

JULY 15

Q3

Central Bank Quarterly Bulletin



Banc Ceannais na hÉireann
Central Bank of Ireland

Eurosystem

Contents

Section 1

Forecast Summary Table	6
Comment	7
The Domestic Economy	9
Box A: Ireland and the Macroeconomic Imbalance Procedure – An Update	21
An Timpeallacht Gheilleagrach	23
Financing Developments in the Irish Economy	25
Box A: SMEs Cost of Bank Funding	27
Box B: Investment funds debt security holdings in a low yield environment	32
Developments in the Euro Area Economy	35
Box A: US Monetary Policy: Looking Beyond Headline Unemployment	39
Box B: Monetary Policy Rates and Shadow Short Rates	42

Section 2

Data Gaps and Shadow Banking: Profiling Special Purpose Vehicles' Activities in Ireland	48
Brian Godfrey, Neill Killeen and Kitty Moloney	
The Expanded Asset Purchase Programme – What, Why and How of Euro Area QE	61
Peter Dunne, Mary Everett and Rebecca Stuart	
Labour Cost Adjustment during the Crisis: Firm-level Evidence	73
Suzanne Linehan, Reamonn Lydon and John Scally	

Section 3

Statistical Appendix

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.

Designed by: Essentra plc.

Cover Photograph: Stuart Bradfield

Enquiries relating to this Bulletin should be addressed to:

Central Bank of Ireland (Publications),

P.O. Box No. 559, Dame Street, Dublin 2.

Phone 353 1 2246278; Fax 6716561

www.centralbank.ie

Email: Publications@centralbank.ie

ISSN 0332-2645

Forecast Summary Table

	2012	2013	2014	2015 ^f	2016 ^f
Real Economic Activity					
(% change)					
Personal consumer expenditure	-1.2	-0.8	1.1	2.3	2.3
Public consumption	-2.1	1.4	0.1	0.5	0.9
Gross fixed capital formation	5.0	-2.4	11.3	11.0	10.4
<i>of which:</i> Building and construction	-1.3	14.1	8.9	10.4	13.6
Machinery and equipment	-2.1	1.8	31.0	16.8	9.8
Exports of goods and services	4.7	1.1	12.6	5.8	6.0
Imports of goods and services	6.9	0.6	13.2	5.9	6.1
Gross Domestic Product (GDP)	-0.3	0.2	4.8	4.1	4.2
Gross National Product (GNP)	1.1	3.3	5.2	4.2	3.8
External Trade and Payments					
Balance-of-Payments Current Account (€ million)	2,698	7,634	11,469	11,211	11,413
Current Account (% of GDP)	1.6	4.4	6.2	5.7	5.4
Prices, Costs and Competitiveness					
(% change)					
Harmonised Index of Consumer Prices (HICP)	1.9	0.5	0.3	0.5	1.7
<i>of which:</i> Goods	1.9	-0.4	-1.7	-2.7	0.4
Services	1.9	1.6	2.4	3.6	3.0
HICP excluding energy	0.9	0.6	0.5	1.3	1.5
Consumer Price Index (CPI)	1.7	0.5	0.2	0.4	1.6
Nominal Harmonised Competitiveness Indicator (Nominal HCI) ¹	-4.0	3.1	0.2	n.a.	n.a.
Compensation per Employee	0.7	2.0	3.8	2.2	2.3
Labour Market					
(% change year-on-year)					
Total employment	-0.6	2.2	1.9	2.3	2.3
Labour force	-0.6	0.4	-0.3	0.5	1.0
Unemployment rate (ILO)	14.6	13.1	11.2	9.7	8.5
Technical Assumptions²					
EUR/USD exchange rate	1.28	1.33	1.33	1.11	1.10
EUR/GBP exchange rate	0.81	0.85	0.81	0.72	0.71
Oil price (\$ per barrel)	111.57	108.58	98.52	59.25	66.44
Interbank market – Euribor ³ (3-month fixed)	0.57	0.23	0.21	-0.01	0.02

¹ Based upon the annual change in the average nominal HCI.

² The technical assumption made is that exchange rates remain unchanged at their average levels in mid-June. 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.

Comment

Following GDP growth of 4.8 per cent last year, the strong recovery of the Irish economy has continued in the first half of 2015. While the initial strengthening of activity in 2014 was driven by net export growth, the recovery over the past year has become more balanced, with domestic drivers increasingly playing a more prominent role. Although the absence of National Accounts data for the first quarter of 2015 reduces the detail and quality of information available on the performance of the economy in early 2015, the signs emerging from a broad range of other data and indicators point to an increase in the pace of domestic demand growth in the first-half of this year.

While the rebound in domestic demand was initially driven by investment spending, consumer spending is now playing a more prominent role. Moreover, the recovery in consumption, while still modest, appears to be gradually strengthening. Consumption has benefitted from continuing solid growth in employment, particularly full-time employment, which is helping to boost incomes. The ongoing strength of the labour market in 2015, as evidenced by both labour market and tax data, supports the view that the economy has continued to expand solidly in the first-half of this year and corroborates the signal from high frequency retail sales data that the recovery in consumption is gradually strengthening.

On the external side, the high rates of growth in exports and imports in the monthly trade data suggest that some of the impact of contract manufacturing may have carried over into the early part of 2015. Our working assumption continues to be that this represents a step increase in the level of exports and imports and not a lasting upward shift in their growth rates. Looking ahead it is assumed that exports will return to growing broadly in line with projected growth in external demand. Helped by Ireland's trade links with the US and UK markets and the improvement in the outlook for the euro area economy, this should continue to generate a strong rate of growth for exports this year and next.

On the domestic side, the momentum of recovery has strengthened and the outlook is now more favourable than at the time of our

last published forecasts. Further increases in employment, rising real disposable incomes and gradually strengthening consumer confidence are projected to support a pick-up in the growth of consumer spending over the remainder of 2015 and 2016. However, despite recent declines, the high level of household indebtedness remains a headwind to any strong recovery in consumption. In addition, growth in investment spending, abstracting from the volatile aircraft component, is forecast to strengthen further, helping investment, including construction investment, to continue to rebound following a prolonged period of weakness.

These developments suggest a stronger outlook for growth in 2015 and 2016, as compared to the forecasts in the previous Bulletin. Reflecting a more favourable outlook for consumer and investment spending, GDP growth of 4.1 per cent is now forecast for 2015, an upward revision of 0.3 per cent relative to the previous projection. In 2016, again supported mainly by a further strengthening of domestic demand, GDP is forecast to grow by 4.2 per cent, which is 0.5 per cent higher than the previous Bulletin forecast. We would caveat these forecasts by noting that the inclusion of aircraft owned by Irish resident leasing companies in both investment and imports in the National Accounts places significant upside risk to our forecasts for both these components. Consequently, there may be upside risk to the projected outlook for domestic demand, though this may be broadly offset by downside

risk to the projection for net exports, leaving overall risks to the forecast broadly balanced.

Turning to policy issues, the challenge remains to ensure that the strengthening economic recovery which is underway transitions into a sustainable return to steady growth. While much progress has been made, high public and private indebtedness persists. In some key areas, policy needs to focus on reducing remaining vulnerabilities and strengthening resilience in order to minimise future risks to economic, fiscal and financial stability.

With respect to the public finances, reflecting the stronger economic performance, Exchequer data have been favourable. Tax revenues have grown ahead of target and expenditure has been lower than profile in the first half of the year. Against this background, the General Government Deficit is likely to come in below target in 2015 and Ireland is on course to come out of the Excessive Deficit Procedure by the end-year deadline. Looking ahead, the strong growth outlook implies that there is no need for fiscal policy to support economic activity and, importantly, also provides an opportunity to move ahead with fiscal consolidation and debt reduction in favourable circumstances. Indeed, with strong growth in prospect, it is important that the fiscal stance does not exacerbate cyclical pressures. Ireland's past experience demonstrates the damage that can be

caused by pro-cyclicality in policy and of the importance of resisting the temptation to consume unanticipated surplus revenues. Given the continuing high level and burden of public debt, it would be best to use such revenues to accelerate debt reduction, leaving the public finances better positioned to address future challenges.

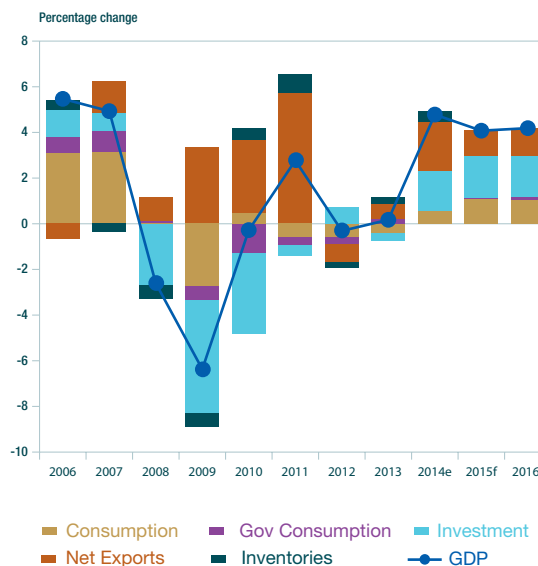
In the banking sector, favourable financial market conditions and the improving economic environment have helped banks reduce their funding costs, which together with reduced impairment charges, has led to a return to profitability. Encouragingly, the stock of non-performing loans continues to fall. Still, the overall level of NPLs remains high and long-term mortgage arrears of greater than 720 days are still growing, although the pace of increase has reduced significantly. It is notable that, for those banks subject to the mortgage arrears resolution targets (MART), there has been a small decline in the number of accounts in this arrears segment. In terms of the operation of MART, the Central Bank recently announced a shift from common quarterly solution targets across all banks to a bank-specific approach with more granular monitoring of specific cohorts of distressed borrowers where progress has been slower. While challenging, progress is being made and, gradually, the balance sheets of banks and their borrowers are being repaired.

The Domestic Economy

Overview

- GDP is now expected to expand by 4.1 and 4.2 per cent in 2015 and 2016, respectively. This upward revision to the forecast relative to the previous Bulletin (0.3 and 0.5 percentage points) is driven by a stronger contribution from domestic demand while the outlook for external demand remains broadly unchanged. Similarly, GNP growth is expected to be marginally stronger than previously forecast this year and next, at 4.2 and 3.8 per cent.
- In the absence of National Accounts data for the first quarter of 2015 at the time of writing, higher frequency indicators point towards an increase in the pace of domestic demand growth so far this year. It is expected that personal consumption and investment expenditure will remain robust over the forecast horizon.
- Improving labour market conditions, reflecting both numbers in employment and increasing rates of pay, a mildly expansionary fiscal stance and further improvements in consumer sentiment should underpin the stronger increase in personal consumption forecast in this Bulletin of 2.3 per cent both this year and next.
- In terms of investment, the outlook for building and construction, and the related trends in non-aircraft machinery and equipment outlays, is increasingly positive. This drives double-digit investment growth over the forecast horizon, alongside slightly stronger intangibles investment and a continued expansion in housing investment. Forthcoming changes to the treatment of aircraft owned by Irish resident leasing companies in the National Accounts are likely to have a significant impact on headline investment.
- The impact of the contract manufacturing issue on the rates of growth in Irish exports and imports is likely to have carried over to the first quarter of 2015, but are assumed to have passed by the middle of the year. Consequently it is envisaged that through to 2016 exports will grow more in line with demand in Ireland's main trading partners, which is broadly unchanged since the last Bulletin. Import growth is expected to remain robust given the improving domestic demand situation. There is upside risk to import growth due to the forthcoming changes in terms of trade in aircraft in the National Accounts.

Chart 1: Contributions to GDP



Source: CSO and Central Bank of Ireland.

- The labour market has continued to improve and it is expected that employment will increase by 2.3 per cent this year and next. This should see the unemployment rate averaging 9.7 per cent in 2015, with a decline to 8.5 per cent expected for 2016. The employment outlook is supported by the increasingly positive contribution to growth arising from domestic sources.
- Inflation is expected to remain muted in 2015, with the HICP averaging 0.5 per cent, as the drag on consumer prices from weak energy prices continues to offset the, so far, marginal impact of euro depreciation. The HICP is expected to rise by 1.7 per cent in 2016, driven mostly by base effects and strengthening domestic demand.
- Risks to the forecasts are deemed to be broadly balanced. The outturn for domestic demand may be stronger than envisaged in this Bulletin, but there remains a particularly high degree of uncertainty around the investment forecast. The net export contribution could be higher or lower depending on both the impact of the forthcoming methodological changes in the National Accounts and the robustness of the growth in the euro area.

Demand

Domestic Demand Overview

Domestic demand is expected to become the main driver of growth over the forecast horizon with average annual volume increases of 3.8 per cent; this reflects a robust outlook for personal consumption and investment expenditure. This would mark the strongest rate of growth in domestic demand since 2007.

Consumption

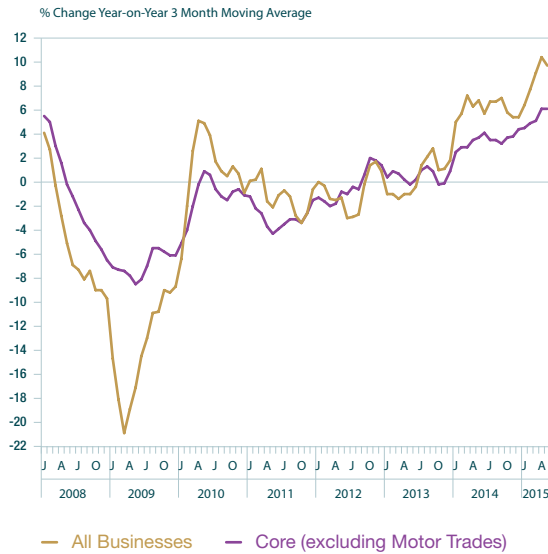
Personal consumption expenditure is forecast to grow by 2.3 per cent in both 2015 and 2016, on a year-on-year basis. This outlook is predicated on a continuation of the momentum evident in indicators of consumer spending in the first half of this year. Furthermore, the outlook for the labour market and specifically real disposable incomes should support consumer spending in the short-term.

