger proportion of the total is held in the form of investment fund shares and units.

<sup>18</sup> Reference period Q1 2016 with first data transmitted to the ECB in June 2016.

<sup>19</sup> This is solely an estimate and is subject to revision as data improves over time. Estimate is based on data compiled on a home basis.

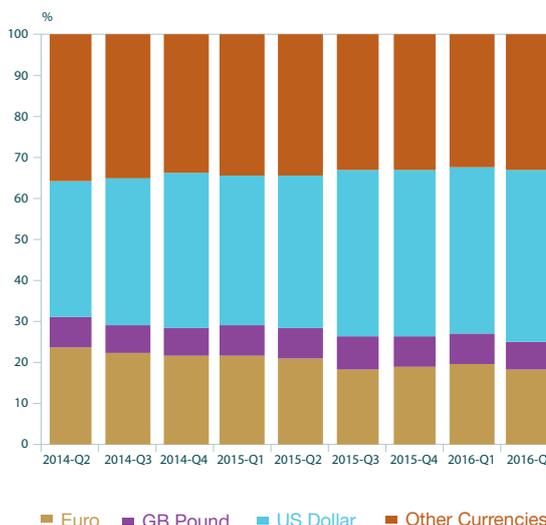
Chart 8 indicates that exposures to euro-denominated debt securities have fallen over the past two years with a concomitant increase in GBP£- and US\$-denominated debt securities. When considering these trends over time, however, it is important to bear in mind that IFs constitute the single largest holder sector and are much more likely to hold non-euro denominated securities. Chart 9 suggests a broadly similar development with regard to quoted shares. In the latter case, holdings of euro-denominated quoted shares have fallen slightly over time whereas holdings of US\$-denominated securities increased.

### 3. Analysing Securities Holdings for Irish-resident Households and NFCs

Section 3 focuses specifically on a detailed analysis of SHS data for Irish-resident households and NFCs over time, for two distinct reasons. Firstly, this granular information – as collated through the SHS Sector module over the past two years – has not been published by the Central Bank before now. Secondly, although holdings of securities by Irish households will appear immaterial when placed alongside the IF sector, there is merit in promoting a deeper understanding of developments in these holdings, particularly in the context of household saving and wealth dynamics: *'households account for a significantly more modest share of securities holdings than institutional investors do.....according to official statistics securities holdings may represent a significant proportion of households' financial assets, thus reflecting a considerable part of the overall households' wealth'* (Sanchez-Munoz and Israel, 2007).

The custodian method is generally used where the costs of collecting the data directly from certain investors, such as households and NFCs, would be prohibitively expensive. In such cases, holdings data is typically obtained from domestic custodians who will report on behalf of their clients. This approach underpins the data

**Chart 9: Proportionate Distribution of Holdings of Quoted Shares by Irish Residents by Nominal Currency Q2 2014 - Q2 2016**



Source: Securities Holdings Statistics, Central Bank of Ireland.

Notes: (i) Data only relates to holdings reported to the Central Bank of Ireland.

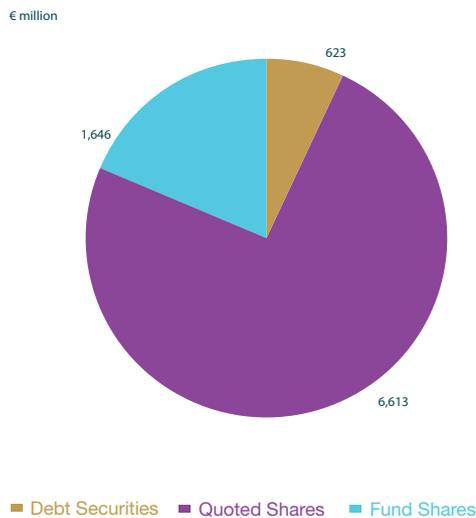
(ii) Holdings of quoted shares by the FVC sector are not available at present. Unquoted shares are not included for any institutional sector.

presented below but does not provide complete coverage. In Box B, we also explore the use of Third-party Holdings (TPH) data to close data gaps, using the household sector as an example.

#### 3.1 Securities Holdings and the Irish-resident household sector

The aggregate market value of securities held by Irish-resident households stood at approximately €8.9 billion by Q2 2016 (Chart 10). This represented an increase of €0.7 billion (or more than 8 per cent) over the past two years. In absolute terms, the principal contributor to this increase was the change in the value of holdings of investment fund shares and units. The value of these holdings increased by approximately €1 billion to €1.6 billion (or by 151 per cent) over this period. By contrast, the value of holdings of debt securities increased by 13 per cent whilst

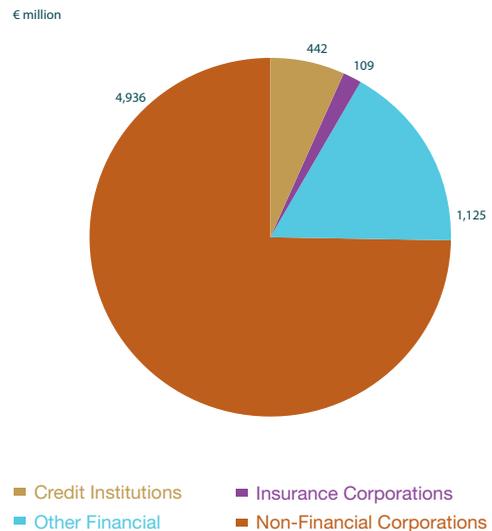
**Chart 10: Holdings of the Irish Resident Household Sector by Instrument Type Q2 2016**



Source: Securities Holdings Statistics, Central Bank of Ireland.

- Notes: (i) Data only relates to holdings reported to the Central Bank of Ireland.  
(ii) Holdings for households and NFCs relate solely to data reported by Irish-resident custodians.  
(iii) Data are estimates and are subject to revision.  
(iv) Holdings by households include the NPISH (non-profit institutes serving households) sub-sector.

**Chart 11: Holdings of Quoted Shares by the Irish Resident Household Sector by Issuer Sector Q2 2016**



Source: Securities Holdings Statistics, Central Bank of Ireland.

- Notes: (i) Data only relates to holdings reported to the Central Bank of Ireland.  
(ii) Holdings for households and NFCs relate solely to data reported by Irish-resident custodians.  
(iii) Data are estimates and are subject to revision.  
(iv) Holdings by households include the NPISH (non-profit institutes serving households) sub-sector.

the value of quoted shares decreased by 6 per cent. The data presented here indicates that quoted shares are the predominant instrument class within household holdings of securities. By Q2 2016, the total value of holdings in the form of quoted shares came to approximately €6.6 billion (or 75 per cent of the total). The balance of this portfolio consisted of investment fund shares and units and debt securities, representing 19 per cent and 7 per cent, respectively. In light of the foregoing, the analysis that follows will focus on the counterpart dimensions to holdings of quoted shares.

