



Banc Ceannais na hÉireann
Central Bank of Ireland

Eurosystem



Quarterly Bulletin

QB2 – April 2018

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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 and by telephone at 353 1 2246380.

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Forecast Summary Table

	2016	2017 ^e	2018 ^f	2019 ^f
Real Economic Activity				
(% change)				
Personal consumer expenditure	3.3	1.9	2.9	2.5
Public consumption	5.3	1.8	2.9	1.9
Gross fixed capital formation	61.2	-22.3	9.5	8.6
Exports of goods and services	4.6	6.9	4.9	4.2
Imports of goods and services	16.4	-6.2	5.2	4.5
Gross Domestic Product (GDP)¹	5.1	7.8	4.8	4.2
Gross National Product (GNP)	9.6	6.6	4.4	3.9
External Trade and Payments				
Balance-of-Payments Current Account (€ million)	9,196	37,099	34,177	33,280
Current Account (% of GNP)	3.3	12.5	10.9	10.1
Prices, Costs and Competitiveness				
(% change)				
Harmonised Index of Consumer Prices (HICP)	-0.2	0.3	0.8	0.9
of which: Goods	-3.1	-2.1	-1.5	-1.5
Services	2.5	2.5	2.8	2.9
HICP excluding energy	0.4	-0.1	0.7	1.2
Consumer Price Index (CPI)	0.0	0.3	0.7	1.0
Compensation per Employee	1.4	3.0	3.2	3.4
Labour Market				
(% change year-on-year)				
Total employment	3.7	2.9	2.4	2.0
Labour force	1.9	1.0	1.2	1.2
Unemployment rate (ILO)	8.4	6.7	5.6	4.8
Technical Assumptions²				
EUR/USD exchange rate	1.11	1.13	1.23	1.24
EUR/GBP exchange rate	0.82	0.88	0.88	0.88
Oil price (\$ per barrel)	44.05	54.40	64.99	61.19
Interbank market – Euribor ³ (3-month fixed)	-0.26	-0.33	-0.31	-0.06

¹ Ireland's headline national account aggregates and their components have become significantly affected by the globalised activities of Irish resident multi-national enterprises. Consequently, GDP does not accurately measure the income flowing to Irish residents. GNI* along with corresponding adjusted presentations of the BOP/IIP provide more reliable and accurate estimates of the resources available to domestic residents and Ireland's international balance sheet.

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

³ 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.

Comment¹

The Irish economy continues to perform well, supported by the buoyancy of domestic economic activity and a broadly improving international growth environment. On the domestic side, strong and broad-based growth in employment, particularly full-time employment, has provided a stimulus to incomes, which has been augmented both by some pick-up in wage growth and the further boost to real purchasing power from subdued inflation. In addition to the positive impact of these gains, underlying economic activity has also benefitted from continuing favourable financial conditions and the ongoing improvement in sectoral balance sheets.

As the economy gets closer to full employment, wages should rise at a faster pace. While the latest data show a modest pick-up in the growth rate of average hourly earnings during the second half of last year, our forecasts are for further increases during this year and next. With inflation expected to remain modest over the next two years, rising wages will translate into higher real incomes and purchasing power for households.

The outlook remains positive and the central forecast is that the economy will continue on a favourable growth path. The latest forecasts contain small upward revisions to the projections for growth in 2018 and 2019, reflecting strong domestic momentum and the improved overall outlook for trading partner countries. The main impetus to growth this year and next is expected to continue to come from the strength of domestic demand, driven by further growth in employment and incomes, though some moderation in employment growth from current rates is projected over the forecast horizon. On the basis of the projections for growth in trading partner countries, net exports are also expected to make a positive contribution to growth this year and next.

While the central forecast is positive, it is important to recognise the intrinsic volatility of the Irish economy, given its high openness and extensive trade, technological and financial linkages to other economies. As such, unexpected events can trigger upside or

downside revisions to our forecasts, especially in relation to the longer-term path for the economy. It follows that public and private decision makers should ensure that choices are robust to unanticipated outcomes, rather than putting an excessive and unrealistic reliance on our central projections.

Looking ahead, Ireland is exposed to some prominent international tail risk factors, in particular, relating to the changing global taxation and trading environment, exchange rates and Brexit.

For Ireland, the location decisions of multinational firms are an important driver of overall economic prospects. While the recent US tax reform has some clear implications for the treasury operations of US multinationals, the net impact on geographical distribution of the productive activities of these firms is not clear, given the complex, multi-dimensional nature of the new tax law. More broadly, it will be important to assess the implications of other possible changes in international tax systems, including in relation to the taxation of digital activities. A related international risk is the threat to the international trading system if there were a widespread adoption of (explicit or implicit) protectionist measures.

A persistent shift in the dollar-euro rate would also be an influential factor in determining the location decisions of US multinational firms. While the current dollar-euro rate appears broadly in line with fundamentals, a more

¹ The Comment is adapted from the speech 'The Macro-Financial Environment in Ireland in Spring 2018' by Governor Philip R Lane at the Institute for European and International Affairs (IIEA), Dublin, 9 March 2018.

substantial and prolonged depreciation of the dollar would be a material influence in determining future location decisions.

Taken together, these trade, taxation and currency concerns mean that US-related downside risks require continuous monitoring and reinforce the importance of making decisions that are robust to such adverse outcomes.

Turning to Brexit, any increase in trade frictions between the UK and EU27 will generate a reduction in long-term living standards, compared to the counterfactual of maintaining the status quo. So far, the main channel by which Brexit has had a macroeconomic impact has been through the depreciation of Sterling against the euro since the referendum. This has affected exporters to the UK but also contributed to a decline in good prices in Ireland, given the important role of imports from the UK in the Irish consumption basket. However, the recovery in domestic demand and the positive global economic conditions have allowed the Irish economy to absorb the impact of Brexit so far.

As March 2019 draws closer, the resolution of the current uncertainty about the nature of future UK-EU relations has the potential to generate further economic and financial volatility, especially if there is an increasing likelihood of a harder version of Brexit. At a macroeconomic level, Ireland is especially exposed compared to other EU27 countries, especially if there is a downward shift in the prospects for UK economic growth or a further sustained depreciation in the value of Sterling.

Furthermore, if there is a substantial shift in the regime governing UK-EU trade, there will be a costly diversion of resources to setting up new logistics and trade-processing systems. If the costs of importing and exporting go up (including extra transit time and additional administrative burdens), the range of imported goods available to Irish consumers and firms may shrink, while domestic firms will find it more difficult to access export markets.

In terms of domestic policy, a balancing act is required. In one direction, the accumulation of good news about the trend path for the Irish economy calls for proportionate decisions about the paths for public spending and taxation, given the extra fiscal capacity to meet social preferences for increased provision of public services, increased transfers, expanded public investment or an adjustment in the tax burden. In the other direction, downside risks (together with the still-high level of public debt) call for a prudent approach that recognises the importance of building fiscal buffers during good times in order to enable more vigorous counter-cyclical fiscal interventions in the event of a future economic downturn.

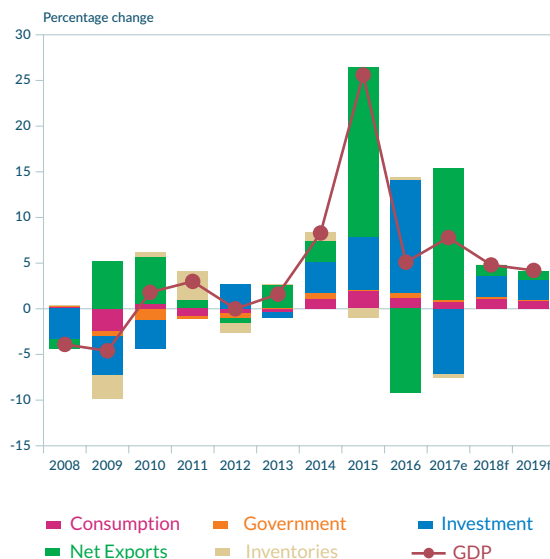
It is important to emphasise that fiscal prudence can be fully reconciled with ambitious fiscal plans. However, it is necessary to recognise the genuine trade-offs that exist, especially if the labour market returns to full employment.

The Irish Economy

Overview

- Following a strong outturn for 2017, the outlook for the economy remains positive. The latest forecasts contain small upward revisions to the projections for growth in 2018 and 2019, reflecting continued strength in domestic demand and a broadly improving international growth environment. In the absence of divergent trends in the globalised sectors of the economy, which boosted headline growth figures last year, growth is expected to be broadly reflective of the strength of underlying conditions.
- The preliminary 2017 National Accounts estimates point to GDP growth of 7.8 per cent in 2017. As has been the case in recent years, headline National Accounts measures were distorted by the activities of multinational enterprises (MNEs) leading to an overstatement of the underlying growth rate and a significant distortion in the relative contributions from net exports (overstated) and domestic demand (understated). Excluding these distortions, the underlying growth rate was in the region of 5 per cent and more balanced with positive contributions from both domestic demand and net exports.
- A strong underlying export performance last year was boosted by a significant pick-up in contract manufacturing activity outside the state by MNEs based here. As a result, export growth, on a National Accounts basis, at 6.9 per cent last year, exceeded growth in external demand by a significant margin. In contrast, a fall in import volumes in the first half of the year accelerated in the second half, resulting in a volume decline of 6.2 per cent for the year as a whole. The weakness in total imports was mainly attributable to a decline in imports of R&D related intellectual property assets of over 60 per cent together with a decline of almost 9 per cent in aircraft imports by leasing firms. Taking account of strong momentum from last year, and excluding any volatility that might arise from contract manufacturing, export growth should track the positive outlook for demand in Ireland's main trading partners both this year and in 2019. Accordingly, net exports are likely to

Chart 1: Contributions to GDP



Source: CSO and Central Bank of Ireland.

make a small positive contribution to overall GDP growth in both years.

- Underlying domestic demand¹ increased by an estimated 2.6 per cent in 2017 reflecting relatively modest increases in consumer spending, government consumption and underlying investment expenditure. A more positive outlook for both private consumption and investment spending over the forecast horizon should support a pick-up in underlying domestic demand growth to 4.3 per cent on average in 2018 and 2019.
- The preliminary estimate for growth in consumer spending last year of 1.9 per cent was surprisingly low given the strength of drivers such as employment, incomes and consumer confidence. The main source of weakness was in the consumption of services, which is estimated to have declined by 0.1 per cent, compared with an increase in goods consumption of 4.9 per cent, which occurred despite a decline in new car sales. Continued strength in income and employment should support a pick-up in consumer spending this year to 2.9 per cent, easing to 2.5 per cent in 2019.

¹ Underlying Domestic Demand (excluding stock building) = Consumer Spending + Public Consumption + Underlying Investment. Underlying Investment = Total Investment excluding other transport equipment and investment in Intangible Assets.

- The sharp decline in total investment of over 22 per cent last year following an increase of over 60 per cent in 2016 is typical of the highly volatile nature of investment spending in recent years. The source of this volatility has been large swings in the rate of investment in Intangible Assets and in the purchase of aircraft by firms based here. Underlying investment expenditure, which excludes other transport equipment & intangibles, increased by 5.7 per cent last year, reflecting a strong increase in building and construction investment that offset a decline in core machinery and equipment (M&E) investment. Volatility in the latter seems to reflect the impact of firm specific investment cycles in a small number of large multinational firms. Core investment spending is projected to rebound this year and, in the absence of divergent trends in IP and aircraft investment, this should be reflected in a similar recovery in total investment. In the construction sector, both housing and non-residential building are projected to continue the strong recovery of recent years. In addition, underlying machinery and equipment expenditure is likely to recover solidly in 2018 and in 2019 reflecting the strength of both external and domestic demand. Overall, investment spending is projected to grow by 9.5 and 8.6 per cent in 2018 and 2019, respectively.
- The recovery in the labour market continued last year with employment increasing by 2.9 per cent and unemployment declining to an average rate of 6.7 per cent. The strong momentum at the end of the year, with employment growth in the fourth quarter at its highest rate since 2006, has prompted an upward revision to the labour market outlook. Employment growth of 2.4 per cent is forecast for this year followed by growth of 2.0 per cent in 2019. The unemployment rate is projected to average 5.6 per cent this year, declining to 4.8 per cent in 2019.
- Consumer price inflation was subdued last year. The increase in the Harmonised Index of Consumer Prices (HICP) averaged just 0.3 per cent while the core HICP, which excludes energy prices, declined by 0.1 per cent. A gradual pick-up in inflation is expected for this year and in 2019 as the impact of past sterling weakness on goods price inflation fades and a pick-up in domestic demand pushes up services inflation. Headline inflation, as measured by the HICP, is projected to average 0.8 per cent this year, rising to 0.9 per cent in 2019.
- While improved prospects for growth internationally has prompted an upward revision to the outlook for the Irish economy, it should be noted that external factors are also the main source of significant tail risks to growth prospects here. This reflects the highly globalised nature of the economy and the consequent vulnerability to external shocks. Potential risks include a disruptive UK exit from the European Union next year, an increase in protectionist trade policies, changes to international tax regimes that can have an impact on FDI decisions by multinational firms and disruptive movements in bilateral exchange rates.

Box A: The International Economic Outlook
By Monetary Policy Division

The increase in global economic activity continues to firm up, with global output estimated to have grown by 3.7 per cent in 2017, 0.1 percentage point faster than projected in the Autumn. The IMF projects global growth to rise to 3.9 per cent in 2018 and in 2019, with a 0.2 percentage point upward revision. Risks to the global growth forecast appear balanced in the near term, but tilted to the downside over the medium term, as rich asset valuations and very compressed term premiums raise the possibility of a financial market correction that could dampen growth and confidence.

Economic data indicate continued strong and broad-based growth momentum in the euro area, with GDP growing by 0.6 per cent on a quarterly basis and by 2.7 per cent on an annual basis in the fourth quarter of 2017. This represents the nineteenth consecutive quarter of growth in the euro area. Household consumption is supported by rising employment, and business investment continues to strengthen on the back of favourable financing conditions, rising profits and solid demand. The March 2018 ECB staff macroeconomic projections, slightly revised up for 2018 compared with the December ones, foresee annual real GDP increasing by 2.4 per cent in 2018, 1.9 per cent in 2019, and 1.7 per cent in 2020.

The ECB assesses that risks surrounding the euro area growth outlook remain broadly balanced. On the one hand, the strong cyclical momentum could lead to further positive growth surprises in the near term; on the other hand, downside risks continue to relate primarily to global factors and developments in foreign exchange markets.

Turning to sentiment indicators, while the average reading of the Composite Purchasing Manager's Index (PMI) remains robust in the first quarter of 2018 and indicates GDP growth of the order of 0.7-0.8 per cent, there has been a loss of momentum since the buoyant start to the year. At 55.3 in March, down from 57.1 in February, the headline output index was at the lowest since January of last year and signalled a second successive monthly easing in the rate of expansion. On the other hand, the European Commission's consumer confidence indicator and economic sentiment indicator remain at historically high levels in March.

Euro area annual HICP inflation was 1.1 per cent in February, down from 1.3 per cent in January. This reduction mainly reflected negative base effects in unprocessed food prices. Measures of underlying inflation have remained stable, but subdued overall, with HICP excluding energy and unprocessed food increasing by 1.2 per cent year-on-year. The March ECB staff macroeconomic projections for the euro area foresee annual HICP inflation at 1.4 per cent in 2018, 1.4 per cent in 2019 (revised down slightly compared with the December forecast), and 1.7 per cent in 2020.

The economic expansion and the reduction of labour market slack give grounds for greater confidence that HICP will converge towards target. At the same time, domestic price pressures remain muted overall and have yet to show convincing signs of a sustained upward trend. The ECB considers therefore that an ample degree of monetary stimulus remains necessary for underlying inflation pressures to continue to build up and support headline inflation developments over the medium term.

In March, the Governing Council of the ECB decided to leave its key interest rates and net asset purchase programme (APP) unchanged. A sentence stating that the ECB was standing ready to increase the size of the APP if necessary was removed from the introductory statement. However, the Governing Council re-iterated its forward guidance on the interest rates, expected to remain at their present levels for an extended period of time, and well past the horizon of the APP.

Box A: The International Economic Outlook
By Monetary Policy Division

In the United Kingdom, the Office for National Statistics estimated a 0.4 per cent increase in GDP in the fourth quarter of 2017 compared to the previous quarter, unchanged compared with the third quarter. The latest activity indicators suggest an underlying pace of GDP growth in the first quarter of 2018 remaining similar to that in the final quarter of 2017.

The Bank of England's Monetary Policy Committee voted to leave the bank rate unchanged at 0.5 per cent at its March meeting, by a majority of 7-2. The committee also voted unanimously to maintain unchanged the stock of corporate bond purchases and UK government bond purchases. CPI inflation fell from 3.0 per cent in January to 2.7 per cent in February, and is expected to ease further in the short term although to remain above the 2 per cent target.

Turning to the United States, economic activity has been rising at a moderate rate. The US economy expanded an annualized 2.6 per cent on quarter in the last quarter of 2017, below 3.2 per cent in the previous period and market expectations of 3 per cent. Considering the whole year, the economy expanded by 2.3 per cent in 2017, higher than 1.5 per cent in 2016 and in line with the preliminary figures. The labour market has continued to strengthen, with job gains being strong in recent months, and the unemployment rate staying low.

Inflation on an annual basis is expected to move up in coming months and to stabilize around 2 per cent. In view of realized and expected labour market conditions and inflation, the US Federal Open Market Committee (FOMC) decided to raise the target range for the federal funds rate to 1.5 to 1.75 per cent in March. The Committee expects that the stance of monetary policy will support strong labour market conditions and a sustained return to the 2 per cent inflation target over the medium term.

Demand

Domestic Demand Overview

Both consumer and investment spending are expected to grow strongly in 2018 and 2019 with overall domestic demand projected to grow by 4.9 per cent on average over the period. Underlying domestic demand is expected to increase at a similar (albeit marginally weaker) rate, with growth of 4.7 and 4.0 per cent projected in 2018 and 2019, respectively.

Consumption

Personal consumption expenditure is forecast to grow by 2.9 per cent in 2018 and 2.5 per cent in 2019. The outlook for this year has been revised up (by 0.2 percentage points) since the last *Bulletin* mainly on account of stronger labour market developments and prospects.

In terms of higher frequency indicators, the latest set of retail sales data show strong momentum in consumer spending with the volume of core sales (i.e. sales less motor related trades) up 6.7 per cent year-on-year in the 3-month period to end-January. Consumer confidence remains high according to the ESRI/KBC Consumer Sentiment survey, although sentiment declined in February following a 17-year high in January as households became more cautious in relation to spending plans.²

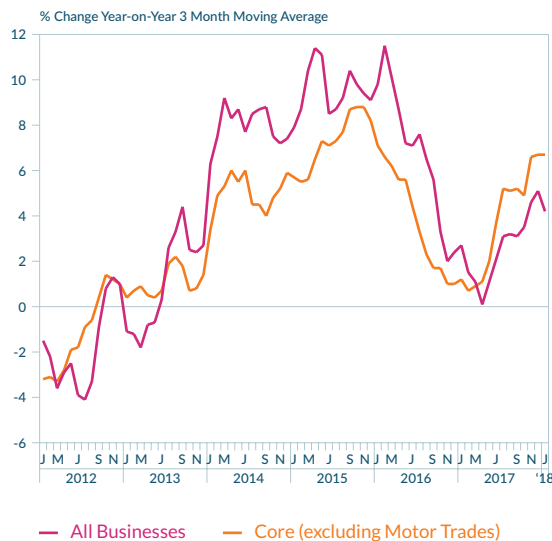
In 2017, personal consumption expenditure grew by 1.9 per cent according to the *Quarterly National Accounts (QNA)*. In the fourth quarter, consumption grew by just 0.3 per cent in seasonally adjusted terms compared with the previous period. These data were weaker than expected and appeared to reflect a combination of weak services related consumption – effectively flat last year – and lower levels of new car sales. As regards the

² The index fell by 5.2 points in February to 105.2, but was still 4.5 points higher than at the same point in 2017.

Table 1: Expenditure on Gross National Product 2016, 2017^e, 2018^f and 2019^f

	2016			2017 ^e			2018 ^f			2019 ^f	
	€ millions	volume	price	€ millions	volume	price	€ millions	volume	price	€ millions	
Personal Consumption Expenditure	96,613	1.9	1.3	99,727	2.9	0.9	103,543	2.5	1.3	107,511	
Public Net Current Expenditure	28,354	1.8	2.3	29,546	2.9	2.1	31,037	1.9	1.9	32,211	
Gross Domestic Fixed Capital Formation	87,662	-22.3	1.8	69,397	9.5	2.6	77,932	8.6	2.6	86,878	
<i>Building and Construction</i>	17,693	16.6	6.5	21,975	14.8	4.1	26,256	11.7	4.4	30,611	
<i>Machinery and Equipment</i>	20,533	-11.0	0.9	18,442	5.5	1.5	19,751	5.5	1.2	21,099	
<i>Intangibles</i>	49,436	-40.6	-1.2	28,981	8.0	2.0	31,925	8.0	2.0	35,169	
Value of Physical Changes in Stocks	2,383			2,411			2,411			2,411	
TOTAL DOMESTIC DEMAND	215,012	-8.0	1.6	201,081	5.1	1.7	214,923	4.6	1.9	229,012	
<i>Underlying Domestic Demand</i>	152,843	2.6	2.2	160,218	4.7	1.6	170,396	4.0	1.9	180,522	
Exports of Goods & Services	335,041	6.9	-0.8	355,419	4.9	0.5	374,783	4.2	1.3	395,677	
FINAL DEMAND	550,053	1.1	0.1	556,500	5.0	0.9	589,706	4.3	1.5	624,688	
Imports of Goods & Services	-274,398	-6.2	1.1	-260,253	5.2	1.3	-277,313	4.5	1.8	-295,109	
<i>Statistical Discrepancy</i>	-89			-95			-95			-95	
GROSS DOMESTIC PRODUCT	275,566	7.8	-0.3	296,152	4.8	0.6	312,298	4.2	1.3	329,485	
Net Factor Income from Rest of the World	-48,818	13.5	-0.8	-54,967	6.8	0.5	-59,012	5.4	1.3	-63,007	
GROSS NATIONAL PRODUCT	226,748	6.6	-0.2	241,185	4.4	0.6	253,286	3.9	1.3	266,477	
EU subsidies less taxes	993			1,056			1,109			1,167	
GROSS NATIONAL INCOME	227,741	6.6	-0.2	242,241	4.3	0.7	254,395	3.9	1.3	267,644	

former, the CSO referred to many services related components of consumption as being down last year, specifically public transport, communications with higher expenditure by non-residents. The data also contrast with very strong labour market developments (particularly in the fourth quarter – see below). Given these considerations and also the trend in data revisions in the QNA in recent years, it is possible that there could be an upward revision to the 2017 personal consumption expenditure data later in the year.³

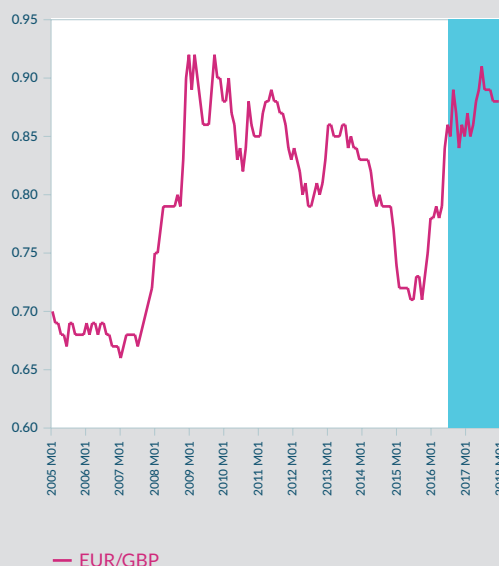
Chart 2: Index of Volume of Retail Sales


Source: CSO.

Box B: Sterling Depreciation

By Thomas Conefrey and Graeme Walsh⁴

Since the Brexit referendum on 23 June 2016, the value of sterling has depreciated by 12 per cent relative to the euro (see Figure 1). In February 2018, the euro averaged £0.88; this compares to an average value of £0.76 from 2001-2016. So far, this is the main channel through which Brexit has had a macroeconomic impact on the Irish economy. While recent research has investigated the impact of a weaker pound on consumer prices in Ireland, the purpose of this box is to examine the overall macroeconomic impact of a sterling depreciation on the Irish economy.⁵

Box B Figure 1: Euro/Sterling Exchange Rate, Monthly Averages


Source: Central Bank of Ireland.

⁴ Irish Economic Analysis Division

⁵ See Reddan, P. and Rice, J. 2017. Exchange Rate Pass-Through to Domestic Prices. Economic Letter no. 8. Central Bank of Ireland.

Box B: Sterling Depreciation

By Thomas Conefrey and Graeme Walsh

To quantify the impact of a sterling depreciation, we consider a scenario in which there is an exogenous shock to the value of sterling such that the pound depreciates by 10 per cent relative to the euro.⁶ The shock is assumed to be permanent. To perform this analysis, we use two structural econometric models called COSMO (Core Structural Model of the Irish Economy) and NiGEM (National Institute Global Econometric Model). We take a two-step approach. First, we use NiGEM to capture all of the changes to the international environment due to the shock. This includes the effect on the UK economy (such as GDP, volume of imports, price of exports, etc.) and, for completeness, the effect on Ireland's other main trading partners. Then in the second stage, we bring all of these external effects together and use the COSMO model to measure the impact of the shock on the Irish economy. To isolate the effect of the shock, we compare the responses of key macroeconomic aggregates in the shock scenario (i.e. with a permanent 10 per cent sterling depreciation) to a baseline without the shock.