Retail sales were up 9.3 per cent in the first five months of 2015 driven in part by strong car sales. Core retail sales have also been robust, increasing for a 19th consecutive month (by 5.7 per cent) in the year to May. This has been helped by strong increases in spending on household goods and electrical equipment. The apparent strength in consumer spending has also been evident in monthly Exchequer data and specifically VAT receipts, which are up 7.9 per cent in the first half of 2015. Survey indicators also point to a continuing improvement in consumer confidence.

Investment

The high degree of uncertainty usually accompanying investment forecasts - due to purchases of aircraft by Irish headquartered airlines - has been amplified by a forthcoming methodological change in the treatment of aircraft leasing in the National Accounts. Investment forecasts should therefore be treated with a higher degree of caution than usual. With this in mind, spending on the

Chart 2: Index of Volume of Retail Sales



Source: CSO.

economy's capital stock (mainly building and construction, machinery and equipment and, lately, research and development assets) is forecast to increase by 11 per cent this year and 10.4 per cent in 2016, as the recovery in investment following the recession continues.

Building and construction activity is forecast to increase by 10.4 and 13.6 per cent in 2015 and 2016, respectively. Survey evidence indicates that all sectors are reporting increased activity. On the residential side, indicators signal that new house building is expected to increase, with approximately 13,000 units expected in 2015 and 15,000 units in 2016. Non-residential construction investment is expected to gather pace this year and next with a healthy pipeline of projects and a positive outlook for incoming foreign investment.

Following two years of strong growth, machinery and equipment investment is also forecast to contribute further to investment spending this year and next. The other main category of investment spending, intangibles, registered a small decline in 2014. This

Table 1: Expenditure on Gross National Product 2014, 2015^f and 2016^f

	2014			2015 ^f			2016 ^f
	EUR millions	volume	price	EUR millions	volume	price	EUR millions
Personal Consumption Expenditure	85,618	2.3	1.4	88,813	2.3	1.9	92,582
Public Net Current Expenditure	25,966	0.5	1.6	26,496	0.9	0.8	26,926
Gross Domestic Fixed Capital Formation	30,399	11.0	2.8	34,690	10.4	3.1	39,507
<i>Building and Construction</i>	12,789	10.4	6.1	14,907	13.6	6.2	17,866
<i>Machinery and Equipment</i>	8,927	16.8	0.9	10,510	9.8	1.3	11,686
Value of Physical Changes in Stocks	1,850			1,850			1,850
TOTAL DOMESTIC DEMAND	143,833	3.8	1.7	151,850	3.9	2.0	160,865
Exports of Goods & Services	207,791	5.8	1.7	223,638	6.0	1.7	240,992
FINAL DEMAND	351,624	5.0	1.7	375,488	5.1	1.8	401,857
Imports of Goods & Services	-168,082	5.9	-1.0	-179,826	6.1	-1.4	-193,433
<i>Statistical Discrepancy</i>	1,868			1,868			1,868
GROSS DOMESTIC PRODUCT	185,410	4.1	2.4	197,530	4.2	2.2	210,292
Net Factor Income from Rest of the World	-26,974	3.3	1.7	-28,351	6.3	1.7	-30,646
GROSS NATIONAL PRODUCT	158,436	4.2	2.5	169,179	3.8	2.3	179,646

includes research and development (R&D) investment expenditure. For the forecast period, it is expected R&D related investment will grow broadly in line with the output of the multinational sector.

Given the uncertainty surrounding some of the categories of investment spending, namely the new treatment relating to aircraft leasing (included in machinery and equipment) and intangibles investment, it is useful to consider the outlook for business investment, classified here as overall investment less intangibles and transport equipment. This sub-category of investment spending is forecast to grow by 11.4 per cent in 2015 and 12.6 per cent in 2016. By the end of the forecast horizon, the

investment to GDP ratio should be close to its long run average of approximately 20 per cent of GDP. Risks to these forecasts are generally on the upside given the prolonged period of under-investment during the recession and the low base from which it is coming. Potential bottlenecks remain, however, mainly on the funding, planning and resource requirements fronts.

Government Consumption

The volume of government consumption is forecast to increase by 0.5 per cent in 2015 and by just less than 1 per cent in 2016. This outlook takes account of recent developments, particularly the Lansdowne Road Agreement.

External Demand and the Balance of Payments

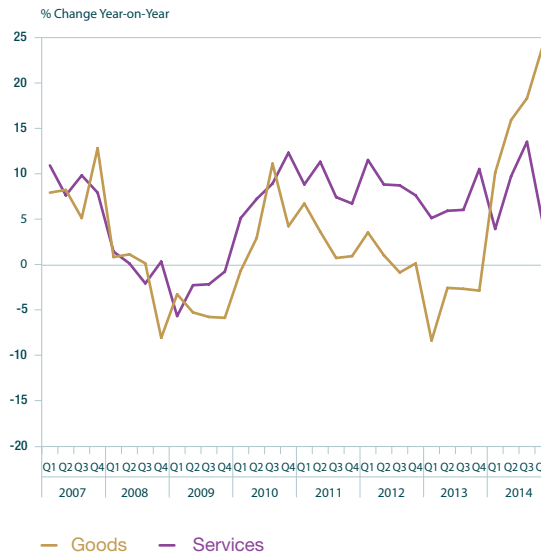
Exports and Imports

On the external side, higher frequency indicators suggest that exports continued to grow strongly in early 2015, following a rise of 12.6 per cent in 2014. With import growth also strengthening through last year, reflecting the rise in exports and domestic demand, net exports contributed slightly less than half of overall GDP growth in 2014 (Chart 1). Projections in this *Bulletin* for 2015 and 2016 imply a weaker contribution from net exports to GDP growth over the forecast horizon.

Growth in goods exports in 2014 was particularly strong, showing 17.2 per cent annual growth, driving the overall growth in exports. Changes in the structure of multinational enterprises led to an increase in activity contracted out to foreign manufacturing plants and this appears to be the main contributor to export growth over the past year.² This development became evident in Q2 2014, and it has been assumed that it reflected a level shift as opposed to a fundamental change in the trajectory of export growth. Therefore as the base effect of the rise in Q2 2014 passes it is anticipated that export growth, expected to be strong in Q1 2015, will ease somewhat in the second half of the year and reflect to a greater extent the underlying demand in our main trading partners. While this outlook is highly uncertain, monthly Industrial Production & Turnover data available up to May 2015 are tentatively supportive of it, indicating a slowdown in output in more recent months. This is particularly evident in the Chemicals and Pharmaceuticals sector, which has been the most affected by the contracted manufacturing issue and accounts for approximately 30 per cent of total exports.

Sentiment indicators for both manufacturing and services industries continue to be positive in their outlook for exports. The outlook for

Chart 3: Volume of Exports



Source: CSO Quarterly National Accounts.

demand in Ireland's major trading partners based on the most recent external demand assumptions from the ECB is marginally less positive than in the previous *Bulletin* for 2015 and somewhat stronger for 2016. This is due to a slightly slower growth in imports in the United States assumed for 2015, being offset by rising demand for Irish goods and services from other euro area countries as the wider euro area economy recovery continues.

With these factors in mind, the latest projection is for overall export growth of 5.8 per cent for 2015 in volume terms, and 6 per cent in 2016. Goods exports are expected to grow at a faster pace than services over the forecast horizon. Aside from the uncertainty related to the assumption on the contracted manufacturing effect, there is also a high degree of uncertainty around the outlook for external demand, with risks slightly to the upside for extra-euro area demand and to the downside for euro area demand.

The outlook for domestic demand implies a strengthening of imports over the forecast

² Due to the more widespread application of the economic ownership concept in the National Accounts, these goods owned by an Irish entity that are processed in and shipped from a foreign country on their sale are classified as Irish up until the time that they are sold, irrespective of whether the processing of those goods from their components to the final product for sale takes place in Ireland or not. While the activity is tracked in the Industrial Production series as Irish manufacturing, it does not involve goods moving into and out of the State, and consequently is not recorded in the monthly CSO Goods Exports and Imports release. The CSO have released a technical note on this topic in their Quarterly National Accounts series, which can be accessed on <http://www.cso.ie>.

Table 2: Goods and Services Trade 2014, 2015^f, 2016^f

	2014	% change in		2015 ^f	% change in		2016 ^f
	EUR millions	volume	price	EUR millions	volume	price	EUR millions
Exports	207,791	5.8	1.7	223,638	6.0	1.7	240,992
Goods	106,819	5.9	1.7	115,046	6.0	1.5	123,797
Services	100,972	5.7	1.7	108,592	5.9	1.9	117,195
Imports	168,082	5.9	1.0	179,826	6.1	1.4	193,433
Goods	60,924	6.5	0.8	65,398	6.3	1.2	70,347
Services	107,158	5.6	1.1	114,428	6.0	1.5	123,086

horizon. Alongside this, the import content of Irish exports is also relatively high. With export growth being driven by high-tech sectors with a reliance on imported royalties and licenses as well as a higher tendency to import manufacturing services, this also supports a rising import profile. Consequently, a 5.9 per cent increase in the volume of imports is expected in 2015 followed by 6.1 per cent in 2016. The import content of domestic demand will be fundamentally higher given the inclusion of aircraft owned by Irish resident leasing companies in gross fixed capital formation in the forthcoming National Accounts, and this puts significant upside risk to our import forecast.

Combined with the export outlook this implies a lower net export contribution to overall GDP this year and next compared with 2014. A reasonable degree of uncertainty surrounds the net export projections at present as a result of the sector specific issues noted above and the changes in how some of them are reflected in the forthcoming National Accounts.

Net Trade, Factor Incomes and International Transfers

The trade surplus widened in 2014 as an increase in net goods exports offset a decline in net services exports. The addition of the physical trade in aircraft owned by Irish resident leasing companies in the forthcoming

National Accounts is likely to reduce the overall trade balance in a number of years. The overall trade balance for 2014 was €39.7 billion, an increase of 9.2 per cent over the year.

Net factor income flows have been marginally less negative in recent years. This in part reflects lower multinational profits due to a higher tendency for these companies to import royalties and licenses, as well as developments in the IFSC. As a benchmark for net factor income forecasts, it is possible to consider the debt and equity composition of the net international investment position of the economy and the flows on that position given assumptions on prevailing interest rates and other returns on capital. The lower interest rate path assumed in this *Bulletin* implies a slightly more negative net factor income position when compared with that in the previous forecast.

Given the scale of factor income flows and the uncertainty of their timing, small changes in outflows or inflows could have a significant impact on balance of payments projections in this *Bulletin*. Similarly the outlook for the trade balance is uncertain given the forthcoming changes in the National Accounts on trade in aircraft. Taking this into account, the projections imply that the current account will remain in surplus, averaging 5.6 per cent of GDP in 2015 and 2016.

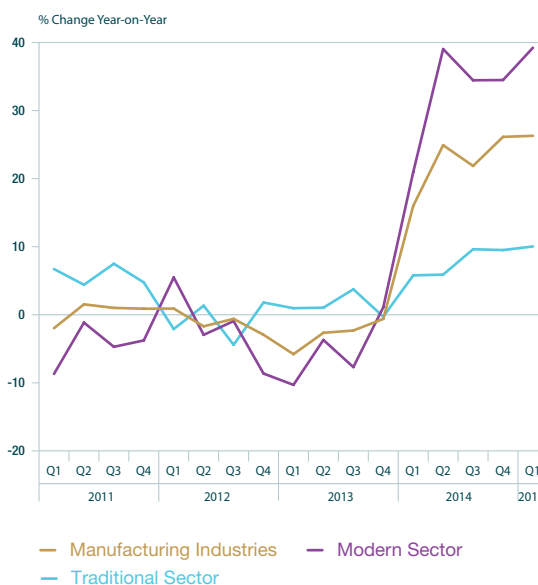
Table 3: Balance of Payments 2014, 2015^f, 2016^f

€ million	2014	2015 ^f	2016 ^f
Trade Balance	39,711	43,812	47,559
Goods	45,895	49,648	53,450
Services	-6,184	-5,836	-5,891
Net Factor Income from the Rest of the World	-25,991	-28,288	-30,646
Current International Transfers	-2,251	-2,251	-2,251
Balance on Current Account	11,469	11,211	11,413
(% of GDP)	6.2	5.7	5.4

Supply

On the supply side, higher frequency indicators from the monthly Industrial Production series point towards a continued expansion in industrial output in the first half of the year, with the pace of increase easing into the second quarter. The volume of industrial production in the first five months of the year was 14 per cent higher than the same period in 2014. Data for May however indicate that it was 7.8 per cent lower compared with April and had decreased by 4.4 per cent on an annual basis. The output of the modern sectors, driven by the Chemicals and Pharmaceuticals sector, was 13.2 per cent lower over the year in May. This likely reflects the base effect of the strong increase in output in Q2 2014 due to contracted manufacturing. The output of the traditional sectors continues to expand robustly and is 10.5 per cent higher in the first five months of 2015 compared with the same period last year (Chart 4).

A recovery in domestic demand and higher tourism exports has supported strong growth in the services sector so far in 2015. Data from the CSO Monthly Services Index indicate the value of output in the non-financial services sectors grew by 6 per cent in the first five months of the year compared with the same period in 2014. This was particularly evident in the Wholesale and Retail Trade and Accommodation and Food Services sectors. With services consumer price inflation averaging 3.2 per cent in early 2015, this lends

Chart 4: Volume of Industrial Production

Source: CSO.

itself to the view that the volume of output in the non-financial services sector has expanded so far this year.

Meanwhile sentiment surveys for both manufacturing and services sectors point toward continued expansion in output and employment. The most recent Services PMI, at 63.3, is the thirty-fifth successive month of expansion. Similarly the Manufacturing PMI has been above 50, which indicates growth in the sector, for twenty-five successive months up to June 2015.

Table 4: Employment, Labour Force and Unemployment 2013, 2014, 2015^f and 2016^f

	2013	2014	2015 ^f	2016 ^f
Agriculture	107	109	111	112
Industry (including construction)	343	348	362	380
Services	1,430	1,458	1,486	1,512
Total Employment	1,880	1,916	1,959	2,005
Unemployment	284	241	209	186
Labour Force	2,163	2,157	2,168	2,191
Unemployment Rate (%)	13.1	11.2	9.7	8.5

Note: Figures may not sum due to rounding.