### 3.1.1 Estimated holdings of quoted shares by households

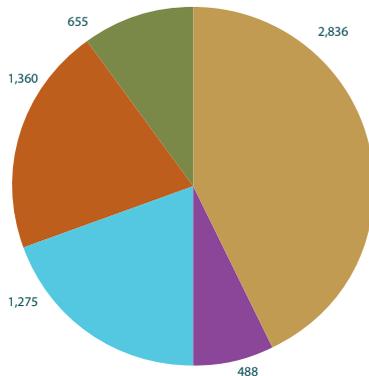
Over the past two years, the total holdings of quoted shares by Irish households has fallen by

6 per cent and the composition by issuer sector has also seen some changes. NFCs represent the primary issuer sector for quoted shares held (Chart 11). By Q2 2016, this issuer sector accounted for 75 per cent of the total (albeit that this had fallen slightly compared to the same period in 2014). The 'Other Financial Sectors' category was the second largest issuer sector accounting for 17 per cent of holdings by Q2 2016, representing an increase of 37 per cent compared to the same period in 2014. Issuances by the credit institutions sector accounted for 7 per cent of the total by Q2 2016 but there has been a notable decrease in the market value of these holdings over time. These decreased by 35 per cent year-on-year when compared to 2015<sup>20</sup>. The insurance corporations sector accounted for a minimal amount of quoted shares held.

<sup>20</sup> This refers to a fall in the closing position or amount outstanding (i.e. transactions and/or valuation changes over time).

**Chart 12: Holdings of Quoted Shares by the Irish Resident Household Sector by Issuer Region Q2 2016**

€ million



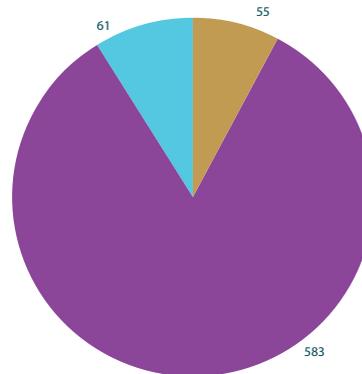
■ Ireland ■ Euro Area (excl. Ireland) ■ Non-Euro Area EU  
■ United States ■ Rest of World

Source: Securities Holdings Statistics, Central Bank of Ireland.

- Notes: (i) Data only relates to holdings reported to the Central Bank of Ireland.  
(ii) Holdings for households and NFCs relate solely to data reported by Irish-resident custodians.  
(iii) Data are estimates and are subject to revision.  
(iv) Holdings by households include the NPISH (non-profit institutes serving households) sub-sector.

**Chart 13: Holdings of the Irish Resident NFC Sector by Instrument Type Q2 2016**

€ million



■ Debt Securities ■ Quoted Shares ■ Fund Shares

Source: Securities Holdings Statistics, Central Bank of Ireland.

- Notes: (i) Data only relates to holdings reported to the Central Bank of Ireland.  
(ii) Holdings for households and NFCs relate solely to data reported by Irish-resident custodians.  
(iii) Data are estimates and are subject to revision.

At €2.8 billion (or 43 per cent), Ireland was the principal country of issuer for holdings of quoted shares in Q2 2016 (Chart 12). This had decreased by 6 per cent when compared to 2015. The US is the second largest issuer country for holdings of quoted shares. The value of these issuances have also fallen but the US does account for more than half of the non-EU total. The UK was also an important issuer country throughout our time-series but the market value of holdings of UK-issued quoted shares has fallen significantly over the past year<sup>21</sup>. These fell by more than €0.5 billion (or 30 per cent).

### 3.2 Securities Holdings and the Irish-resident NFC sector

The total quantum of holdings of securities for the Irish-resident NFC sector – at least those

held with resident custodians – is quite small. This figure, however, will exclude holdings by NFCs with non-resident custodians and as a result, any significant holdings by – for instance – resident multinational corporations (MNCs) is unlikely to be captured in the data presented here. By Q2 2016, the market value of these holdings is estimated at €0.7 billion. This represents an increase of 7 per cent when compared to the same period in 2014, although this remains slightly below the peak reported by end-2015. The holdings of securities of NFCs are predominately in the form of quoted shares (Chart 13). Debt securities and fund shares represent less than 10 per cent each (or approximately €60 million in each case).

<sup>21</sup> This refers to a fall in the closing position or amount outstanding (i.e. transactions and/or valuation changes over time).

**Box B: Securities Holdings Statistics – Securities Holdings Statistics Database (SHSDB) and Third-party Holdings (TPH)**

Holdings of securities by resident households and NFCs are reported to the Central Bank of Ireland by Irish-resident custodians.<sup>22</sup> Such holdings, however, do not provide a complete picture as *'resident custodians may only cover a limited part of the holdings by resident investors'* (Sola and Strobbe, 2010). Irish investors, including households and NFCs, are free to hold their securities in custody abroad.<sup>23</sup> Where an investor selects a custodian in a country other than their own country of residence, the securities held are referred to as Third-party Holdings (TPH)<sup>24</sup>: *'securities may be in custody in the euro area but in a different country from that of the issuer and from that of the holder'* (Sola and Strobbe, 2010).

TPH data refer to holdings by non-resident investors reported by resident custodians (Fache-Rousova and Rodriguez-Caloca, 2014). For instance, an Irish investor may hold a security issued by a German issuer in custody in Belgium where such data would be reported to the National Bank of Belgium. Such data are reported by participating NCBs and collated centrally within the SHSDB<sup>25</sup>. The available TPH data generally only relates to holdings using other EA-resident custodians. In other words, holdings of securities via custodians resident in financial centres such as London, Geneva or New York will not be captured in the available TPH dataset.<sup>26</sup> The data presented throughout Sections 2 and 3 relates solely to holdings of securities by Irish-resident households and NFCs as reported by Irish-resident custodians.

Data on securities deposited with non-resident custodians is difficult to collect and so the approach adopted by NCBs is to collect data on all holdings by resident custodians and share data on holdings by non-residents (third parties) with other compiling NCBs. The quantum of household holdings with non-resident custodians is illustrated below.

The data available from resident custodians enabled us to estimate the total market value of the securities held by Irish households at approximately €8.9 billion by Q2 2016. The TPH data, however, suggests a further €1.1 billion was held with EA custodians. This TPH data also provides a number of additional insights which indicate a different pattern of behaviour in the case of households using non-resident custodians. Indeed, previous research has noted that wealthier households are *'more likely to resort to the financial services provided by non-resident custodians/depositories...'* (Sanchez-Munoz and Israel, 2007).

Firstly, the resident custodians report that quoted shares account for approximately 75 per cent of all household holdings of securities. Conversely, TPH data indicates that 48 per cent of those securities held with non-resident custodians were in the form of investment fund shares and units. Secondly, resident custodian data shows that more than 40 per cent of household holdings were issued by Irish-residents (Section 2.2.1). On the other hand, TPH data indicates that close to 60 per cent of the securities held were issued in Luxembourg (Box B, Charts 1 and 2).

<sup>22</sup> Custodian data is only utilised for those economic sectors that do not report directly to a national central bank (NCB). Holdings on behalf of credit institutions, IFs, MMFs and FVCs are not sourced through this reporting channel.

<sup>23</sup> Such securities, then, are held via non-resident custodians. Indeed, some holders may not avail of any custodian.

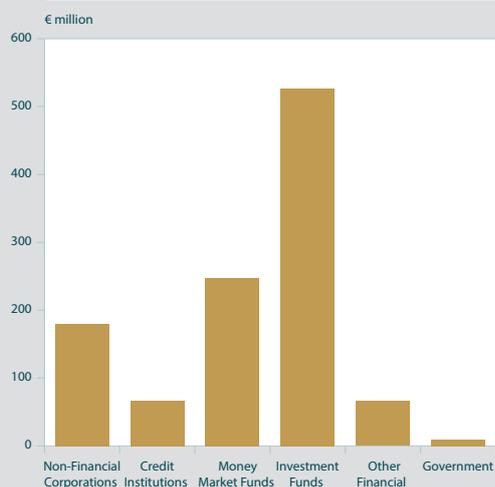
<sup>24</sup> From the perspective of the country of the custodian, these are TPH.