Two of the most important channels through which a sterling depreciation would affect the Irish economy in the COSMO model are the competitiveness effect and the impact on foreign demand for Irish exports. A third mechanism is the pass-through effect to consumer prices.

1. A sterling depreciation would improve the relative competitive position of UK exporters and, consequently, would have a negative effect on the traded sector in Ireland, which would become less price competitive.
2. In terms of the impact on foreign demand for Irish exports, two offsetting effects would arise. The increase in UK exports and GDP would stimulate the demand for Irish exports, but because it would become more expensive for the UK to import from abroad, UK imports and the demand for Irish exports would be lower.
3. The depreciation of sterling would reduce Irish import prices, which would feed through to lower consumer prices. In line with Reddan and Rice (2017), the effect on consumer prices would be more gradual and partial than the decline in import prices.

Figure 2 shows the effect of the sterling depreciation shock on Irish output by broad sector. The traded sector accounts for most of the impact, with the level of output about 0.4 per cent lower after 3-4 years before falling back to 0.2 per cent lower in the long run. The decline in traded sector output is driven by the deterioration in Ireland's relative competitive position following the sterling depreciation. The reduction in traded sector output and exports would have consequences for other parts of the economy as modelled in COSMO. Investment would decline and combined with lower traded sector output, this would lead to a small fall in employment and wages. This in turn would reduce household consumption. With lower domestic demand, there would also be a fall in non-traded sector output. Due in part to the relatively small effect of the shock on the non-traded sector, the aggregate impact on the level of GDP is just under -0.2 per cent in the long run. In terms of inflation, the fall in import prices would result in the level of consumer prices being around 0.3 per cent lower in the short run. The fall in prices would help to moderate the decline in real incomes and consumption as a result of the shock.

Box B Figure 2: Effect of Sterling Depreciation on Output, % change from Baseline



Source: Author's Calculations.

⁶ Note that other types of exchange rate shocks, for example, endogenous exchange rate shocks, may have different effects than those reported here.

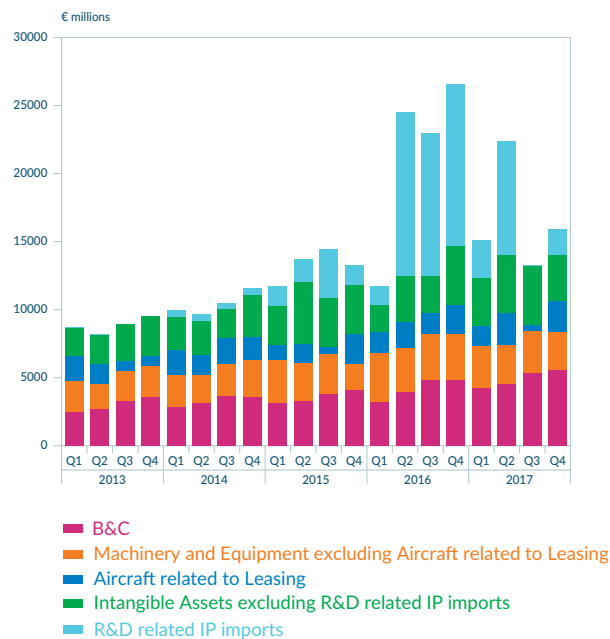
Box B: Sterling Depreciation*By Thomas Conefrey and Graeme Walsh*

It is useful to compare the realised outturn for some key macroeconomic aggregates in the post-Brexit sterling depreciation to the outcomes suggested by the model. Since 2016, Irish inflation has been weak with HICP inflation measuring -0.2 per cent and 0.3 per cent in 2016 and 2017 respectively. These rates are lower than in the rest of the euro area. Reddan and Rice (2017) show that sterling weakness is a significant contributory factor to the weak inflationary trend evident in recent years. This is consistent with the results in this Box showing the dampening effect of a sterling depreciation on Irish consumer prices. For exports, a comparison of the model predictions to the actual outturn for exports presents a more complex picture. In 2016, the value of overall goods exports increased by 6.1 per cent, but within this exports to the UK fell by 3.1 per cent, consistent with the simulation results. The decline in exports occurred in sectors such as food and meat, which have a particular exposure to the UK market. In 2017, the value of Irish exports to the UK increased by 8.2 per cent, despite the continued weakness of sterling. This suggests that while Irish firm's exports to the UK were negatively impacted by the large initial depreciation of sterling in 2016, exports were somewhat less affected by the subsequent smaller depreciation in 2017. It is possible that sector or firm-specific characteristics not fully captured in the model may have helped to mitigate the impact on exports from weaker sterling in 2017.

The analysis helps to illustrate the channels through which a sterling depreciation would impact the Irish economy. This Box considers a standalone shock to the sterling exchange rate. It is important to note that if this shock was to be accompanied by additional adverse shocks, such as a rise in tariffs, the effects on output would be more severe than shown here.

Investment

Headline investment declined by 22.3 per cent in 2017 according to preliminary National Accounts data. As illustrated in Figure 3, this was largely driven by a decrease in R&D related IP investment compared to the previous year. Underlying investment, which excludes other transport equipment and intangibles, increased by 5.7 per cent in 2017. Building and construction investment continued apace, with new dwellings investment up 32.6 per cent. Non-residential construction increased by 18.7 per cent over the same period. Machinery and equipment investment, as pointed to in the previous Quarterly Bulletin, continued to display weakness and, excluding the aircraft component, was down 12 per cent in 2017. Intangible investment declined by 40.6 per cent in 2017.

Chart 3: Gross Fixed Capital Formation (Constant Prices)

Source: CSO.

For 2018 and 2019, residential construction investment is expected to increase from around 19,300 completions in 2017 to 23,500 and 28,500 completions in 2018 and 2019, respectively (see Box C for a discussion on housing forecasts). For the non-residential sector, activity is forecast to increase by 15 per cent and 10 per cent in 2018 and 2019 respectively. The robust pace of activity in the construction sector is corroborated by survey data from the Ulster Bank Construction PMI, registering a value of 61 and 59.4 in February 2017 for residential and commercial construction respectively⁷. Building and construction activity on the whole is forecast to increase by approximately 14.8 per cent and 11.7 per cent in 2018 and 2019.

As indicated, machinery and equipment investment softened considerably in 2017 according to the latest QNAs. We expect machinery and equipment investment to recover in 2018 and 2019 to around trend

growth of 5.5 per cent. However, the outlook continues to be characterised by a high degree of uncertainty, related largely to Brexit and the changing international trading and taxation landscape, with risks tilted to the downside.

Bearing in mind prospects for all components of investment, underlying investment is forecast to increase by 12.1 per cent and 10.0 per cent in 2018 and 2019 respectively. This coupled with the outlook for intangibles and aircraft points to economy wide investment growth of 9.5 and 8.6 per cent in both years. This is an upward adjustment compared to the previous *Quarterly Bulletin*.

Government Consumption

Government consumption grew by an estimated 1.8 per cent in 2017 according to the QNA. For 2018 and 2019, we expect public consumption to grow by 2.9 and 1.9 per cent, respectively.

Box C: Leading Indicators of New Housing Output by John Scally⁸

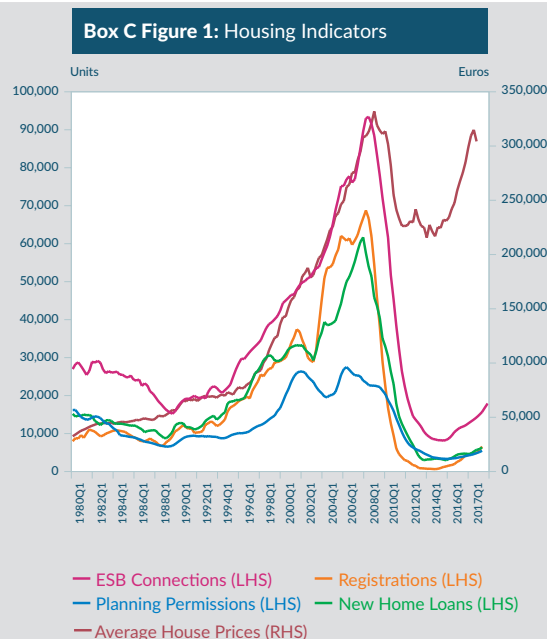
Housing market pressures have focussed attention on housing supply statistics. This Box explores issues relating to housing supply statistics and housing output. The most widely quoted figures, published by the Department of Housing, Planning, Community and Local Government (DHPLG), are based on connections to the electricity grid provided by the Electricity Supply Board (ESB). In these statistics, the connection of a new house/apartment is generally equated to a new completion in the month of connection. However, some legacy issues relating to past over/misallocation of housing supply may have resulted in a decoupling of the connection figures with estimated housing output. Looking ahead, as issues related to output double counting are likely to fade, these figures present an upper bound to likely housing output.

⁷ A value over 50 indicates expansion.

⁸ Irish Economic Analysis Division

Box C: Leading Indicators of New Housing Output
by John Scally

We examine whether we can use other available housing market variables – variables which may be more related to housing output – as leading indicators to improve estimates and predictions of trends in housing output. We chose the following variables because of their importance in various stages in the production of housing: planning permissions, new home loans, new house registrations, real building costs, and real new house prices. Figure 1 illustrates that there is a high degree of co-movement between ESB connection figures and these indicators.



Source: CSO.

To test whether a candidate predictor can help in forecasting future housing output, we perform a standard out-of-sample forecasting exercise. This involves examining whether the forecasting accuracy (Mean Squared Forecasting Errors) of a basic benchmark autoregressive model with lags of house completions improves when we add housing market variables, summarised in equation 1⁹.

$$Y_{t+h,u} = \alpha + \sum_{i=0}^{q_1} \beta_i Y_{t-i} + \sum_{j=0}^{q_2} \gamma_j X_{t-j} + u_{t+h} \quad (1.1)$$

where X_t is the first difference in the candidate predictors¹⁰, h the forecasting horizon in quarters, u_{t+h} the error term and q_1 and q_2 represent lag lengths. The forecast horizon is restricted to span between one and four quarters¹¹. The models are estimated using quarterly data for the period 1980-2017¹².

To facilitate comparisons between indicators, the results in Table 1 are reported in relative MSFE statistics, defined as:

$$\frac{MSFE}{MSFE_{\text{Benchmark}}} \quad (1.2)$$

When the relative MSFE is less than one, the inclusion of the indicator improves the forecast precision of the benchmark model. For example, a value of 0.8 indicates that the candidate predictor improves the forecast performance of the benchmark model by 20 per cent. Table 1 indicates that new house registrations and new home loans have the most predictive power of the variables considered; the third lag of registrations improves the performance of the benchmark by 32 per cent on the fourth quarter, while the third lag of new home loans improves the performance by 23 per cent. The third lag of new house prices also contains some predictive power.

⁹ The purpose of choosing such a simple model as a benchmark is that it often outperforms more complex forecasting models.

¹⁰ All candidate predictors were stationary at the 10 per cent level according to the ADF, PP and KPSS tests.

¹¹ An expanding window strategy is used for the in-sample forecasting exercise. (A rolling strategy was also examined but produced less accurate results.) At each iteration, the lag length is chosen using the Schwartz Information Criterion. The estimated forecasts of Y_{t+h} , labelled as $\hat{Y}_{t+h,r}$ are used to compute the Mean Squared Forecast Error (MSFE) for both the restricted (AR) and unrestricted models (AR plus indicators).

¹² The transformed house completions variable we forecast is the first difference of a trailing four quarter total of house completions.

Box C: Leading Indicators of New Housing Output
by John Scally

Box C Table 1: Root Mean Squared Error Ratio for candidate house completion predictors

Q4	Registrations	Prices	Loans	Permissions	Costs
No Lag	0.88	0.84	0.71	1.19	1.16
(-1) Lag	0.91	0.83	0.71	1.23	1.13
(-2) Lag	0.78	1.02	0.88	0.87	0.92
(-3) Lag	0.67	0.80	0.77	0.87	1.17
(-4) Lag	0.96	0.92	0.88	1.21	1.25

In forecasting housing output, we can use the information gained from the out-of-sample exercise to generate the 'forecasts' for independent variables, producing a forecast for housing output four quarters ahead¹³. While these forecasts are still based on ESB connection figures, what we are interested in from an output perspective is the change in supply from year to year. The addition of the predictors (output and supply related explanatory variables) from the exercise above are of potential benefit in this regard. Using the lags and indicators pointed to in the forecasting exercise, we find that the unrestricted ARIMA (equation 1.1) points to house completions of approximately 23,500 units in 2018¹⁴ and 28,500 in 2019.

¹³ For periods further out we return to the autoregressive benchmark model.

¹⁴ ESB connections to for the January to November period currently number 17,309.

External Demand and the Balance of Payments

Exports and Imports

According to preliminary estimates from the QNAs, Irish export volumes rose by 6.9 per cent in average annual terms in 2017. The divergence between the export performance during the first and second half of the year was the most noteworthy feature of last year's outturn. Export growth strengthened considerably as the year progressed, as illustrated by the contrast between the 3.4 per cent rise during the first six months and the corresponding 10.1 per cent increase during the second half of the year. Fluctuations in goods exports, related mainly to volatility in contract manufacturing activity, was the primary reason behind this. Following subdued growth in the first half of the year, a noticeable pickup in goods exports in the third quarter of 2017 intensified in the final quarter of 2017. Services export volumes increased strongly in 2017, with an annual increase of 12.8 per cent. The most noteworthy services export development at a sectoral level was the pronounced buoyancy of computer services exports, Ireland's largest services export sector,

with annual growth of 15.1 per cent in value terms in 2017.

As regards the outlook for exports, the latest available sentiment indicators are suggestive of continued strong growth in external demand – the Purchasing Managers' Index for the manufacturing and services sectors both point to a pronounced expansion in new export orders during the first quarter of 2018. Preliminary External Trade Statistics suggest that the value of goods exports for January rose by 20 per cent, year-on-year, with exports from the broad chemicals sector particularly strong. The latest available assumptions for external demand are consistent with stronger export growth in 2018 and 2019 relative to previous estimates. Owing to ongoing compositional shifts in exports, most notably the prominence of the somewhat more dynamic services side, it is envisaged that Irish export growth will slightly exceed that of external demand. Consequently, the outlook for Irish exports for 2018 has been revised upwards relative to the previous Quarterly Bulletin by 0.5 and 0.3 percentage points in 2018 and 2019 to 4.9 per cent and 4.2 per cent, respectively. The impact of contract manufacturing is assumed to

Table 2: Goods and Services Trade 2016, 2017^a, 2018^f, 2019^f

	2016	% change in		2017 ^a	% change in		2018 ^f	% change in		2019 ^f
	€ millions	volume	price	€ millions	volume	price	€ millions	volume	price	€ millions
Exports	335,041	6.9	-0.8	355,419	4.9	0.5	374,783	4.2	1.3	395,677
Goods	194,071	2.9	-2.8	194,253	3.4	-0.9	199,050	2.9	0.5	205,846
Services	140,971	12.6	1.5	161,167	6.9	2.0	175,733	5.8	2.1	189,830
Imports	274,398	-6.2	1.1	260,253	5.2	1.3	277,313	4.5	1.8	295,109
Goods	88,219	-4.3	3.0	86,922	4.1	1.0	91,391	3.4	0.2	94,693
Services	186,179	-7.1	0.2	173,331	5.8	1.4	185,922	5.1	2.6	200,416

be neutral over the forecast horizon and, therefore, these forecasts are subject to a high degree of uncertainty, reflecting the somewhat unpredictable nature of contract manufacturing. The risks to the short-term outlook for exports are tilted to the downside largely in view of the uncertainty surrounding Brexit.

In contrast to last year's buoyant export outturn, overall imports declined by 6.2 per cent in average annual terms during 2017, due to both weakened goods and services import volumes. The falloff in services imports considerably outpaced that of the goods side primarily as a result of a significantly reduced level of intellectual property (IP) imports. Such weakened import growth, combined with a stronger export outturn meant that the overall net trade contribution to GDP growth is estimated to have been strongly positive last year.

Looking ahead, the fundamental factors underpinning import growth are expected to remain strong, albeit easing somewhat over this year and next – both domestic demand and export growth are expected to slow over the forecast horizon. Accordingly, a 5.2 per cent rise in overall import volumes is projected in 2018, followed by 4.5 per cent in 2019. While the projected profile of imports in 2018 and 2019 will reflect both the outlook and composition of final demand, considerable uncertainty surrounds the short-term outlook given the importance of IP imports and how these will evolve, particularly in view of the pronounced weakness in 2017. On the basis

of the forecasts for exports and imports, net exports seem set to continue to support GDP growth over the forecast horizon, albeit at more modest rates relative to 2017. A positive contribution to GDP growth in 2018 from net trade of 1.3 percentage points is currently anticipated, falling to 1.0 percentage point in 2019.

Net Trade, Factor Incomes and International Transfers

Headline current account data continue to be significantly affected by the impact of globalisation on Irish economic and financial data. In particular, the activities of multinational entities in Ireland and the impact of intangible assets represents a sizable challenge in terms of analysing developments in Balance of Payments statistics.

While a modified measure of the current account, CA*, exists, which adjusts for the depreciation of Irish-resident, foreign-owned, intellectual property (IP), depreciation related to aircraft leasing, re-domiciled income and the cost of leased aircraft and R&D related IP imports, such a measure is currently only available up to 2016.

A current account surplus of almost €15 billion was recorded in the final quarter of 2017 to yield a surplus of almost €37 billion for the year as a whole, representing an increase of almost €28 billion on the 2016 outturn. A noteworthy development in annual terms was the pronounced reduction in the services trade deficit as a result of the buoyancy of the services exports and to a lesser extent, a

Table 3: Balance of Payments 2016 to 2019f

€ million	2016	2017	2018 ^f	2019 ^f
Trade Balance	60,644	95,173	97,470	100,568
<i>Goods</i>	105,852	107,331	107,659	111,154
<i>Services</i>	-45,208	-12,158	-10,188	-10,586
Net Factor Income from the Rest of the World	-47,647	-53,793	-59,012	-63,007
Current International Transfers	-3,801	-4,281	-4,281	-4,281
Balance on Current Account	9,196	37,099	34,177	33,280
(% of GDP)	3.3	12.5	10.9	10.1

falloff in services imports. The narrowing of the services deficit was, however, partly offset by a pickup in net factor income outflows.

Taking account of the trade forecasts outlined above, the trade balance is projected to average close to 31 per cent of GDP in 2018 and 2019. Net factor income outflows are expected to increase in 2018, with a further pick-up envisaged in 2019. Reflecting the prospective trends across these components, a headline current account surplus of around 10.9 per cent of GDP is estimated for 2018, followed by a narrowing to 10.1 per cent of GDP in 2019.

Supply

According to preliminary estimates from the QNA, output expanded strongly in nearly all sectors of the economy in 2017. Industrial output grew by 8.9 per cent last year, reflecting a strong performance from manufacturing. Output in the construction sector expanded by 16.8 per cent, a growth rate also matched on the services side by information and communications. The professional, administrative and support services sector also recorded very robust growth (up 10.8 per cent) in 2017. Agriculture, forestry and fishing grew by 3.1 per cent with all services sectors, bar the finance and insurance sub-sector (down 0.7 per cent) recording positive rates of growth.

To date, data on the output side in 2018 is rather limited. The headline Purchasing Manager Indices (PMIs) for industry, services

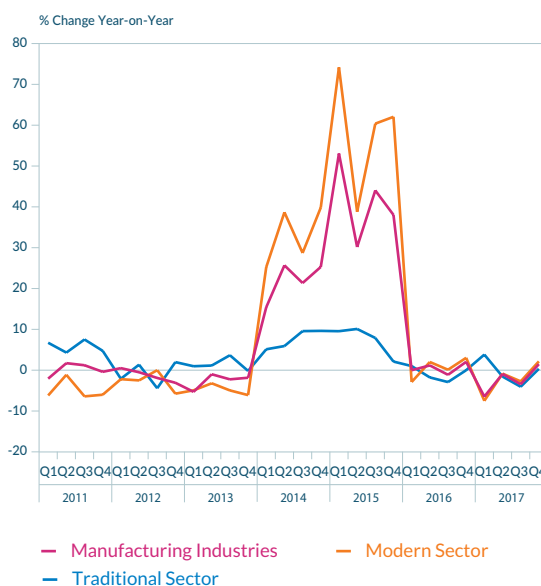
and construction softened in the early months of the year (in part due to exceptional weather) although they remain in positive territory (values above 50 signify expansion). The Investec Manufacturing PMI measured 54.1 in March (down from 56.2 in February). Similarly, the Services PMI fell to 56.5 from 57.2 in the previous month. The Ulster Bank Construction PMI declined to 59.2 in February (from 61.4 in January) with a strong reading recorded for housing activity in particular.

The Labour Market

The prospects for the labour market remain robust with significant momentum entering 2018. For the year as a whole, employment growth of 2.4 per cent is projected followed by 2.0 per cent in 2019. This would see an additional 99,000 persons in employment over the period. This forecast has been revised upwards since the last Bulletin, largely reflecting strong labour market data (see below) and the prospects for underlying domestic demand. The latter is expected to grow by 4.3 per cent per annum on average over the forecast period. With labour force growth expected to average 1.2 per cent, the unemployment rate is projected to decline to an average rate of 5.6 per cent this year and 4.8 per cent in 2019. However, measures of potential labour supply show that there may be more labour market slack and, therefore, more capacity in the economy than indicated by the headline unemployment rate.

The latest employment data from the Labour Force Survey (LFS) were robust with seasonally adjusted employment growth of 1.3 per cent in the final 3 months of last year – the strongest rate of increase since the fourth quarter of 2006. For the year as a whole, numbers at work increased by 61,300 bringing the level of employment to 2.2 million. With the labour force growing by 1.0 per cent, the unemployment rate declined to an average rate of 6.7 per cent last year (down from 8.4 per cent in 2016). Employment increases were also broadly based with 12 of the 14 sectors posting gains, with particularly strong increases in industry (including construction) and the broad services sector. The rise in full-time employment was also a feature of the labour market last year with numbers up 5.8 per cent (95,000 persons) more than offsetting a 6.7 per cent decline in part-time employment (33,000).

More recent data points to continued improvement in the labour market with the unemployment rate estimated to have declined further in the early part of 2018 to 6.0 per cent in February coupled with further strong declines in numbers on the live register (down 14.4 per cent year-on-year).

Chart 4: Volume of Industrial Production


Box D: Vacancies and Wage Growth Suzanne Linehan and Reamonn Lydon¹⁵

One of the main reasons for the analysis and monitoring of job vacancy¹⁶ data is its usefulness as a leading indicator of developments in labour demand. Lagged changes in vacancies have been particularly useful in explaining job-to-job transitions and to a lesser extent, net employment change (i.e. job creation less job destruction)¹⁷. In Linehan et al. (2017)¹⁸, we showed that a clear and consistent upward path has been evident in the job vacancy rate following a pronounced decline throughout 2008/2009. At a sectoral level, the vacancy rates¹⁹ for some sectors had rebounded strongly from crisis-lows. The evidence at the time, up to mid-2017, also indicated that sectors with higher vacancy rates were experiencing stronger wage growth. This suggests that job vacancies can also be a useful indicator of both labour demand and associated wage developments. This box updates the analysis on vacancies and wages, focusing on the differences in trends across sectors.

¹⁵ Irish Economic Analysis Division

¹⁶ A job vacancy is defined as a newly created, unoccupied, or about to become vacant post on a specific reference date. A post open to internal candidates is not considered a job vacancy.

¹⁷ For more details, see Box D: 'Job Vacancy Rate and the Irish Labour Market', Central Bank Quarterly Bulletin, No. 3 2017.

¹⁸ See Linehan, Lydon, McIndoe Calder, Reddan and Smyth, 2017, 'The Labour Market and Wage Growth after a Crisis', Central Bank Quarterly Bulletin, No. 4 2017.

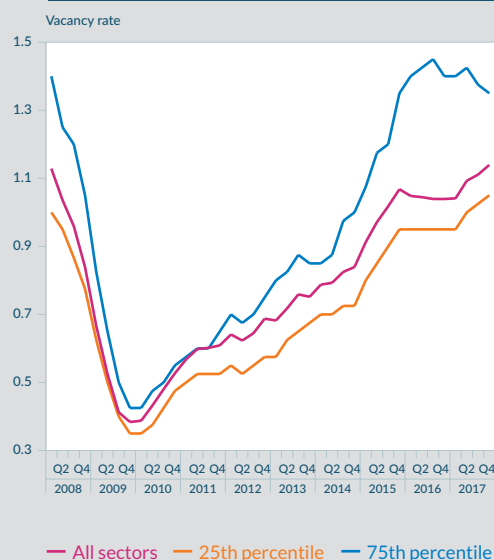
¹⁹ The vacancy rate is defined as the ratio of job vacancies to vacancies and occupied positions.

Box D: Vacancies and Wage Growth

Suzanne Linehan and Reamonn Lydon

Figure 1 plots the vacancy rate for all sectors and the inter-quartile range (IQR) for the 13 sectors for which we have data.²⁰ The growing divergence of the IQR since the start of the recovery suggests that the strengthening of labour demand has been more pronounced for some sectors. Looking at Q4 2017, a higher than average vacancy rate is evident in a number of sectors including the professional scientific and technical activities sector, the financial, insurance and real estate sector and the information & communications sector (see Figure 2).