The Labour Market

Employment growth is expected to average 2.3 per cent per annum in 2015 and 2016. This should see the number of persons in employment reaching the two million mark over the forecast horizon – the last time this threshold was reached was in 2008. With average annual labour force growth of 0.8 per cent envisaged over the forecast horizon, the unemployment rate is projected to average 9.7 per cent in 2015 and 8.5 per cent in 2016. The labour market has been improving for a number of quarters now and the rebalancing in growth away from net exports to domestic demand should further stimulate employment growth this year and next.

Employment increased on an annual basis by 41,300 persons (+2.2 per cent) in the first three months of the year based on the most recent Quarterly National Household Survey (QNHS). This growth was once again broadly based, with 10 out of 14 economic sectors recording gains. The largest increases in employment were recorded in construction and financial (including real estate) sectors which accounted for just over half of all jobs created. As well as the broad based nature of the recovery, growth in employment is now predominantly being recorded in full-time jobs (reversing the pattern of the early stages of the recovery).

More recent data from the Live Register confirms the on-going recovery in the labour market; numbers on the Register declined to

344,900 persons in June, down from 363,700 at end-2014, marking a 36th consecutive month of decline. Furthermore, the seasonally adjusted unemployment rate was 9.7 per cent in June (down from 11.4 per cent a year previously).

The number of persons in the labour force declined marginally (by 0.2 per cent) in the first quarter of the year to just over 2.1 million. This reflects an on-going decline in younger cohorts in the labour force and a falling participation rate. For the year as a whole however, it is expected that the labour force will grow by 0.5 per cent.

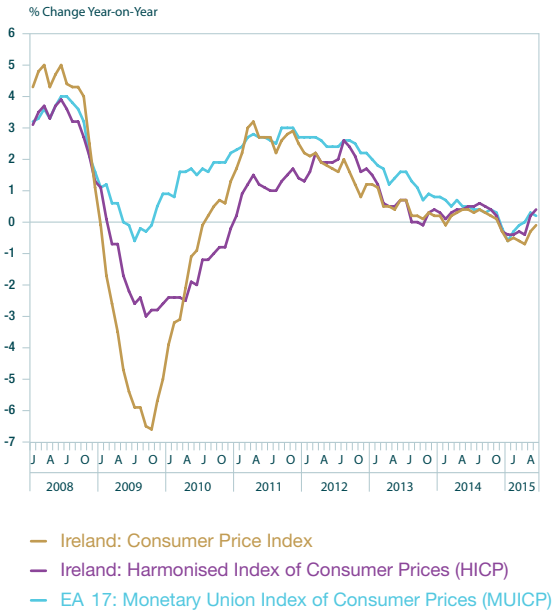
Pay

Compensation per employee is forecast to increase by 2.2 per cent in 2015 and by 2.3 per cent in 2016. As labour market conditions tighten and inflationary pressures pick up, there could be some upside potential to this outlook.

The latest Earnings and Labour Cost Survey reported a 0.4 per cent rise in hourly earnings in the first quarter of 2015. The rise in earnings was again driven by the private sector with seven of the thirteen sectors reporting increases in earnings.³ The largest increase was recorded in the Information and Communication sector (+5.8 per cent in the year). Public sector earnings growth has been negative in recent years but the recently announced Lansdowne Road Agreement

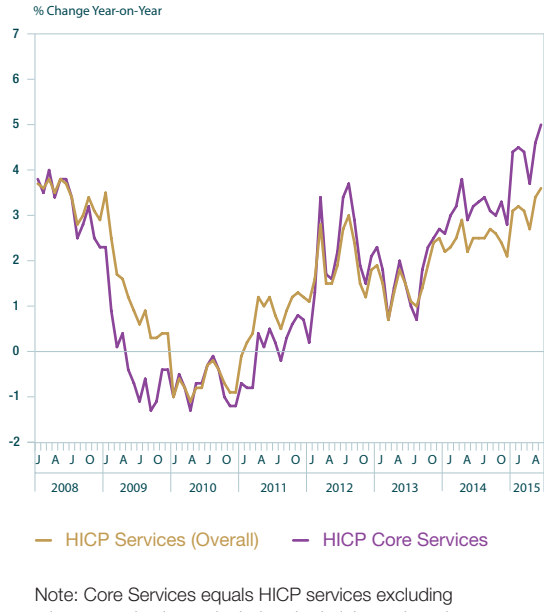
³ Hourly earnings in the private sector increased by 0.6 per cent in the first quarter of the year, whereas a decline of 0.4 per cent was recorded in the public sector.

Chart 5: Consumer Prices



Source: CSO.

Chart 6: Services Sector Inflation



Source: CSO.

should result in positive earnings growth from 2016.

Other data sources also point to stronger earnings growth. In particular, income tax receipts and social security contributions have increased markedly in the first half of the year by 6.1 and 9.3 per cent, respectively.

Inflation

The latest available consumer price data points to a tentative upward trend in headline HICP inflation over recent months. Having turned positive in May for the first time since November 2014, HICP inflation rose further to 0.4 per cent in year-on-year terms in June, up from its most recent low of -0.4 per cent in April. Much of this upturn may be attributed to a less pronounced negative annual rate of change in the energy component of the HICP, driven by the recovery in the price of oil in euro terms relative to the six-year low reached in January. A somewhat more broad-based recovery, beyond the energy component, appears to have also taken effect over recent months, as evidenced by the fact that the

HICP, excluding energy and unprocessed food, rose to 1.3 per cent year-on-year in June, having remained within a reasonably tight range of 0.6 per cent to 1.1 per cent since January 2013. Owing to downward pressure from mortgage interest rates, which are included in the CPI and not the HICP, the CPI remained negative on a year-on-year basis in June, albeit on an upward trajectory, rising to -0.1 per cent.

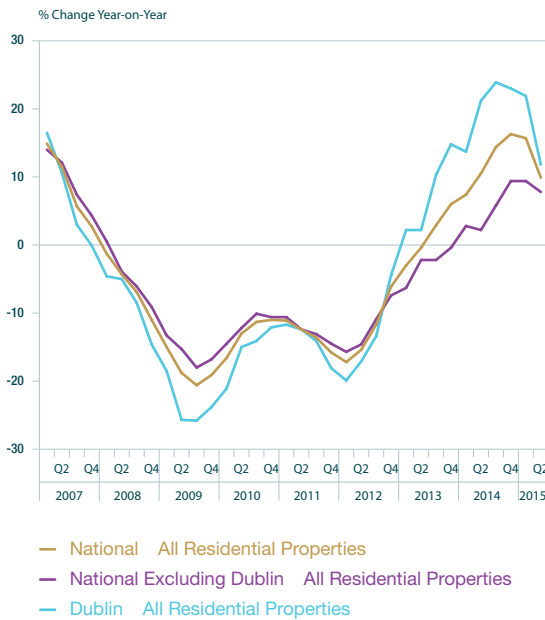
On the basis of currently available information and prevailing oil futures prices, HICP inflation is expected to remain low until the latter part of this year as the impact of past falls in energy prices and to a lesser extent, food prices remain in year-on-year comparisons. While the boost to consumer price inflation arising from the depreciation of the euro since mid-2014 has, to date, been slightly muted, it is anticipated that this will increase somewhat over the second half of this year. In addition, the noticeably stronger HICP services outturns of recent months, due largely to one-off factors such as the introduction of water charges and sewage costs into the HICP basket are expected to persist during the remainder of

Table 5: Inflation Measures - Annual Averages, Per Cent

Measure	HICP	HICP excluding Energy	Services ^a	Goods ^a	CPI
2011	1.2	0.0	0.8	1.5	2.6
2012	1.9	0.9	1.9	1.9	1.7
2013	0.5	0.6	1.6	-0.4	0.5
2014	0.3	0.5	2.4	-1.7	0.2
2015 ^f	0.5	1.3	3.6	-2.7	0.4
2016 ^f	1.7	1.5	3.0	0.4	1.6

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

Chart 7: Residential Property Price Indices



Source: CSO.

this year. As a result, HICP inflation is expected to recover further during the second half of 2015 to average 0.5 per cent in annual terms; on a CPI basis, an annual average rate of 0.4 per cent is currently projected.

Looking ahead to 2016, a pronounced pick-up in headline HICP inflation is envisaged driven solely by a recovery in the goods component. The single most prominent driver of the projected recovery in goods inflation is expected to be energy as upward base effects arising from previous energy price declines fall

out of year-on-year comparisons. A recovery in HICP goods inflation seems set to be further supported by the impact of the lower euro exchange rate. In contrast, some deceleration in the rate of services inflation is anticipated in 2016 due to downward base effects from the impact of the introduction of water and sewage charges into the HICP basket of goods and services dropping out of annual comparisons from January. Reflecting such a combination of developments, HICP inflation is projected to rise sharply next year, to average 1.7 per cent, with a corresponding CPI inflation rate of 1.6 per cent. The projected profile for both headline HICP and CPI inflation is largely unchanged relative to the previous *Bulletin*.

Residential Property

Residential property prices increased by 13.8 per cent in year-on-year terms in May 2015. The pace of growth is somewhat faster in the Dublin region, where prices are 15.2 per cent higher on a year-on-year basis, though the rate of increase has decelerated over the last number of months. Outside Dublin, prices grew by 11.9 per cent in year-on-year terms in May.

On the supply side, there were 2,629 house completions in the first quarter of 2015, 25 per cent more than in the same quarter of 2014 while planning permission was granted for 2,514 housing units and 641 apartment units in the first quarter of 2015. A further rise in house building is anticipated over the forecast horizon.

Commercial Property

The latest data (Q1 2015) from the Society of Chartered Surveyors/Investment Property Databank show that commercial property prices continued to grow strongly. The pace of growth in both retail and office capital values, at 22.3 and 32.9 per cent on a year-on-year basis respectively, eased during Q1 compared with the final quarter of 2014. Growth in industrial property prices continued to accelerate with a year-on-year increase of 9 per cent. The Bank's *Macro-Financial Review* (June 2015) contains a detailed overview of recent developments in the commercial property market.

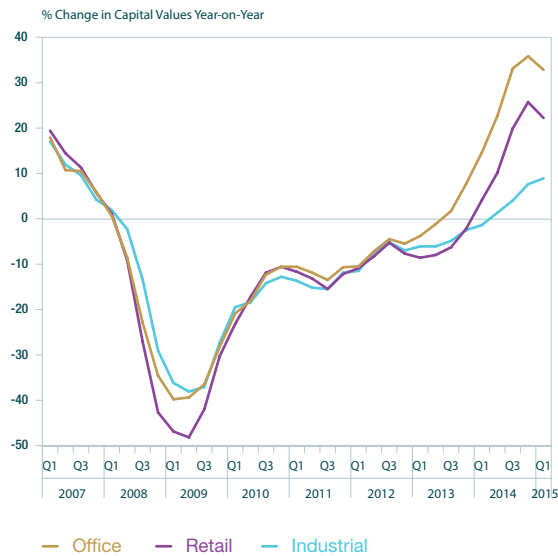
Competitiveness

While the euro weakened substantially against both the dollar and sterling in the opening months of 2015, it fluctuated within a relatively narrow band (+/- 5 per cent) against both currencies in the second quarter of 2015. The pound sterling oscillated around £0.72 for the second quarter of 2015 and the US dollar was reasonably stable around \$1.10. The two currencies have moved almost in tandem since the start of the year. There was some renewed weakness at the time of writing as uncertainties around Greece weighed on the euro.

The latest Harmonised Competitiveness Index (HCI) data for June 2015 show that the nominal HCI depreciated by approximately 6 per cent in the first quarter of the year before reversing this decline partially while the HCI was 7 per cent lower year-on-year. When deflated by consumer and producer prices, the real HCI decreased by 8 per cent and 9 per cent, respectively, over the same period. These HCI developments suggest that the Irish economy has made gains in terms of its competitive stance against its trading partners, with the bulk of this improvement due to the nominal exchange rate changes but also partly due to more favourable relative price developments.

On the basis of the conventional GDP per worker measure, productivity increased by 2.8 per cent in 2014. This followed from a

Chart 8: SCS/IPD Irish Commercial Property Index



Source: SCS/IPD.

decline of 2 per cent in 2013. Developments in both years are mainly due to divergent compositional effects in labour market dynamics and GDP growth. Employment growth slowed in 2014, while the drag on GDP growth of sector specific issues in pharmaceutical and ICT enterprises was reversed significantly in 2014. Looking ahead, average annual productivity growth in GDP per worker of 1.8 per cent is forecast for both 2015 and 2016.

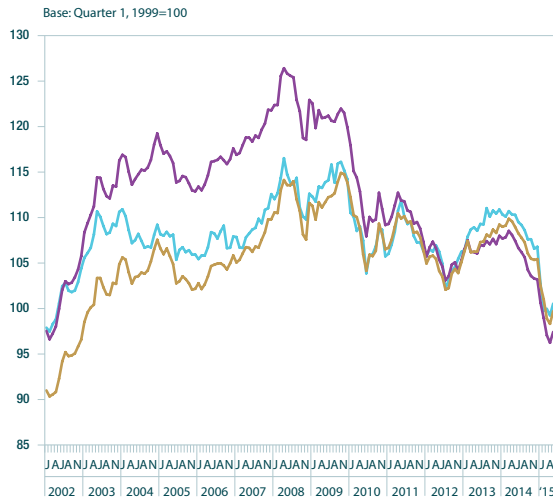
Factoring in the projected increases in compensation of employees over the forecast horizon, unit labour costs are expected to rise by 0.5 per cent in 2015 and 0.8 per cent in 2016. The relatively small changes in unit labour costs are attributable to the change in productivity being matched by similar growth in average compensation per employee.

The Public Finances

Overview

The latest Government Finance Statistics indicate that the general government balance continued to improve last year. The deficit outturn of 4.1 per cent of GDP was down

Chart 9: Harmonised Competitiveness Indicators



— Nominal HCI — Consumer Price Deflated HCI
 — Producer Price Deflated HCI

Source: Central Bank of Ireland and ECB.

significantly from a deficit of 5.8 per cent recorded in 2013 and once again ensured that the Excessive Deficit Procedure (EDP) target was successfully achieved.