<sup>25</sup> As per Sanchez-Munoz and Israel (2007), this central database facilitates the collection of timely data on TPH by statistical compilers in the country where each custodian is located, and inter-NCB exchange on a reciprocal basis.

<sup>26</sup> Even in those cases where a non-EA custodian uses a sub-custodian chain which includes an EA-resident custodian, the latter custodian is required to report with reference to their own client (i.e. a financial corporation) rather than a look-through to the ultimate holder of the securities.

### Box B: Securities Holdings Statistics – Securities Holdings Statistics Database (SHSDB) and Third-party Holdings (TPH)

**Box B Chart 1:** TPH data for Irish Resident Households held with EA Custodians by Issuer Sector, Q2 2016

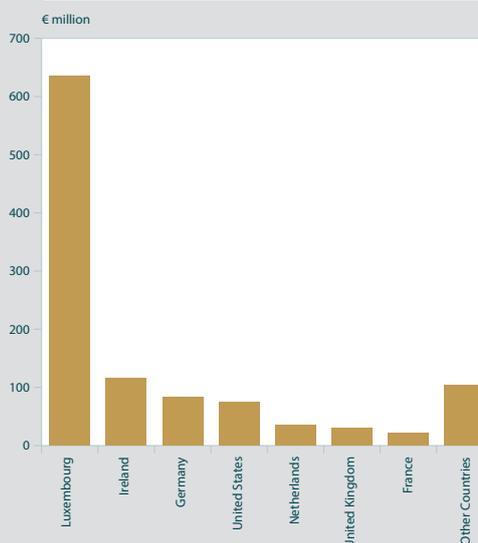


Source: ESCB SHSDB.

Note: (i) Data excludes holdings reported to the Central Bank of Ireland.

(ii) Data relates to TPH with EA-resident custodians only.

**Box B Chart 2:** TPH data for Irish Resident Households held with EA Custodians by Issuer Country Q2 2016



Source: ESCB SHSDB.

Note: (i) Data excludes holdings reported to the Central Bank of Ireland.

(ii) Data relates to TPH with EA-resident custodians only.

Finally, Switzerland provides some interesting insights as a case study on non-EA TPH. For instance, Sanchez-Munoz and Israel (2007) have previously noted that Swiss Central Bank publications have indicated that the total value of securities held in custody by Swiss-resident credit institutions<sup>27</sup> stood at a cumulative US\$530 billion at end-2005.

<sup>27</sup> This relates to holdings on behalf of non-resident and non-institutional investors.

## 4. Conclusion

This Article has introduced the new quarterly security-by-security data on holdings of securities which helps to close data gaps and will substantially improve the information available on exposures by sector and on interconnectedness. The new data provides detailed insights into the holdings of various financial instrument classes by Irish-residents and examines the links between the holders and issuers of securities at a granular counterparty sector, country, and instrument level. The new data also includes, for the first time, detailed information on holdings of securities by Irish-resident households and NFCs.

It is important to bear in mind that the data presented here for some sectors are lower-bound estimates only, as outlined in Box A. Furthermore, any robust interpretation of the data — and the composition in terms of issuer counterparty and currency — must bear in mind the relative scale of the holdings across the various resident holder sectors. For instance, we have already seen that the IF sector in Ireland is by far the single largest holder of securities and this then has much more significant impact in terms of shaping the aggregate results than, say, Irish-resident households.

The data represent a necessary first step and ongoing data improvements – from the exchange of TPH data to the expansion of

direct reporting requirements over time – will enhance coverage going forward. These changes, in turn, will mean that the figures analysed above will likely increase as reporting coverage improves over time.

While it is challenging to address all identified data gaps in a quick manner, the SHS project has improved our understanding of exposures and potential vulnerabilities within the financial system. Further enhancements are expected to come on stream in the coming years, including the inclusion of direct reporting data for the insurance corporations sub-sector and the commencement of reporting by Irish-resident designated banking groups under the SHS Group module. These changes, when taken together with other initiatives such as the Analytical Credit Database (AnaCredit) and the recently introduced enhancements to the Locational Banking Statistics, will serve to provide a far greater degree of detailed information on holdings of securities by resident sectors in terms of issuer sector, instrument type and geography.

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## Annex: Background on the SHSDB

The legal frameworks underpinning data collection and reporting for SHS came into effect from early 2014 with first reporting commencing for the reference period December 2013. The relevant Guideline and Regulation<sup>28</sup> specified that the actual reporting population would consist of resident monetary financial institutions (MFIs), investment funds (IFs), and financial vehicle corporations (FVCs) in addition to custodians. The applicable statistical reporting requirements stipulate that reporting agents provide s-by-s data on their end of quarter positions to the relevant national central bank (NCB) in the case of the following instrument types: short-term debt securities; long-term debt securities; quoted shares; and investment fund shares and units. Each NCB reports information on all holdings of securities with an international securities identification number (ISIN)<sup>29</sup> to the ECB using harmonised reporting templates and timelines. In the case of securities without an ISIN, each NCB may decide whether to report the necessary statistical data to the ECB<sup>30</sup>.

The original Regulation and Guideline have been updated twice since 2013. In 2015, these frameworks were amended, in part at least, to introduce direct reporting by insurance corporations in order to provide adequate statistics on the financial activities of this sector. Further amendments introduced in 2016 provided for the collection of additional attributes in order to ensure the adequacy of information on holdings of securities of banking groups (under the group module).

The data transmitted to the ECB are collated and disseminated through a centralised Securities Holdings Statistics Database (SHSDB). The provision of granular, security-by-security information by reporting agents

ensures that this can then be combined with reference data for each individual security where the latter is sourced from other ESCB databases. Specifically, ISIN data can be linked to the Centralised Securities Database (CSDB)<sup>31</sup>. As a result, the transmitted SHS data can be enriched using the CSDB to provide a range of attributes. This, in turn, facilitates the derivation of a range of aggregations and breakdowns for both the issuer and holder side (ECB, 2015). Prior to the collection of security-by-security information for SHS purposes, reporting agents were required to report aggregate data whereas the current model eliminates work for the reporting agents as they are no longer required to provide such statistical breakdowns.

In the case of securities held in custody, these are reported by custodians on behalf of investors. For reporting purposes under SHS, a custodian is an entity undertaking the safekeeping and administration of financial instruments for the account of clients (including custodianship and related services)<sup>32</sup>. Custodians are required to provide information relating to securities they hold in custody on behalf of residents that do not report their own holdings; securities they hold on behalf of non-financial investors in other euro area (EA) member-states; and securities issued by EA issuers and held on behalf of non-EA residents. In the case of the enhanced quarterly statistics introduced by the Central Bank of Ireland in early 2017, indirect (or custodian) reporting is the source of data for those institutional sectors that are not yet themselves direct reporters (i.e. insurance corporations, pension funds, households, etc.).