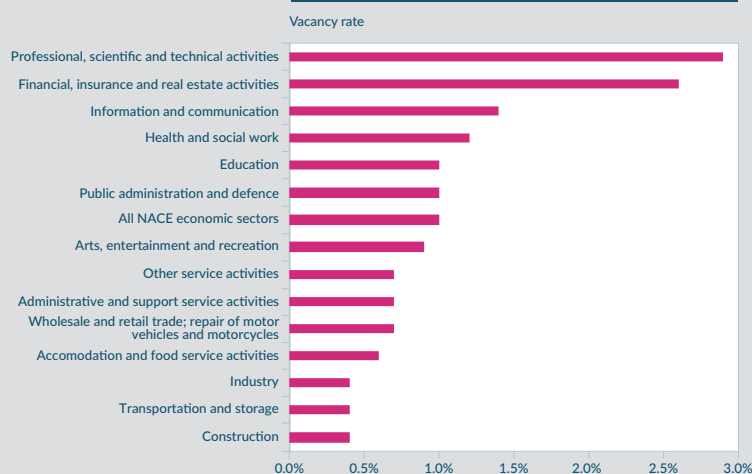
Box D Figure 1: Vacancy rate inter-quartile range



Source: Eurostat.

Note: Vacancy rate is a 4-quarter moving average.

Box D Figure 2: Vacancy rate Q4 2017



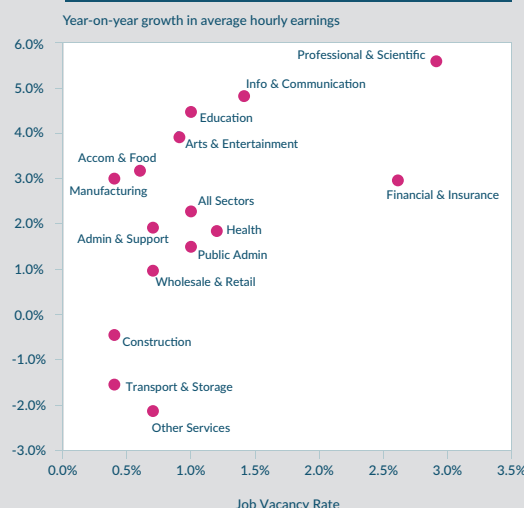
Source: Eurostat.

Typically, changes in the degree of tightness in the labour market are reflected in wage growth given that vacancies influence how much companies need to pay to retain employees or to hire new employees. It is, however, important to note that not all job openings appear as posted job vacancies, and vacancies may therefore understate the level of aggregate demand; see Davis, Faberman and Haltiwanger (2013). A sectoral comparison of job vacancy rates and the

20 The inter-quartile range is the vacancy rate in the top-three sectors minus the vacancy rate in the bottom-three sectors.

Box D: Vacancies and Wage Growth
Suzanne Linehan and Reamonn Lydon

year-on-year growth in average hourly earnings for the fourth quarter of 2017 is provided in Figure 3 and reveals considerable variation in terms of the vacancy-wage relationship. As expected, sectors with vacancy rates in excess of the total economy average such as the professional, scientific and technical activities sector, the financial, insurance and real estate sector and the information & communications sector experienced strong year-on-year growth in average hourly earnings. Most notable in this respect is again the professional, scientific and technical activities sector, which registered both the highest rate of growth in average hourly earnings and the highest vacancy rate in the final quarter of 2017. Within certain sectors - such as, professional scientific and technical, financial, insurance and real estate, information & communications, wholesale and retail and accommodation and food services - the time-series evidence suggests that an increase in vacancies tends to be followed by wage growth, albeit varying in both timing and strength. For example, the results from a regression of wage growth on vacancies for these sectors implies an increase in wage growth of between 1 and 3 per cent for a doubling in the number of vacancies.

Box D Figure 3: Vacancy rate and year-on-year change in average hourly earnings, 2017 Q4


Source: CSO & Eurostat.

Pay

With the labour market expected to continue performing strongly and with a positive outlook for domestic demand, wages are likely to rise at a faster pace. Overall, compensation per employee is expected to gain further momentum, increasing by 3.3 per cent on average in both 2018 and 2019. This follows an estimated increase of 3 per cent in 2017. With inflation expected to be modest over the forecast period, these increases will support household incomes via higher real wages.

In light of the improved outlook for the labour market and with unemployment expected to fall below 5 per cent next year, there are some upside risks to the forecasts for wages.

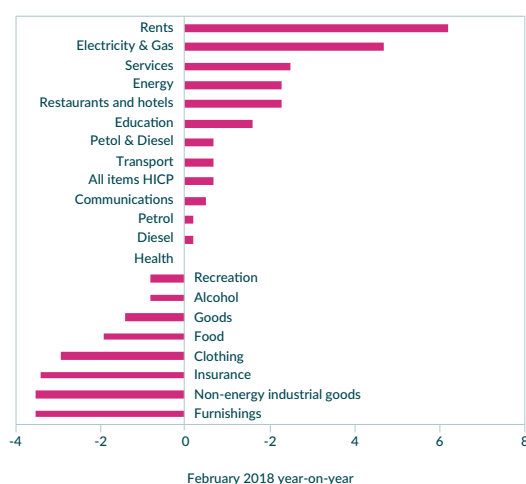
Previous research in the Bank pointed to a non-linear relationship between wages and unemployment in Ireland, whereby the degree of wage sensitivity is higher during periods of low (or high) unemployment (see Linehan et al, 2017). In particular, (real) wages tend to be more responsive to fluctuations in the unemployment rate once the latter falls to low levels. Much will depend on the extent of spare capacity or slack within the labour market as potential labour supply indicators and the Bank's own non-employment index point to more spare capacity than that signalled by the headline unemployment rate (see Box D for analysis on the links between wages and vacancies).²¹

²¹ See Byrne and Conefrey (2017), A Non-Employment Index for Ireland, Central Bank of Ireland, Economic Letter Series, Vol 2017, No. 9.

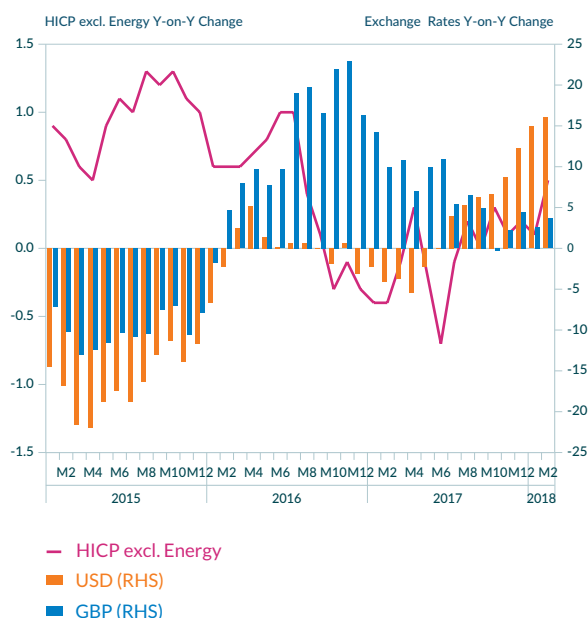
Table 4: Employment, Labour Force and Unemployment 2016 to 2019^f

	2016	2017	2018 ^f	2019 ^f
Agriculture	113	111	111	111
Industry (including construction)	395	412	426	438
Services	1,625	1,672	1,710	1,743
Total Employment	2,133	2,194	2,247	2,293
Unemployment	195	158	134	116
Labour Force	2,328	2,352	2,381	2,409
Unemployment Rate (%)	8.4	6.7	5.6	4.8

Note: Figures may not sum due to rounding

Chart 5: Consumer Prices by Commodity

Source: Eurostat.

Chart 6: Irish Inflation and Exchange Rate Changes

Inflation

Consumer Prices

HICP inflation rose to 0.7 per cent in February as the pace of negative goods price inflation moderated slightly while the pace of services inflation increased. The increase in the price of services predominantly reflects the impact of domestically generated factors such as higher private rents, electricity, gas, and increases in the prices of hotel accommodation (see Figure 5).

Continued negative, mostly imported, inflation in goods prices has meant that the pace of inflation remains lower than one would expect given activity levels in the economy more generally. The appreciation of the euro against sterling and the US dollar over the past year has continued to push down inflation in those components that have a high-import content. Figure 6 illustrates the impact of euro appreciation on core inflation (HICP less energy prices).

Table 5: Inflation Measures - Annual Averages, 2016 to 2019^f

Measure	HICP	HICP excluding Energy	Services ^a	Goods ^a	CPI
2016	-0.2	0.4	2.5	-3.1	0.0
2017	0.3	-0.1	2.5	-2.1	0.3
2018 ^f	0.8	0.7	2.8	-1.5	0.7
2019 ^f	0.9	1.2	2.9	-1.5	1.0

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

External cost pressures have increased since the time of the last Bulletin projection. Oil prices, both in terms of current spot rates and financial market expectations proxied by futures prices, have increased. A continued upward trend could lead to upward pressure in goods price inflation.

The path for inflation further ahead will also depend on movements in the exchange rate, particularly against sterling. Domestically generated inflation is, in turn, conditional to an extent on the pace of wage growth. With wage growth projected to pick up over the forecast horizon, it is expected that services prices will continue to rise in the coming years.

Conditional on the market implied path for oil prices, exchange rates as well as the Bank's own projections for growth in real activity – inflation is projected to remain around its current pace, with a slight pickup in 2019. Current assumptions point to a forecast of 0.8 and 0.9 per cent for HICP inflation in 2018 and 2019, respectively (see Table). The current divergence in the paths for goods and services is also projected to continue as a result of the factors discussed above. Goods prices are projected to decline by 1.5 per cent in 2018 and 2019. Services prices, meanwhile, are projected to rise by 2.8 and 2.9 per cent over the same period.

Uncertainty surrounding the forecast primarily relates to external factors. For example, developments in the negotiations surround the UK's exit from the European Union may result in a deviation in the path for the Euro/

Sterling exchange rate away from that which is assumed in the current forecast. Previous Bank research has shown that the pass through of exchange rate developments, particularly sterling, have an important bearing on consumer prices in Ireland.²²

Residential Property

The latest data show that the pace of annualised residential property price growth continued throughout the latter part of 2017 and into the first month of 2018, growing by 12.5 per cent in January compared with the same month last year.

On the rental side, the latest rental report by property website Daft showed that average rental prices grew by 10.4 per cent in 2017. The CSO's HICP "Actual Rentals for Housing" series, which takes account of outstanding tenancies, grew by 6.2 per cent year-on-year in February.

Commercial Property

The latest data from the Jones Lang LaSalle property index show that the pace of growth in commercial property prices has moderated in recent quarters. Overall, commercial property prices grew by 5.2 per cent year on year in the fourth quarter of 2017. On an annual basis, the office, retail and industrial sectors grew by 8.4, 1.3 and 3.2 per cent, respectively, in the fourth quarter.²³

²² Reddan and Rice (2017) (*op.cit.*).

²³ The Bank's Macro Financial Review provides a detailed review of developments in the residential and commercial property sectors.

Table 6: Analytical Exchequer Statement for February 2017 (€ millions)

	2018 Jan to Feb €m	2017 Jan to Feb €m	Annual Change (%)	Outturn vs Profile (€m)
Revenue	9,631	9,232	4.3	-110
– Tax revenue	7,814	7,509	4.1	-43
– Appropriations-in-aid	1,700	1,654	2.8	-67
– Other Revenue	117	69	69.8	0
Expenditure	10,333	9,505	8.7	-167
– Current Primary Expenditure	9,429	8,652	9.0	-83
– Capital Expenditure	435	445	-2.2	-83
– Interest on National Debt	469	408	14.9	0
Balance	-701	-273	-157.0	57

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

Competitiveness

The latest Harmonised Competitiveness Index (HCI) data for January 2018 show that the nominal HCI increased by 5.3 per cent on an annual basis. In real terms, the HCI rose by 3.7 per cent when deflated with consumer prices. These developments suggest a decline in competitiveness in Ireland, linked to the exchange rate movements, although weakness in consumer price inflation is offsetting some of this fall.

The Public Finances

Overview

The latest Government Finance Statistics data show that the general government balance and gross debt position continued to record annual improvements in the third quarter of last year. This, alongside positive Exchequer data in the final months of the year, points to a further improvement in the fiscal position for 2017 as a whole. Such an outturn would be consistent with Budget 2018 projections; these anticipated a 0.5 per cent of GNI* general government deficit and a government debt ratio of 106.5 per cent of GNI*. The latter figure is notably higher than the debt to GDP ratio, projected to be just over 70 per cent.

Exchequer Returns

Data for 2018 are so far limited. Exchequer returns were broadly in line with expectations in the first two months of the year, recording an Exchequer surplus of €217 million. When transactions with no general government impact are excluded, however – most notably capital revenue linked to FEOGA payments – the position was a deficit of €701 million (see Table 6). This outturn was broadly in line with expectations, although both revenue and expenditure were marginally below profile. The former still recorded solid growth of 4.3 per cent, led by a strong pick-up in income tax. The latter also grew in annual terms, by 8.7 per cent, although this increase was not as strong as had been anticipated due equally to developments on the current and the capital side.

Funding and Other Developments

In February, the Government published the National Development Plan (NDP), outlining intended investment for the period 2018 to 2027. The Plan envisages a gradual increase in capital spending to a medium-term target of around 4 per cent of GNI*; the corresponding figure in 2016 was 2.6 per cent. Having such a

target should reduce the cyclicalities associated with investment expenditure. The Government also published the National Planning Framework in February, to guide planning and development over the longer-term.

The NTMA has been very active in the first quarter of 2018, raising €6.25 billion through bond sales. This included €4 billion through the syndicated sale of a 10-year bond in January. For the year as a whole, the Agency plans to issue between €14 billion and €18 billion of bonds, the mid-point of which is broadly consistent with funds raised last year. Operations in recent years have improved the medium-term maturity profile, with €9 billion of government bonds set to mature this year. The first quarter also saw a further €1 billion of the floating rate Treasury bonds linked to the liquidation of Irish Bank Resolution Corporation cancelled. As a result, more than one-third of these bonds have been cancelled, leaving around €15 billion outstanding.

An Timpeallacht Gheilleagrach¹

Tá geilleagar na hÉireann ag feidhmiú go maith i gcónaí agus tá buacacht na gníomhaíochta eacnamaíche intíre mar aon le timpeallacht fheabhsaithe an fháis idirnáisiúnta ag tacú leis an bhfeidhmíocht sin. Ó thaobh cúrsaí intíre de, tugann fás láidir, leathan ar fhostaíocht, go háirithe ar fhostaíocht lánaimseartha, spreagadh d'ioncaim, agus tá an spreagadh sin á neartú tuilleadh le méadú ar fhás pá agus le borradh breise faoin bhfíorchumhacht ceannaigh de thoradh boilsciú maolaithe. I dteannta le tionchar dearfach na ngnóthachan seo, tá an bhunghníomhaíocht eacnamaíoch ag tairbhiú de dhálaí fabhracha leanúnacha airgeadais agus den fheabhsúchán leanúnach ar chláir chomhardaithe earnála.

De réir mar a bheidh an geilleagar ag druidim i dtreo na lánfhostaíochta, ba cheart go dtiocfaidh méadú níos tapúla ar phá. Cé go léiríonn na sonraí is déanaí méadú neamhthoirtéiseach ar an ráta fáis ar an meántuilleamh in aghaidh na huaire sa dara leath den bhliain seo caite, tá tuilleadh méaduithe réamh-mheasta don bhliain seo agus don bhliain seo chugainn inár gcuid réamhaisnéisí. I bhfianaise go meastar go mbeidh boilsciú neamhthoirtéiseach ann thar an dá bhliain atá romhainn, ciallaíonn pánna níos airde go mbeidh fíorioncaim níos airde agus fíorchumhacht ceannaigh níos airde ag teaghlaigh.

Tá an t-ionchas dearfach i gcónaí agus tuartar sa réamhaisnéis lárnach go leanfaidh an geilleagar ar chonair fhabhrach fáis. Sna réamhaisnéisí is déanaí, tá athbhreithnithe beaga aníos ar na réamh-mheastacháin don fhás in 2018 agus 2019, rud a léiríonn an fuinneamh láidir intíre agus an t-ionchas foriomlán feabhsaithe do na comhpháirtithe trádála. Meastar go dtiocfaidh príomhspreagadh an fháis i mbliana agus an bhliain seo chugainn ó neart leanúnach an éilimh intíre, rud a bheidh á spreagadh ag fás breise ar fhostaíocht agus ar ioncaim, ach meastar go dtiocfaidh maolú éigin ar an bhfás ar fhostaíocht anuas ó na rátaí reatha thar thréimhse na réamhaisnéise. Ar bhonn na réamh-mheastachán don fhás sna comhpháirtithe trádála, meastar go gcuirfidh glan-onnmhairí go dearfach leis an bhfás i mbliana agus an bhliain seo chugainn.

Cé go bhfuil an réamhaisnéis lárnach dearfach, tá sé tábhachtach go n-aithneofar

luaineacht intreach gheilleagar na hÉireann, ó tharla gur geilleagar ardoscailte é a bhfuil naisc fhorleathana thrádála, theicneolaíochta agus airgeadais aige le geilleagair eile. Mar sin, féadfaidh teagmhais gan choinne athbhreithnithe aníos nó anuas ar ár gcuid réamhaisnéisí a spreagadh, go háirithe i ndáil le conair fhadtéarmach an gheilleagair. Fágann sé sin gur cheart do chinnteoirí poiblí agus príobháideacha a chinntiú go mbeidh a gcuid roghanna stóinsithe i leith torthaí nach bhfuil coinne leo, agus nach mbeifear ag brath go rómhór nó go neamhréalaíoch ar ár gcuid réamhaisnéisí lárnacha.

Ag féachaint romhainn, tá Éire neamhchosanta ar mhórtosca idirnáisiúnta riosca, go háirithe maidir leis an timpeallacht athraitheach cánach agus trádála domhanda, le rátaí malairte agus maidir le Brexit.

I gcás na hÉireann, bíonn ionchais eacnamaíocha foriomlána á spreagadh ag cinntí gnólachtaí ilnáisiúnta maidir lena suíomh. Cé go mbíonn impleachtaí soiléire ag athchóiriú cánach SA ar oibríochtaí cisteáin ilnáisiúntaigh SA, níl an glantoradh ar dháileadh geografach ghníomhaíochtaí táirgthe na ngnólachtaí sin soiléir, i bhfianaise chineál casta, iltoiseach an dlí cánach nua. Ar bhonn níos leithne, tá sé tábhachtach go ndéanfar measúnú ar impleachtaí athruithe féideartha eile i gcórais idirnáisiúnta cánach, lena n-áirítear i ndáil le cánachas ar ghníomhaíochtaí digiteacha. Riosca idirnáisiúnta gaolmhar is ea an bhagairt don chóras trádála idirnáisiúnta dá nglacfaí go forleathan le bearta cosantaíocha (sainráite nó intuigthe).

¹ Tá an Timpeallacht Gheilleagrach oiriúnaithe ón óráid 'The Macro-Financial Environment in Ireland in Spring 2018' a thug an Gobharnóir Philip R. Lane don Institiúid um Ghnóthaí Eorpacha agus Idirnáisiúnta (HEA), Baile Átha Cliath, 9 Márta 2018.

Bheadh athrú seasmhach ar ráta dhollar-euro ina thoisc thábhachtach freisin ó thaobh cinntí gnólachtaí ilnáisiúnta maidir lena suíomh. Cé gur cosúil go bhfuil ráta reatha dhollar-euro i gcomhréir tríd is tríd leis na buntosca, bheadh tionchar ábhartha ag dímheas substainteach, leanúnach an dollair ar chinntí maidir le suíomh amach anseo.

Agus an méid sin ar fad á chur san áireamh, ciallaíonn na hábhair inní seo maidir le trádáil, cánachas agus airgeadra gur gá faireachán leanúnach a dhéanamh ar na rioscaí ar an taobh thíos a bhaineann leis na Stáit Aontaithe agus leagann na hábhair inní sin béim ar an tábhacht a bhaineann le cinntí a ghlacadh a bheidh stóinsithe i leith torthaí díobhálacha den sórt sin.

Maidir le Brexit, ginfidh aon mhéadú ar theannas trádála idir an RA agus 27AE laghdú ar chaighdeáin fhadtéarmacha mhaireachtála i gcomparáid leis an status quo frithfhórasach. Go dtí seo, is trí dhímheas Steirling in aghaidh an euro atá iarmhairt mhaicreacnamaíoch Brexit le brath don chuid is mó ó thráth an reifrinn i leith. Rinne sé seo dífeall d'onnmháireoirí chuig an RA agus chuir sé le laghdú ar phraghsanna earraí in Éirinn, i bhfianaise an ról thábhachtaigh atá ag allmhairt mhaicreacnamaíoch Brexit le brath don chuid is mó ó thráth an reifrinn i leith. Rinne sé seo dífeall d'onnmháireoirí chuig an RA agus chuir sé le laghdú ar phraghsanna earraí in Éirinn, i bhfianaise an ról thábhachtaigh atá ag allmhairt mhaicreacnamaíoch Brexit a sheasamh go dtí seo de thoradh an téarnaimh ar an éileamh intíre agus de thoradh dálaí dearfacha eacnamaíocha domhanda.

De réir mar a bheidh mí an Mhárta 2019 ag teannadh linn, tá seans ann go n-eascróidh luaineacht eacnamaíoch agus airgeadais bhreise as réiteach na héiginnteachta reatha maidir leis an gcineál caidrimh a bheidh i gceist idir an RA agus AE amach anseo, go háirithe más dóichí ná a mhalairt go mbeidh Brexit níos déine ann. Ar leibheál maicreacnamaíoch, tá risíocht ar leith ann d'Éirinn i gcomparáid le tíortha eile 27AE, go háirithe má bhíonn meathlú ar ionchais fáis eacnamaíoch don RA

nó má bhíonn dímheas marthanach ar luach Steirling.

De bhreis air sin, má bhíonn athrú substaintiúil ar an gcóras lena rialaítear trádáil RA-AE, beidh atreorú costasach acmhainní ann chun córais nua lóistíochta agus próiseála trádála a bhunú. Má théann na costais onnmhairíochta agus allmhairíochta in airde (lena n-áirítear am breise iompair agus ualaigh bhreise riaracháin), tá seans ann go laghdóidh raon na n-earraí allmhairíochta a bheidh ar fáil do thomhaltóirí na hÉireann, fad a bheidh sé níos deacra do ghnólachtaí intíre rochtain a fháil ar mhargaí onnmhairíochta.

Ó thaobh an bheartais intíre, is gá gach rud a láimhseáil go cothrom. Ar thaobh amháin, éilíonn an dea-scéala maidir leis an gconair treochta do gheilleagar na hÉireann go nglacfar cinntí comhréireacha maidir le conair an chaiteachais phoiblí agus an chánachais, i bhfianaise go bhfuil acmhainn fhioscach bhreise ann chun freastal ar roghanna sóisialta maidir le soláthar seirbhísí poiblí, aistrithe méadaithe, infheistíocht leathnaithe phoiblí nó coigeartú ar an ualach cánach. Ar an taobh eile, éilíonn rioscaí ar an taobh thíos (mar aon le leibheál an fhiachais phoiblí atá ard i gcónaí) go nglacfar cur chuige stuama lena n-aithnítear an tábhacht a bhaineann le maoláin fhioscacha a chruthú le linn tréimhsí maithe chun go bhféadfar idirghabháil fhioscach fhritimthriallach níos láidre a dhéanamh i gcás cor chun donais eacnamaíoch amach anseo.

Tá sé tábhachtach go dtuigfear gur féidir stuamacht fhioscach agus pleananna uailmhianacha fioscacha a thabhairt le chéile. Ar a shon sin, is gá na fíor-chomhréitigh atá ann a aithint, go háirithe má fhilleann an margadh saothair ar lánfhostaíocht.

Financing Developments in the Irish Economy

Overview

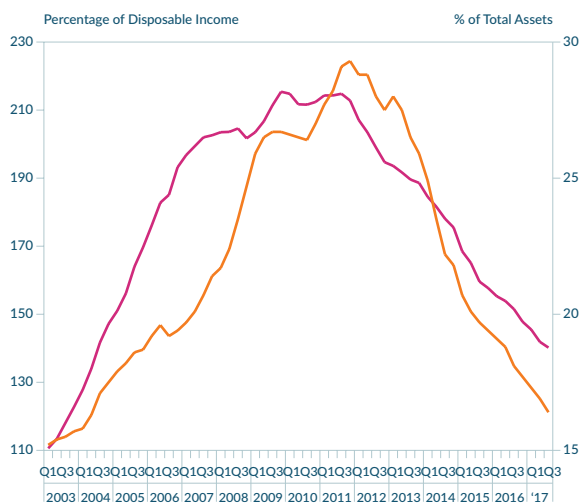
The improvement in financing conditions for households and Non-Financial Corporations (NFCs) has continued into 2018. The main constraints on private sector lending over the past few years – elevated levels of debt overhang and the high number of mortgage accounts in arrears - continue to recede. Net lending to households and NFCs has started to increase on an annualised basis as new loan drawdowns now exceed loan repayments. Elsewhere, the number of mortgage accounts for principal private dwellings in arrears has been falling for four and half years but 10 per cent of PDH loans still remain in arrears. The amount of new restructure agreements is also starting to decline.