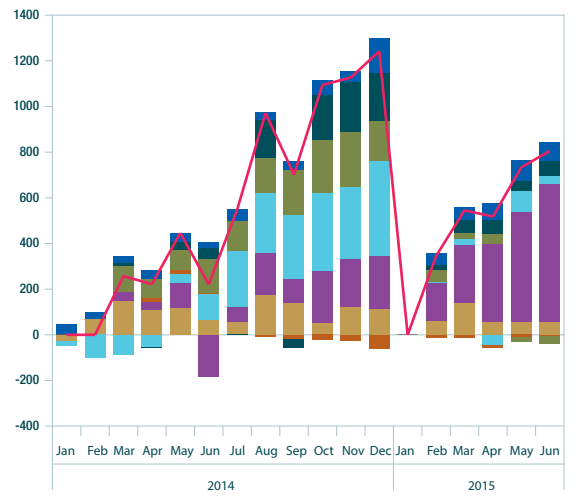
With regard to this year, exchequer returns figures for the first six months have been encouraging; with tax revenues coming in more than €800 million ahead of Department of Finance expectations and government spending lower than profile. As a result, it appears that this year's EDP requirement of a deficit under 3 per cent of GDP will be met by a comfortable margin and Ireland will successfully exit the corrective arm of the Stability and Growth pact on schedule.

Having reached a peak in 2013, gross general government debt declined to 109.7 per cent of GDP in 2014. The improving budget position, robust GDP growth and a run down in cash balances are expected to support a gradual decline in the debt ratio in the coming years.

Exchequer Returns

The latest data indicate that the Exchequer ran a deficit of €292 million in the first six months

Chart 10: Divergence of Tax Heads from Profile



— Income Tax — Corporation Tax — VAT
 — Local Property Tax — Excise Duties — Stamps — Other
 — Total

Source: Department of Finance.

of the year, a decrease of €4.6 billion from the corresponding period of 2014 (see Table 6). While an improvement over the period was anticipated, revenue developments were even stronger than expected and current expenditure was lower than profile.

A number of one off transactions also contributed to the improvement in the Exchequer balance. Tax revenue in the first half of 2015 was up 11.7 per cent year-on-year and was €805 million ahead of profile. This reflected better than expected developments in three of the 'big four' tax heads – income tax, VAT and most notably corporate tax. Corporation tax receipts were €606 million higher than profile in the six months to June and increased significantly in annual terms reflecting on-going improvements in the broader economy.

Non-tax revenues were also higher over the same period, mainly due to positive developments in Central Bank surplus income, which increased by almost €500 million year-on-year. Revenue generated from capital resources were also significantly higher in the first six months of 2015, up €1.6 billion

Table 6: Analytical Exchequer Statement for June 2015 (€ millions)

	Jan-June 2014 €m	Jan-June 2015 €m	Annual Change	Outturn vs Profile
Revenue	25,877	27,961	8.1%	3.8%
– Tax revenue	18,467	20,622	11.7%	4.1%
– Appropriations-in-aid	5,429	5,318	-2.0%	3.0%
– Other Revenue	1,981	2,021	+2.0%	3.6%
Expenditure	31,516	31,159	-1.1%	-1.1%
– Current Primary Expenditure	26,253	25,841	-1.6%	-0.3%
– Capital Expenditure	967	1,135	+17.4%	-3.4%
– Interest on National Debt	4,297	4,183	-2.6%	-5.6%
Transactions with no General Government Impact	701	2,906	314.5%	1,121.4%
Exchequer Balance	-4,938	-292	94.1%	93.3%

Source: Department of Finance

compared with the same period last year. The substantial increase was driven by a transfer from the NPRF to the Exchequer following the sale of Bank of Ireland shares and the sale of the PTSB contingent capital note.

Turning to the expenditure side, total current spending and total capital spending were down by 2.9 per cent and 8.7 per cent respectively, from last year. A contribution to the sinking fund in 2014 which was not repeated this year partly explained the lower current expenditure figures, as did lower Health spending. Meanwhile, a reduction in short-term loans to the Social Insurance Fund was a key driver of the lower capital spending figures in the first six months of 2015, as well as the absence of a capital contribution to the European Stability Mechanism that took place during the same period in 2014. Interest payments on the national debt also declined year-on-year, largely reflecting the impact of early repayments to the IMF. Compared to expectations, voted current and capital spending and debt servicing costs were all lower than profile in the first half of the year.

The deficit in the first six months of the year was financed by borrowing €3.5 billion, primarily in the form of Irish Government Bonds and Short Term Paper, while more than €9 billion of IMF loans were repaid. Government cash balances increased by €3.2 billion over the period.

Funding and Other Developments

The National Treasury Management Agency (NTMA) raised a further €2.5 billion through the auction of 30-year, 7-year and 15-year bonds in March, May and June, respectively. As a result, the agency has now raised more than 80 per cent of the €13.5 billion funding that it had planned for the year as a whole. In June, the NTMA also cancelled €500 million of the June 2038 Irish Floating Rate Treasury Bond, which was issued in connection with the Irish Bank Resolution Corporation Act 2013. The bonds were purchased from the Central Bank of Ireland.

Ireland's long-term sovereign credit rating was upgraded by Standard & Poor's in June 2015 to A+ (from A) with a stable outlook. This is the third upgrade by Standard & Poor's in the past 12 months and is the latest in a series of upward reviews by the leading credit rating agencies reflecting a more positive assessment of Ireland's performance and outlook.

Box A: Ireland and the Macroeconomic Imbalance Procedure – An Update*By Linda Kane⁴*

The Macroeconomic Imbalance Procedure (MIP) was introduced in late 2011 as one of the key components of the reformed European economic governance framework. The goal of the MIP is to ensure that macroeconomic imbalances do not develop as a threat to economic stability as they did in the previous decade and it is part of a strengthened EU economic surveillance framework designed to complement the revised Stability and Growth Pact.⁵ Following Ireland's exit from its Economic Adjustment Programme in December 2013 it has been subject to two rounds of the MIP.

The MIP is based on a set of measurable national macroeconomic indicators grouped in a scoreboard, each of which has a threshold that should not be breached (see Box A Table 1). The first step in the MIP is the publication by the European Commission of the Alert Mechanism Report (AMR), which assesses countries using the above mentioned scoreboard to identify which of them warrant more detailed analysis to determine if imbalances exist or not. The latest AMR was published in November 2014 and Ireland was identified as one of 16 countries that required more detailed analysis,⁶ with Irish imbalances deemed in need of "specific monitoring and decisive policy action". The second stage of the MIP involves the European Commission undertaking In-Depth Reviews (IDRs) of the countries identified in the AMR as requiring more substantial analysis.

Ireland's IDR was published in June 2015⁷ and the analysis is based on data up to 2013.⁸ Ireland experienced a large increase in macroeconomic imbalances in the years leading up to, and during, the financial crisis and these will take time to unwind. The report found that Ireland has made some progress in addressing the country-specific recommendations the European Commission issued in 2014, although further work remains to be done in areas such as healthcare, SME financing and the low work intensity of households. According to the IDR, four indicators remained beyond their threshold in 2013, down from a peak of eight in 2011.

Turning first to external imbalances and competitiveness; Ireland's current account position improved as the domestic economy contracted and foreign trade once again became the driving force behind growth. The three-year average balance turned positive in 2013 and is expected to improve further in 2014. Ireland has made significant gains in competitiveness since the beginning of the financial crisis and this is reflected through the indicators for the real effective exchange rate, export market shares and nominal unit labour costs all coming in under their respective thresholds in 2013. While preliminary data for export market shares in 2014 appears to suggest deterioration in this indicator, this is due to a base effect in the historical data, with export market shares expected to improve more than 15 per cent on an annual basis. Ireland's net international investment position (NIIP) remains highly negative and developments are complicated by funding activities of the large multinational sector and the presence of the IFSC. In recent years, however, it has mainly been official funding related to the Economic Adjustment Programme that has been responsible for the rise in the NIIP to its current very high level. This reduces concerns about its magnitude somewhat.⁹

⁴ Irish Economic Analysis Division.

⁵ See Hickey and Kane (2014): Ireland and the Macroeconomic Imbalance Procedure, Central Bank of Ireland Quarterly Bulletin No.3 2014.

⁶ The other countries identified were Belgium, Bulgaria, Germany, Spain, France, Italy, Croatia, Hungary, the Netherlands, Portugal, Slovenia, Finland, Romania, Sweden and the United Kingdom.

⁷ European Commission (2015): Macroeconomic Imbalances Country Report – Ireland 2015, Occasional Papers 215, June 2015.

⁸ Box A Table 1 contains preliminary data for 2014 taken from the Eurostat MIP database. However not all of this data was available or part of the European Commission's official assessment.

⁹ For a more detailed discussion of measurement issues relating to the Irish NIIP see Lane, P (2011), 'The Dynamics of Ireland's Net External Position', Journal of the Statistical and Social Inquiry Society of Ireland Vol. XLI, November 2011.

Box A: Ireland and the Macroeconomic Imbalance Procedure – An Update

By Linda Kane

According to the IDR, four indicators remained above their MIP thresholds in 2013, with this likely to rise to five in 2014 as house prices begin to climb once again. Private sector debt and general government debt are likely to remain elevated over the coming years as the legacy of the financial crisis will take time to unwind. However, both indicators have seen recent positive developments and are declining from their peaks. Meanwhile, the three-year average unemployment rate continues to breach the MIP threshold, however in annual terms unemployment has been falling steadily from its peak in early 2012 as the economy improves. Following the bursting of the housing market bubble in 2007, private sector deleveraging has been on-going with house prices, financial sector liabilities and private sector credit no longer flashing as warnings on the scoreboard in 2013.

In conclusion, there has been a continuing reduction in the scale of Irish imbalances since the recession. While internal imbalances are generally improving, some will take time to unwind from their current high levels. External imbalances, meanwhile, are currently not a significant concern. Ireland will continue to be subject to specific monitoring by the European Commission which remains appropriate in order to ensure that the risks related to the current macroeconomic imbalances do not derail the on-going recovery.

Box A Table 1: Macroeconomic Imbalance Scorecard - Ireland

	Indicator	Threshold	2008	2009	2010	2011	2012	2013	2014 ^P
External Imbalances & Competitiveness	Current Account [^] (3-yr avg)	-4%/+6%	-8.1	-8.4	-6.4	-4.2	-1.5	1.1	4.1
	NIIP [^]	-35%	-76	-92	-88	-112	-112	-105	-98
	REER* (3 yrs)	±5%	7.3	5.0	-5.4	-9.6	-12.2	-3.9	-3.5
	Export Market Share* (5 yrs)	-6%	-21.2	-5.3	-13.0	-13.1	-14.3	-4.9	-6.4
	Nominal ULC* (3 yrs)	+9%	17.0	10.1	-3.2	-12.8	-10.0	1.3	5.6
Internal Imbalances	Deflated House Prices*	+6%	-8.5	-12.7	-10.4	-15.3	-11.9	0.3	12.2
	Private Sector Credit Flow [^]	14%	22.4	-5.0	2.6	16.3	-1.8	-5.7	n/a
	Private Sector Debt [^]	133%	237	259	261	278	282	266	n/a
	General Government Debt [^]	60%	42.6	62.2	87.4	111.1	121.7	123.3	109.7
	Unemployment Rate [^] (3-yr avg)	10%	5.2	7.7	10.8	13.5	14.4	14.2	13.0
	Financial Sector Liabilities [^]	16.5%	6.2	3.5	6.3	-2.4	-1.5	1.0	n/a

Source: Official 2008-2013 data - European Commission. Preliminary 2014 data - Eurostat MIP Database;

[^] as % of GDP; * % change (year-on-year unless otherwise stated);

Note: Shaded data represent indicator that has surpassed its threshold.

An Timpeallacht Gheilleagrach

I ndiaidh fhás 4.8 faoin gcéad ar OTI anuraidh, lean an téarnamh láidir ar gheilleagar na hÉireann sa chéad leath de 2015. Cé go raibh an neartú tosaigh ar ghníomhaíocht in 2015 á spreagadh ag an bhfás ar ghlan-onnmhairí, tá an téarnamh ar an ngeilleagar níos cothroime le bliain anuas agus tá ról níos suntasaí de réir a chéile ag spreagthaí intíre. In éagmais na sonraí Cuntas Náisiúnta don chéad ráithe de 2015, laghdaítear mionghné agus cáilíocht na faisnéise atá ar fáil maidir le feidhmíocht an gheilleagair sa chéad chuid de 2015, ach tugtar le tuiscint ó na comharthaí atá le feiceáil ó raon leathan sonraí agus táscairí eile gur tháinig méadú ar luas an fháis ar an éileamh intíre sa chéad leath den bhliain seo.

Cé go raibh an t-aisphreabhadh á spreagadh i dtús báire ag caiteachas infheistíochta, tá ról níos suntasaí anois ag caiteachas tomhaltóirí. Thairis sin, is cosúil go bhfuil an téarnamh ar thomhaltas ag neartú de réir a chéile, cé go bhfuil an téarnamh sin neamhthoirtéiseach i gcónaí. Thairbhígh tomhaltas d'fhás laidir leanúnach ar fhostaíocht, go háirithe ar fhostaíocht lánaimseartha, rud a chuidíonn le hioncaim a mhéadú. Le neart leanúnach mhargadh an tsaothair in 2015, arna bhfianú le sonraí mhargadh an tsaothair agus le sonraí cánach, tacaítear leis an dearcadh gur lean an dlúthleathnú ar an ngeilleagar sa chéad leath den bhliain agus comhthacaítear leis an gcomhartha ó shonraí ardmhínicíochta miondíolacháin go bhfuil an téarnamh ar thomhaltas ag neartú de réir a chéile.