There are, however, some limitations to this data source. Sola and Strobbe (2010) have previously noted that the quality of the data reported by most custodians can sometimes be problematic. These limitations include

<sup>28</sup> Guideline of the European Central Bank (ECB/2013/7) concerning statistics on holdings of securities; and Regulation of the European Central Bank (ECB/2012/24) concerning statistics on holdings of securities.

<sup>29</sup> An ISIN is a unique identifier for securities such as bonds and shares. This is the identifier used to collate and process reference data in the ESCB's Centralised Securities Database.

<sup>30</sup> In addition to end-quarter positions, NCBs also report end-quarter financial transactions over the reference quarter or other data necessary to derive these transactions.

<sup>31</sup> The ESCB's CSDB is a multi-purpose platform containing reference information (i.e. price, issuer name, issuer country/sector, outstanding amount) on over six million outstanding debt securities, equities and investment fund shares.

<sup>32</sup> At present, this is defined as an entity belonging to the 'financial corporations' sector (under ESA 2010).

shortcomings in sector classification and the identification of specific financial instruments. This notwithstanding, these limitations tend to affect non-financial investors to a more limited extent than financial investors and it is generally considered that *'custodian reporting is an acceptable approach to collect holdings data not only regarding households but also for non-financial corporations and non-profit institutions'*.

As already mentioned, the SHS project contains three modules: SHS Sector; SHS Group; and SHS Eurosystem. These differ with regard to the granularity of the information on the holder's side. The sector module provides aggregate information on the holdings of institutional sectors resident in each country. The group module provides information on the individual holdings of a small number of banking groups (or holder-by-holder information) where these are the largest groups with head offices in the euro area. The third and final module solely relates to holdings by the Eurosystem, including the own holdings of each participating NCB. The sector module is currently reported by the Central Bank of Ireland whereas the group module is not yet applicable. The latter will come into effect from late 2018 on foot of the designation of a number of Irish-headquartered banking groups. The data presented throughout this Article relates solely to the sector module.

# The Policy Framework of the International Monetary Fund (IMF): An Overview of Recent Developments

Mary J. Keeney<sup>1</sup>

## Abstract

This Article outlines some key IMF policy developments, discusses their global financial implications and highlights some direct implications for Ireland as a member of the IMF. The passing of the 14th General Review implied significant reforms to the IMF's lending capacity, country representation and governance as well as to the conditions under which Members can access resources. Other recent changes include a fundamental modification of the exceptional access framework and lending into arrears policies as well as the recognition by the IMF of the global currency status of the Renminbi. The Article concludes with a brief discussion of future challenges for the IMF.

<sup>1</sup> The author is Acting Head of Function (International Relations) in the Monetary Policy Division of the Central Bank of Ireland. The views expressed in this article are strictly the views of the author and are not necessarily those held by the Central Bank of Ireland or the European System of Central Banks.

## 1. Introduction

The International Monetary Fund (IMF) is an international financial organisation headquartered in Washington D.C. of 189 countries working to foster global monetary cooperation, secure financial stability, facilitate international trade, promote high employment and sustainable economic growth, and reduce poverty around the world.<sup>2</sup> The IMF operates through its extensive policy framework which underpins the Fund's responsibilities for surveillance, financial assistance and capacity development. This Article outlines some recent IMF policy developments, discusses their global implications and highlights some direct implications for Ireland as a member of the IMF. The next section explains how the IMF is organised and how it is financed. Section 3 assesses the eventual ratification of the 14th General Review which implied significant reforms to the IMF's lending capacity, country representation and governance as well as to the conditions under which Members can access resources. Section 4 looks at changes to the IMF lending framework. Other recent changes including the fundamental modification of the exceptional access framework, lending into arrears policy and the recognition by the IMF of the global currency status of the Renminbi will be discussed in subsequent sections. Finally, the Article concludes with a brief discussion of future challenges for the IMF.

## 2. IMF Organisation and Finances

Member countries contribute funds to a pool through a quota system from which countries experiencing balance of payment difficulties can borrow. A country's quota is based broadly on its relative size in the world economy, determines a member country's monetary commitment to the Fund, its voting power and has a bearing on its access to IMF financing. The IMF's Board of Governors conducts general quota reviews at regular intervals (usually every five years). In addition to providing financial assistance, the IMF has a

global and country-specific surveillance remit. The organisation monitors global economic trends and developments that affect the health of the international monetary and financial system and advises member countries on sound economic and financial policies. While the Board of Governors is the highest decision making body, the 24 member Executive Board is responsible for conducting the daily business. A Board Member ('Constituency') can represent one or multiple member countries with the votes of each member equal to the sum of its basic votes (equally distributed amount all members) and quota-based votes. Therefore a member's quota determines its voting power.

The Special Drawing Right (SDR) is an international reserve asset, created by the IMF in 1969 to supplement the existing official reserves of member countries. SDRs are allocated to member countries in proportion to their IMF quotas. The SDR also serves as the unit of account of the IMF. Its value is based on a basket of key international currencies. The Euro has a current exchange rate of 1.27 Euro to one SDR.

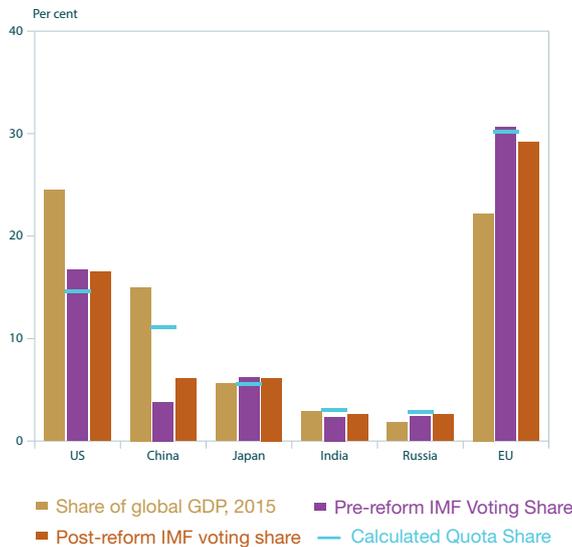
## 3. The 14th General Review of Quota and Governance

In December 2010, IMF Board of Governors approved a package of quota and governance reforms including a doubling, on average, of IMF members' quotas and a major realignment of quota shares among members.<sup>3</sup> The reform had two purposes: first, to boost resources which had come under strain as a result of the Global Financial Crisis; and second; to rebalance voting rights in favour of underrepresented members, notably emerging market economies. European members, including Ireland, ratified the reforms quickly. The United States (US), which holds over 15 per cent of the IMF voting power, delayed ratification of their domestic legislation. Ratification by three fifths of Fund members representing 85 per cent of the total voting power is necessary for the reform to take effect. As such, the 14th General Review could

<sup>2</sup> It was conceived at a UN conference in Bretton Woods, New Hampshire, United States, in July 1944 to avoid a repetition of the competitive devaluations that had contributed to the Great Depression of the 1930s. It came into formal existence in 1945 with 29 member countries. Ireland joined the IMF in 1957.

<sup>3</sup> The IMF governor is usually either the Finance Minister or Central Bank Governor of the IMF member country.

**Chart 1: Share of global economic output vs voting shares in the IMF under the 2010 reforms**



Source: Author's calculations, IMF WEO database.

not proceed until the US ratified. It was only six years later, on December 18 2015, that the United States Congress finally adopted the necessary legislation and the 14th Review came into force on January 26 2016.