A number of risks continue to overshadow the outlook for households and NFCs. Notwithstanding the noticeable improvement in household debt sustainability in recent years, the sector remains the fourth most indebted in the European Union, and could be vulnerable to any increase in interest rates. The wider adoption of fixed rate mortgages by Irish borrowers will temper the impact of any interest rate increases, as 20 per cent of the outstanding mortgage debt is now on a fixed rate.

The reduction in borrowing costs for households and NFCs experienced during the first half of 2017 has slowed. Interest rates on loans to households as well as NFCs are broadly unchanged since the third quarter of 2017 and mortgage rates remain higher than the euro area average. At the same time, new lending interest rates to SMEs remains higher than rates on outstanding loans to small and medium-sized enterprises (SMEs).

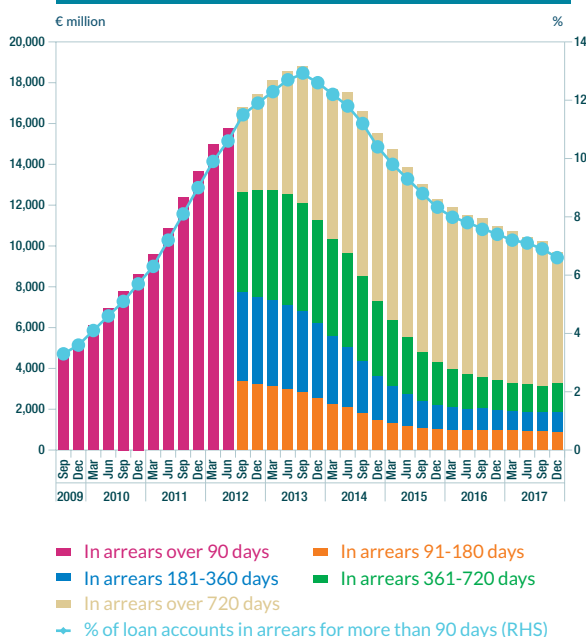
Irish NFCs and households have become net funders of the Irish banking system following the sustained deleveraging of the Irish banking sector in recent years and the rebalancing in banks' funding towards domestic sources. Finally, the non-bank financial sector continues to benefit from strong inflows and valuation gains.

Chart 1: Household Debt Sustainability Indicators



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

Chart 2: PDH Mortgage Accounts in Arrears over 90 Days



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

Household Sector

The recent improvement in household balance sheets continued during Q4 2017. Household net worth, at €148,655 per capita, has now risen by 66 per cent since its lowest level in 2012. The most recent wealth gains were underpinned by housing assets and, to a lesser extent, financial assets. The increase in the value of housing assets reflects the rise in residential property prices observed during 2017. Elsewhere, valuation gains in insurance technical reserves was behind the reported increase in financial assets. Household liabilities increased only marginally during Q4 2017 due to growth in households' borrowings.

The sustainability of household debt continues to improve owing to the ongoing growth in household disposable income. As a proportion of disposable income, household debt decreased by 11.3 percentage points over the year to Q3 2017, the largest decline amongst European Union (EU) countries. Irish household debt to disposable income has fallen 75 percentage points since end-2009 peak (Chart 1). Despite the ongoing

improvement in household debt sustainability, Irish households remain the fourth most indebted in the EU.

Mortgage loans increased by €126 million in the year to end-January 2018. This is the third consecutive month of positive annual growth. Looking ahead, the volume and value of mortgage approvals - a leading indicator of mortgage drawdowns - increased by 11.6 per cent and 20.0 per cent respectively on an annualised basis in January according to Banking and Payments Federation Ireland.

The growth in lending for consumption purposes is beginning to show signs of moderating. While the annual growth rate is 3.4 per cent, the recent monthly net transactions have been negative. Consumption lending grew strongly throughout 2017 particularly in the early part of the year. New data from the Central Bank of Ireland highlights that car finances, in particular personal contract plans, were an important driver of the growth in bank lending to Irish households for non-mortgage purposes.¹

¹ See, Central Bank of Ireland Economic Letter "An Overview of the Irish PCP Market" by Martina Sherman, Tiernan Heffernan and Bryan Cullen.

The number of mortgage accounts in arrears for principal dwelling houses (PDH) has been falling for four and a half years (Chart 2). Nonetheless, 70,488 mortgage accounts (10 per cent) were still in arrears at end-December. During Q4 2017, the total number of restructured mortgages declined to 118,477, even as 6,476 new restructuring arrangements were recorded. Over 75 per cent of restructured accounts were not in arrears at end-December 2017. Restructured accounts in arrears include accounts where the arrears at the time of restructure have not yet been eliminated, as well as accounts that have fallen into arrears on the current restructuring arrangement.

In recent research, McCann (2017) uses detailed micro-data to demonstrate that close to one third of mortgage loans in arrears of greater than 360 days but less than 720 days are paying the contracted instalment amount in full. For the loans in deepest arrears (greater than 720 days past due), 15 per cent of loans were making full payments in late 2016. The author shows that some portion of these long-term arrears cases may become financially sustainable in the future. At the same time, the author shows that 39 per cent of the mortgage accounts greater than 720 days in arrears have not yet engaged with the lender, which reduces the range of resolution options available.

Irish mortgage holders continue to incur higher interest rate charges than the euro area average. The weighted average interest rate on new mortgage agreements excluding renegotiations was 3.18 per cent in January – a decline of 18 basis points over the previous 12 months. The equivalent aggregate interest rate for the euro area was 1.80 per cent.

The rapid increase in the share of fixed rate mortgages has continued into 2018 (Chart 3). In the three months to January, fixed rate mortgages accounted for 55 per cent of new mortgage agreements. Between end-2014 and end-2017, the share of outstanding PDH mortgages with a fixed rate has increased from

7.9 per cent to 20.2 per cent². The increased popularity of fixed rate mortgages should help to insulate some mortgage holders from any increase in banks' lending rates over the medium term. However, the period of fixation commonly used in Ireland is still relatively short term with the majority fixed for less than five years.

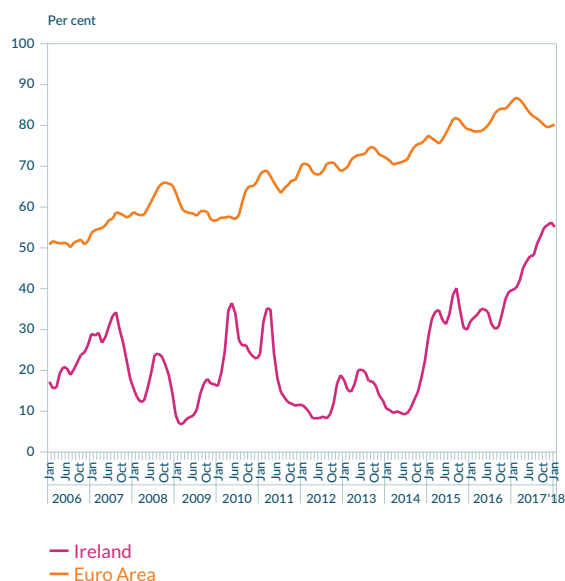
Non-Financial Corporation Sector

The ongoing debt reduction efforts of Irish NFCs show signs of moderating although the construction, real estate, and financial intermediation sectors continue to exert a drag on loan growth. During the fourth quarter of 2017, total credit advanced to Irish resident private sector enterprises increased by €153 million as loan drawdowns exceeded repayments. At the same time, credit advanced to Irish resident private sector enterprises, excluding financial intermediation and property related sectors, increased by €487 million.

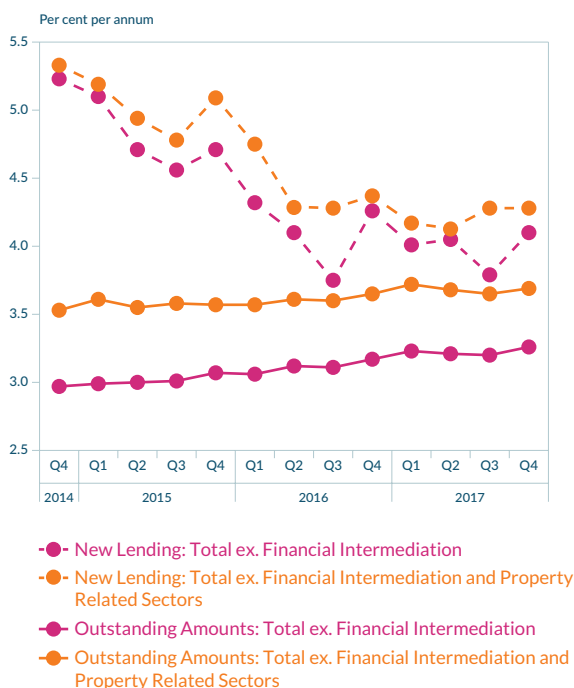
The pick-up in lending to Irish NFCs during the fourth quarter of 2017 shows signs of continuing into 2018. Although short-term net lending to NFCs decreased by €377 million in January of 2018, net lending to NFCs with over one year original maturity increased by €286 million in January. Overall lending to NFCs increased by €92 million in annual terms to end-January 2018.

Of particular importance, for the first time since 2010, bank lending to Irish SMEs shows signs of growth. Lending to SMEs excluding financial intermediation and property related sectors increased by €358 million during the fourth quarter of 2017 – only the fourth quarterly increase since the series commenced in 2010. Interest rates on lending to SMEs increased marginally between Q3 and Q4 2017 although new lending to SMEs continues to be priced at a higher rate than outstanding SME loans. The interest rate on the outstanding stock of loans to SMEs, excluding financial intermediation and property related sectors, increased marginally from 3.2 per cent to 3.26 per cent between Q3 and Q4 2017. At

² This excludes loans securitised by Irish credit institutions, as it is not possible to decompose securitised loan transactions for housing purposes into PDH and other housing.

Chart 3: New Mortgage Agreements: Share of Fixed Rate Mortgages (3-month rolling average)

Source: Retail Interest Rate Statistics, Central Bank of Ireland.

Chart 4: Interest Rates on Lending to SMEs: New and Outstanding Loans

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

the same time, interest rates on new lending to SMEs excluding financial intermediation and property related sectors increased from 3.65 per cent to 4.10 per cent between Q3 and Q4 2017 (Chart 4). Box A examines lending to SMEs across sectors in further detail.

Investment by foreign-owned multinational corporations MNCs in their Irish operations (FDI inflows) decreased by €18.7 billion in Q4 2017. This comprises a decrease in equity of €35.5 billion and an increase in reinvested earning and other capital of €13.5 billion and €3.1 billion respectively. Investment by Irish-owned MNCs abroad (FDI outflows) decreased by €21.6 billion during the quarter. This includes a fall in equity and other capital of €8.4 billion and €19.5 billion respectively. Direct investment income from Irish-owned MNCs amounted to €6.9 billion during Q4 2017 compared with €5.1 billion in Q3 2017.

Government Sector

The net financial wealth of the Irish Government sector increased by €3 billion during Q3 2017, as government assets

increased at a faster rate than government liabilities. Government assets rose by €3.6 billion, primarily due to an increase in the value of equity assets held by government. At the same time, this increase in government assets was partially offset by developments in government financial liabilities which increased by €0.6 billion during Q3 2017 (Chart 5). Net government financial wealth as a percentage of GDP was - 49.5 per cent for Ireland, compared to the euro area average of 68.1 per cent. Finland was ranked first amongst EU countries, with a positive net financial wealth of 58.8 per cent of GDP.

Sovereign bond yield spreads for Ireland have continued on their downward trajectory over recent quarters. The spread of Ireland's 10-year government bond yields over the German equivalent had fallen to close to 20 basis points by Q4 2017, a notable reduction in this spread over just a six-month period. These spreads then continued to narrow since the start of the year. By late-Q1 2018, this spread stood at close to 16 basis points, having touched just 13 basis points earlier during that quarter.

Box A: Trends in Bank Lending to SMEs

by Tiernan Heffernan and Ciaran Meehan³.

Introduction

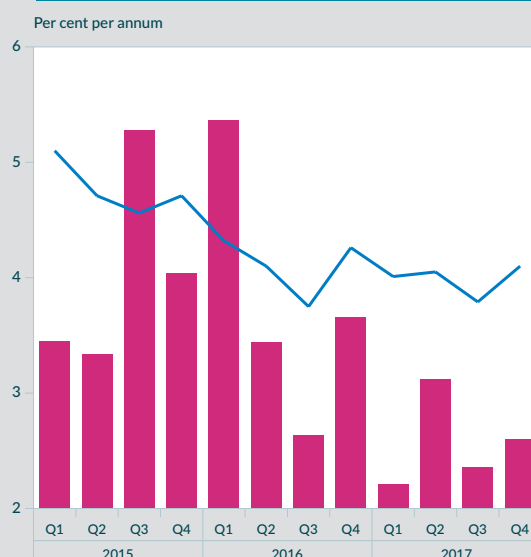
Small and Medium-Sized Enterprises (SMEs) play an important role in the Irish economy. Some sixty nine per cent of persons employed in Ireland work for firms with fewer than 250 employees, and companies of this size make up over 99 per cent of total active enterprises.⁴ SMEs are also important to the Irish banking sector, with 57 per cent of Irish resident credit institutions' outstanding credit to enterprise being directed towards SMEs. Recent economic data is pointing to significant positive trends for the SME sector. The Banking & Payments Federation Ireland (BPFI) market monitor report notes improving conditions for SMEs across the majority of its indicators, such as consumer sentiment, sales and job creation.⁵ Similarly, nine out of twelve indicators in the quarterly Irish SME Association (ISME) business trends report remain positive.⁶ The Central Bank of Ireland publishes a wide range of data on the SME sector, including the quarterly Trends in Business Credit and Deposits release, and the SME Market report.^{7,8} This box seeks to explore the latest trends in the Central Bank of Ireland Statistics Division's non-financial SME data, including an examination of detailed interest rate statistics by economic sector.

The Statistics Division collect data on SME lending amounts and interest rates, and this is broken down by the functional sector of the activity for which the lending is used.

Trends in new lending rates

There has been a clear downward trend in new SME lending rates in recent years. The weighted average new SME lending rate declined from 5.11 per cent to 4.10 per cent between Q1 2015 and Q4 2017 (Box A Chart 1). While the range between the highest and lowest new lending rates for the different sectors has been volatile over the period, recent values have shown a convergence of the lending rates across the different sectors.

Box A Chart 1: Weighted Average New Lending Rates and Range



■ Range between highest and lowest average sector rate
— Weighted average new lending rate

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

³ Statistics Division, Central Bank of Ireland.

⁴ CSO Business in Ireland 2015 report

⁵ BPFI SME Market Monitor March 2018

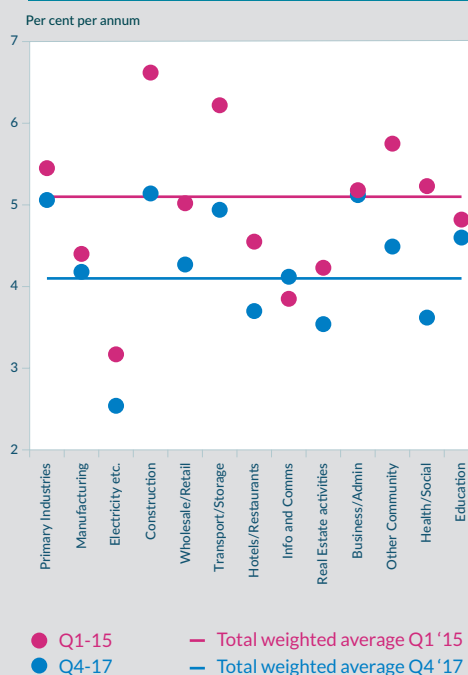
⁶ ISME Quarterly Business Trends Survey Q4 2017

⁷ <https://www.centralbank.ie/statistics/data-and-analysis/credit-and-banking-statistics/business-credit-and-deposits>

⁸ <https://www.centralbank.ie/publication/sme-market-reports>

Box A: Trends in Bank Lending to SMEs*by Tiernan Heffernan and Ciaran Meehan.*

Almost all sectors have seen a fall in new lending rates since Q1 2015, with the weighted average interest rate declining by 101 basis points (bps) (Box A Chart 2). However, the decrease seen was less significant in some important sectors, with decreases of 39 bps, 69 bps, and 85 bps seen in the primary industries (which is predominantly made up of lending related to agriculture), real estate, and the hotels and restaurants sectors respectively. The relatively small interest rate reduction for SMEs engaged in primary industries, and particularly in the hotels and restaurants sector may relate to relative high debt held by SMEs in these sectors, as noted in the Central Bank's Macro-Financial Review. Default rates of SMEs in the hotels and restaurants sector are above 24 percent, amongst the highest recorded.⁹

Box A Chart 2: New Lending Rates by Sector

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

However, despite the above falls seen across new lending rates to SMEs, these rates remain significantly above the interest rates on outstanding loans. The weighted average outstanding rate recorded across all sectors stood at 3.26 per cent in Q4 2017, 84 bps lower than new lending rates in the quarter. Only the electricity, gas, steam and air conditioning supply sector recorded a new lending rate in the quarter that was lower than the outstanding rates charged. Higher than average rates were charged on new drawdowns by SMEs engaged in construction lending, wholesale/retail activities and agriculture industries; the converse was true for firms engaged in the manufacturing and real estate sectors.

Interesting trends can also be seen within property related lending. The two sectors that make up this lending are construction and real estate. Rates on construction were 160 bps above that of real estate in Q4 2017, slightly below the average absolute differential between the two in recent years of 198 bps. This may indicate that the risk reduction value of real estate collateral and potential higher investment risk in construction projects may still be important factors when rates are set.

⁹ See Central Bank of Ireland Macro-Financial Review 2017:II

Box A: Trends in Bank Lending to SMEs

by Tiernan Heffernan and Ciaran Meehan.

Trends in new lending volumes

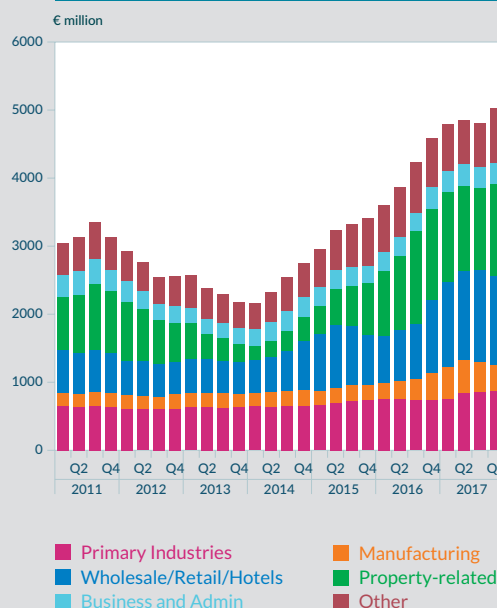
Gross new lending to SMEs amounted to €1.5 billion in the final quarter of 2017, representing the highest level of new drawdowns in a quarter since data collection began in 2010. For the full year 2017, total new lending to Irish SMEs was €5 billion, a 10 per cent increase on the previous year (Box A Chart 3). Property related lending was €1.35 billion in 2017 representing 27 per cent of total gross new lending to SMEs. Other noteworthy sectors with large shares of new business include the wholesale/retail trade & repairs, and primary industries sectors, representing 18 and 17 per cent, respectively.

Transactions data, which accounts for repayments and adjusts for non-transaction effects on lending stocks, show that net lending to SMEs has been negative for the last number of years. Large increases in repayments between 2013 and 2015 overshadowed the aforementioned new lending amounts, leading to increases in this net lending deficit. However, since 2016 SME repayments began to decline, which combined with the continuing increases in new lending volumes caused the net lending deficit to reduce (Box A Chart 4). In Q4 2017, repayments exceeded new lending by just €86 million, the lowest amount recorded since Q3 2011.

Conclusion

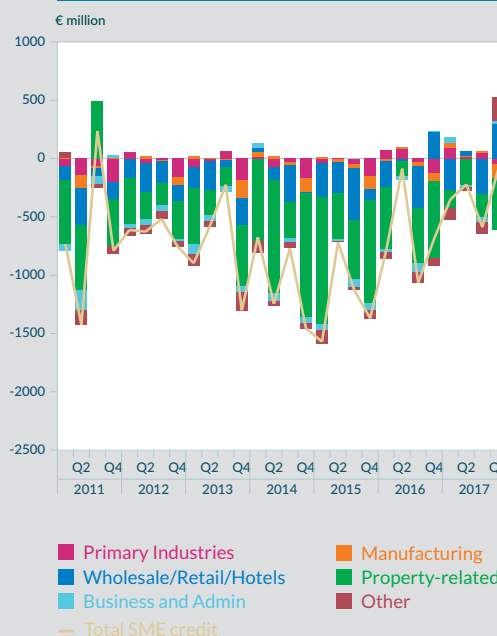
Data collected by the Central Bank shows that there has been an increase in new business drawdowns by firms in the SME sector. Additionally, new lending rates on SME loans are decreasing. Although elevated repayments seen in previous years have meant that net lending to SMEs has remained negative, this situation will reverse soon if current trends in new lending and repayments continue.

Box A Chart 3: Gross New Lending Volumes by Sector, Four Quarter Rolling Sum



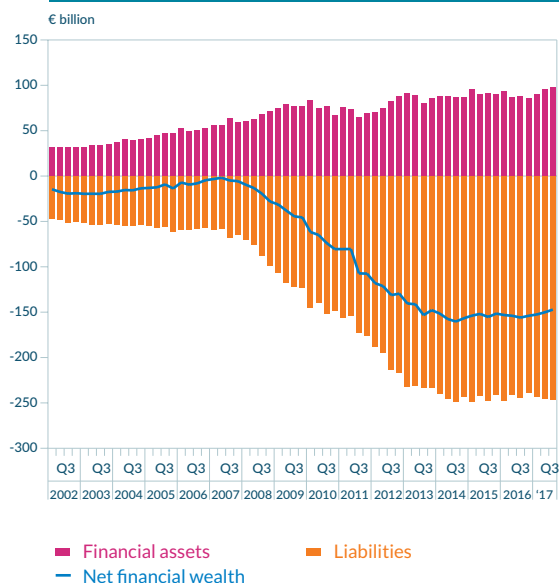
Source: Business Credit and Deposit Statistics, Central Bank of Ireland.

Box A Chart 4: Net Lending Volumes by Sector



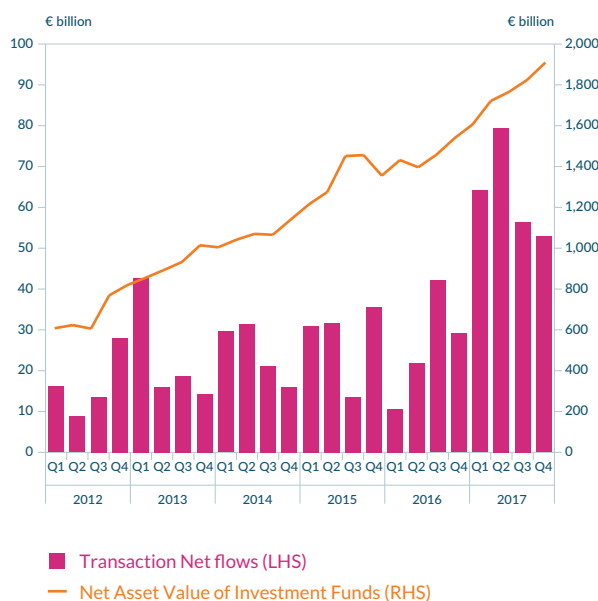
Source: Business Credit and Deposit Statistics, Central Bank of Ireland.

Chart 5: Government Net Financial Wealth



Source: Quarterly Financial Accounts, Central Bank of Ireland.

Chart 6: Value of Investment Funds Shares/Units



Source: Investment Funds Statistics, Central Bank of Ireland.

Note: In Q3 2015, there was a reclassification of funds from Bond to Money Market funds resulting in a decrease of €30 billion in bond funds' total assets.

Financial Sector

The aggregate balance sheet of Irish credit institutions continues to decline and their total liabilities of €546 billion is now back to what it was at end-2003. Irish credit institutions continue to re-balance their funding from non-resident to resident deposits. Reflecting this, deposits from other euro area residents as well as the rest of the world decreased by €635 million and €3.35 billion respectively during January. At the same time, deposits from the Irish private sector increased by €836 million in January bringing total deposits from the Irish private sector to €187 billion.

Irish households are now net funders of the Irish banking system owing to the deleveraging efforts of Irish households in recent years and the increased reliance of Irish credit institutions on domestic deposits. Banks held €9.8 billion more in household deposits than loans at end-January. This is the second highest excess of household deposits over household loans recorded since the series began. Prior to June 2015 bank holdings of household loans had been in excess of household deposits in

every period, and in mid-2008 the excess of household loans over deposits stood at €72.6 billion.

The gap between NFCs loans and deposits continues to widen and total Irish resident NFC deposits currently stand at €50.3 billion in January, which exceeded NFC loans by €9.3 billion. This excess of deposits over loans has grown since turning positive in 2016. Prior to this, banks had been net lenders to NFCs, with NFC loans exceeding deposits by €127.5 billion at the height of this trend in September 2008. This represented a ratio of over 4:1 in NFC loans to deposits.

The net asset value (NAV) of investment funds (IF) resident in Ireland increased by 4.6 per cent (€85 billion) during Q4 2017, reaching €1,909 billion (Chart 6). The increase was driven by strong net inflows (€53 billion), taking the total net inflows for 2017 to €253 billion. This is a record annual figure, with funds seeing more than twice the amount of net inflows reported in previous years. Total assets held by Irish resident IFs increased by €65 billion from Q3 2017, amounting to

€2,239 billion at end-December 2017. The increase was mostly composed of transactions, amounting to €59 billion over the quarter.