Maidir leis an taobh seachtrach, tugtar le tuiscint leis na rátaí arda fáis ar onnmhairí agus allmhairí sna sonraí trádála míosúla go raibh cuid d'iarmhairt na monaraíochta ar conradh le brath sa chéad chuid de 2015. Is é ár mbonn tuisceana i gcónaí gurb ionann é seo agus méadú céime ar leibhéal na n-onnmhairí agus na n-allmhairí seachas treocht leanúnach aníos ar a gcuid rátaí fáis. Ag féachaint romhainn, meastar go dtosóidh onnmhairí de bheith ag fás athuair i gcomhréir, tríd is tríd, leis an bhfás réamh-mheasta ar an éileamh seachtrach. I bhfianaise naisc thrádála na hÉireann le margáí SA agus RA agus i bhfianaise an fheabhais ar an ionchas do gheilleagar an limistéir euro, ba cheart go ngineadh sé seo ráta láidir fáis d'onnmhairí i mbliana agus an bhliain seo chugainn.

Maidir leis an taobh intíre, tá neartú tagtha ar fhuinneamh an téarnaimh agus tá an t-ionchas níos fabhraí anois ná mar a bhí nuair a foilsíodh ár gcuid réamhaisnéisí deireanacha. Ba cheart go dtacódh méaduithe breise ar fhostaíocht, treocht in airde ar ioncam indiúscartha agus an neartú de réir a chéile ar mhuintir tomhaltóirí le feabhas ar an bhfás ar chaiteachas tomhaltóirí sa chuid eile de 2015 agus in 2016. D'ainneoin laghduithe le déanaí, tá an leibhéal ard féichiúnais ina bhac go fóill ar aon téarnamh láidir ar thomhaltas. De bhreis air sin, meastar go dtiocfaidh neartú breise ar an bhfás ar chaiteachas infheistíochta, cé is moite de ghné luaineach na n-aerárthaí. Cuideoidh sé sin le haisphreabhadh na hinfeistíochta, lena n-áirítear infheistíocht foirgníochta, i ndiaidh tréimhse fada laige.

Tugann na forbairtí sin le tuiscint go mbeidh an t-ionchas fáis in 2015 agus 2016 níos fearr ná mar a tuaradh san Fhaisnéis Ráithiúil dheireanach. Léirítear ionchas níos fabhraí do chaiteachas tomhaltóirí agus infheistíochta sa mhéid go meastar go mbeidh méadú 4.1 faoin gcéad ar OTI in 2015, is ionann é sin agus athbhreithniú 0.3 faoin gcéad aníos i gcoibhneas leis an meastachán roimhe seo. In 2016, meastar go dtiocfaidh méadú 4.2 faoin gcéad ar OTI, is é sin 0.5 faoin gcéad níos airde ná mar a tuaradh san Fhaisnéis Ráithiúil dheireanach. Beidh neartú breise ar an éileamh intíre mar thaca ag an méadú sin. Tá caveat ag gabháil leis na réamhaisnéisí seo sa mhéid go mbaineann riosca suntasach ar an taobh thuas leo toisc go ndéantar aerárthaí atá ar úinéireacht ag cuideachtaí atá lonnaithe in Éirinn a áireamh in infheistíocht agus in allmhairí

araon sna Cuntais Náisiúnta. Dá bhrí sin, féadfaidh go mbeidh riosca ar an taobh thuas don ionchas réamh-mheasta maidir leis an éileamh intíre ach féadfaidh go ndéanfar é sin a fhritháireamh le riosca ar an taobh thíos don ionchas maidir leis an réamh-mheastachán do ghlan-onnmhairí, rud a fhágann go mbeidh na rioscaí foriomlána cothrom tríd is tríd.

Maidir le saincheisteanna beartais, ní mór a áirithiú go ndéanfar an téarnamh eacnamaíoch atá faoi lán seoil a fhorbairt tuilleadh sa chaoi gur fillleadh inmharthana ar fhás cothrom a bheidh ann. Cé go bhfuil an-dul chun cinn déanta, tá féichiúnas ard poiblí agus príobháideach ann i gcónaí. I bpríomhréimsí áirithe, ní mór beartas a dhíriú ar laghdú leochaileachtaí atá fós ar marthain agus ar neartú stóinseachta chun go n-íoslaghdófar rioscaí don chobhsaíocht eacnamaíoch, fioscach agus airgeadais amach anseo.

Ó thaobh an airgeadais phoiblí, bhí na sonraí maidir leis an Stáitchiste fabhrach, rud a léiríonn feidhmíocht láidir eacnamaíoch. Tá an t-ioncam cánach chun tosaigh ar an sprioc agus tá an caiteachas níos ísle ná an phróifíl. I bhfianaise an méid sin go léir, is dócha go mbeidh an tEasnamh Rialtais Ghinearálta faoi bhun na sprice in 2015 agus ba cheart go mbeadh Éire ábalta imeacht as an Nós Imeachta um Easnamh Iomarcach faoin spriocdháta ag deireadh na bliana. Ag féachaint romhainn, tugtar le tuiscint leis an ionchas láidir fáis nach bhfuil gá le beartas fioscach chun tacú le gníomhaíocht eacnamaíoch agus, go háirithe, féadfar gluaiseacht ar aghaidh le comhdhlúthú fioscach agus le laghdú fiachais in imthosca fabhracha. Ó tharla go bhfuil fás láidir tuartha, tá sé tábhachtach nach ndéanfar brúanna timthriallacha a dhianú tríd an seasamh

fioscach. Is léir ó thaithí na hÉireann gur féidir damáiste a dhéanamh trí chomhchíogalachacht i mbeartas agus go bhfuil sé tábhachtach nach ngéillfear don chathú chun ioncam barrachais gan choinne a úsáid. I bhfianaise leibhéal agus ualach ard an fhiachais phoiblí, bheadh sé níos fearr an t-ioncam sin a úsáid chun an laghdú ar an bhfiachas a luathú, rud a fhágfaidh go mbeidh riocht níos fearr ar an airgeadas poiblí chun dul i ngleic le haon dúshlán amach anseo.

San earnáil baincéireachta, bhí imthosca fabhracha sa mhargadh airgeadais mar aon le timpeallacht fheabhsaithe eacnamaíoch mar chuidiú do na bainc chun a gcostais cistiúcháin a laghdú. I ngeall air sin agus ar tháillí laghduithe i leith lagú, tá fillleadh ar bhrabúsacht le feiceáil. Is ábhar dóchais é go leanann stoc na n-iasachtaí neamhthuillmheacha de bheith ag laghdú. Ar a shon sin, tá leibhéal foriomlán na n-iasachtaí neamhthuillmheacha ard i gcónaí. Tá riaráistí fadtéarmacha morgáiste os cionn 720 lá ag méadú i gcónaí ach tá moillú suntasach tagtha ar luas an mhéadaithe sin. I gcás na mbanc sin atá faoi réir spriocanna réitigh do riaráistí morgáiste (SRRM), is díol suntas é go bhfuil laghdú beag tagtha ar líon na gcuntas atá sa deighleog riaráistí sin. I dtéarmaí oibriú SRRM, d'fhógair an Banc Ceannais le déanaí go mbeifear ag aistriú ó spriocanna coiteanna ráithiúla réitigh do na bainc go léir go dtí cur chuige a bheidh sonrath do bhainc ar leith agus go ndéanfar monatóireacht ghráinneach ar ghrúpaí sonracha iasachtaithe anásta i gcásanna ina mbeidh an dul chun cinn mall. Cé go bhfuil dúshlán ann, tá dul chun cinn á dhéanamh agus tá cláir chomhardaithe na mbanc agus a gcuid iasachtaithe á réiteach de réir a chéile.

Financing Developments in the Irish Economy

Overview

Financing conditions have generally improved for domestic banks, households and non-financial corporations (NFCs) during late 2014 to mid-2015. While the overall macroeconomic environment remains challenging, there are tentative signs that declining debt burden levels, improved economic growth and increasingly favourable funding dynamics have all contributed to a somewhat more positive outlook.

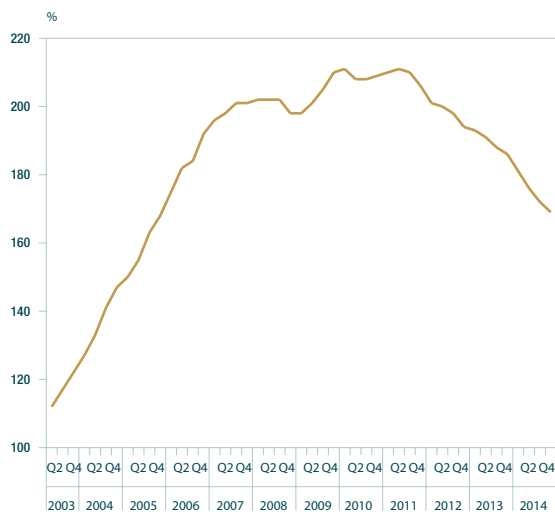
Central Bank interest rates remain at historically low levels in the majority of advanced economies, including Ireland. However, the degree to which these rates have passed through to economic agents in terms of favourable loan and deposit interest rates has been limited. There is tentative evidence that the more favourable economic background has improved the financial capacity of both households and NFCs, although this remains quite constrained. Households and NFCs have continued to reduce their respective debt levels, with repayments on existing debt exceeding new lending. In addition, the net financial worth of households has risen, reflecting rising property and financial asset values. Despite the unfavourable rates applicable to new business deposits, NFC overnight deposits have increased sharply, suggesting that non-financial institutions may be reducing their reliance on bank based funding and are increasingly relying on their own funds for working capital purposes. The signs of additional financial capacity in the domestic system bodes well for both medium and long-term growth prospects. However, to date, the improved financing conditions have largely manifested themselves through reductions in indebtedness, with increases in consumption and investment relatively muted.

In conjunction with private-sector debt, government debt levels have also been stabilising in nominal terms, leading to a moderation in the overall level of debt in the economy. Irish government bond yields fell to record lows in early 2015, reflecting the positive international sentiment towards the Irish recovery, albeit with yields somewhat rising since due to the ongoing uncertainty surrounding the Greek sovereign. Notwithstanding the situation in Greece, Irish yields have remained stable relative to other euro peripheral countries. This resilience is reflected in the S&P announcement in June 2015, upgrading Ireland's sovereign credit rating to A+, with a stable outlook.

Households

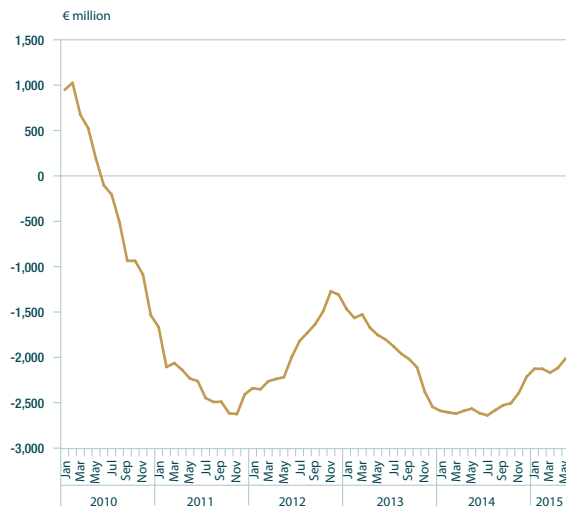
Household indebtedness has continued to decline during the fourth quarter of 2014, falling 1.6 per cent to €157bn or €34,069 per capita.

Overall debt has fallen by some 22.9 per cent since its peak during Q3 2008. Mirroring this development, indicators of debt sustainability have continued to improve, with household debt as a proportion of disposable income

Chart 1: Household Debt as a Percentage of Disposable Income

— Debt to Disposable Income

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

Chart 2: Net Transactions of Loans for House Purchase, 12-month moving sum

— Net Transactions

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

declining by 3.7 percentage points to 169 per cent during Q4 2014, representing the lowest ratio since the fourth quarter of 2005 (see Chart 1). However, this ratio still remains high by international standards. The improvement in household finances had been largely driven by the extent to which households' repayments on existing debt have exceeded new lending. Improving disposable income levels have supported households' ability to reduce overall indebtedness. In monetary terms, household net wealth rose to €601 billion in the fourth quarter, or €130,331 per capita, its highest level since Q4 2008. The increase observed over Q4 2014 was predominately driven by rising residential property and financial asset prices. At end Q4 2014, household net wealth was some 33 per cent higher than the lowest level recorded in Q2 2012 following the crisis.

Reductions in household indebtedness were particularly strong in the case of loans for house purchase, where repayments exceeded drawdowns by circa €2 billion over the 12 months to May 2015. Consumer and other

lending also recorded net repayments (Chart 2). In tandem with repayments of debt, households increased their holdings of deposits by €1.5 billion, or 1.6 per cent, over the 12 months to end-May 2015. Increased deposit holdings contributed to the strong accumulation in household savings over recent quarters. However, to date, there is limited evidence of these savings translating into increased consumption.

Household interest rates remain elevated despite the historically low ECB benchmark rates. The interest rate applicable to outstanding loans for house purchase was 2.7 per cent at end-April 2015, over 35 basis points higher than the euro area average. This is despite the inclusion of tracker mortgages (no longer offered by domestic banks), with weighted average interest rates of just over 1 per cent. The weighted average rate on new floating rate mortgages was just over 3.3 per cent. However, when renegotiated loans are excluded, the average rate stood at almost 4.2 per cent. The high rates currently being charged

means variable rate mortgage holders have an increased incentive to seek out the best rates available in the domestic market, by switching their mortgage provider. However, recent Central Bank research indicates very low levels of switching activity.¹ Interest rates on term deposits have continued to decline in Q1 2015. Rates on new term deposits have consistently fallen since mid-2008, standing at just 0.35 per cent at end-April. There is clear evidence that banks are improving their interest margins as lending rates have not fallen in line with the lower cost of funding.

The number of mortgages in arrears continues to decline in line with the economic recovery and an increasing volume of successfully restructured mortgages. By the end of Q1 2015, 74,395 mortgages, or 9.8 per cent of all mortgages, were in arrears for over 90 days. This represents the sixth consecutive quarterly decline in the number of accounts in arrears, notwithstanding the fact that the volume of outstanding arrears cases remains high. The downward trend observed in arrears over 90 days stands contrary to the stubborn increase

in the number of longer-term arrears cases over 720 days. However, the number of accounts in arrears over 720 days appears to be stabilising as the increase of just 155 cases during Q1 2015, represents the smallest increase since the arrears statistics were introduced.