### Governance reform

The reforms resulted in a shift of more than 6 per cent of quota shares to emerging market and developing countries and an equivalent shift from over-represented countries to under-represented countries, while protecting the quota shares and voting power of the poorest members. China will now have the third largest IMF quota and voting share after the United States and Japan (Chart 1). For the first time four emerging-market countries (Brazil, China,

India, and Russia) will be among the 10 largest members of the IMF.<sup>5</sup>

As shown in Chart 1, advanced economies and the European Union IMF members collectively experienced the largest voting-share declines, while that of the US dropped marginally from 16.7 per cent to 16.5 per cent allowing it to retain its blocking minority for key policy IMF Executive Board decisions. Ireland's voting share (and quota) increased from 0.53 per cent (SDR 1,297.6 million) to 0.71 per cent (SDR 3,449.9 million) which has largely corrected Ireland's underrepresentation. On an measure of over-representedness (the difference between actual quota shares and calculated quota shares<sup>6</sup>), the post 2010 reforms voting share of advanced economies still remains relatively high, despite being reduced by over a third.

### Advanced European Country representation

In 2010, advanced European countries across 10 constituencies<sup>7</sup> made a commitment to reduce their combined Board representation on the 24 member Executive Board by two chairs. To date, it is estimated that 1.64 of the two seat commitment has been achieved.<sup>8</sup> Ongoing constituency agreements, determining the rotation and sharing of executive board seats, currently imply that advanced EU countries will have two seats less after the upcoming election of the IMF Executive Board. At the same time, the delivery of the two chairs is not ensured for 2018. Ireland does not have or share an IMF Executive Board seat and cannot contribute to this commitment.<sup>9</sup>

- 4 The 14th Review also implied changes for the way the Executive Board operates, for example, requiring all Executive Directors to be elected and ending the category of appointed Executive Directors.
- 5 Other top 10 members include the four largest European countries (France, Germany, Italy, and the United Kingdom).
- 6 Using the current quota formula and intervening data updates, calculated quota shares simulate the quota which could theoretically apply between quota reviews. Comparing calculated with actual quota shares gives an indication of the representedness of the country member and/or the potential for future changes in governance and representation.
- 7 The IMF's 24-member Executive Board takes care of the daily business of the IMF. Together, these 24 board members represent all 189 countries. Large economies, such as the United States and China, have their own seat at the table but most countries are grouped in constituencies representing 4 or more countries. The largest constituency includes 24 countries. With 10 Caribbean countries, Ireland is a member of the Canadian constituency and holds the Alternate Executive Director role permanently.
- 8 Belgium and the Netherlands, each previously with a board representative, consolidated into one, freeing up one Executive Board seat. Switzerland agreed to share its seat with Poland, which counts as an emerging economy, increasing emerging market representation by half a seat. An expanded Nordic-Baltic constituency to include Baltic countries - also emerging economies - has further reduced the advanced European share in favour of emerging markets, albeit still from Europe.
- 9 Ireland currently has a permanent Alternative Executive Director at the IMF who sits at the Executive Board when our Canadian Executive Director cannot attend.

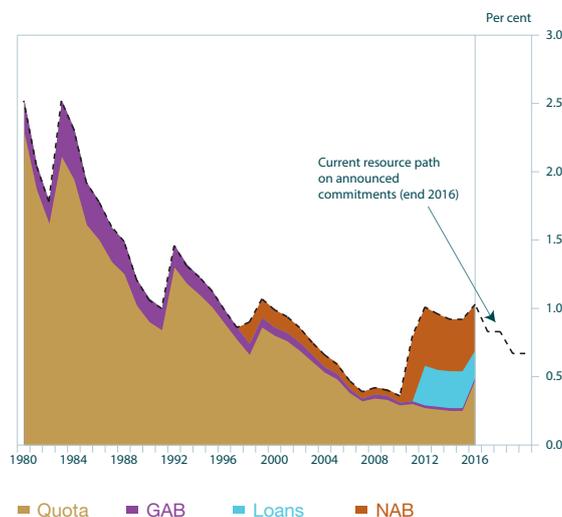
Moreover, the fragmentation of votes across different constituencies is deemed to add some coordination challenges for the highly interconnected members of the euro area. The ECB, EU Commission and non-EU members of the IMF support a single representation of the euro area at the IMF. The 2015 *Five Presidents Report* on Deepening Economic and Monetary Union refers to the importance of the euro area in international trade, backed by a unified trade policy. It also indicates that the euro area should have a single voice internationally due to our 'Banking Union' together with our single monetary and exchange rate policy. The European Commission on 21 October 2015, as part of its package to strengthen and deepen the Economic and Monetary Union, therefore put forward a proposal for a more unified representation of the euro area at the IMF by 2025.<sup>10</sup> Discussions on this proposal are ongoing given that there is some resistance to the proposal at individual country level.

### Composition of Fund lending resources

The recent quota reforms also improved the quality of Fund lending resources. Having more permanent resources in the form of quotas will mean the Fund can lend without having to rely on the secondary multilateral agreements to borrow or bilateral borrowing agreements or purchase note agreements with individual countries.<sup>11</sup> Non-quota resources are temporary by definition and are less stable as they often require national political approval with each renewal and/or expansion.

During the financial crisis, it looked likely that quota resources could fall short of the projected global financial needs (Chart 2). In 2011, the supplementary funding agreement known as the New Arrangements to Borrow (NAB) was expanded from SDR 38 billion to SDR 370 billion, with the addition of 14 new participants, including those from a number of emerging market countries (Chart 2). The expanded NAB has since been activated ten

**Chart 2: IMF Resources as a percentage of external liabilities**



Source: Bank of England, Lane and Milesi-Ferretti (2012) and own calculations.

times with the last activation on October 1, 2015. As part of the 14th General Review, the NAB was rolled back from SDR 370 billion to SDR 182 billion. In November 2016, the IMF's Executive Board approved its renewal for another five years starting in November 2017 at this lower level. A key risk for this funding source is that US participation is not guaranteed in the long term. A key condition of the US ratification of the 14th Review was the imposition of a sunset clause that Congressional approval is required for continued US participation in the NAB after 2022. These non-quota developments indicate that the significant uncertainty about the balance between temporary and permanent resources for the Fund will continue into the medium term.

### Borrowing agreements

As the third line of defence after quota and NAB resources, and highly relevant during the Global Financial Crisis, the IMF signed a

<sup>10</sup> Communication from the Commission to the European Parliament, the Council and the European Central Bank - A roadmap for moving towards a more consistent external representation of the euro area in international fora, COM(2015) 602 final; Proposal for a Council Decision laying down measures in view of progressively establishing unified representation of the euro area in the International Monetary Fund, COM (2015) 603 final.