Investment funds' equity holdings increased by €45 billion between Q3 and Q4 2017, and amounted to €997 billion at end-December 2017. Equities benefitted from positive revaluations of €30 billion during Q4 2017. On a sectoral basis, the revaluation gain was concentrated in shares to NFCs, which benefitted from a revaluation gain of €20 billion. Numerous countries and regions reported valuation gains, with the US enjoying the largest gain. Box B goes into further detail looking at Irish resident investors, including resident investment funds, and their exposures to offshore financial centres' issuance of securities.

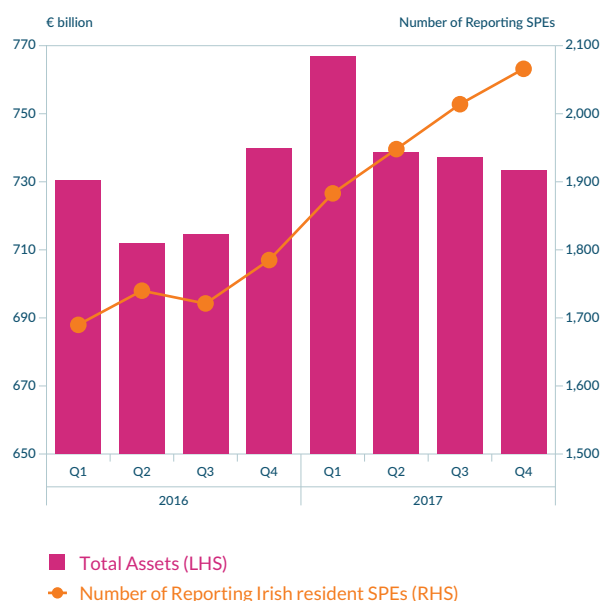
The net asset value of Irish money market funds (MMFs) rose to €487 billion at end-Q4 2017, up from €475 billion at end-Q3 2017. During Q4 2017, net inflows into MMFs benefitted from €17 billion of inflows with exchange rate movements offsetting some of this increase.

Total debt securities held by MMFs at end-December 2017 amounted to €362 billion. The stock of debt securities increased by €10 billion from the previous quarter, underpinned by net purchases of €14 billion. Purchases were concentrated in UK (€5 billion) and euro area issuances (€6 billion).

The share of French-issued debt as a percentage of the euro area total held by Irish MMFs has increased from 36 per cent at end-December 2014 to 49 per cent at end-December 2017. Over the same period, holdings of German-issued debt increased from 22 per cent at end December 2014 to a high of 28 per cent at end-September 2016, before decreasing to 15 per cent of the total at end-2017.

The total asset value of Irish-resident Special Purpose Entity (SPE) vehicles decreased marginally by €4 billion to €733 billion during Q4 2017. The total assets of Financial Vehicle Corporations (FVCs) increased by 3 per cent to €401 billion in Q4 2017. This was counterbalanced by a decline in the total

Chart 7: Number and Value of Reporting Special Purpose Entities



Source: Special Purpose Entity Statistics, Central Bank of Ireland.

assets of other SPEs, which decreased by 5 per cent to €333 billion. New acquisitions and investment account for the increase in FVCs total assets. At the same time, a reduction in securities lending activity explain the reduction in SPEs total assets.

The number of reporting SPEs continued to rise during Q4 2017, and reached a new high of 2066 vehicles (Chart 7). The number of non-securitised SPEs has increased each quarter since Q1 2016, and reached a high of 1,104 vehicles at end-Q4 2017 – an increase of 19 vehicles since end-Q3 2017. Finally, the number of FVC entities increased by 33 vehicles during Q4 2017 to reach 962 vehicles

Vehicles engaging in Cash Collateralised Debt Obligations (CDO) experienced growth of 5 per cent during Q4 2017. Cash CDO vehicles are the largest FVC activity type by total assets and increased each quarter during 2017. Synthetic CDOs also experienced growth of 7 per cent during Q4 2017, though these form a smaller share of the market. Other SPE types remained largely static or experienced small decreases. A notable exception is loan origination vehicles, which saw a 25 per cent reduction in total assets due to a reduction in securities lending activity.

Box B: Exposures of Irish-Resident Investors to Offshore Financial Centres: A Securities Holdings Statistics Perspective*by Dermot Coates and Siobhán O'Connell¹⁰*

Offshore Financial Centres (OFCs) have been a topic of public debate in recent years and the objective of this box is to present an analysis of the exposures of Irish-resident investors to securities issued by entities resident in these centres. In order to do so, our classification of OFCs is drawn from the reference documentation published by Eurostat – the Balance of Payments Vademecum – for national statistical compilers¹¹. We draw on the securities holdings statistics (SHS) produced by the Central Bank of Ireland which provide information on securities held by Irish-resident investors. This data can be broken down by a range of classifications including holder sector and instrument type. It can also be used to analyse exposures to specific counterparty (i.e. issuer) countries or sectors.

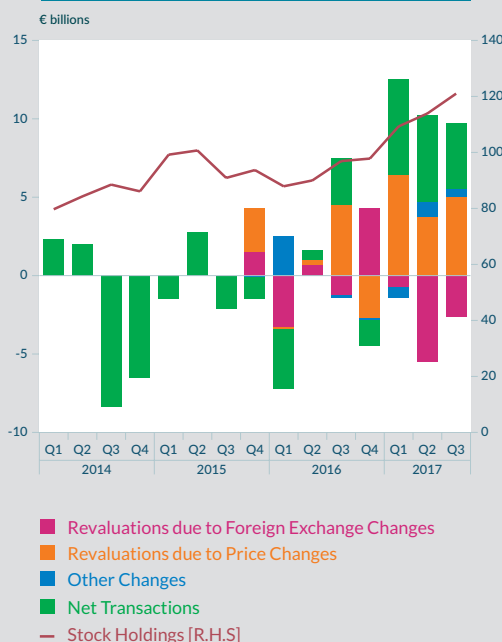
Box B Table 1: Irish-Resident Investors' Holdings of Securities issued by Offshore Financial Centres (by Holder Sector), Q1 2014 and Q3 2017

Holder Sector	€ billions 2014-Q1	€ billions 2017-Q3	Per cent 2014-Q1	Per cent 2017-Q3
Total	79.7	121.0		
Investment Funds	55.6	100.4	69.8	83.0
Money Market Funds	9.4	9.8	11.8	8.1
Credit Institutions	4.7	0.4	5.9	0.3
Other Financial	9.8	6.0	12.3	5.0
Insurance	0.0	4.1	0.0	3.4
Households	0.1	0.2	0.1	0.2
Non-Financial	0.1	0.0	0.2	0.0

Source: Securities Holdings Statistics Database (SHSDB), ECB

Note: (i) Excludes third-party holdings

By Q3 2017, Irish-resident investors held securities – bonds and shares – issued in these OFCs with a market value of €121 billion. These holdings are concentrated within Irish-resident investment fund sector with the latter accounting for some 83 per cent of the total (or €100 billion). Improvements in data coverage, on foot of the inclusion of new reporting by insurance corporations and special purpose vehicles, are reflected in changes in the figures for total holdings by Irish residents over time (Box B Table 1 and Chart 1).

Box B Chart 1: Irish-Resident Investors' Holdings of Securities issued by Offshore Financial Centres

Source: Securities Holdings Statistics Database (SHSDB), ECB and author's calculations.

Note: (i) Excludes third-party holdings.

¹⁰ Statistics Division, Central Bank of Ireland

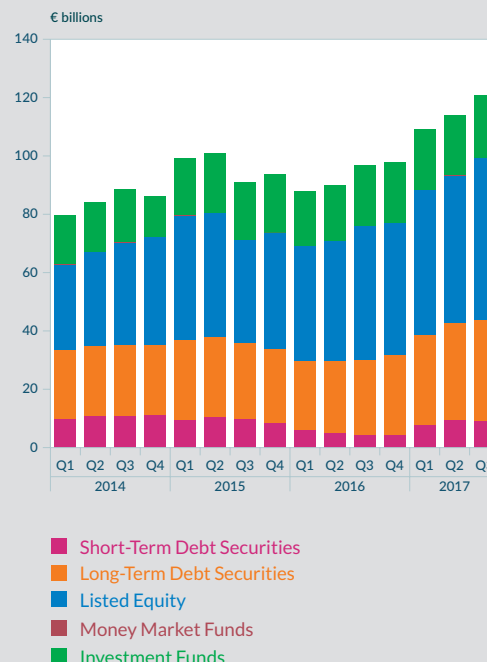
¹¹ Andorra, Antigua and Barbuda, Anguilla, Aruba, Barbados, Bahrain, Bermuda, Bahamas, Belize, Cook Islands, Curacao, Dominica, Grenada, Guernsey, Gibraltar, Hong Kong, Isle of Man, Jersey, St Kitts and Nevis, Cayman Islands, Lebanon, Saint Lucia, Liechtenstein, Liberia, Marshall Islands, Monserrat, Mauritius, Nauru, Niue, Panama, Philippines, Seychelles, Singapore, Sint Maarten, Turks and Caicos Islands, Saint Vincent and the Grenadines, Virgin Islands (British), Virgin Islands (U.S.), Vanuatu, Samoa (as listed in Appendix 7, List of offshore financial centres, Balance of Payments Vademecum, Eurostat): <http://ec.europa.eu/eurostat/documents/39118/40189/BOP+Vademecum+-+December+2016/a5e89ad8-254b-485d-a9cd-521885c616e4>

Box B: Exposures of Irish-Resident Investors to Offshore Financial Centres: A Securities Holdings Statistics Perspective

by Dermot Coates and Siobhán O'Connell

The most prevalent OFC issued financial instrument held by Irish residents at end Q3 2017 was quoted (or listed) shares at 46 per cent of the total, followed by debt securities with a 36 per cent share (Box B Chart 2).

Box B Chart 2: Irish-Resident Investors' Holdings of Securities issued by Offshore Financial Centres, by Financial Instrument



Source: Securities Holdings Statistics Database (SHSDB), ECB.

The geographic spread of OFC issued instruments held by Irish residents is concentrated within five OFC countries, accounting for 87 per cent of the total holdings. The Cayman Islands alone account for more than 47 per cent of the total (Box B Table 2). The principal issuer sector has tended to differ across these particular OFCs. For instance, investment funds resident in the Cayman Islands was the largest single issuer sector held by Irish-resident investors in that country. Credit institutions and non-financial corporations, respectively, were the largest issuer sectors in the case of Singapore and Hong Kong (Box B Table 3). Across each of the aforementioned top five issuer OFCs, the investment fund sector resident in Ireland was again the main holder sector. The investment fund sector accounted for 89 per cent of the total Irish exposure to securities issued by entities resident in the Cayman Islands.

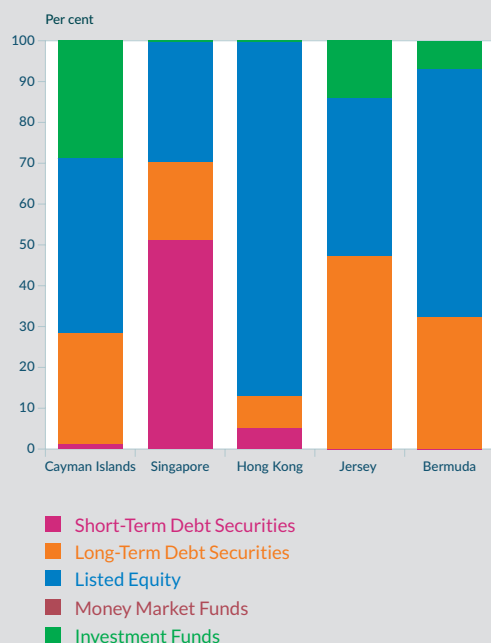
Box B Table 2: Irish-Resident Securities Holdings issued by Offshore Financial Centres, Q3 2017

	€ billions	Percentage of Total
Total	121.0	
Cayman Islands	57.0	47.1
Singapore	15.1	12.5
Hong Kong	12.4	10.3
Jersey	11.3	9.3
Bermuda	9.6	8.0
Remaining Offshore Centres	15.6	12.9

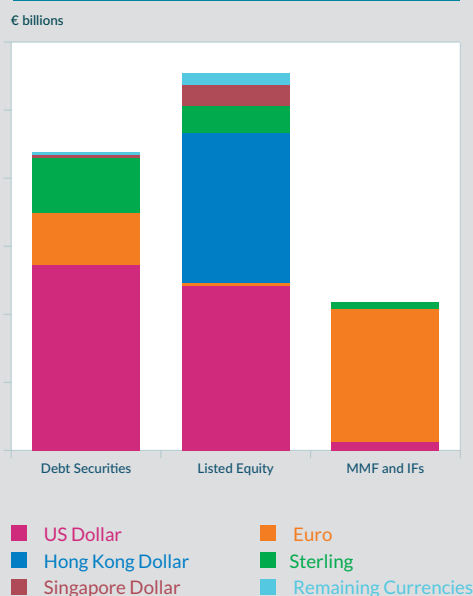
Source: Securities Holdings Statistics Database (SHSDB), ECB.

Box B: Exposures of Irish-Resident Investors to Offshore Financial Centres: A Securities Holdings Statistics Perspective*by Dermot Coates and Siobhán O'Connell*

Across these OFCs, there is also a varying preference by securities holders with regard to financial instrument type. In the case of Hong Kong issuance, quoted shares were the preferred choice in 2017. Across all financial instrument types, the principal nominal currency was the US dollar, with €52 billion of all Irish held investments denominated in this currency by late 2017 (Box B Charts 3 and 4). Finally, the non-financial corporations (NFC) sector across all OFCs was the principal issuer for securities held by Irish-resident investors, with cumulative holdings amounting to approximately €51 billion (or 42 per cent of the total). NFC issuers resident in the Cayman Islands accounted for €26 billion of this. By looking specifically at the underlying industry sector for this securities' issuance, we can see that NFCs operating in the 'internet' sector accounted for almost €14 billion of Irish-resident investors' exposure to this sector through the Cayman Islands (or 53 per cent)¹². Interestingly, a large number of these issuers are Asian-focussed companies¹³. By contrast, Irish-resident investors have a more diverse spread of securities holdings (i.e. companies and industry sectors) with regard to the NFC sector in the other OFCs examined.

Box B Chart 3: Holdings of Issuance by Top 5 Offshore Financial Centres, by Financial Instrument (Q3 2017)

Source: Securities Holdings Statistics Database (SHSDB), ECB.

Box B Chart 4: Irish-Resident Investors' Holdings of Securities issued by Offshore Financial Centres, by Nominal Currency (Q3 2017)

Source: Securities Holdings Statistics Database (SHSDB), ECB.

Box B Table 3: Holdings of Issuance by Top 5 Offshore Financial Centres, Q3 2017 (by principal issuer sector)

Issuer Country	Largest Issuer Sector	of which		€ billions
		Instrument Type	Nominal Currency	
Cayman Islands	Investment Funds	Fund Shares/Units	Euro	15.3
Singapore	Credit Institutions	Short-Term Debt	US Dollars	3.4
Hong Kong	Non-Financial Corporations	Listed Shares	Hong Kong Dollars	7.3
Jersey	Non-Financial Corporations	Listed Shares	Sterling	2.3
Bermuda	Non-Financial Corporations	Listed Shares	Hong Kong Dollars	1.6

Source: Securities Holdings Statistics Database (SHSDB), ECB.

¹² This only accounts for the ISIN holdings¹³ This includes companies such as Tencent Holdings Ltd, Alibaba Group Holdings Ltd and Baidu, Inc.

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.

Where are Ireland's Construction Workers?

Thomas Conefrey & Tara McIndoe-Calder^{1,2}

Abstract

The construction sector bore the brunt of the employment loss from the economic and financial crisis that began in 2008. Almost one in every two workers who lost their jobs in Ireland in the five years from 2007 to 2012 had previously been employed in construction. While there has been a modest rise in construction employment since 2012, the number at work in the sector as of Q2 2017 was 110,000, or 46 per cent, lower than in 2007. This raises the question: where are the construction workers who lost their jobs during the property crash? We find no evidence of the existence of a significant number of either unemployed or inactive former construction workers as of early 2017. Instead, while we cannot be definitive on the magnitude, our results point to a high rate of outward migration among unemployed construction workers during the 2008-2012 period. This has implications for the recovery in the construction sector, with inward migration likely to play an important role in meeting the demand for labour in the sector as housing output picks up.

¹ E-mail: thomas.conefrey@centralbank.ie; tara.mcindoealder@centralbank.ie. The views expressed in this paper are our own, and do not necessarily reflect the views of the Central Bank of Ireland or the ESCB. We would like to thank Jim Dalton and Brian Ring (CSO) for access to the QNHS microdata and for comments on the work. Thanks to David Byrne, Mark Cassidy, John Flynn, Reamonn Lydon and Gerard O'Reilly for helpful suggestions on an earlier draft.

² From Q4 1997 up to Q2 2017, labour market data for Ireland published by the CSO came from the Quarterly National Household Survey (QNHS). From Q3 2017, the CSO released revised labour market data for Ireland. The revised data reflect the impact of a move to a new survey methodology (the Labour Force Survey - LFS) along with an update to previous labour market data to include the results of the most recent Census in 2016. This paper uses a combination of published aggregate CSO data (freely available to download on the CSO website) along with more detailed microdata that are unpublished, but accessible by researchers with the consent of the CSO. Where aggregate data are used in this paper, this is based on the new LFS survey. For the analysis which uses the more detailed micro data (in particular, as in Sections 3 and 4), the Quarterly National Household Survey (QNHS) published by the CSO up to Q2 2017 is used. While the revisions in the new Labour Force Survey (LFS) data resulted in changes in the levels of aggregates such as employment and unemployment compared to the QNHS, the trends in the series remain the same before and after the revisions.

1. Introduction

The bursting of the Irish property bubble in 2008 had a dramatic effect on construction employment. As house prices collapsed and the number of housing units being constructed declined drastically, employment in the construction sector fell by 65 per cent from 236,800 in 2007 to 83,400 in 2012. Since 2012, a hallmark of the economic recovery has been the pace of growth in overall employment from its crisis low. However, not all sectors have added jobs at the same rate and, in particular, the recovery in construction employment has been weak. As of Q2 2017, employment in all sectors excluding construction had surpassed its 2007 peak. In contrast, the number at work in construction was 46 per cent lower than in 2007. While the 2007 level of construction employment should not be considered a sustainable level – given the excess level of construction output – it is useful to examine the status of workers who lost their jobs in the property crash.

In this paper, we examine the fall in construction employment during the 2008-2012 period and ask: where are the construction workers who lost their jobs during this period? Analysing this issue is important because it helps to shed light on the current labour supply position for construction workers as the demand for labour in the sector increases.

To definitively work out the current status of former construction workers who lost their jobs during the recession, it would be necessary to have data which tracks each of these individuals over time. This would allow us to see how the labour market situation of a 2007 construction worker changed in the subsequent years up to 2017. As a comprehensive dataset such as this does not exist in Ireland, we instead take an alternative three-pronged approach. We first examine the current stock of unemployed workers and investigate whether there are a significant number of individuals currently unemployed who were formerly construction workers

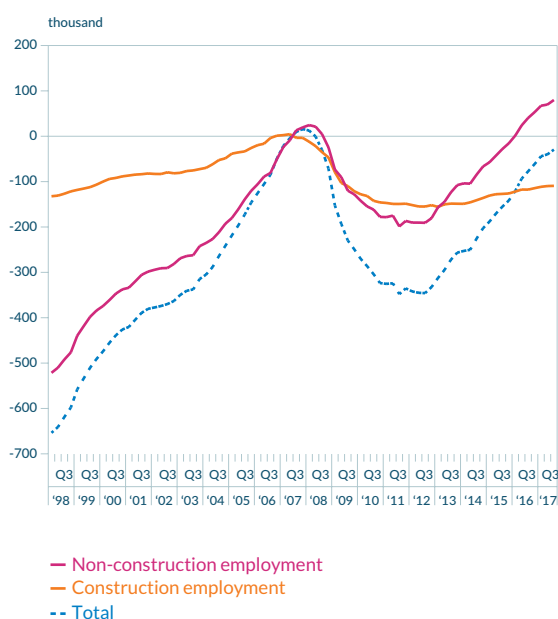
(Section 2). Next we look at labour force transitions during the 2008-2016 period to assess the movements of workers who exited the construction sector during the crisis (section 3). Lastly, we estimate an econometric model to examine the current labour market outcomes of individuals who, based on their characteristics, were likely to have worked in the construction sector in 2007 (Section 4).

Similar to Ireland, the US also experienced a significant housing bust after 2007. [Paciorek \(2015\)](#) examined the outcomes of construction workers who lost their jobs in the US in the wake of the housing bust. This research found that as of 2014, there was a large and growing group of workers who, based on their observable characteristics, would have been relatively likely to be construction workers but were instead currently out of the labour force. Our analysis is similar to that of [Paciorek \(2015\)](#) but our findings differ. In the Irish case, the analysis in this paper indicates that there is not a significant number of individuals either unemployed or outside the labour force who previously worked in the construction sector. With construction employment still almost 50 per cent below its 2007 level, this suggests an enhanced role for emigration in the Irish case, in contrast to the findings for the US.

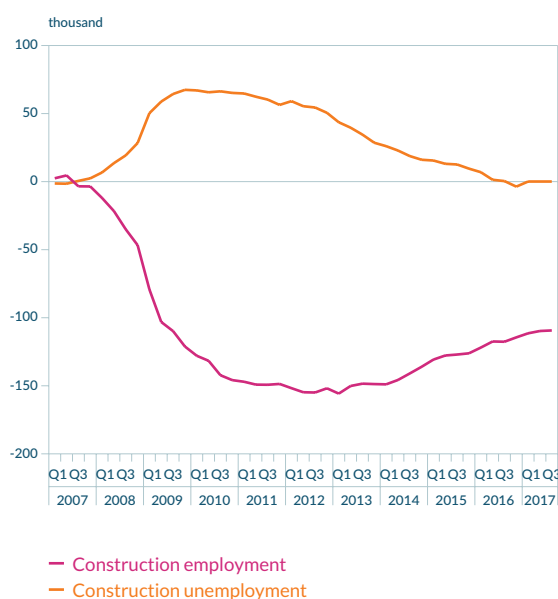
2. Construction Employment and Unemployment

The collapse of the property bubble in 2008 brought upheaval to the construction sector.³ As well as the 55 percent peak-to-trough decline in house prices, housing output also fell by 90 per cent. The decline in construction activity was manifested in a significant deterioration in labour market conditions for construction workers. Having increased by 82,000 in the previous 5 years up to 2007, construction employment fell by 153,000 between 2007 and 2012. Over this period, despite the sector making up only about 7.3 per cent of overall employment, construction accounted for just under half of the economy-wide fall in employment.

³ See [Bergin and Kelly \(2017\)](#) and [Lawless et al. \(2015\)](#) for a discussion of labour market developments in Ireland during the 2008-13 economic crisis.

Chart 1: Employment relative to 2007 Average: Construction and Non-Construction

Source: CSO.

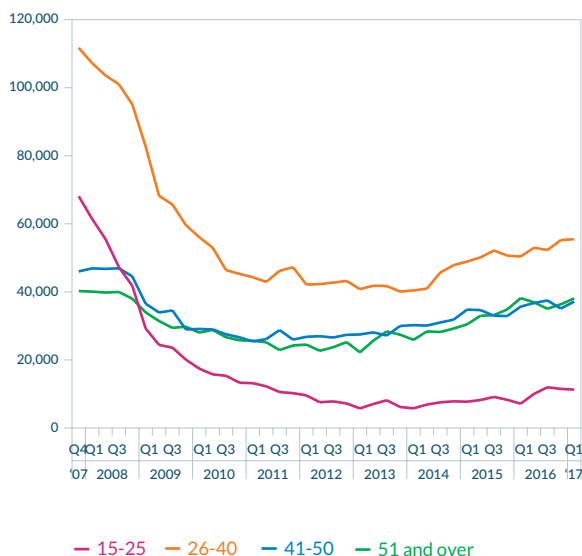
Chart 2: Construction Employment and Unemployment

Source: CSO.

A remarkable aspect of the economic recovery in Ireland since the crisis has been the pace of increase in employment. From its low point in Q3 2011, overall employment increased by 308,100 as of Q2 2017. Figure 1, however, shows that the recovery in employment has been driven by sectors other than construction. As of Q2 2017, construction employment was still 110,000 lower than in 2007 while non-construction employment had risen to almost 70,000 above its 2007 level. Thus, even as non-construction employment has rapidly exceeded its previous peak, construction employment has made good less than one-third of the losses incurred during the crisis. This means that a large number of construction workers who lost their jobs during the 2008-12 period have not regained employment in the sector in Ireland. The question then arises: where are these workers now?