Box A: SMEs Cost of Bank Funding

By Martina Sherman²

While interest rates charged for mortgages have attracted significant media attention recently, there has been relatively little focus on rates charged to businesses, particularly SMEs. According to the Bank's most recent Macro-Financial Review (MFR), SMEs are still facing challenging financing conditions, which discourages investment and growth potential and has negative consequences for employment. The Review also highlights the growing divergence in new business SME interest rates between Ireland and the euro area, with Irish rates almost two percentage points above that of the euro area. This comparison is based on published ECB interest rates on new lending to non-financial corporations for amounts up to €1 million, which are used as a proxy for SME bank funding costs. Additionally, the most recent Red C SME Credit Demand Survey³, finds that the interest rates on approved credit, although declining from 6.5 per cent to 5.2 per cent when compared to the previous survey, remain high. The Survey also indicates that SMEs are re-investing their own funds for working capital purposes rather than requesting bank funding, while those applying for bank credit are instead applying for larger amounts. Against this backdrop, this Box aims to enhance the dialogue on Irish SME interest rates by providing further analysis at an economic sector level.

¹ http://www.centralbank.ie/publications/documents/el_2015_8.pdf

² The author is an Economist in the Statistics Division of the Central Bank of Ireland.

³ Covers the period October 2014 to March 2015.

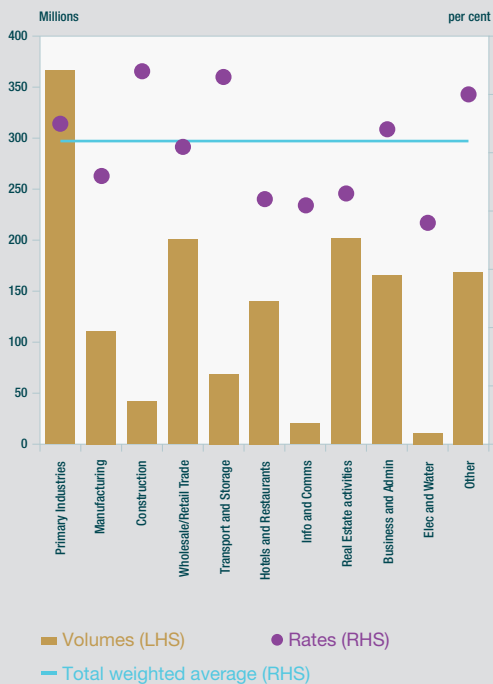
Box A: SMEs Cost of Bank Funding

By Martina Sherman

Recent enhancements in the Central Bank’s data collection include the reporting of quarterly data on SME interest rates by a representative sample of Irish resident banks. The data are reported at a NACE classification level, which provides a breakdown by economic sector, and refer to both new business (drawdowns) and outstanding amounts.⁴ While the ECB series allows for meaningful comparison across euro area countries due to its harmonised nature, no sector level detail is available. As such, it masks significant differences in rates across economic sectors in Ireland.⁵

Chart 1 shows the interest rate charged by Irish resident banks by sector, along with the total value of drawdowns for new SME business. While the total weighted average interest rate charged is around 5.2 per cent, large deviations exist across economic sectors. SME loans for the service-related purposes attracted lower rates than the total weighted average rate over the 6-month period, while the converse was true for construction and transport/storage-related loan drawdowns, which recorded rates of over 6 per cent. Over the six-month period, all sectors experienced marginal declines in interest rates, much in line with the Red C Survey. However, it is worth noting that the overall weighted average interest rates for some sectors may be impacted by low levels of new lending or high levels of outstanding indebtedness.

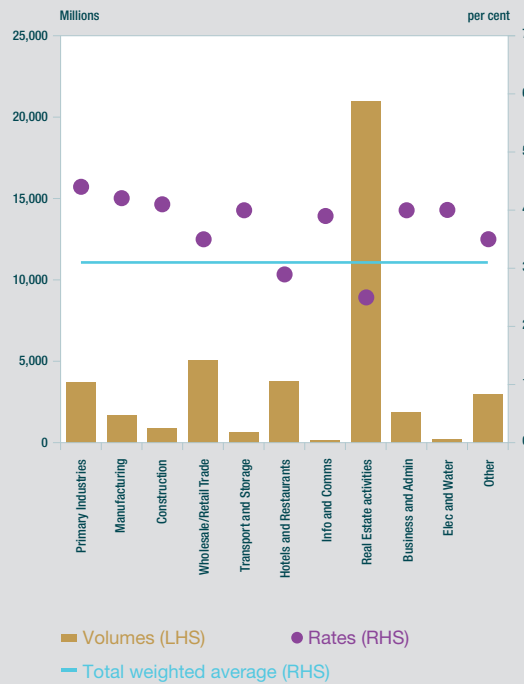
Box A Chart 1: Irish SME new lending rates (6-month weighted average) and cumulative new lending drawdowns (6-month sum)



Source: Central Bank of Ireland.

Notes: Excludes Financial Intermediation sectors. Data refers to Q4 2014 and Q1 2015.

Box A Chart 2: Irish SME outstanding stock lending rates and outstanding volumes (Q1 2015)



Source: Central Bank of Ireland.

Note: Excludes Financial Intermediation sectors.

The data also highlight the gap between rates on existing SME loans and those on new loans. The rates on new drawdowns in Chart 1 are generally higher than those of Chart 2, which displays the average rates on the stock of outstanding loans held at end-Q1 2015. The spread in new drawdown rates across the economic sectors is also much greater than the spread of rates on outstanding SME debt.

4 The data was first presented as part of the Bank’s Retail Interest Rates release, and is comparable to the Business Credit and Deposits SME statistics.

5 The SME interest rate statistics differ to the NFC series (SME proxy) as it excludes lending to other euro-area residents, covers all currencies and refers to a representative sample of banks.

Box A: SMEs Cost of Bank Funding

By Martina Sherman

The largest differential between new rates and those on outstanding stock at end-2015, of almost 2.6 percentage points, was recorded for construction-related loans. These loans currently carry the highest average interest rates for new SME loans, although historically rates were below average. In contrast, new loans to real estate SMEs were almost 2.5 percentage points lower than those for construction and were below the average charged, despite having historically high rates. Real estate SMEs were the third largest recipients of new loans, but this represented a low proportion of outstanding stock.⁶

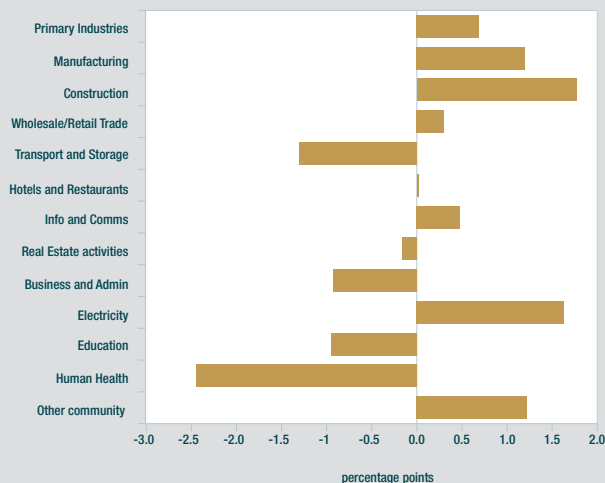
SMEs in the primary industries sector (mainly agriculture), which have accounted for the majority of new drawdowns in recent quarters, attracted above average interest rates of 5.5 per cent during Q1 2015. This was unchanged from Q4 2014 but almost a percentage point above historical rates. Given that typical loan amounts to the agriculture sector are generally lower than average but are highest in terms of number of loans issued⁷, this may indicate a high volume of unsecured or short-term lending with banks pricing in credit risk arising from volatility and uncertainty in agri-food markets.

The hotel and restaurant sectors currently experience rates on new drawdowns approximately 1.5 per cent higher than rates on outstanding amounts and are marginally below average. Rates for the wholesale and retail sector are at average levels, but are likely to be impacted by the exclusion of some banks active in the motor trade industry from the reporting population.

Chart 3 shows how rates charged by Irish-owned banks for SME lending compare with rates charged by foreign-owned banks operating in the Irish market. Irish-banks' rates are higher for most non-service sectors, with the differential for construction particularly marked. This is probably indicative of a cautious approach given the huge losses sustained from property-related debt.

It is interesting to note is that at end-Q1 2015, some sectors with above average interest rates recorded high deposits holdings with Irish banks. The same sectors also had a relatively low proportion of total new drawdowns. Survey evidence from the Red C Survey suggests an increase in enterprises reporting the use of own-funds for working capital requirements rather than bank funding. However, further research is required in this area.

Box A Chart 3: Irish-owned banks' SME rates compared to Foreign-owned bank rates (operating in the Irish market)



Source: Central Bank of Ireland.

Note: A positive differential means Irish owned bank rates are higher, while a negative differential implies foreign owned banks charge a higher rate.

⁶ See Central Bank of Ireland Statistical Release: *Trends in Business Credit and Deposits: Q1 2015*.

⁷ Menton, A and Sherman, M. (2014), 'Analysis of the SME Market Using Micro-Data', Central Bank of Ireland Conference Paper.

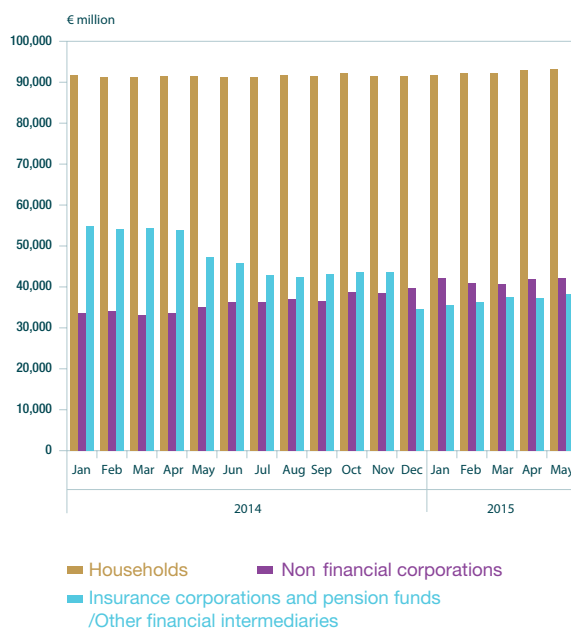
Credit Institutions

The funding profile for Irish banks continued to improve in 2015, reflecting improved economic conditions, widening interest margins, successful debt issuances and increasing stability in deposits. The outstanding stock of Irish private-sector deposits with Irish banks increased slightly by 0.2 per cent to circa €174 billion in the year to May 2015, following a sustained period of negative deposit growth rates stretching back to February 2014. The negative deposit growth in earlier months was wholly attributable to financial sector entities, in contrast to households and NFCs where the positive growth evident in recent months has continued. Recent developments in deposits funding is almost entirely driven by a sharp increase in overnight deposits, rising some 15 per cent in May 2015 (Chart 3). The growth rates of deposits with agreed maturities have fallen steeply over the same period. The increase in overnight deposits at quite low interest rates, particularly for NFCs, may indicate a reduced reliance on bank funding for these entities. The share of deposits in the balance sheet of the domestic market group of banks (i.e. those with retail operations in Ireland) has increased to 67 per cent in May 2015, compared to 65 per cent in January of that year. In addition, credit institutions' borrowings from the Central Bank have declined by €1.5 billion in the month of May to €13.1 billion, down from €23.2 billion in May 2014. These developments indicate that the domestic banks are returning to a more stable funding environment.

Non-Financial Corporations

Non-financial corporations (NFCs) continued to reduce their overall debt burden during Q4 2014, with NFC debt relative to GDP declining by 1.6 per cent to 185 per cent. Developments in NFC indebtedness in Ireland are heavily impacted by the activities of multinational firms, which can lead to volatile quarterly debt dynamics for the sector. Domestic NFCs, and particularly small- and medium-sized

Chart 3: Private Sector Deposits with Irish Resident Banks



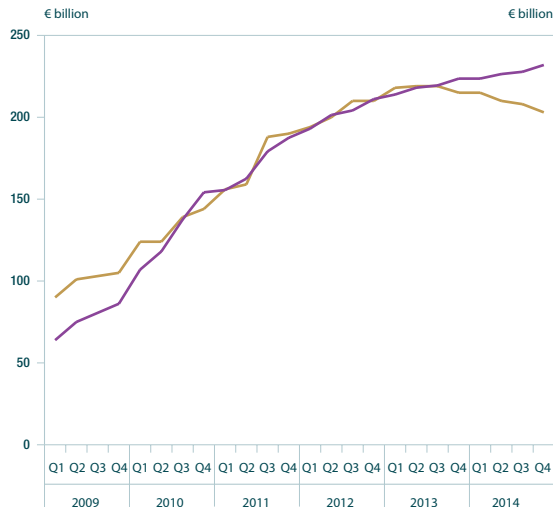
Source: Money and Banking Statistics, Central Bank of Ireland.

enterprises (SMEs), rely heavily on bank finance compared to MNCs, which have greater access to financial markets and other funding sources. SMEs⁸, which are particularly important to the domestic economy in terms of employment levels, undertook new loans over €2.5 billion in the year to Q1 2015, compared to almost €2 billion the previous year. Nevertheless, outstanding credit to SMEs continued to decline in annual terms.

In the year to May 2015, repayments on existing debt exceeded new lending by €5.4 billion for all NFCs, resulting in a decline of 8.2 per cent in overall lending. NFCs have also increased savings with net inflows of deposits to banks of €6 billion in the year to May 2015. The sharp growth in deposits, particularly overnight deposits for NFCs would suggest they are increasingly making use of their own funds for working capital purposes, rather than relying on bank funding. The rise in deposits may indicate that NFCs and particularly SMEs are now somewhat less reliant on traditional bank funding.

⁸ Small- and Medium-sized Enterprises, excluding financial intermediation and property sectors.