<sup>11</sup> The IMF maintains two standing multilateral borrowing arrangements—the New Arrangements to Borrow (NAB) and the General Arrangements to Borrow (GAB). These are backstop resources intended to temporarily supplement available quota resources and borrowing. If activated, participating creditor countries make loans to the IMF, and the IMF uses those funds to provide loans to eligible countries.

number of bilateral loan and note purchase agreements with individual member countries. On August 29 2016, the Executive Board agreed a new framework to at least maintain temporary access to bilateral borrowing. While reiterating that the Fund must remain a quota-based institution, it was recognised that securing continued access to temporary bilateral borrowing was necessary to maintain the Fund's overall lending capacity amid elevated uncertainty and risks in the global economy. The last set of bilateral borrowing agreements agreed in 2012 had two-year terms initially and came to represent close to a third of the Fund's overall lending capacity. These were extended by one year in 2014 and again in 2015 in light of the non-ratification of the 14th Review and continued vulnerabilities in the global economy. The IMF has expressed concerns about the potential decrease of the Fund's total lending capacity to about SDR 470 billion after the phased ending of these bilateral agreements which commenced in October 2016. The decrease could significantly decrease IMF resources as a percentage of external liabilities (Chart 2).<sup>12</sup>

#### **Quota formula**

As requested by the Board of Governors in completing the 14th General Review of Quotas and Governance, a comprehensive review of the quota formula was carried out in early 2013. While important progress was made on key elements that could form the basis for a new formula, it was agreed that achieving broad consensus on a new formula could best be tackled in the context of the 15th General Review of Quotas, which will be discussed later in 2016 and 2017. The quota formula must continue to ensure that future quota allocations reflect the global importance of small, open and dynamic emerging market and developing economies.

#### **4. Changes to the IMF lending frameworks**

A key condition for the US ratification of the 14th General Review was the repeal of the "systemic risk exemption" clause from the IMF's "exceptional access framework". The systemic exemption had previously allowed the Fund to grant exceptionally large financial assistance to Greece, Ireland and Portugal in 2010 and 2011 relative to respective quota size because of the risk of spillovers and financial instability. These loans were made without requiring a public sector debt restructuring even though there were uncertainties, at the time, about the sustainability of official debt in each of the countries. In the decade before the crisis, there was virtually no IMF lending to EU countries; by the end of 2012, the EU share of outstanding IMF loans was more than 70 per cent, with most of these loans going to these three euro area countries. These financial assistance programmes also stood out in net international financial liabilities terms: each had external financial liabilities of close to 100 per cent of GDP at the onset of their Programmes, well above the 43 per cent that was the average for all other IMF Programmes countries in the previous decade (Pisani-Ferry et al, 2013).

Aside from creating substantial exposure risk for the Fund itself, the systemic exemption has been criticised on a number of fronts. Analysis suggests that it delayed necessary policy adjustments in borrowing countries, exacerbated the debt overhang and held back sustained economic recoveries. *De facto*, it was also considered ineffective in mitigating spillover risks (Taylor, 2014; IMF 2014). Removal of the systemic exemption was a US condition for ratifying of the 14th Review. As a result, the Fund is now able to make financing conditional on a broader range of debt operations, including the potentially less disruptive option of a "debt reprofiling". Creditors can be asked to defer or reprofile their debt service payments for a number of

<sup>12</sup> Discussion with creditors are ongoing. At end 2016, 25 members of the Fund had committed a total of SDR 243 billion in bilateral borrowed resources with an initial term to end-2019, with some extendable for a further year to end-2020 with creditors' consent.

**Table 1:** Financing needs, sources and exposure to quota of euro area borrowers

€ billion	Greece	Ireland	Portugal
	10Q2-13Q2	2010-2013	2011-2014
	€ billion	€ billion	€ billion
<b>Gross Financing Need</b>	<b>192.8</b>	<b>98.9</b>	<b>105.0</b>
Debt issuance/roll-over	93.5	48.9	47.0
Privatisation	0.0	0.0	5.0
Net financing need	99.2	50.0	53.0
Bank support	10.0	35.0	25.0
<b>Total Financing Need</b>	<b>109.2</b>	<b>85.0</b>	<b>78.0</b>
<i>Of which:</i> Contribution IMF	30.0	22.5	26.0
Contribution ESFM, EFSF, ESM and bilateral lenders	80.0	45.0	52.0
Use of country's financial buffers	-	17.5	-
IMF exposure: EFF Approval % to quota:	2,159%	2,322%	2,306%
	(Mar 15, 2012)	(Dec 16, 2010)	(May 18, 2011)
General Government debt (% GDP in 2010)	145.8	86.8	96.2
General Government debt (% GDP in 2013)	176.9	119.9	129.0

Source: European Commission programme documents (The Economic Adjustment Programme), IMF Financial Data, WEO Database April 2016

Note: The financing needs of Greece are taken from the first programme in 2010 only

years, in the expectation that the country's adjustment programme will enable it to return to growth and postpone its repayments.<sup>13</sup>

Under the new policy, if there are concerns about the sustainability of public debt, Fund engagement is conditional on measures being undertaken to improve the debt sustainability outlook, for example through debt reprofiling operations or the provision of other concessional official financing. Importantly in a monetary union context, the new policy still allows the IMF to deal with rare "tail-event" cases where even a reprofiling is considered untenable because of contagion risks. In these supposed rare cases, the IMF should still be able to provide new large-scale financing without a debt operation, but would require that other official funders also provide financing to backstop debt sustainability concerns and safeguard IMF resources.

In a Programme situation, it has become normal that financial support from other official creditors occurs jointly with IMF financial support. The relative "burden sharing" between the Fund and other official creditors has depended on the country circumstances and has differed from programme to programme. Euro area programmes were some of the largest in the Fund's history, both in SDR terms and as a per cent of quota, reflecting the size of the financial systems, the adjustment challenges and the close integration of these economies into global capital markets (IMF 2015). The 2010 loan to Greece, for example, was 2,159 per cent of Greece's quota at the IMF. The 2011 loan to Ireland was 2,322 per cent of our quota at the time.

In 2012, concessions on lending conditions for Greece introduced the possibility of reprofiling into the EU lending policies. The conditions of EFSF lending were amended accordingly, and

<sup>13</sup> There are some good precedents for this approach. Faced with looming cliffs in their debt service obligations, Uruguay in 2003 and Dominican Republic in 2005 reprofiled their debt with IMF support. Both recovered quickly and the hit to their creditors was small.

the other EFSF program countries, Ireland and Portugal similarly benefited from debt relief in the form of significantly increased maturities (Schumacher and di Mauro, 2015). The EFSF/EFSM and bilateral lenders decreased lending rates (by the removal of the interest rate margins) with a substantial extension of loan maturities.<sup>14</sup> With the removal of these margins, IMF loans became relatively expensive. This motivated Ireland's 2014 decision to repay the more expensive portion of the IMF loans early: on 20 March 2015 Ireland completed the third and final early repayment of Ireland's IMF loan facility bringing cumulative repayments to approximately SDR15.7 billion. This represents a repayment of just over €18 billion, or 81 per cent of Ireland's original €22.5 billion IMF loan facility. These repayments discharge IMF principal repayment obligations that were originally to fall due from July 2015 to January 2021 and were replaced with less expensive market-based funding.

## 5. Access limits and surcharge policy

To avoid excessive reliance on Fund financing and potential delays in adopting appropriate adjustment measures, the Fund has put in place limits on the amount of borrowing relative to quota and imposes surcharges on large – relative to quota – sized loans. In the context of the doubling (on average) of the quotas with the 14th Review, the access and surcharge policy was reviewed to ensure a wider level of access to fund lending resources.<sup>15</sup> A second objective, through adjusting the surcharge limits, was to marginally increase the incentive for early repayment of extended fund facility (EFF) borrowing.<sup>16</sup> If credit outstanding remains above 187.5 per cent of quota after 51 months (increased from 36 months<sup>17</sup>), the level-based surcharge on the interest rate is augmented

with a time-based element and the total surcharge level rises to 300 basis points.