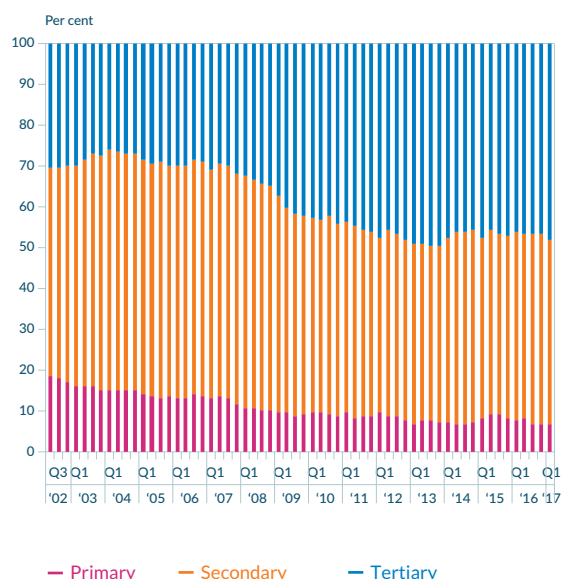
An obvious first place to look for formerly employed construction workers is among the ranks of the unemployed. Using the QNHS it is possible to examine the previous sector of employment of workers who are currently unemployed. Figure 2 shows the level of construction unemployment and construction employment relative to their 2007 averages. The chart shows that as construction employment fell after 2007, there was a large increase in the number of unemployed workers who reported that their previous sector of employment was construction. This peaked at close to 70,000 in early 2010, but since then the number of unemployed former construction workers has fallen back to 2007 levels, even though construction employment still remains far below its 2007 level. This indicates that, in net terms, the majority of former construction workers have exited the sector entirely.

Chart 3: Construction Employment by Age



Source: CSO.

Chart 4: Construction Employment by level of Education

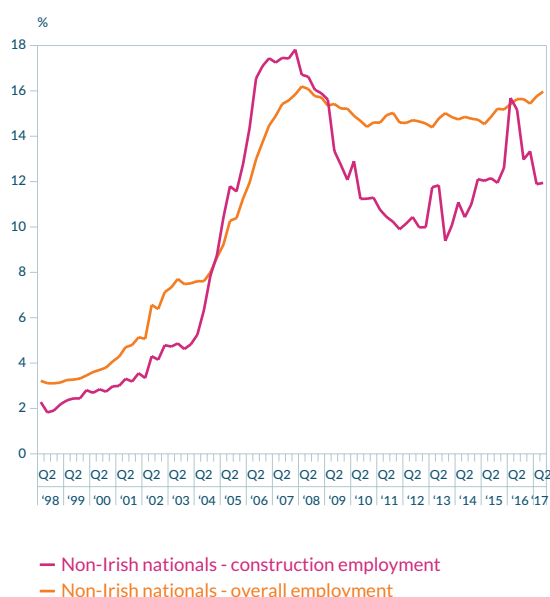


Source: CSO.

Given the very significant changes in the labour market for construction workers over the last decade, it is instructive to examine how the characteristics of workers in the sector have changed since 2007. Figure 3 shows the stock of construction workers by age group. In late 2007, over a quarter of all those employed in the sector were aged between 15 and 25. In subsequent years, however, the number of workers in this age group fell by 90 per cent. There was also a very large decline (63 per cent) in the number of construction workers in the 26 to 40 age group. In contrast, while there were also falls in employment for older age groups, the reductions were much smaller and in Q1 2017, the number of workers in the 51+ age bracket was similar to the level in 2007. The combined effect of these changes in the age distribution mean that average age of employed construction workers has risen significantly from 35.6 years in 2007 to 42.3 in 2017.

Figure 4 shows construction employment by level of education. At the end of 2007, over 12 per cent of those employed in the construction sector had only primary education while 54 per cent had a second-level qualification. The fall in employment in the construction sector was concentrated among individuals in both of these educational brackets; in contrast, the reduction in employment for those with third level qualifications was significantly smaller. As a result, the educational composition of construction sector employment has changed markedly. In Q1 2017, 47 per cent of the workforce had third level qualifications, compared to 28 per cent in 2007, while the proportion with only primary education had halved to just over 6 per cent.

Chart 5: Employment by Nationality: Construction and all sectors



Source: CSO.

Figure 5 shows the proportion of non-Irish nationals in employment in the construction sector compared to the proportion of non-Irish nationals in employment in all sectors. Across all sectors, there was an increase in the proportion of non-Irish nationals in employment up to 2007, and in particular during the period 2003-2007. The increase in the share of non-Irish nationals at work was even more pronounced in the construction sector. Between 2003 and 2007, the number of non-Irish nationals employed in the construction sector increased dramatically so that by the end of 2007, non-Irish nationals accounted for just under one fifth of construction employment. Figure 5 shows that during the crisis the proportion of non-Irish nationals in employment in the construction sector fell by almost half. This was significantly larger than the fall in the proportion of non-Irish workers in employment generally, suggesting that non-Irish workers

in the construction sector suffered a greater incidence of employment loss compared to workers in other sectors of the economy.

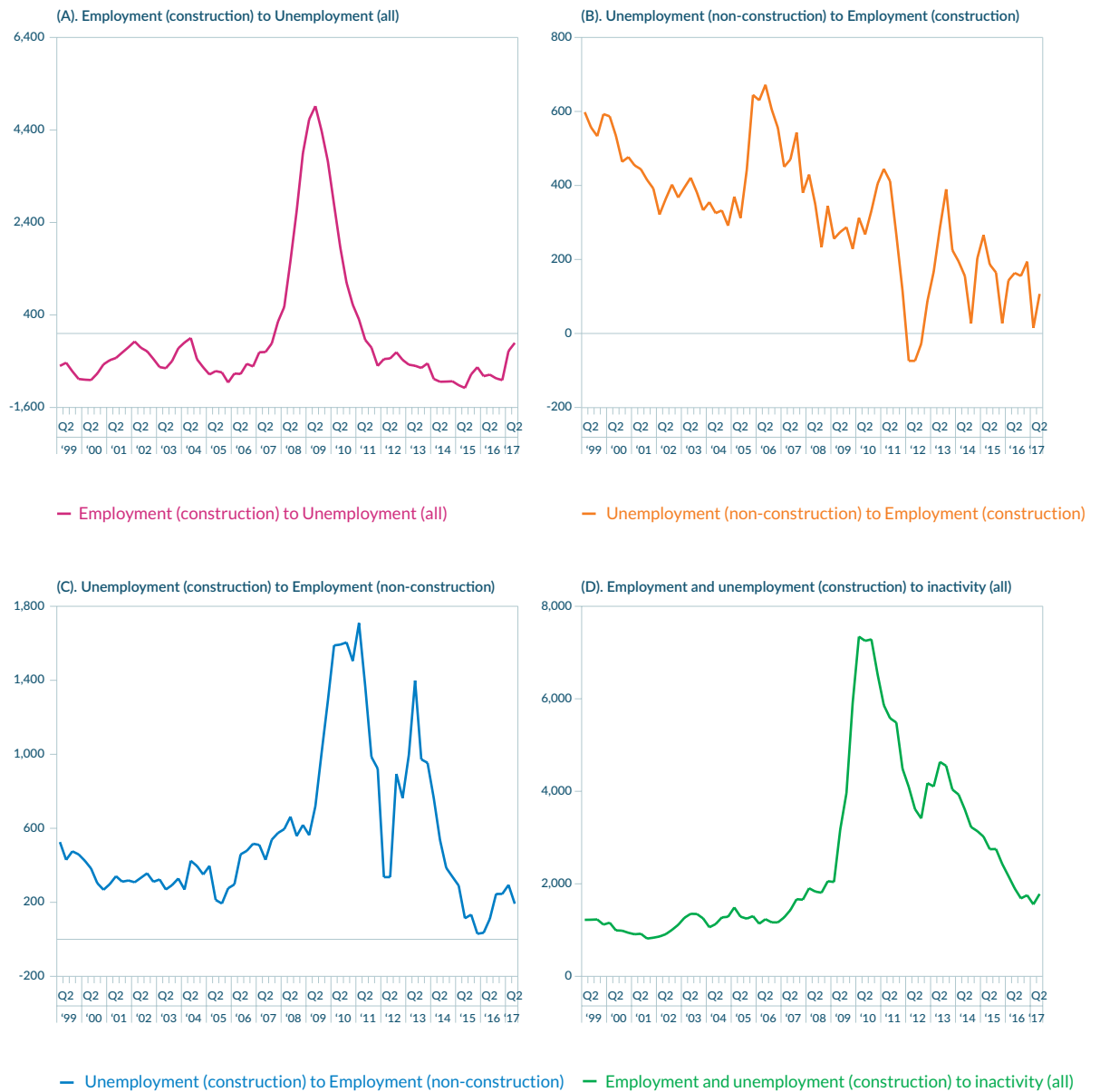
3. Construction Sector Worker Flows

The longitudinal nature of the QNHS makes it possible to track the labour market status of individuals over consecutive quarters during which they remain in the QNHS sample. The detailed information on worker flows allows us to examine the movement of workers between different states, i.e., from construction employment to unemployment or inactivity. This can help shed light on the labour market status of construction workers who lost their jobs during the crash.

At the outset, a number of caveats with the detailed flows data should be noted. Because we are interested in tracking the movements of construction workers, we require information on each individual's labour market status (employed, unemployed and inactive), as well as their sector of employment. While the majority of respondent's labour market status is reported in the QNHS data, a significant number of employed and unemployed individuals in the survey do not report their sector of employment (or previous sector in the case of the unemployed). This means that it is not possible to track the flows of all workers in the construction labour force. In addition, an individual stays in the QNHS sample for a maximum of five quarters - after this period it is not possible to track their labour market status. Despite these drawbacks, the flows data still capture a large number of construction sector transitions and the trends in these data provide insights on the movements of workers during and after the crisis.

For this analysis, we divide all individuals in our sample from the QNHS into four categories: construction employment, unemployment, non-construction employment and non-participation. In each case, we focus on net flows of individuals between these categories.

Chart 6: Construction Sector Worker Flows, 1999–2017



Source: CSO, Authors' calculations.

For example, the top left panel of Figure 6 shows the flow of workers from construction employment to unemployment minus the number who flowed from unemployment into construction employment.

During the peak of the construction boom from 2004-07, the net flow of workers from construction employment to unemployment was negative, meaning that more workers moved from unemployment into a construction job than exited construction employment. During the boom, this flow of workers into the construction sector from unemployment was supplemented by flows of workers moving from other sectors into construction jobs. From late 2007, the position changed as the number of construction workers moving into unemployment increased substantially. Although some unemployed workers managed to find a job in construction, even during the housing bust (panel b), the flow of workers into the sector was vastly outweighed by the numbers losing their jobs, giving rise to the very large increase in unemployment during the recession as shown in Figure 1 and Figure 2.

Where did unemployed construction workers go? The bottom left panel (c) in Figure 6 shows that some unemployed construction workers found jobs in other sectors of the economy with the net outflow to non-construction sectors trebling in 2009-10 compared to pre-crisis. In addition, a large number of workers left the construction sector entirely (both employment and unemployment) by moving out of the labour force and into inactivity (bottom right panel (d)). Between 1999 and 2007, around 1,000 workers, on net, flowed into inactivity each quarter. During the bust, however, this net flow increased to over 7,000 as large numbers of construction workers exited the sector. Since 2013, construction employment has begun to grow again, reflecting the fact that all of the net flows shown in Figure 6 have returned to close to pre-crisis levels. In particular, the exit rate from

the construction sector has dropped which has helped to support the recovery in employment.

4. The Current Labour Market Status of a 2006 Construction Worker

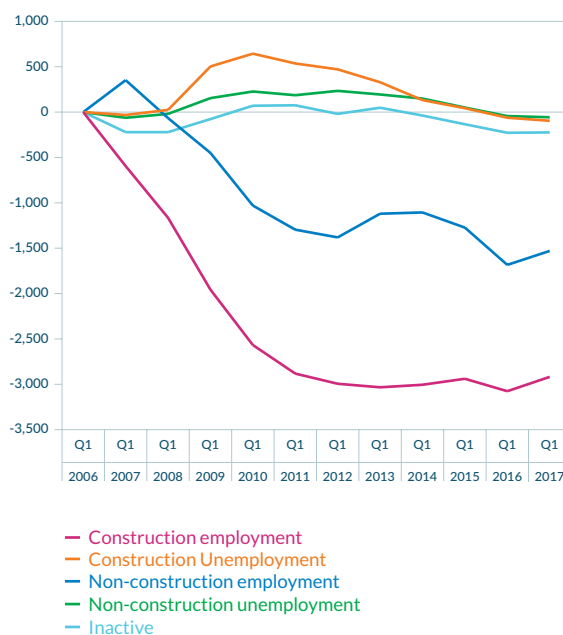
The analysis of the flows data provides some information on the movements of construction workers since before the crisis. However, as noted earlier, it is only possible using the QNHS data to track workers over a relatively short horizon of just over a year. Moreover, given the prolonged nature of the downturn in the construction sector, it is possible that individuals who previously would have taken up construction jobs never joined the sector after the 2007 collapse.

To more formally examine what these missing construction workers are likely to be doing instead, we use the detailed QNHS data to examine the current labour market outcomes of individuals who, based on their observable characteristics, were relatively likely to be construction workers in 2006. The methodology mirrors the approach in Paciorek (2015). In order to predict the likelihood that individuals are employed in the construction sector we carry out the following logit regression. Specifically, we regress an indicator variable describing whether an individual is employed in construction on explanatory variables for secondary education, nine occupation categories, six nationality categories, gender, age and age squared (to capture potential non-linearities in the effects of age on the likelihood of being employed in the construction sector).

We take 2006Q1 as the base year for our logit model.⁴ Using the explanatory variables described above and the estimated coefficients from our logit model, we can predict the likelihood of an individual being employed in the construction sector in 2006Q1. The average of these predicted probabilities over the whole 2006Q1 sample of employed individuals is 38 per cent. We can then rank

⁴ The use of 2006Q1 as the base year is a technical assumption. It does not imply that construction employment in that quarter – a period when construction output was unsustainably high – should be considered a target level of employment.

Chart 7: Labour Market Status of Likely Construction Workers, Relative to 2006 Q1



Source: CSO, Authors' calculations.

all individuals in the sample by their predicted probabilities of working in construction. Those with a predicted probability of over 38 per cent account for approximately 20 per cent of the total sample. When we examine the actual employment outcomes of this top 20 per cent of the 2006Q1 sample we find that we capture fully 80 per cent of those actually employed in construction in the quarter. This indicates that the explanatory variables in the logit model do a good job of capturing the characteristics of the majority of construction workers in 2006.

If the explanatory variables predicting construction employment remain constant over time, the 2006Q1 coefficients should predict construction employment as accurately in 2017Q1 as they do in 2006Q1. We use the 2006Q1 logit coefficients to predict probabilities of construction employment using subsequent years of QNHS data and select the group that would have been in the top quintile in 2006. We find that the model performs well: in the top fifth of the construction workers probability distribution in 2017Q1, the model

captures 72 per cent of all construction workers, down marginally from 80 per cent in 2006Q1.

Figure 7 shows the difference between predicted and actual outcomes for this group of high-probability construction workers. For example, the model predicts that among this group of likely construction workers, over 3,000 fewer are actually employed in construction in 2017Q1. Non-construction employment is also lower, indicating that the missing construction workers are not working in other sectors. Figure 7 shows that the incidence of unemployment and non-participation among likely construction workers increased during the recession but in both cases the numbers have fallen back to pre-crisis levels. In line with the earlier evidence, this suggests that there currently is not a significant pool of former construction workers either in unemployment or outside the labour force. This analysis implies a likely high rate of outward migration from the construction labour force during the crisis.

These findings differ from the results of a similar analysis carried out for the US. Paciorek (2015) looks at the predicted labour market outcomes for a group of high probability construction workers in the US from 2006 up to 2014. In the US case, the author finds evidence that there is a large group of workers in 2014, who would have been relatively likely to be construction workers in 2006, but are instead out of the labor force. This suggests that as of 2014 there was a large number of workers in the US who are good candidates for construction employment, who remain in the country, but who have dropped out of the labour force.

5. Conclusion

In this paper, we examine the characteristics of the construction labour force since before the crisis. Our analysis reveals significant structural change in the characteristics of this segment of the labour market over time. Compared to

2006, those employed in the construction sector in 2017 are older, more likely to be Irish nationals and have higher levels of educational attainment. With the construction sector having regained less than one-third of the jobs lost during the crisis, we attempt to determine the status of the large number of construction workers who lost their jobs during the crash. In the absence of data which tracks each of these individuals over time, it is not possible to answer this question definitively. Nevertheless, some conclusions can be drawn based on the different analytical approaches in this paper. The analysis provides no evidence of the existence of a large number of unemployed former construction workers. Similarly, there does not appear to be a significant number of previously employed construction workers currently outside the labour force (or inactive). This suggests that a large proportion of construction workers who lost their jobs during the crash are likely to have emigrated. As construction sector output picks up, net inward migration is likely to play an important role in meeting the demand for labour in the sector.

References

- [1] Bergin, A. and Kelly, E. 2017. "The Labour Market in Ireland 2000-2016", IZA World of Labour 2017:410.
- [2] Conefrey, T., Lawless, M. and Linehan, S. 2015. "Developments in the Irish Labour Market During the Crisis: What Lessons for Policy?", Journal of the Statistical and Social Inquiry Society of Ireland 2014/15.
- [3] Paciorek, A. 2015. "Where Are The Construction Workers?", FEDS Notes, Board of Governors of the Federal Reserve System.

Table 1: Prediction regression results, marginal effects, various quarters

	2004Q1	2006Q1	2012Q1	2017Q1
Secondary education	0.221*** (0.0461)	0.168*** (0.0449)	-0.0958 (0.0683)	0.105 (0.0699)
Age	0.0364*** (0.00801)	0.0323*** (0.00785)	0.103*** (0.0159)	0.138*** (0.0152)
Age2	-0.000776*** (0.0000967)	-0.000720*** (0.0000941)	-0.00137*** (0.000175)	— (0.000168)
Occupation (reference category administration) Elementary	1.195*** (0.0983)	1.371*** (0.0952)	0.348** (0.164)	0.649*** (0.174)
Manager	-0.271** (0.109)	-0.437*** (0.114)	-0.182 (0.192)	0.0242 (0.192)
Operatives	0.271*** (0.105)	0.691*** (0.0997)	0.390** (0.163)	0.639*** (0.173)
Professional	0.159 (0.120)	0.309*** (0.114)	-0.294 (0.184)	-0.662*** (0.203)
Sales	-1.676*** (0.215)	-1.390*** (0.190)	-1.755*** (0.395)	-2.047*** (0.442)
Services	-4.106*** (0.586)	-2.488*** (0.291)	-2.422*** (0.753)	-0.627** (0.307)
Skilled Trades	2.363*** (0.0899)	2.532*** (0.0879)	1.366*** (0.144)	1.754*** (0.153)
Technical	-0.516*** (0.148)	-0.249* (0.139)	-0.507*** (0.192)	-0.759*** (0.226)
Nationality (reference category EU-15)				
EU-15 to 28		0.631** (0.280)	0.700 (0.581)	0.951** (0.483)
Other Europe	-0.0454 (0.356)	1.060*** (0.366)	0.688 (0.723)	0.588 (0.598)
Irish	0.683*** (0.259)	0.329 (0.263)	1.007* (0.570)	1.251*** (0.467)
UK	0.661** (0.272)	0.409 (0.275)	0.881 (0.585)	1.395*** (0.487)
Rest of the world	-0.500 (0.336)	-0.194 (0.310)	0.245 (0.611)	-0.0383 (0.537)
Female	-2.107*** (0.0721)	-2.020*** (0.0695)	-1.947*** (0.112)	-1.915*** (0.122)
Constant	-3.466*** (0.306)	-3.019*** (0.311)	-5.548*** (0.686)	-6.439*** (0.580)
Observations	51,147	44,609	27,182	21,764

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Source: CSO, QNHS and own calculations.

Resolving Non-Performing Loans in Ireland: 2010-2018

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Mícheál O’Keeffe¹

Abstract

In the last decade, the Irish banking system experienced a systemic crisis, which saw Non-Performing Loan (NPL) ratios rise to among the highest levels in the euro area, followed by a sharp decline in NPL ratios that has not been experienced in many comparable countries. This article highlights the sequence of policy interventions that were implemented by the Central Bank of Ireland as a response to this systemic crisis, beginning with the 2011 stress test and recapitalisation exercise that formed part of the Financial Measures Program. It then outlines how certainty around capital adequacy allowed policy to focus on the operational capacity and incentives of the banks and borrowers to resolve the NPL crisis in Ireland, highlighting the many specific measures adopted and lessons learned during the process. We finish with a discussion of the risks and remaining challenges, with a focus on the large share of late-stage mortgage arrears cases outstanding on Irish banks’ balance sheets in early 2018.

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1. Introduction

The 2008 financial crisis had a severe impact on the Irish economy and financial system. In large part, the domestic financial crisis emanated from a highly leveraged banking sector that was over-concentrated in property-related lending. The deterioration in the macroeconomy that resulted in part from a reversal in credit-fuelled property prices led to a steep decline in economic growth and a pronounced rise in unemployment. The resultant decline in asset quality was reflected in a rapid increase in Non-Performing Loans (NPLs), which grew to such a level that the solvency of the domestic Irish banking system was compromised.

The aim of this article is to act as a stock-take of the Central Bank of Ireland's (henceforth "the Central Bank") policy response to this crisis and to highlight some of its remaining legacies. Ireland is a particularly interesting case study given that the growth in NPL ratios occurred earlier and with greater magnitude than in most other euro area economies. Furthermore, although the Irish recovery has been more rapid than in most other countries, a decade after the crisis, NPLs remain one of the primary sources of vulnerability facing the domestic economy today.

The key lessons of the paper lie in the sequencing of interventions, which began with the recapitalisation of the banking sector in 2011 through the Prudential Capital Assessment Review (PCAR). We argue that the certainty provided by the recapitalisation that accompanied the PCAR was necessary to provide a stable environment in which further policy initiatives could be implemented, both by the Central Bank and the Government.

Another important lesson lies in the significant time taken for NPL ratios to reach their peak. Despite the transfer of €74bn of loans, predominantly related to the Commercial Real Estate (CRE) market, to an asset management company, and a substantially more intrusive supervisory approach to NPL resolution

adopted by the Central Bank beginning in 2011, NPL ratios continued to grow until late 2013. This trend highlights the complex and slow-moving nature of many NPL cases, and in particular the profound nature of systemic solvency crises. While asset management companies can have an important role in NPL resolution, the Irish case demonstrates the importance of policy responses by central banks.

A further lesson to draw from this article relates to the highly intrusive nature of the supervisory response that was required in order for the banking system to begin to resolve the NPL crisis. A transition from policy interventions focussing on capital adequacy, to a supervisory approach that ensured that lenders first had operational capacity to measure, manage and resolve NPLs was made during the 2011-2013 period. This was then followed by publicly stated quantitative guidance on the speed and nature of sustainable solutions offered to borrowers with mortgage NPLs through the Mortgage Arrears Resolution Targets (MART) process, which began in 2013, and was coupled with non-public targets for NPL resolution in the Small and Medium Enterprises and Corporate asset classes. Such guidance ensured that lenders moved from a short-term forbearance model to one where longer-term sustainable restructuring products were offered to borrowers.

It must also be noted that the approach of the Central Bank was to ensure the delivery of our financial stability, prudential and consumer protection responsibilities, such that NPLs were reduced while ensuring that consumers were appropriately protected. Significant revisions to the Code of Conduct on Mortgage Arrears (CCMA), which was first introduced in 2009, were made during this period, putting the fair treatment of those in financial distress at the centre of the Central Bank's response to the crisis.

The paper proceeds by outlining the causes and potential consequences of NPLs, a

detailed description of policy developments at the Central Bank since 2010, followed by a discussion of the challenges and vulnerabilities that remain within the banking system.

2. The economics of NPLs: causes and consequences

A loan is classified as non-performing when repayments are more than 90 days past due or the debtor is assessed as 'unlikely to pay' in full without realisation of collateral for the loan.² The accumulation of NPLs on banks' balance sheets generally results from a highly leveraged banking sector, adverse developments in the overall macroeconomy, as well as from sector, region, or borrower-specific adverse shocks.

In the residential mortgage market, there are a variety of reasons for arrears. These include reductions in household income, borrower unemployment, non-mortgage debt accumulation, reductions in house prices (which affect borrowers' housing equity positions, which can reduce the incentives for borrowers to continue making payments), repayment increases through interest rate increases, or non-financial factors such as changes to family circumstances such as divorce and illness. The role of such factors in the Irish mortgage arrears crisis has been studied by, *inter alia*, McCarthy (2014), Kelly and O'Malley (2016), and Kelly and McCann (2016).

In the case of Small and Medium sized Enterprises (SME) and corporate debt, adverse developments in a firm's cash flow are likely to feature in default events. In the Irish case, McCann and McIndoe-Calder (2012) show that the ratio of the loans to total assets, the ratio of current assets to liabilities, the leverage, liquidity and profitability ratios, and specific sectoral factors (e.g. the elevated risk in property-related sectors) are all found to be significant predictors of default. Furthermore, the length of time the borrowing firm's owner has been with the firm mitigates the likelihood of default. As of end-2017, there

remains substantial variation in the share of outstanding loans in default in the Irish banks' SME lending portfolios. At the high end, the Construction and Hotels and Restaurants sectors have default ratios of 23-24 per cent while at the lower end the Manufacturing, Other Community Social and Personal Services, and Primary sectors have default rates of 11 to 13 per cent (see the Central Bank's SME Market Report 2017 H2).³

For Commercial Real Estate (CRE) projects, the key driver of unsustainable credit growth in the Irish case was the speculative nature of lending, which left projects reliant on strong final prices rather than a more prudent approach that would have relied on pre-sales or pre-letting based on an observable demand for the real estate. The collapse in property values during the financial crisis, combined with loose originating loan to value ratios, led to unserviceable debts in the sector. Furthermore, the rollover and refinancing of loans for CRE investment projects is common relative to other asset classes. A large decline in commercial real estate prices meant that the negative equity of most CRE projects in Ireland would have made refinancing of borrowings extremely difficult.