Chart 4: Government Indebtedness



— Gross General Government Debt (LHS)
— Net General Government Debt (RHS)

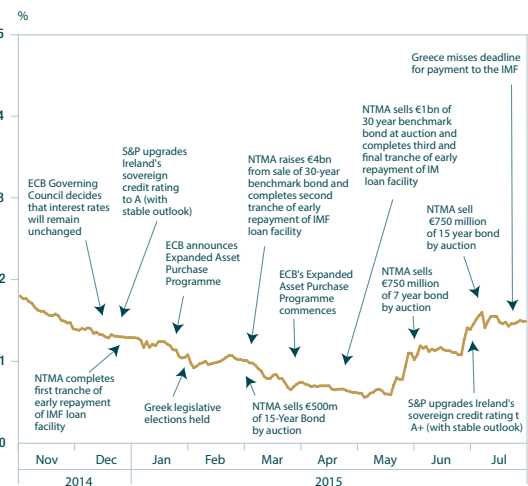
Source: Central Statistics Office.

Interest rates for NFCs remain relatively unfavourable when compared to average euro area rates. The interest rate on new NFC business loans up to €1 million and up to one-year fixation (often used as a proxy for lending to SMEs) was nearly 5 per cent at end-April 2015, having fallen slightly since the beginning of the year. The equivalent rate for the euro area as a whole was significantly lower, at 2.8 per cent. The cost of funding for SMEs and changes in the sectoral composition of SME lending are further explored in Box A. In conjunction with the unfavourable loan rates, new business NFC deposit rates are also currently quite low, standing at just 0.16 per cent at end-April 2015.

Government

Gross government debt, as measured for the Excessive Debt Procedure, continued to fall during Q4 2014, decreasing by 2.3 per cent (Chart 4). This decline largely reflected the early repayment of some IMF loans by the State. In contrast, net government debt rose further

Chart 5: Irish Government Ten-Year Bond Yields



Source: Thomson Reuters Datastream.

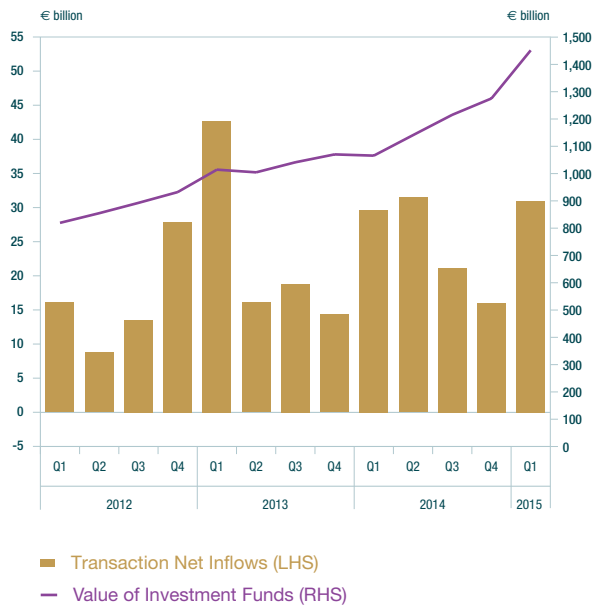
over the quarter, increasing by 1.1 per cent. Net debt when expressed as a percentage of annualised GDP, however, declined from 90.2 per cent in Q3 2014 to 89.2 per cent in Q4 2014, due to increased economic growth.

Yields on long-term Irish government bonds had fallen to a record low of 0.6 per cent during April 2015, reflecting the positive perception of the Irish economic recovery and the low rates generally applicable to euro area sovereign debt at the time (Chart 5). However, more recently, yields have trended upward, reaching 1.6 per cent in mid-June, as markets responded to improved inflation expectations and uncertainty surrounding the agreement of a new financial assistance programme for Greece. Despite the crisis in Greece, Irish bond yields have remained stable relative to other peripheral euro area countries which have experienced higher increases in yields. The positive sentiment towards the Irish recovery was reflected in S&P's announcement of an upgrade in Ireland's sovereign credit rating to A+, with a stable outlook, in early June 2015.

IFSC – Investment Funds, Money Market Funds and Financial Vehicle Corporations

IFSC non-bank entities benefitted from strong global financial markets in Q1 2015, while substantial euro depreciation also boosted asset values. Investment funds (IFs), as measured by the value of their units/shares in issue, rose to €1,451 billion in Q1 2015 from €1,275 billion in the previous quarter, mainly driven by positive revaluations of €145.4 billion in debt securities and equities holdings. Investor inflows to IFs amounted to €30.9 billion, continuing a longer-term trend of strong growth (Chart 6). Despite the strong inflows, fund investment managers are facing challenges arising from the very low yields on debt securities. The response by fund managers to the low yield environment is elaborated in Box B. Money market funds, also measured by unit/share valuations in issue, increased in value to €447.0 billion from €394.1 billion over the same period, partly driven by increases in the value of short-term debt security holdings.

Chart 6: Value of Investment Funds Shares/Units



Source: Investment Funds Statistics, Central Bank of Ireland.

Note: The movement from Q4 2013 to Q1 2014 includes 48 billion of investment funds that were reclassified as money market funds.

Box B: Investment funds debt security holdings in a low yield environment

By Brian Golden⁹

Debt security yields have been low in historical terms for around the last five years and, in early 2015, reached new record lows with, for example, Switzerland auctioning ten-year government bonds at a yield of -0.055 per cent on 8 April. This has posed a particular challenge for investment funds (IFs), as rising debt security prices boost net asset values while depressing yields. Prices close to their peak, combined with the low yields on offer, present challenges for bond fund investment managers, many of whom are constrained in the types of investments they can undertake. One potential strategy is to take on somewhat more risk in order to achieve higher yields. Within debt securities, this can involve changing the country or economic sector of the issuer, or the residual maturity of the security, or a combination of these measures, which is the focus of this box. It is possible to change holdings without changing country, sector or maturity, but the data does not facilitate this type of analysis. IFs have reacted to the challenge of the low yield environment in various ways.

⁹ The author is a senior Economist in the Statistics Division of the Central Bank of Ireland.

Box B: Investment funds debt security holdings in a low yield environment

By Brian Golden

Strategies other than a search for yield are apparent in the IF industry. Some IFs appear to be operating a hunkering down strategy, which might be expected for IFs with markedly constrained investment strategies, such as passive funds that track an index or specific set of securities. This is illustrated by the fact that as much as 5 per cent of debt security holdings for all IFs had negative yields at end-Q1 2015, albeit these negative yields were close to zero. One reason for holding negatively yielding bonds is an expectation of deflation, but this rationale should not apply so much to IFs seeking to generate a return for unit holders in the short-to-medium term. The normal market strategy of pre-emptive selling can also help to mitigate the potential impact of low yields and declining prices. For example, as quantitative easing in the US began to be scaled back, bond funds investors withdrew €19.1 billion in the second half of 2013, causing debt security holdings in bond funds to decline by a similar amount. These movements occurred in advance of a substantial negative revaluation in debt security holdings in Q1 2014, which indicates strategic pre-emptive selling by IFs.

A search for yield is also quite apparent as an investment strategy within the industry, focusing on the year to end-Q1 2015. There has been a significant shift in the maturity profile of debt security holdings into longer-term maturities, which have higher yields. For example, over the course of the year to end-Q1 2015, IFs net transaction flows into debt securities with residual maturities of less than 5 years were 17 per cent of the closing stock in Q1 2014. At the same time, net transaction inflows into debt securities with residual maturities of five to ten years were 33 per cent of Q1 2014 closing positions. IFs also showed a marked preference for UK debt, where yields were higher than similarly rated euro area debt, reflecting differing stages in the monetary policy cycle between the two areas. There was not much evidence in portfolio shifts between economic sectors to indicate that IFs were taking on more risk to achieve a higher yield. There were strong net portfolio shifts into government debt, which is seen as relatively safe, although inflows to bank debt were also substantial.

Overall, IFs have reacted in different ways to the low interest rate environment, as can be expected in such a diverse industry. Where IFs have sought out higher yields, the emphasis appears to have been on risk minimisation, with the focus on extending maturities and investing in UK debt. Nevertheless, a substantial short-term correction to current high debt security prices could potentially lead to a sell-off by funds, which may exacerbate market movements.

Total assets of Financial Vehicle Corporations (FVCs) expanded by €13.3 billion in Q1 2015 to €414.5 billion, primarily driven by an increase in FVC reporting numbers to 779. This represented the second successive quarter of growth, breaking an extended period of decline, as investors return to the securitisation market seeking higher returns in the current low yield environment. Inflows were mainly driven by increases of €3.7 billion, €3.2 billion and €2.5 billion in deposit and loan claims, securitised loans originated by non-euro area residents and other assets, respectively. Euro area FVCs asset values did not mirror the

Irish performance in Q1 2015, falling by €35 billion to €1,827 billion, as securitised loans originated by euro area banks declined.

For detailed commentary on the latest developments in financial statistics, please see the following:

- **Monetary Financial Institutions**

Money and Banking Statistics, May 2015
<http://www.centralbank.ie/polstats/stats/cmab/Pages/releases.aspx>

Security Issues Statistics, May 2015
<http://www.centralbank.ie/polstats/stats/sis/Pages/releases.aspx>

Locational Banking Statistics, Q1 2015
<http://www.centralbank.ie/polstats/stats/locational/Pages/releases.aspx>

Consolidated Banking Statistics, Q1 2015
<http://www.centralbank.ie/polstats/stats/conbs/Pages/releases.aspx>

- **Non-Financial Private Sector**

Money and Banking Statistics, May 2015
<http://www.centralbank.ie/polstats/stats/cmab/Pages/releases.aspx>

Trends in Personal Credit and Deposits, March 2015
<http://www.centralbank.ie/polstats/stats/cmab/Pages/releases.aspx>

Trends in Business Credit and Deposits, March 2015
<http://www.centralbank.ie/polstats/stats/cmab/Pages/releases.aspx>

Interest Rate Statistics, May 2015
<http://www.centralbank.ie/polstats/stats/cmab/Pages/releases.aspx>

Quarterly Financial Accounts, Q4 2014
<http://www.centralbank.ie/polstats/stats/qfaccounts/Pages/releases.aspx>

Mortgage Arrears Statistics, March 2015
<http://www.centralbank.ie/polstats/stats/mortgagearrears/Pages/releases.aspx>

- **Government**

Quarterly Financial Accounts, Q4 2014
<http://www.centralbank.ie/polstats/stats/qfaccounts/Pages/releases.aspx>

Holders of Irish Government Bonds, May 2015
<http://www.centralbank.ie/polstats/stats/sis/Pages/releases.aspx>

Government Finance Statistics, Central Statistics Office, Q4 2014
<http://www.cso.ie/en/releasesandpublications/nationalaccounts/governmentfinancestatistics/>

- **Funds and Financial Vehicle Corporations**

I Investment Funds, March 2015
<http://www.centralbank.ie/polstats/stats/investfunds/Pages/default.aspx>

Money Market Funds, June 2015
<http://www.centralbank.ie/polstats/stats/cmab/Pages/MoneyMarketFunds.aspx>

Financial Vehicle Corporations, Q1 2015
<http://www.centralbank.ie/polstats/stats/fvc/Pages/fvc.aspx>

For up-to-date charts on the latest financial statistics, please see the following:
http://www.centralbank.ie/polstats/stats/summarychart/Documents/ie_financial_statistics_summary_chart_pack.pdf

Developments in the Euro Area Economy

Overview

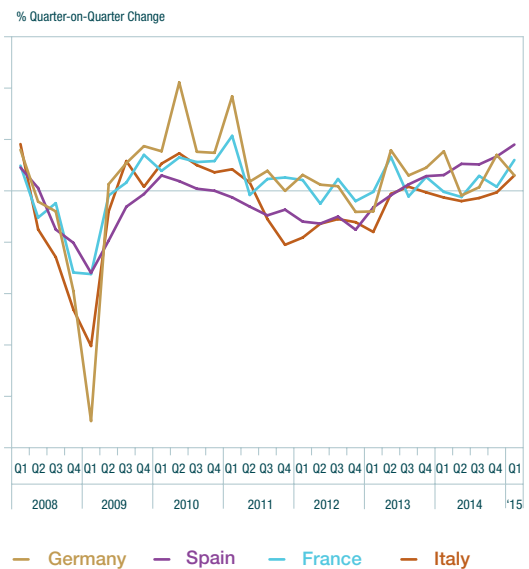
Most recent macroeconomic indicators show a slightly stronger growth outlook for 2015 than had been previously expected. According to recent forecasts, real GDP in the euro area is now expected to rise to 1.5 per cent in 2015 and to around 2 per cent in 2016. Inflation is expected to increase from 0.1 per cent this year to 1.5 per cent in 2016. Economic activity in the euro area is currently benefitting from a number of factors: oil prices remain relatively low, the euro has depreciated over the past year positively impacting international price competitiveness, economic policies are supportive, and monetary policies are accommodative. Financial markets and asset prices are responding to the substantial liquidity created by the ECB's expanded asset purchase programme, preventing an increase in real interest rates by re-affirming inflation expectations. Nonetheless, high unemployment rates are unwinding only very slowly, while the sharp deterioration of economic and fiscal conditions in Greece also presents a potential downside risk.

Section 1: Growth and Inflation

During the first quarter of 2015, real GDP grew by 0.4 per cent quarter-on-quarter in both the euro area and in the European Union as a whole (Chart 1). This is the eighth consecutive quarterly increase; with both the industrial and services sectors providing positive contributions to growth. Across countries, Italy and France recorded stronger growth than had been expected, at 0.3 per cent and 0.6 per cent respectively. Germany grew by less than had been expected; at 0.3 per cent quarter-on-quarter. According to the reported data from Eurostat, two countries – Greece and Finland – were in recession in the first quarter of 2015.

The breakdown of Q1 euro area GDP confirmed that the modest growth seen in the early months of this year was driven by stronger domestic demand, primarily due to increases in household spending and investment, and reflecting in part the positive effects of lower oil prices and inflation. By contrast, the growth of exports slowed to 0.6 per cent and, with imports growing 1.2 per cent, there was a net trade drag on growth (Table 1).

Chart 1: Euro Area GDP Growth



Source: Thomson Reuters Datastream.

Table 1: Quarterly Change Expenditure Components in Euro Area GDP

	2014			2015
	Q2	Q3	Q4	Q1
Consumption	0.3	0.5	0.4	0.5
Government	0.2	0.2	0.1	0.6
Investment	-0.5	0.1	0.4	0.8
Inventories	-0.1	-0.1	0.0	0.0
Exports	1.3	1.4	0.8	0.6
Imports	1.3	1.7	0.8	1.2
GDP	0.1	0.2	0.4	0.4

Source: Eurostat.