When Ireland first entered an IMF extended arrangement, the outstanding balance was well above the then surcharge limit and these changes would have had very significant monetary implications for Ireland. However, due to the early repayment of the Irish IMF loans, the changes now have no implications for Ireland.<sup>18</sup> Of specific relevance to Ireland, however, is the threshold for determining required Post Programme Monitoring (PPM) by the IMF. Ireland's outstanding credit, at 110 per cent of quota, ensures Ireland remains within the limit for continued post programme monitoring. This was an important condition for European and bilateral lenders' agreement to facilitate the early repayment of the Irish IMF loans in 2014.

## 6. IMF lending-into-arrears policy

On December 8 2015, the IMF Executive Board approved a reform of its non-tolerance of arrears in its lending policy, which allows the Fund to provide financing to a country even if it is in arrears to official bilateral creditors (IMF 2015b). Unlike the Fund's previous lending-into-arrears (LIA) policy for private creditors, the Fund was prevented from lending to countries if they had unresolved arrears to official bilateral creditors unless the arrears were covered by a Paris Club agreement or the creditor consented to the Fund providing financing. Coinciding with the global financial crisis, there was an increase in the number of (non-Paris Club) countries providing official finance to other sovereigns.<sup>19</sup> Countries such as China, Brazil, India and Saudi Arabia have become and are expected to remain increasingly important lenders.

<sup>14</sup> The maturity on Ireland's loan was increased from between 2016-29 to 2029-2042 and on Portugal's loan from 2015-38 to 2025-2040, increasing the weighted average maturity to more than 20 years (EFSF 2013a, 2013b).

<sup>15</sup> The new access annual and cumulative limits are 145 and 435 per cent of new quota, respectively from 200 and 600 per cent of old quota respectively, resulting in an average increase of 45 per cent on average in SDR terms.

<sup>16</sup> Previous to the 14th review surcharges were payable at 300 per cent of quota. After this change, a rate of 200 basis points will be paid on the amount of credit outstanding above 187.5 per cent of quota. If credit remains above 187.5 per cent of quota after three years, this surcharge rises to 300 basis points.

<sup>17</sup> This was to better align time-based surcharges with the start of IMF repayments (normally after 54 months under extended arrangements).

<sup>18</sup> On December 31, 2013 our outstanding balance stood at SDR 19.465 billion and now stands at SDR 3.773 billion.

<sup>19</sup> The Paris Club is an informal group of 20 creditor countries with "large exposures" to other sovereigns across the globe.

A second issue with the previous policy was that it could give rise to situations in which official creditors holding a minority of the claims on a country could block or delay IMF support to that country, even when the majority were willing to restructure or refinance their claims. With a potential veto power over IMF financing, individual creditors could hold out from any restructuring or refinancing agreements amongst other official creditors in the hope they could get better terms directly from the debtor. This would delay the resolution of any debt crisis and could lead to an involuntary default, raising costs to all parties. The changed policy allowed the IMF to move ahead with a substantial tranche of support and a substantial debt restructuring deal for Ukraine despite a sovereign loan outstanding to Russia, which was deemed to be acting in bad faith as an IMF member country.

Under the changed rules, the Fund will engage a two-step process: in the first step all creditors would be encouraged to reach a consensus. While the Paris club is a well-established forum for official sector involvement, the Fund would also recognise agreements reached in other representative fora, should such fora emerge. If an agreement cannot be reached and the Paris Club grouping is “adequately representative” of all official creditors, the Fund should still be able to lend to countries in official arrears under certain circumstances. Using the principle of ‘comparable treatment’ with non-Paris Club creditors, the new policy strengthens the incentive for collective action and should prevent holdout situations preventing the resolution of sovereign debt problems. Moreover, the new LIA policy allows those official bilateral creditors who are owed arrears to give their consent to IMF financing. The IMF Executive Board agreed that, given the importance of the policy change, and depending on the complexity and number of cases that arise, the policy may need to be reviewed within a relatively short period, namely, two to three years.

## 7. Including of the Renminbi into the SDR basket – 1 October 2016

Special drawing rights (SDR) are supplementary foreign exchange reserve assets defined and maintained by the IMF. While not a currency per se, they represent a claim to currency held by IMF members for which they are exchanged. The value of the SDR is based on a basket of key international currencies reviewed by the IMF every five years. Before the recent review there were four currencies: the US dollar, euro, Japanese yen and pound sterling. The weights assigned to each currency in the SDR basket are adjusted to take into account their current prominence in terms of international trade and national foreign exchange reserves.

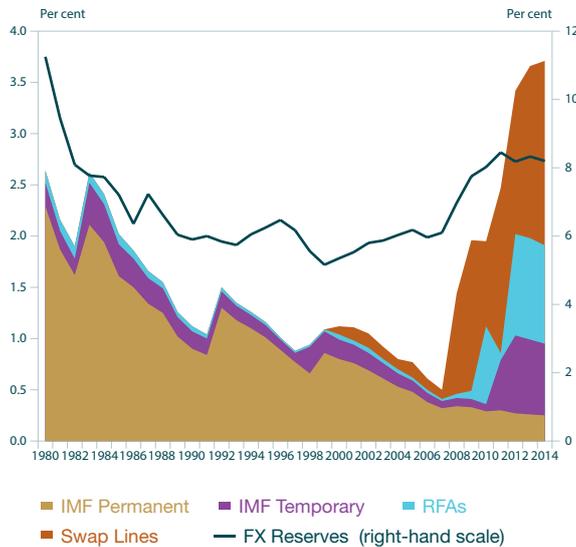
In its most recent review conducted in November 2015, the Executive Board decided that the Renminbi (RMB) meets the amended criteria, agreed in 2000, for SDR basket inclusion. These encompass an export criterion and the “freely usable” criteria determined as the currency being widely used to make payments for international transactions and traded in the principal exchange markets. Effective from October 1, 2016, the RMB is now the third largest currency in the five-currency SDR basket with a weighting of just over 10.9 per cent of the total.<sup>20</sup> The amount of each currency in the revised basket was calculated on September 30, 2016 in accordance with each currency’s weights and its average exchange rate over the three months to that date.

## 8. Future challenges to the IMF

Even with the entry into the 14th General Review, the share of permanent quota resources at the IMF as a share of global external liabilities has declined sharply (Chart 2). Over the past 20 years, the ‘global financial safety net’ (GFSN) has become broader and more fragmented, with reserve holding, particularly by China and some other EMEs,

<sup>20</sup> The US dollar holds the largest weight at 41.73 per cent. The Euro represents 30.93 per cent compared with 37.4 per cent at the 2010 Review. The Japanese Yen and Pound sterling have 8.33 per cent and 8.09 per cent respectively.

**Chart 3: Global Financial Safety Net as Percentage of External Liabilities, 1980-2014**



Source: IMF WEO, IMF IFS, Central bank websites, RFAs, Lane and Milesi-Ferretti (2012) and Bank of England calculations.

Note: The ratification of the IMF's 14th General Review of Quotas sees the IMF permanent resources double from 2015 onwards.

regional financing arrangements and central banks swap lines becoming more prominent (Chart 3). IMF funding is fragile with borrowed resources accounting for an unprecedented three quarters of the total GFSN. Globally, reserves are distributed very unevenly across and within regions. Further, the distribution of reserves does not correspond well to the distribution of risks.