The Irish experience is different from many other countries in that high default rates across all economic sectors had, to some extent, links back to the property sector, with many business owners using bank loans to gain exposure to rising property prices in the pre-2007 period. Businesses with such property-related exposures were shown to have significantly higher default rates during the crisis (see McCann and McIndoe-Calder (2014)).

While it is clear that high levels of NPLs arise due to adverse economic developments, there are concerns among policymakers in Europe that causality may also run in the opposite direction: high legacy levels of NPLs on banks' balance sheets may also act to constrain credit growth. The key channels through which NPLs can adversely affect

² See the [EBA Implementing Technical Standards](#) on supervisory reporting on forbearance and non-performing exposures.

³ Central Bank of Ireland SME Market Reports are available at the following link: <https://www.centralbank.ie/publication/sme-market-reports>

banks, and therefore the economy, are the capital, funding and profitability channels. The spillover effects to the real economy are exacerbated when banking-sovereign linkages are strong, as was evidently the case in Ireland before and during the crisis. We proceed to outline the mechanisms underlying each of the three channels below. It is important to note however that the literature is still far from having reached a consensus on the relative importance of these channels, or indeed on the existence of a causal channel from NPLs to economic performance.

NPLs tie up bank capital, which can constrain new lending. Given the existence of capital constraints including the regulatory capital ratio, each euro of credit that is tied up on the bank's balance sheet as an NPL, is a euro that cannot be channelled into new lending. Constancio (2017) cites internal ECB calculations that estimate that if the entire amount of capital currently tied up in NPLs was used to support new lending, total credit volume in the euro area could increase by 2.5 per cent, with increases of up to 6 per cent in high-NPL countries. One issue that warrants further research in this area relates to non-linearities in the relationship: if the capital channel is in operation, the effect of NPLs on lending should be more pronounced for banks that are close to binding regulatory capital constraints.

Financial markets may perceive banks with higher NPL ratios as more risky, with a knock-on effect on funding costs, which may in turn act as an additional channel through which NPLs distort credit allocation. Analysis from the IMF shows that among the bottom 20 per cent of euro area banks by NPL ratio, funding costs were below or at zero, whereas for banks at the top of the NPL distribution, funding costs were above 100 basis points.⁴ One potential implication of this channel is that banks with high NPLs pass on higher funding costs to borrowers in the form of higher interest rates. Focussing specifically on small firms, Holton

and McCann (2016) show that the premium charged for small loans versus large loans (the "Small Firm Financing Premium") is greater at banks with higher NPLs, and that this effect is exacerbated in cases of weak macroeconomic performance. Byrne and Kelly (2017) show that the pass-through of monetary policy rates to corporate lending interest rates in the euro area is weaker for banks with higher NPL ratios, leading to higher borrowing costs during periods of accommodative monetary policy for customers of such banks.

NPLs also directly affect bank profitability through provisioning. Provisions on secured lending are typically connected to the value of the underlying collateral, which can fluctuate. Each euro that is tied up in a non-interest earning NPL is one euro that is not earning interest on a performing loan.⁵ Central banks and supervisors aim for financial institutions to generate sustainable profits that will allow banks to serve the economy throughout the economic cycle. Such profitability will lead to improved market perceptions of banks and lead to reduced funding costs and a lower cost of equity. Fundamentally, this facilitates capital accumulation, which in turn puts institutions in a stronger position to meet regulatory requirements and to meet their core economic function of lending to the real economy.⁶

While the literature has begun to tackle the question, estimates of the causal effect of NPLs on lending can be difficult to identify empirically. Post crisis research still has many open research and policy questions.⁷ One example of recent research attempting to identify an effect through the credit supply channel is Balgova et al. (2016), who have estimated that the resolution of NPL issues on banks' balance sheets has led to significant improvements in economic performance. They compare countries that have experienced falls in the stock of NPLs (as opposed to cases where the NPL ratio falls due to increases in new lending) to the contrasting case of

⁴ <https://www.imf.org/external/pubs/ft/scr/2015/cr15205.pdf>. For a further exploration in the Irish context, see 'Influences on Standard Variable Mortgage Pricing in Ireland' Central Bank of Ireland, May 2015.

⁵ Related to this is the fact that each non-interest-earning euro on the asset side of a bank's balance sheet is matched to a euro of funding (whether deposits or market-based) which bears a cost. This mismatch may induce banks to cross-subsidise on other products where they have pricing power.

⁶ See Deputy Governor, Prudential Regulation, Ed Sibley, Transforming banking for customers: a regulatory perspective, 20 October 2017, available here: <https://www.centralbank.ie/news/article/transforming-banking-for-customers-a-regulatory-perspective---deputy-governor-ed-sibley>

countries that have allowed high NPL levels to persist on banks' balance sheets for protracted periods. Using a propensity score matching analysis, they estimate that countries that engaged in active NPL reduction experienced a subsequent GDP growth rate that is 3-4 per cent higher and investment growth rates that are 10-15 per cent higher, compared to similar countries with NPL problems that were allowed to persist. Accornero et al. (2017), on the other hand, find no evidence from an analysis of Italian banks that NPL ratios are causally linked to lower credit supply.

The academic debate is still ongoing regarding the exact transmission mechanisms and the extent to which NPLs affect output, employment, consumption and other economic aggregates. This includes how firms' and households' income and expenditure patterns may change due to indebtedness. Furthermore, the embedding of the financial sector, bank lending behaviour, loan defaults and borrower indebtedness into general equilibrium macroeconomic models is an ongoing process. For this reason, empirical analyses on any of these transmission mechanisms is timely and welcome. New approaches such as agent-based models are promising and have been applied to markets such as the UK mortgage market to help design appropriate systemic risk mitigation policies.⁸

3. Developments in NPLs in Ireland⁹

The combined collapse in the real estate, labour and mortgage markets in Ireland from 2007 onwards was among the most severe experienced internationally during the recent crisis, and has been the source of much research and commentary. From its peak in April 2007 to its trough in March 2013, property prices fell 55 per cent nationally across all property types, according to the

Central Statistics Office house price index. From a minimum of 4.1 per cent in the fourth quarter of 2006, the unemployment rate reached a maximum of 15.1 per cent in the third quarter of 2011. The share of mortgages in arrears of more than ninety days stood at 3.3 per cent when the Central Bank began collecting data in September of 2009, and reached 12.9 per cent at its peak in September 2013.

In response to this rapidly deteriorating macroeconomic situation and the resultant effect on banks' asset quality, the Irish Government set up the National Asset Management Agency (NAMA) in December 2009.¹⁰ Whilst losses were crystallised following the transfer to NAMA, these were covered by a government recapitalisation. NAMA therefore played a critical role in reducing uncertainty regarding potential future losses on banks' balance sheets. A total of €74bn of assets were acquired by NAMA from the Irish domestic banks at a value of €31.8bn, representing a total aggregate haircut of 57 per cent. These consisted in the main of commercial real estate assets, rather than residential mortgages.

Whilst NAMA is undoubtedly an important part of the Irish experience, it is noteworthy that it was established some years before NPLs peaked. Despite its establishment, banks were very slow to both recognise and address their wider NPL problems in the Irish case. A cross-country comparison shows that by 2012 the NPL ratio in the Irish banking system was the highest in the euro area.¹¹ This is despite the fact that a large proportion of Commercial Real Estate (CRE) loans had already been transferred from Irish banks' balance sheets to NAMA as mentioned above.

However, progress from the height of the crisis has been substantial. From a 2013 peak of 32 per cent, the aggregate domestic Irish

⁷ See for example Nkuzu (2011), IMF (2015), Espinoza and Ananthakrishnan (2010) and Klein (2013).

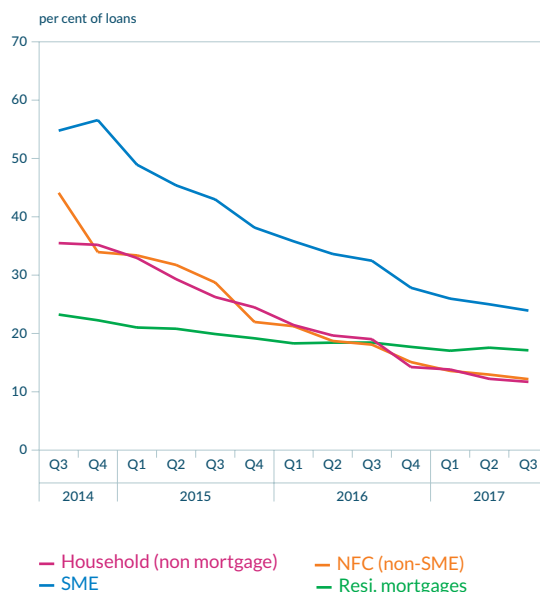
⁸ Baptista et al. (2016).

⁹ Four sources of data are used in the analysis in this and subsequent sections. The current definitions of NPL are the EBA ITS on NPLs that are the standard across the EU for reporting aggregate NPLs. Historical comparisons involve the use of previous Central Bank of Ireland definitions based on the regulatory reporting in existence at the time. Statistical data – mortgage arrears statistics – are used when discussing mortgage arrears statistics and aggregate restructures. Finally, granular loan level data are referenced when appropriate.

¹⁰ See <https://www.nama.ie/about-us/>

¹¹ Data on Non-Performing Loan ratios from the World Bank are available here. The comparison refers to analysis of NPL ratios for Greece, Spain, Italy, Cyprus, Ireland, Slovenia and Spain.

Chart 1: Irish retail banks' sectoral NPL ratio



Source: Central Bank of Ireland Regulatory Returns.

Notes: Data consolidated and are collected in accordance with the EBA's FINREP reporting requirements.

banking system NPL ratio stood below 14 per cent at end-2017, in contrast to most other comparable countries where NPL ratios have either stabilised or continued to grow.¹² The evolution of the NPL ratio understates progress somewhat as the reductions occurred at a time when Irish bank balance sheets were also deleveraging. The volume of NPLs on Irish banks' balance sheets has fallen from over €80bn to €30bn over the period from 2013 to 2017. Figure 1 reports sectoral NPL ratios showing that NPL ratios have reduced across all asset classes. While the NPL ratio is highest in the SME sector at 2017Q3, the mortgage book remains the most important source of NPLs in aggregate due to its sheer size. As highlighted in the Central Bank's Macro-Financial Review 2017:II "almost two thirds of NPLs, by value, were for house purchases, over one fifth were to SMEs, larger corporates accounted for 10 per cent, while non-mortgage lending to households made up

3.5 per cent. In contrast, the largest category of NPLs for the euro area as a whole related to NFCs (approximately 60 per cent), while loans to households accounted for about one-third of the total".¹³

4. The Central Bank's response

The policy measures introduced to address NPLs lie at the heart of the Central Bank's mission 'Safeguarding Stability, Protecting Consumers'. More specifically, the Central Bank Act gives the Central Bank the mandate for (i) 'stability of the financial system overall', and the (ii) 'proper and effective regulation of financial service providers and markets, while ensuring that the best interests of consumers of financial services are protected'.¹⁴

A stable financial system is one in which banks access funding and capital at reasonable cost, have regulatory capital ratios which would allow them to comfortably absorb the adverse effects of an economic deterioration, and meet credit demand in a prudentially appropriate way which does not lead to spirals between credit and asset prices. This is a necessary foundation for financial stability and ensuring consumers are protected and borrowers have access to credit that is appropriate.

The Central Bank's prudential and consumer protection mandates necessitated an approach that ensured banks had appropriate strategies and operations to sustainably resolve NPLs. The Central Bank's main consumer focussed policy instrument has been the Code of Conduct on Mortgage Arrears (CCMA), which came into force in February 2009 and was subsequently revised in later years. The CCMA is intended to ensure fair and transparent treatment of financially-distressed borrowers, and recognises mortgage arrears are unique when compared to other asset classes and each mortgage arrears case needs to be considered on its own merits.

¹² Data on Non-Performing Loan ratios from the World Bank are available here. The comparison refers to analysis of NPL ratios for Greece, Spain, Italy, Cyprus, Ireland, Slovenia and Spain. The comparable figure in Greece and Cyprus stands at 37 and 48 per cent per cent, respectively, from a position where NPLs were lower than in Ireland in 2012.

¹³ Information on the composition of Irish banks' NPLs is contained in the Central Bank of Ireland [Macro-Financial Review 2017:II](#).

¹⁴ See Section 6A (2) (a) and (b) of the Central Bank Act.

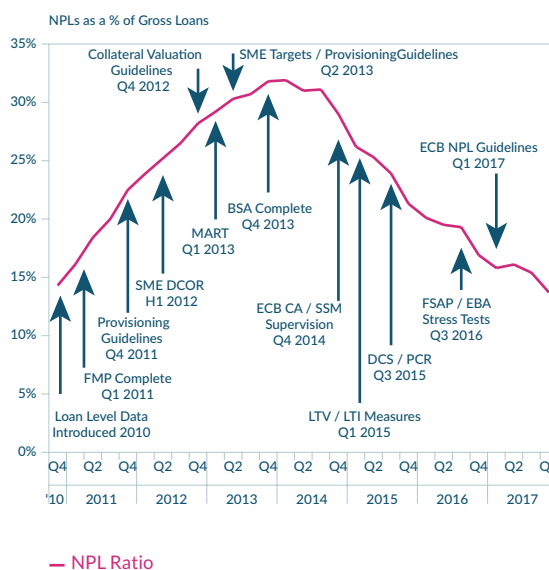
The overall response to the mortgage arrears crisis involved substantial interventions from the legal system and Irish Government agencies. Important examples included the closing of the “Dunne judgement” lacuna in conveyancing law, the setting up of the Insolvency Service of Ireland (ISI) and the Personal Insolvency Agreement (PIA) framework, and the shortening of bankruptcy terms.¹⁵ While the Central Bank’s actions cannot be seen in isolation from such interventions, the aim of this article is to focus on the Central Bank’s policy response.

4.1: Timeline of NPL build-up and policy response

Figure 2 provides a timeline of the range of measures that were taken by the Central Bank since December 2010. The chart also reports the NPL ratio across all asset classes at the major retail banks. Despite the fact that large Commercial Real Estate (CRE) loans had been transferred to NAMA, the extent of macroeconomic stress in the domestic economy manifested itself in a continuation of the growth in NPLs. Due to the complex nature and long gestation period of many NPLs, the NPL ratio across the system continued to rise from 15 per cent in December 2010 to 32 per cent in December 2013.

Since then, the ratio has steadily improved due to a combination of an improving economy, policy and supervisory intervention, and deployment of resources by banks to resolve individual NPL cases. The sequencing of the policy response was such that, first, capital adequacy and market perceptions of the Irish banking system needed to be put on a long-term sustainable footing. The PCAR round of stress tests, published in March 2011 and accompanied by significant recapitalisation of the banking system, substantially achieved this aim. With a sound footing in place, the Central Bank was then in a position to introduce several measures to address asset quality, while ensuring banks had appropriate strategies and operational processes in place to

Chart 2: Retail Bank’s NPL Ratio and Important Milestones



Source: Central Bank of Ireland regulatory returns.

Note: At Q3 2014 the EBA’s definition of non-performing was introduced. Prior to this date an internal definition was used equivalent to impaired loans and/or arrears > 90 days.

maintain progress. Such capabilities, combined with quantitative targets for NPL reduction through the Mortgage Arrears Resolution Targets (MART) program and a turnaround in the performance of the Irish economy, were of first-order importance in explaining the reversal in the Irish banks’ NPL ratios from late 2013. The remainder of this article will provide a detailed description of the evolution of the policy response outlined in Figure 2.

4.2: Addressing concerns around bank solvency: the Financial Measures Programme

Despite considerable policy intervention to address the crisis, in November 2010, the Irish Government formally applied for an economic and financial adjustment programme.¹⁶ The Financial Measures Programme (“FMP”) implemented the Central Bank’s obligations under the agreement between Ireland and the European Commission, European Central Bank and International Monetary Fund. The

¹⁵ www.isi.gov.ie

¹⁶ See Report of the Joint Committee of Inquiry into the Banking Crisis

Programme aimed to place the Irish banking system in a position where it could fund itself and generate capital without undue further reliance on the Irish or European public sectors.

In order to achieve these aims the Central Bank conducted a number of exercises, collectively referred to as the 'PCAR assessment'. The three exercises consisted of:

- An independent Loan Loss Forecast (conducted by a third party);
- Prudential Liquidity Assessment Review (PLAR), which had a particular focus on the banks' deleveraging plans; and
- Prudential Capital Assessment Review (PCAR) capital stress test.

The primary objective of these exercises was to assess the capital requirements of the domestic banks under severe, but plausible scenarios. Banks participating in PCAR 2011 were collectively required to raise €24bn in capital in order to remain above a minimum capital target of 10.5% Core Tier 1 (base) and 6% Core Tier 1 (stress), plus an additional protective buffer. This was a critical juncture for the Irish banking system and ensured the banks had sufficient capital to assist in tackling the elevated volume of NPLs on their balance sheets. Similar exercises have been completed since, with the Balance Sheet Assessment (BSA) in 2013 and Comprehensive Assessment in 2014, prior to the transition to the euro area-wide supervisory framework, the Single Supervisory Mechanism. Subsequently the European Banking Authority has introduced regular stress tests of European banks.

A further outcome of the PCAR exercise was that the delivery of loan-level information on all loans outstanding at the domestic banks to the Central Bank was regularised on a six-monthly basis from December 2011 onwards. These loan level data have been used for internal analysis, stress test model development, supervisory challenge,

and research and analysis supporting the introduction of the 2015 macroprudential mortgage regulations. The Central Bank also uses these data sources to provide market information to the public through the Household Credit Market Report and SME Market Report.

4.3: Addressing strategic and operational concerns, 2011-2013

Several strategic and operational measures were implemented by the Central Bank between 2011 and 2013 that placed a specific focus on the resolution of mortgage arrears and the mobilisation of adequate resources in support of those strategies. The introduction of such measures was motivated by the observation that lenders did not have appropriate strategies or operational processes for dealing with arrears cases.

To press banks to remediate these shortcomings and ensure appropriate board-level focus, in October 2011 mortgage lenders were required to submit to the Central Bank board-reviewed and approved mortgage arrears resolution strategies (MARS). The purpose was to ensure the fair treatment of borrowers, supported by detailed implementation plans to deal with the stock of arrears cases as well as new inflows, in both the early and late stages of arrears. This also placed the board of the banks at the centre of governance and management of the strategies and the process. This exercise also helped to mobilise resources within institutions to address mortgage NPLs within a coherent strategy.

Initial reviews found that strategies tended to be aspirational and featured a range of shortcomings, including an insufficient set of workout solutions to resolve arrears cases sustainably and an over-reliance on short-term forbearance strategies such as temporary interest-only or other reduced payments. If this risk went un-remediated, the level of arrears in the system would likely grow over time.

In 2012, recognising that the banks' operations for dealing with customers in arrears needed to be improved significantly, the Central Bank engaged a third party to undertake an independent Distressed Credit Operations Review (DCOR) of the operational capacity of banks to deal with the level and nature of arrears on their books.¹⁷ The DCOR exercise focussed on challenging implementation plans, sustainable resolutions, assessing the development of appropriate debt resolution products, understanding the appropriateness of internal information including NPL-specific Key Performance Indicators and targets, and assessing the adequacy of resources and controls. The review was not only a top down review of processes and procedures, but was also supported by a detailed loan file review. The distressed residential mortgage credit operations review incorporated a review/re-underwriting of modified loan files by third parties with specific product expertise.

These reviews were very informative and assisted the Central Bank in developing risk mitigation programmes for each institution. Some of the deficiencies identified included a lack of arrears management experience within the banks; excessive and repeated use of short-term forbearance; lack of centralised specialist resources; structures and segmentation not aligned to workout activities; and no performance monitoring to track workout progress.

4.4: Setting supervisory expectations

While MARS and communications around the results of DCOR led to increasing lender resources being allocated to NPL workout and resolution, some serious problems persisted, and the aggregate level of mortgage arrears continued to increase as the problem compounded. By early 2013, the Central Bank was concerned about the quality and timeliness of response by banks. This concern resulted in the imposition of the Mortgage Arrears Resolution Targets (MART) framework.

Through MART, the Central Bank imposed quarterly quantitative targets on the six main mortgage lenders (accounting for approximately 90 per cent of the Irish mortgage market) on Republic of Ireland principal dwelling home/primary residence and buy-to-let mortgage portfolios. The targets were focussed on resolving arrears greater than 90 days and comprised the following components:

- Proposing sustainable solutions to borrowers;
- Concluding those sustainable solutions;
- Tracking of subsequent performance rates on the concluded solutions.

The Central Bank also published its Internal Guidelines on Sustainable Mortgage Arrears Solutions (Sustainability Guidelines) used by supervisors to assess restructuring solutions.¹⁸ The Central Bank also introduced enhanced supervisory reporting requirements to monitor and challenge progress by banks in implementing sustainable solutions. On-site credit inspections by the Central Bank examined samples of these sustainable solutions during the MART programme.

The 2013 review of the CCMA clarified when a borrower can be considered 'not co-operating' and the serious impact of being so classified.¹⁹ The revised CCMA amended the definition of 'not co-operating' to allow lenders to specify a timeline for return of information by the borrower and, more importantly, to clarify that there must be meaningful engagement by the borrower to allow the lender to assess their case. In order to protect borrowers in such circumstances, the revised code provided that borrowers must be notified in advance of being treated as not co-operating and how they can avoid it. In addition, the CCMA provides that borrowers can appeal a classification of 'not co-operating'. Lenders are since required to have a board-approved communications policy, provide borrowers with the Standard Financial

¹⁷ The DCOR also examined banks' operational capacity to resolve SME distressed loans.

¹⁸ See the internal guidelines: <https://www.centralbank.ie/docs/default-source/news-and-media/press-releases/2015/April/internal-guideline---sustainable-mortgage-arrears-solutions.pdf?sfvrsn=0>

¹⁹ The review of the CCMA was a result of a recommendations from the Government established Mortgage Arrears and Personal Debt Expert Group, which recommended the introduction of the four-step Mortgage Arrears Resolution Process (MARP).

Statement (SFS) template and assist borrowers to complete it.

In addition, the restriction on lenders commencing legal proceedings was refined. At the end of the Mortgage Arrears Resolution Process (MARP), lenders are required to provide the borrower with alternative options in the event that a restructure could not be agreed or was not appropriate. These options have to be outlined in written communication to the borrower and may include voluntary surrender or an arrangement under the Personal Insolvency Act before legal action can commence. Legal proceedings can only commence after three months from the issuance of written communication or eight months from the date the arrears arose, whichever date is later.

Following the various regulatory reforms, the Central Bank undertook an extensive programme of supervisory work to confirm whether regulated entities were demonstrating compliance with the measures introduced for the resolution of mortgage arrears. This included auditing banks' performance against the MART targets, assessing whether the proposed and concluded solutions were sustainable solutions (taking account of the Sustainability Guidelines and other key documents). The audits also involved challenging banks on their progress, as well as remediation of the findings. On-site assessments of implementation and CCMA compliance were carried out in several mortgage lenders during 2013-2015, as well as on-going supervision of consumer protection requirements.

4.5: Monitoring asset quality and provisioning

The Central Bank has a key task of monitoring asset quality of lenders – ensuring loans are correctly classified, classifications are appropriately conservative, and ensuring loans are provisioned adequately. As part of setting the standard, in 2011, the Central Bank published guidelines that set out best practice regarding the policies, procedures and

disclosures banks should adopt with regard to impairment provisioning. An updated version of the guidelines was subsequently published in 2013. The intent of this measure was to ensure sufficiently robust procedures were adopted within banks and an appropriately conservative view was taken with respect to credit quality.

Following on from this during 2013, a Balance Sheet Assessment (BSA) was conducted by the Central Bank. The primary objective was to conduct a robust and comprehensive assessment of banks' balance sheets through an intensive Asset Quality Review (AQR) in order to assess the adequacy of provisions, risk classification, and the appropriateness of Risk Weighted Assets (RWA) of selected loan portfolios.

In 2015, the Central Bank completed an impairment provisioning review, the purpose of which was to ensure that appropriate practices were being maintained by the retail banks in relation to their credit loss provisioning on residential mortgages. The assessment comprised both qualitative and quantitative reviews and resulted in changes in provisioning practices within some institutions.

Since the introduction of the Single Supervisory Mechanism (SSM), credit risk identification and mitigation activities have taken place through, *inter alia*, credit risk inspections, deep-dives by the supervision teams, and as part of the assessment of firm-by-firm risks through the Supervisory Review and Evaluation Process.²⁰

4.6: Developments since the establishment of the Single Supervisory Mechanism

Following the establishment of the Single Supervisory Mechanism (SSM), it was clear that banks across the euro area were taking a very different approach to NPL workout and resolution and had been subject to a diverse set of supervisory practices. These factors, coupled with the high level of NPLs across the Eurozone led the Supervisory Board of the

²⁰ This process can inform the way in which capital requirements are set for banks in the SSM.

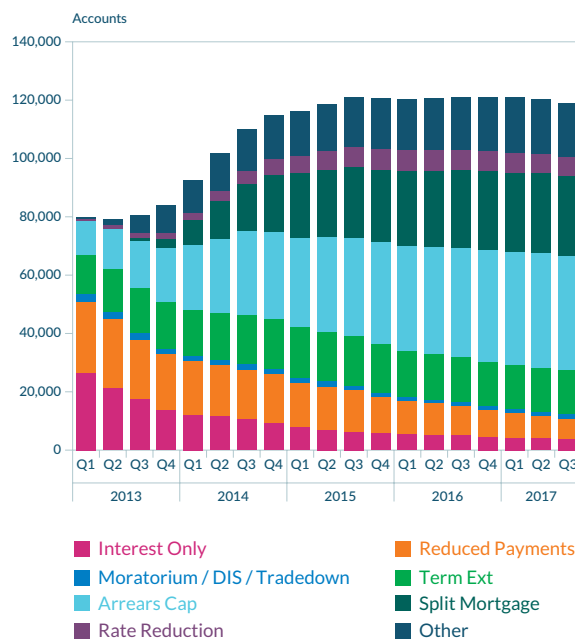
ECB in 2015 to establish a High Level Group to develop a consistent supervisory approach to the treatment of NPLs.

On 20 March 2017, following a public consultation, the ECB published its supervisory guidance on NPLs.²¹ The guidance outlines measures, processes and best practices that banks are expected to incorporate when tackling NPLs. The guidance provides that banks should implement credible and ambitious strategies to work towards a holistic approach regarding the problem of NPLs. This includes areas such as governance and risk management, which should be closely monitored by their management bodies.²²

An addendum to the guidance was published on 15 March 2018 and lays out how the ECB expects banks to provision for new NPLs going forward.²³ It supplements the NPL guidance in that it specifies the ECB's supervisory expectations when assessing a bank's levels of prudential provisions for new NPLs. The supervisory expectations take into account how long an exposure has been classified as non-performing and whether the exposure is secured or not. Specifically, the addendum outlines supervisory expectations that from 1 April 2018 new unsecured NPLs will be fully covered after a period of two years from the date of classification. For new secured NPLs, a certain level of provisioning is expected after three years of NPL vintage and then increasing over time until year seven. This will be applied on a case-by-case basis as part of the supervisory dialogue with banks.

At the EU level, the EBA have recently issued guidelines for consultation that are applicable to high NPL banks to strengthen the resilience of their balance sheets and support lending into the real economy. The guidelines are designed to ensure that consumers, who have taken out loans, are treated fairly at every stage of the loan life

Chart 3: PDH Restructure Composition



Source: Central Bank of Ireland Mortgage Arrears and Repossession Statistics.

Note: Includes data on banks, retail credit firms and unregulated loan owners.

cycle. The guidelines specify sound risk management practices for credit institutions for managing non-performing exposures (NPE) and forborne exposures (FBE), looking at the governance and operations of a NPE workout framework, the internal control framework and NPE monitoring, as well as early warning processes.²⁴

As financial systems make progress dealing with the legacies of the crisis, supervisory guidance will shift its focus to ensuring that appropriate supervisory guidance is in place on credit underwriting and treatment of new NPLs to strengthen resilience in case of a future down turn.

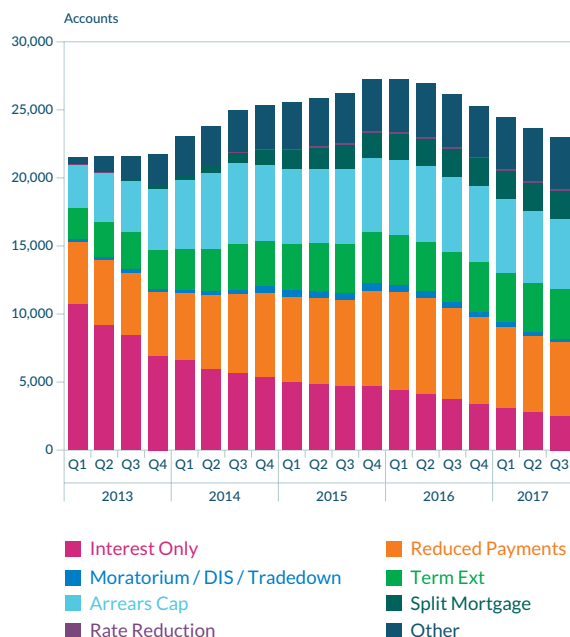
²¹ https://www.bankingsupervision.europa.eu/ecb/pub/pdf/guidance_on_npl.en.pdf

²² See speech by Deputy Governor, Sharon Donnery, 'Setting the standard: Non-Performing Loans workout in the euro area', 3 Feb 2017, Bruegel.

²³ https://www.bankingsupervision.europa.eu/ecb/pub/pdf/ssm.npl_addendum_201803.en.pdf

²⁴ <https://www.eba.europa.eu/-/the-eba-launches-consultation-on-how-to-manage-non-performing-exposures>

Chart 4: BTL Restructure Composition



Source: Central Bank of Ireland Mortgage Arrears and Repossession Statistics.

Note: Includes data on banks, retail credit firms and unregulated loan owners.

5: Loan restructuring in the mortgage market: the move to sustainable solutions

The previous section has outlined the series of steps taken by the Central Bank, and more recently the SSM, aimed at creating an environment in which adequately capitalised banks could offer sustainable solutions to borrowers in financial distress, while protecting their rights under the consumer protection codes. Given that the greatest focus was placed on loan restructuring in the mortgage market, we now turn to a discussion of the way in which mortgage restructurings have changed since 2012 in Ireland. Figure 3 illustrates that, for Primary Dwelling House (PDH) mortgages in 2012, short-term offers such as reduced payment arrangements and interest-only periods represented the majority of mortgage restructuring arrangements in place. Such short term solutions may ultimately be detrimental to borrowers given they may

result in higher repayments in future and leave borrowers vulnerable to changes in future circumstances.

The chart shows clearly that the importance of these has declined over time, while durable restructures such as split mortgages and term extensions have become much more prevalent in the retail banks. As of 2017 Q3, 33 per cent of the 119,070 restructured PDH mortgages were classified as having an Arrears Capitalisation, with another 23 per cent receiving a Split Mortgage and 13 per cent with a Term Extension. Interest Only arrangements now comprise 3.2 per cent of the total pool of restructured PDH mortgages, with another 5 per cent on Temporary Interest Rate Reductions.

The total number of BTL accounts restructured (Figure 4) stood at 23,034, or 18 per cent of all accounts, at 2017 Q3. There is a wider set of available resolution options for banks for the resolution of BTL arrears including appointment of rent receivers or outright sale of the collateral. In the BTL segment, temporary or short-term forbearance are more common than in the PDH segment of the market.

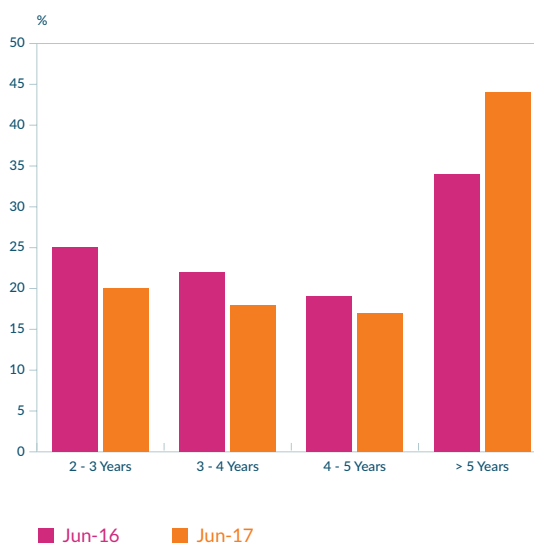
Within the non-financial corporate (NFC) sector, €8.9 billion of loans were classified as non-performing at end-2017, equivalent to an NPL ratio of 15.5 per cent. In total, €7.3 billion of NFC loans were forborne, meaning they have had a restructuring, and over three quarters of these forborne loans (77%) were classified as non-performing. As there are probation requirements for loans to meet the terms of their restructure for a fixed period, usually a year, forborne NPLs tend to reduce slowly over time. Nevertheless, looking back over the past number of years, Figure 1 in the introduction reported that reductions in impaired loans occurred across all asset classes. The volume of NPL reduction has been of a similar magnitude in the SME/Corporate sector to that experienced in the mortgage market.

Empirical analysis of Central Bank loan level data for Micro enterprise, Small and Medium Enterprise, Corporate and Commercial Real Estate loan exposures shows that the majority of the reduction in NPL ratios has been achieved through the exit of defaulted balances from the loan book rather than through the transition of defaulted balances back to performing loan status.²⁵ On a six-monthly basis from 2013 to 2016, between 2 and 3 per cent of the defaulted loan balances in the commercial loan portfolio have returned to loan performance, while 10 to 15 per cent of defaulted balances have exited the loan book in the subsequent six months. The data do not allow a distinction to be made between the various ways in which an impaired loan balance can exit the loan book: write-off, loan sales or company liquidation/insolvency. However, it is likely that substantial amounts of the NPL reduction in these asset classes have come via loan sales, with many investment reports highlighting the large volumes of sales of Irish CRE NPL portfolios in particular in recent years. This pattern contrasts strongly with the mortgage book, where modification and self-cure have been the dominant explanation for reductions in arrears rates, as outlined in McCann (2017).

6. Late-stage arrears and borrower engagement

Overall, mortgage NPLs have reduced by €10.7billion or 34% since the peak Q1 2014. Within the system there are €5.4 billion of performing forbore mortgage loans. Of accounts that have been restructured, 87 per cent of accounts are meeting the terms of their restructure. This is evidence of willingness and ability of borrowers and lending institutions to use the processes and protections within the CCMA to enter into arrangements that address mortgage arrears.²⁶

Chart 5: Retail Banks - Breakdown of PDH Loans in arrears > 720 days past due



Source: Central Bank of Ireland loan level data.

While sustainable solutions have been put in place for many borrowers who have engaged, the ability to resolve long-term arrears has been more challenging. Arrears of more than 720 days ("720+") peaked in June 2015 at about 38,000 PDH accounts, and have since declined by 17%. As at December 2017, the figure stands at 28,946 PDH accounts, or 60 per cent of all mortgage arrears²⁷ cases in arrears of greater than ninety days. The retail banks account for 76% of the current stock (or approximately 21,800 accounts).²⁸ Former banks no longer actively lending in the Irish market, retail credit firms and unregulated loan owners account for the remainder.

Within the regulated banking sector, for which more detailed information is available, the average days past due (DPD) and arrears

²⁵ Data are for AIB, BOI and PTSB, and "commercial" exposures refer to all Micro, SME, Commercial Real Estate and Corporate lending. A more detailed description of these patterns is contained in the Central Bank's SME Market Report for 2017 H2 here: <https://www.centralbank.ie/publication/sme-market-reports>

²⁶ The performance of restructured mortgages is outlined in [here](#).

²⁷ The arrears figure denotes the value of arrears (payments not received by the contractual due date) expressed as equivalent days past due.

²⁸ It is important to note that there is not a one-to-one relation between the number of accounts and the number of households. The mortgage arrears data published by the Central Bank relate to accounts, which exceeds the number of households for a number of reasons including that some households may have two or more loans secured on the same property (e.g. the original mortgage used to finance the purchase of the property and a subsequent top up / equity release mortgage used for home improvement or renovation purposes).

balances of those loans in 720+ are increasing. Figure 5 reports that 44 per cent of loans in 720+ are more than 5 years past due as of June 2017 (increasing from 34% one year previously).²⁹ Therefore, although the stock of accounts in late-stage arrears has reduced, the weighted average DPD continues to increase.

The growth in arrears balances among the 720+ group of borrowers can be explained by a variety of factors. Firstly, financial distress among this group may be so great that even after the issuance of a restructuring arrangement, continued missed payments may arise. McCann (2017) shows that in the 720+ group, 14 per cent of borrowers were making full repayments on their currently contracted amount. Secondly, engagement of borrowers is essential to find a sustainable solution. As of end-2016 61 per cent of 720+ borrowers had engaged with their lender, meaning that in 39 per cent of cases no sustainable solution can be arrived at due to non-engagement. Thirdly, the quality and sustainability of the restructure offered after engagement can play a role. Where they engaged, the group currently in 720+ were significantly more likely to receive a short-term restructure arrangement than those currently in earlier stages of arrears, who were more likely to receive sustainable, longer term solutions (see McCann 2017).

Over half of the cases progressing to long-term arrears are classified as involving the potential for loss of ownership outcomes. It is important to understand that loss of ownership may take place in two main ways for PDH accounts: voluntary or enforcement. Voluntary actions include situations whereby the borrower voluntarily surrenders the property back to the bank. Other examples of voluntary actions are through a voluntary sale where a borrower agrees to sell as part of settling their debts with a bank or utilisation of a mortgage-to-rent scheme. Enforcement is through legal proceedings that result in a repossession order being sought and granted. At present, over two thirds of loss of ownership outcomes that have been concluded are related to a voluntary surrender and one third to repossession.

As part of a functioning mortgage market, it must be acknowledged that there will be cases where no viable modification is possible and the realisation of collateral by the lender is the only viable outcome. Such realisations of collateral by lenders must only arise after all appropriate steps have been taken by the lender in accordance with the CCMA. Cases where collateral realisation may be warranted include cases of non-engagement on the part of borrowers, as well as cases of particularly large debt relative to current debt service capacities. Since Q3 2009, 8,195 PDH properties resulted in loss of ownership with 2,722 resulting in repossession from a court order and 5,473 properties surrendered voluntarily.

The ability to undertake secured lending is ultimately dependent on the power to realise the security if needed. This is a cornerstone of secured lending and, by extension, an effectively functioning mortgage market. Relative to many other European jurisdictions, including those with lower levels of NPLs, the legal process through which lenders effect security is now substantially longer in Ireland and represents a challenge to private debt resolution.³⁰

For borrowers in long-term arrears in the legal process, the lengthy duration of legal proceedings for residential property repossessions means that a group of borrowers will remain in arrears for the foreseeable future. For these borrowers, in addition to the protections offered by the CCMA, a range of advice and supports have been made available by the Government including through the Money Advice and Budgeting Service (MABS) and its related Mortgage Arrears Resolution Service ('Abhaile') to further assist borrowers who may be at risk of losing their homes.³¹ The Personal Insolvency Agreement framework also remains in place and available to borrowers.

²⁹ Based on the June 2017 loan level data from five retail banks.

³⁰ See https://www.bankingsupervision.europa.eu/ecb/pub/pdf/ssm.stock_taking2017.en.pdf

³¹ http://www.keepingyourhome.ie/en/mortgage_arrears_aid_and_advice_scheme.html

7. Risks, vulnerabilities and the path ahead

Positive economic developments in recent years have led to a reduction in new arrears cases and have helped in resolving many existing NPL cases due to improvements in borrower circumstances. Recent research indicates that the majority of PDH mortgages flowing into arrears in 2016 had either a history of modification or previous default experience, highlighting the importance of the legacy of the last crisis as the economy continues its current period of sustained growth (see McCann, 2017).

Despite the positive effects of the macroeconomic environment, and whilst there has been significant progress in reducing Irish banks' NPL ratios, the composition of the borrowers that remain in default is such that the speed of resolution progress is likely to slow down from here. In the mortgage market, arrears of greater than two years form a majority of the cases remaining to be resolved, as highlighted in Section 6.

Furthermore, there is a sizeable group of borrowers vulnerable in the medium to long-term to economic shocks and interest rate rises. While much progress has been made, this is still a source of risk within the banking sector. Further vulnerabilities include the potential for a funding cost shock owing to changes in market perceptions of Irish banks' NPL profile, which is particularly pertinent given the risk that currently compressed global risk premia experience a reversal.

Longer-term issues include the durability of restructures in a low interest rate environment which will eventually normalise, as well as the ability of borrowers to sustain payments over long-duration restructures. Focussing on vulnerability to future payment increases, McCann (2017) shows that roughly one third of in-arrears mortgages that are currently making full contracted monthly payments will face an increase in their monthly repayments in the future. These payment increases will generally arise once interest-only or temporary payment moratoria periods cease. It is crucial for the sustainability of the mortgage portfolio of Irish banks that lenders closely monitor

the circumstances of borrowers making low or no-repayment mortgages, as well as the performing loans on tracker mortgages that will face repayment increases when ECB policy interest rates rise. McCann (2017) reports that a typical owner-occupier tracker mortgage holder will experience payment increases of 10 to 20 per cent per month if the ECB policy rate rises by 200 bps.

Finally, in the context of supervisory guidance around the reduction of NPL ratios, Irish banks may act to sell portfolios of distressed loans as one of the several options available to them. However, they also present important consumer protection issues which must be taken into consideration. Therefore, it is important that any conduct risk associated with such sales be mitigated by having a clear consumer protection framework in place. The Credit Servicing Act ensures that borrowers whose loans are sold to unregulated third parties are afforded the regulatory protections they had prior to the sale, including those protections provided by the Central Bank's Consumer Protection Code, the Code of Conduct on Mortgage Arrears and the SME Regulations. Under the Credit Servicing Act, if an unregulated firm buys loans from an original lender, then the loans must be serviced by a 'credit servicing firm' who is authorised and regulated by the Central Bank, thereby bringing such firms within the Central Bank's regulatory remit.

However, the underlying resolution strategies determined by the unregulated loan owners may be different to those adopted by banks due to differences in the nature of the underlying loan portfolios and variation in business models across the different types of institutions holding these loans. The Central Bank will continue to engage with this new category of regulated firm in order to ensure compliance with the CCMA and other regulatory requirements.

8. Conclusion

Throughout the crisis, its aftermath, and recovery, there has been an active debate about the policies and measures put in place to manage NPLs in Ireland. Given the Central Bank's mandate and mission to 'Safeguard

Stability, Protect Consumers', over the last decade, the Central Bank has actively developed and implemented policies to ensure a deliberate and determined reduction in NPLs, while at the same time ensuring borrowers are protected. This required a sequencing of the policy response encompassing the identification and recognition of losses through NAMA transfers and the FMP. For NPL and arrears resolution, ensuring appropriate strategies and governance within banks was required, which was accompanied by the allocation of appropriate resources to establish work-out and arrears support units, and targets to assess their effectiveness.

There are costs to these policies within financial institutions; however, they have to be weighed against the costs of inaction.³² Some key lessons from the Irish experience include: (i) if left to their own devices, individual banks will not resolve their NPL problems; (ii) it is clear from the Irish experience that no single measure will resolve NPLs. A combination of active policy intervention, intensive supervisory focus, and robust legal initiatives are necessary. This needs to be complemented by a strong consumer protection framework to protect borrowers. (iii) It takes considerable time to address NPLs. Early intervention is therefore critical to achieve the best outcome for both borrowers and banks.³³

There are also costs to policy decisions taken or proposed that are outside of the scope of supervisory or financial system oversight. For example, there are potential side-effects associated with exceptional policies such as repossession moratoria or the potential imposition of retrospective solutions on bilateral contractual relationships between borrowers and lenders, and various proposals to weaken ability to realise collateral.

Therefore, the implications of such proposals should be fully considered before they are proposed or implemented, and due consideration be given to the long-term effects of these measures. This is because the side-effects of such proposals may delay resolutions

for borrowers today, could undermine payment discipline, and may lead to lower supply of mortgage credit or higher interest rates for the overall market in the future.

References

Matteo Accornero, Piergiorgio Alessandri, Luisa Carpinelli and Alberto Maria Sorrentino, 2017. "Non-performing loans and the supply of bank credit: Evidence from Italy." Banca d'Italia Occasional Papers, NumNo.ber 374.

Jochen R. Andritzky, 2014. "Resolving Residential Mortgage Distress; Time to Modify?," IMF Working Papers 14/226, International Monetary Fund.

Balgova, Maria, Michel Nies and Alexander Plekhanov, 2016. "The economic impact of reducing nonperforming loans." European Bank for Reconstruction and Development Working Paper No. 193.

Baptista, Rafa, J Doyne Farmer, Marc Hinterschweiger, Katie Low, Daniel Tang and Arzu Uluc, 2016. "Macroprudential policy in an agent-based model of the UK housing market." Bank of England Working Paper No. 619.

Bending, Tim, Markus Berndt, Frank Betz, Philippe Brutscher, Oskar Nelvin, Debora Revoltella, Tomas Slacik and Marcin Wolski, 2014. "Unlocking Lending in Europe." Working paper, Economics Department (Luxembourg: European Investment Bank).

Byrne, David and Kelly, Robert, 2017. "Bank Asset Quality and Monetary Policy Pass-Through." Research Technical Papers 11/RT/17, Central Bank of Ireland.

Constancio, Vitor, 2017. "Resolving Europe's NPL Burden: Challenges and Benefits." Speech, at event entitled *Tackling Europe's non-performing loans crisis: restructuring debt, reviving growth* organised by Bruegel, Brussels, 3 February 2017.

³² See Andritzky, 2014 for a discussion.

³³ See speech by Deputy Governor, Prudential Regulation, Ed Sibley, Non-Performing Loans: The Irish perspective on a European problem, 22 September 2017

Espinoza, Raphael A. and Ananthakrishnan Prasad, 2010. "Nonperforming Loans in the GCC Banking System and their Macroeconomic Effects." IMF Working Paper Series WP/10/224.

Holton, Sarah and Fergal McCann, 2016. "Sources of the small firm financing premium: Evidence from euro area banks." Research Technical Papers 09/RT/16, Central Bank of Ireland

International Monetary Fund, 2015. "A Strategy for Resolving Europe's Problem Loans". IMF Staff Discussion Note. September 2015.

Kelly, Robert and Fergal McCann, 2016. "Some defaults are deeper than others: Understanding long-term mortgage arrears." *Journal of Banking and Finance*, Elsevier, vol. 72(C), pages 15-27.

Kelly, Robert and Terence O'Malley, 2016. "The good, the bad and the impaired: A credit risk model of the Irish mortgage market," *Journal of Financial Stability*, Elsevier, vol. 22(C), pages 1-9.

Kelly, Robert and Conor O'Toole, 2016. "Lending Conditions and Loan Default: What Can We Learn From UK Buy-to-Let Loans?," Research Technical Papers 04/RT/16, Central Bank of Ireland.

Klein, Nir, 2013. "Non-Performing Loans in CESEE: Determinants and Impact on Macroeconomic Performance". IMF Working Paper WP/13/72, International Monetary Fund

Kroszner, Randall S., Luc Laeven and Daniela Klingebiel, 2007. "Banking Crises, Financial Dependence, and Growth". *Journal of Financial Economics*, Vol. 84, No. 1, pp. 187-228

McCann, Fergal, 2017. "Resolving a Non-Performing Loan crisis: The ongoing case of the Irish mortgage market". Central Bank of Ireland Research Technical Paper 10/RT/17.

McCann, Fergal and Tara McIndoe-Calder, 2012. "Determinants of SME Loan Default: The Importance of Borrower-Level Heterogeneity". Research Technical Papers 06/RT/12, Central Bank of Ireland

McCann, Fergal and Tara McIndoe-Calder, 2014. "Property debt overhang: the case of Irish SMEs," Research Technical Papers 14/RT/14, Central Bank of Ireland.

McCarthy, Yvonne, 2014. "Dis-entangling the mortgage arrears crisis: The role of the labour market, income volatility and housing equity," Research Technical Papers 02/RT/14, Central Bank of Ireland

Nkuzu, M., 2011. "Nonperforming Loans and Macrofinancial Vulnerabilities in Advanced Economies. IMF Working Paper Series WP/11/161.

Schivardi, Fabiano and Enrico Sette and Guido Tabellini, 2017. "Credit Misallocation During the European Financial Crisis." CESifo Working Paper Series 6406, CESifo Group Munich.

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, <https://www.centralbank.ie/statistics>. 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:

<https://www.centralbank.ie/statistics/data-and-analysis/credit-and-banking-statistics/bank-balance-sheets>

- 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:

<https://www.centralbank.ie/statistics/data-and-analysis/credit-and-banking-statistics/business-credit-and-deposits>

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

Private Household Credit and Deposits:

<https://www.centralbank.ie/statistics/data-and-analysis/credit-and-banking-statistics/private-household-credit-and-deposits>

- Credit Advanced to and Deposits from Irish Private Households

Money Market Funds:

<https://www.centralbank.ie/statistics/data-and-analysis/other-financial-sector-statistics/money-market-funds>

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

Retail Interest Rates:

<https://www.centralbank.ie/statistics/data-and-analysis/credit-and-banking-statistics/retail-interest-rates>

- 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:

<https://www.centralbank.ie/statistics/data-and-analysis/other-financial-sector-statistics/investment-funds>

- Ireland: Investment Funds Data

Securities Holdings and Issue Statistics:

<https://www.centralbank.ie/statistics/data-and-analysis/securities-statistics/securities-issues-and-holding-data>

- Securities Issue Statistics
- Holding Data

Financial Vehicle Corporations:

<https://www.centralbank.ie/statistics/data-and-analysis/other-financial-sector-statistics/financial-vehicle-corporations>

- Irish Financial Vehicle Corporations

Locational Banking Statistics:

<https://www.centralbank.ie/statistics/data-and-analysis/credit-and-banking-statistics/locational-banking-statistics>

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

Quarterly Financial Accounts:

<https://www.centralbank.ie/statistics/data-and-analysis/financial-accounts>

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

Public Finances and Competitiveness Indicators:

<https://www.centralbank.ie/statistics/data-and-analysis/securities-statistics/holdings-of-long-term-irish-government-bonds>

- Holdings of Irish Government Long-term Bonds

<https://www.centralbank.ie/statistics/data-and-analysis/competitiveness-reserves-and-national-debt>

- Gross National Debt
- Nominal and Real HICs