Access to other liquidity providers rather than the IMF varies substantially across regions, depending chiefly on whether regional financing arrangements (RFAs) exist.<sup>21</sup> In particular, many emerging market economies do not have access to an RFA. Where these do exist, many are untested and potential RFA-IMF coordination could lead to inefficiencies, given sometimes diverging objectives and operational decision-making structures. Taking the ESM as a direct funding model for the IMF, Shafik (2015) suggests it should be possible for the IMF to

borrow directly from capital markets during a crisis. This could provide less-precarious funding for the IMF, allow more flexibility regarding its forward lending capacity, and because risks would be pooled at the global level, would be attractive for capital market investors.

The IMF is mandated to oversee and ensure the effective operation of the international monetary system (IMS) globally. As the IMF can combine country surveillance and lending to prevent crises, a reliable and flexible resource base allows the IMF to meet its crisis prevention mandate. The discussion on the appropriate size of the IMF can also be seen against its available lending toolkit. Early this year (2017), the IMF Executive board will reassess the Fund's suite of lending instruments.<sup>22</sup> By making its short-term and flexible funding more attractive, pre-qualifying for lines of liquidity support could overcome stigma concerns regarding the use of precautionary facilities and reduce the risk of moral hazard when appropriate conditionality and other safeguards are attached.<sup>23</sup> Further, current access to IMF resources is by definition linked to actual or potential balance of payments needs in line with the IMF mandate. A new instrument to provide policy monitoring (without financing assistance) or implied balance of payment difficulties could serve to improve cooperation across the global financial safety net. This could be with other regional financing arrangements (RFAs), other international financial institutions, bilateral or private financing sources. At present, the principles for cooperation are very general and give only little indication of how the Fund should interact with other lenders.

## Conclusion

The IMF's mandate and governance continues to evolve with changes in the global economy. This Article has outlined some key IMF policy developments, indicated their implications for

<sup>21</sup> The ESM is the RFA for the euro area. Underpinned by sovereign balance sheets, national governments provide the full amount of funds or provide capital which is levered by the ESM through private sector borrowing. Other than the ESM, the other main RFAs are the Chiang Mai Initiative Multilateralisation (CMIM) and the BRICs Contingent Reserve Arrangement (CRA). The latter two are built on a multilateral network of central bank swap lines, typically using members' foreign exchange reserves.

<sup>22</sup> See IMF paper "Adequacy of the Global Financial Safety Net – Considerations for Fund Toolkit Reform", SM/16/285 from 3 October 2016.

<sup>23</sup> These would be different from central bank swap lines which are a monetary policy tool.

the central role of the IMF in the international financial architecture and highlighted the implications for Ireland as a member of the IMF. Despite the 14th Review quota increases, the Fund remains highly dependent on temporary borrowing arrangements. The size of the Fund determines its pivotal role in the Global Financial Safety Net and enhancing global economic cooperation as per its mandate. Ongoing analysis and proposals to consider further enhancements to the Funds lending toolkit seek to address gaps in the global financial safety net and help countries adjust to a more interconnected global economy. A broader role for the SDR is also contributing to the functioning of the international monetary system.

Work on the 15th Review has been delayed, pending the full implementation of the 2010 reforms. The next General Review will allow the IMF to assess the adequacy of quotas in terms of members' balance of payments financing needs and in terms of its own ability to meet those needs. Importantly, a 15th General Review will allow for changes in members' quotas to reflect changes in their relative positions in the world economy. To do this, the quota formula needs to continue ensure a dynamic process of adjusting quota shares to reflect shifts in the global economy to further redistribute IMF voting power towards open, dynamic economies.

As shown during the 14th General Review, permanent quota-based IMF resources take time to mobilise since comprehensive negotiations and, in many cases, country-level parliamentary approval are required. It remains to be seen how quickly the 15th Review will proceed right on the heels of the implementation of the 14th Review.

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# Statistical Appendix

## Statistical Appendix

The publication of the Statistical Appendix of the Quarterly Bulletin was discontinued from Quarterly Bulletin 1 2014. Statistical data compiled by the Central Bank are accessible on the Statistics page of the Central Bank's website, <http://www.centralbank.ie/polstats/stats/Pages/default.aspx>. Some tables, previously published in the Statistical Appendix, have been expanded to provide more comprehensive data. A number of statistical tables, which were not published in earlier Bulletins, have also been added.

The list of statistical tables and links to access them on the website are given on the following page.

## STATISTICAL TABLES: CENTRAL BANK WEBSITE LINKS

### Money and Banking:

<http://www.centralbank.ie/polstats/stats/cmab/Pages/Money%20and%20Banking.aspx>

- Summary Irish Private Sector Credit and Deposits
- Financial Statement of the Central Bank of Ireland
- Credit Institutions – Aggregate Balance Sheet
- Credit Institutions (Domestic Market Group) – Aggregate Balance Sheet

### Business Credit and Deposits:

<http://www.centralbank.ie/polstats/stats/cmab/Pages/BusinessCredit.aspx>

- Credit Advanced to Irish Resident Private-Sector Enterprises
- Deposits from Irish Resident Private-Sector Enterprises

### Private Household Credit and Deposits:

<http://www.centralbank.ie/polstats/stats/cmab/Pages/HouseholdCredit.aspx>

- Credit Advanced to and Deposits from Irish Private Households

### Money Market Funds:

<http://www.centralbank.ie/polstats/stats/cmab/Pages/MoneyMarketFunds.aspx>

- Money Market Funds Aggregate Balance Sheet
- Money Market Funds Currency Breakdown of Assets

### Retail Interest Rates:

<http://www.centralbank.ie/POLSTATS/STATS/CMAB/Pages/Retail%20Interest%20Rate%20Statistics.aspx>

- Retail Interest Rates - Deposits, Outstanding Amounts
- Retail Interest Rates - Loans, Outstanding Amounts
- Retail Interest Rates and Volumes - Loans and Deposits, New Business
- Official and Selected Interest Rates

### Investment Funds:

<http://www.centralbank.ie/polstats/stats/investfunds/Pages/data.aspx>

- Ireland: Investment Funds Data

### Securities Issues:

<http://www.centralbank.ie/polstats/stats/sis/Pages/Issues.aspx>

- Securities Issues Statistics

### Financial Vehicle Corporations:

<http://www.centralbank.ie/polstats/stats/fvc/Pages/data.aspx>

- Irish Financial Vehicle Corporations

### Locational Banking Statistics:

<http://www.centralbank.ie/polstats/stats/locational/Pages/data.aspx>

- Total Positions of Banking Offices Resident in Ireland vis-a-vis Residents and Non-Residents

### Quarterly Financial Accounts:

<http://www.centralbank.ie/polstats/stats/qfaccounts/Pages/Data.aspx>

- Financial Accounts for Ireland: Q1 2012 to present – ESA 2010

### Public Finances and Competitiveness Indicators:

<http://www.centralbank.ie/polstats/stats/sis/Pages/SecuritiesHoldingsStatistics.aspx>

- Gross National Debt
- Holdings of Irish Government Long-term Bonds

<http://www.centralbank.ie/polstats/stats/Pages/hcis.aspx>

- Nominal and Real HCIs



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