More recent, albeit preliminary, trade data suggest that exports may have picked up in the second quarter. The seasonally-adjusted trade surplus rose to a record high of €24.9 billion in April, from €19.9 billion in March. The continued decline in the value of the euro has impacted international trade: import values fell in April and export values rose for the second straight month. The result was an annual growth rate of 8.7 per cent in the nominal value of exports, its strongest since August 2012.

Despite these positive trade developments, leading indicators suggest that growth is unlikely to have picked up further in the second quarter (Chart 2). Survey data from the economic sentiment index (ESI) and the composite output purchasing managers index (PMI), point to stabilisation and continued, albeit moderate, growth in Q2. However, both indicators are above their respective long-term averages. Within the overall ESI, euro area consumer confidence remained relatively stable in the three months to June indicating that euro area household spending is unlikely to gather pace after the slight pick-up observed for Q1.

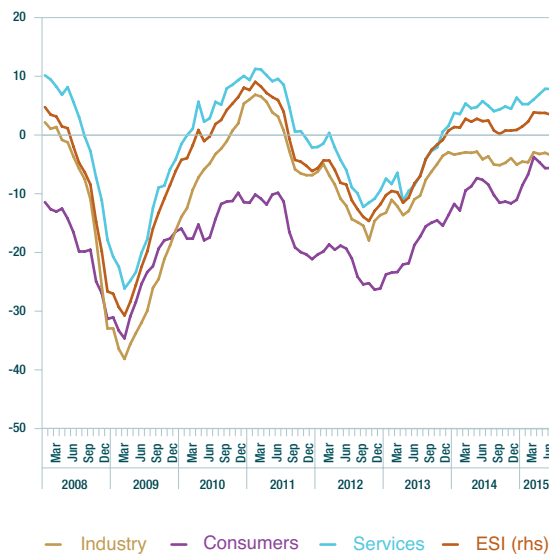
Labour markets are still weak but continue to improve since a low-point in early 2013. The recovery is showing signs of becoming more evenly spread across sectors and there is also some convergence between Member States as high-unemployment countries have seen the best improvement in their labour market indicators. For the euro area, headcount employment increased by 0.1 per cent quarter-on-quarter for the first quarter of 2015, maintaining a similar rise in Q4 of last year. The

unemployment rate decreased to 11.3 per cent in Q1 2015 and the latest figure for May is 11.1 per cent. Survey information for the labour market is pointing towards continued near-term improvement for the first half of this year, especially in countries that have recently implemented labour market reforms (e.g. Spain).

Inflation has been recovering steadily in the euro area in recent months, mainly driven by the reduced negative pressure exerted by energy prices (Chart 3). According to Eurostat's flash estimates, euro area annual HICP inflation was 0.2 per cent in June 2015, as it was in May but well above the trough of -0.6 per cent in January. Likewise, HICP excluding energy is now 0.9 per cent from stable values of around 0.7 per cent since January. However, the return to positive inflation in May was not driven solely by energy prices: inflation increased across all subcomponents, including in the services sector where prices rose 1.3 per cent from 1 per cent in March.

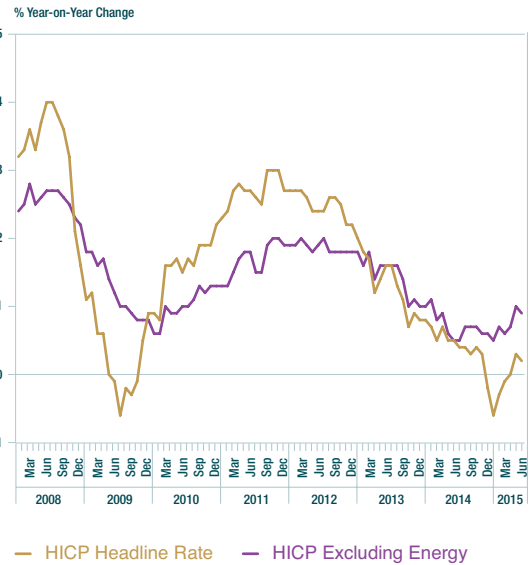
The impact of the depreciation of the euro on HICP has been slow to materialise. There are initial signs of the impact of the euro depreciation on import prices, but with still limited pass-through to price developments in the early stages of the production chain. In fact, although the annual rate of industrial producer price inflation excluding construction and energy is gradually recovering, it has only just turned positive. PMI survey indicators in the manufacturing sectors are also showing tentative signs of recovery and indicate that the

Chart 2: Economic Sentiment Indicator & Selected Components



Source: European Commission.

Chart 3: Euro Area Inflation



Source: Thomson Reuters Datastream.

gradual pass-through of the euro depreciation to producer prices is expected to be transmitted also to the HICP in the upcoming months.

Finally, the slack in labour markets which was noted above indicates muted near-term inflationary pressures through this channel, despite early signs of improvement in labour productivity. Indeed, the year-on-year growth rate of unit labour cost has declined slightly in the first quarter of 2015.

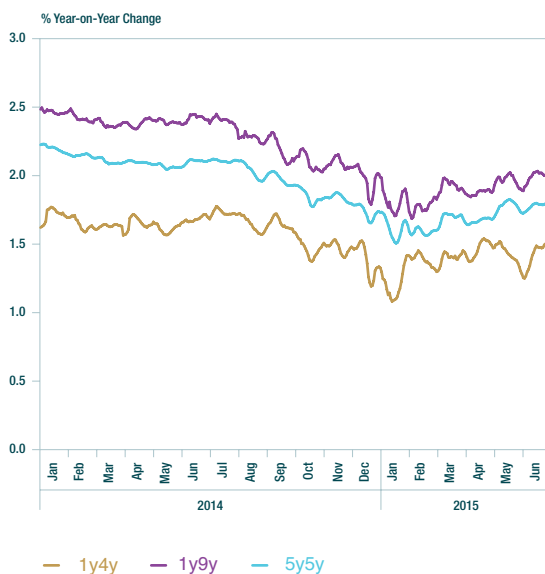
The fiscal situation is improving and the collective stance across the euro area is expected to be broadly neutral. The non-standard monetary policy measures taken by the ECB are expected to have some positive impact on the fiscal outlook through the decline in borrowing costs and a higher inflation outlook. The mild strengthening of economic activity and a lower burden of interest payments on public debt will support government deficit ratios. Across the euro area, the government debt ratio is estimated to have peaked in 2014 and should start declining from this year on the back of moderate economic growth and low interest rates.

Outlook

Looking ahead, the moderate economic recovery is expected to continue. Growth in the first quarter was largely driven by domestic demand, but this is expected to broaden through the year. Compared with the March 2015 ECB staff forecasts, the recent June projections have remained virtually unchanged. It is expected that growth will average close to 1.5 per cent this year, and it is expected to reach closer to 2 per cent in 2016 (Table 2). The risks to the economic forecasts for the euro area have become more balanced as a result of recent monetary policy decisions leading to improved financing conditions. While there are some signs that the weaker euro is now starting to boost exports through better price competitiveness, imports are also expected to pick up throughout the year in response to growing domestic demand and increased activity in exports with high import content. As such, the net trade position is expected to contribute only modestly to GDP growth during 2015. Furthermore, while surveys of export orders suggest that export growth will continue to improve at least while

Table 2: Latest forecasts of Euro Area growth in real GDP

	Date	2015	2016	2017
EU Commission	May 2015	1.5	1.9	–
Eurosystem Staff (BMPE)	June 2015	1.5	1.9	2.0
IMF	July 2015	1.5	1.7	–
OECD	May 2015	1.4	2.1	–

Chart 4: Forward Inflation Swap Rates

Source: Bloomberg, own calculations.

Notes: The chart illustrates 5 day moving averages of forward inflation swap rates for the euro area, where the underlying inflation index is the euro HICP excluding tobacco.

the euro remains weak, this tailwind will fade in Q3 because the euro is unlikely to continue weakening at its previous pace. In addition, the renewed pick-up in oil prices and inflation could also slow consumption and investment, as could uncertainty over the Greek situation. The recovery could also be dampened by ongoing necessary balance sheet adjustments.

In terms of employment, the EU Commission projects that the unemployment rate will only decline to 10.5 per cent in the euro area by the end of 2016 implying persistently-high structural unemployment and large unemployment gaps across the euro area. It cautions that the projected rise in economic activity may not be strong enough for a more substantial reduction in future unemployment rates.

In terms of inflation, the June Eurosystem staff macroeconomic projections expect euro area annual HICP inflation to be 0.3 per cent in 2015, 1.5 per cent in 2016, and 1.8 per cent in 2017. Compared with the March ECB staff macroeconomic projections, this represents an upward revision of 0.3 percentage points for 2015, with no change to the projections for 2016 and 2017. By comparison, according to the second quarter Survey of Professional Forecasters (SPF), inflation expectations for 2015 have been revised down to 0.1 per cent while the one-year ahead (2016) and the two-year ahead (2017) inflation expectations have been both revised up slightly to 1.2 per cent and 1.6 per cent, respectively.

In terms of the longer term, the SPF indicates that expectations for inflation out to 2019 have remained stable at 1.8 per cent since Q4 2014, which continues to be below the long-run average. On the other hand, measures of market-based long-term inflation compensation have recovered since January. The five-in-five year inflation swap rate rose to around 1.8 per cent in June from the trough of 1.5 per cent at the beginning of the year in line with the other market-based measures of long-term inflation expectations, but they remain below pre-crisis levels (see Chart 4). This might partly reflect a slow adjustment in inflation expectations after the announcement and implementation of the expanded asset purchase programme, but also the persistence of negative inflation risk premia. A negative inflation risk premium signals that markets expect that a scenario with falling consumption and falling inflation is more likely than a scenario with increasing inflation.

Box A: US Monetary Policy: Looking Beyond Headline Unemployment

By Arsenios Skaperdas

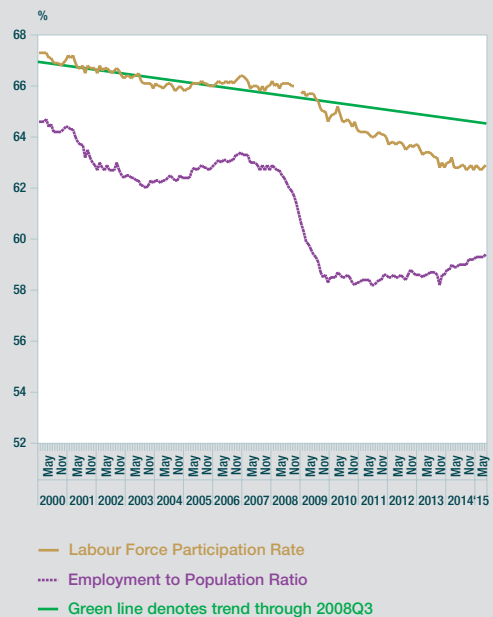
In contrast to the ECB, which has a mandate of price stability, the Federal Reserve has a dual mandate to keep both prices stable and maximum employment. It is not surprising, therefore, that the rate of unemployment is a keenly watched figure by households and financial markets in the US. The decline in the headline rate of unemployment in the US from a peak of 10 per cent in October 2009 to a rate of 5.5 per cent in May 2015 has important implications for US monetary policy, since it is a key component of the gap between actual and potential output, which cannot be directly measured.

Though an unemployment rate of 5.5 per cent appears low by European standards, this Box discusses some less positive labour market data behind the headline US figures. In particular, this Box will show that the level of slack remains higher in the labour market than the headline unemployment rate would suggest;¹ thus explaining some recent Federal Reserve statements.

There are a range of measures of the labour market that have not reverted to pre-crisis levels:

- Chart 1 shows that the labour force participation rate has fallen below trend since the start of the financial crisis.² Some research has found that this drop in participation is due to demographic factors, such as the ageing of the ‘Baby Boomer Generation’³. Other factors that affect the participation rate include wealth, income, and the generosity of government benefits⁴. However, the Federal Reserve’s February 2015 biannual Monetary Policy Report stated that the participation rate “continues to suggest more cyclical weakness than is indicated by the unemployment rate”. Likewise, the employment-to-population ratio is low, though recovering slowly. These indicators are relevant for the implementation of US monetary policy with respect to the employment part of its objective. If labour market slack is a result of cyclical factors, it indicates that monetary policy should be accommodative in order to help return the economy to potential output. On the other hand, if structural influences are driving decreases in participation, the outlook for potential growth is less favourable.

Box A Chart 1: US Labour Force Participation Rate and Employment to Population Ratio



Source: Federal Reserve Bank of St. Louis (FRED).

1 See Blanchflower, David G., and Andrew T. Levin. *Labor Market Slack and Monetary Policy*. No. w21094. National Bureau of Economic Research, 2015.

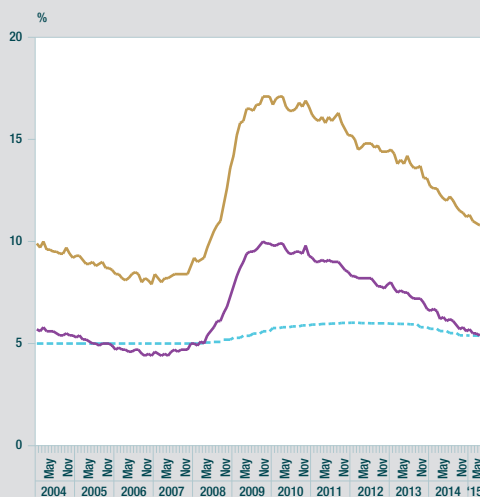
2 The labour force is defined as the percentage of the civilian non-institutional population 16 and over working or looking for work.

3 Bullard, James. *The rise and fall of labor force participation in the US*. No. 227. Federal Reserve Bank of St. Louis, 2014.

4 Daly, Mary, and Tali Regev. "Labor force participation and the prospects for US growth." *FRBSF Economic Letter* (2007) and Daly, Mary, Bart Hobijn, and Joyce Kwok. "Labor supply responses to changes in wealth and credit." *FRBSF Economic Letter* (2009).

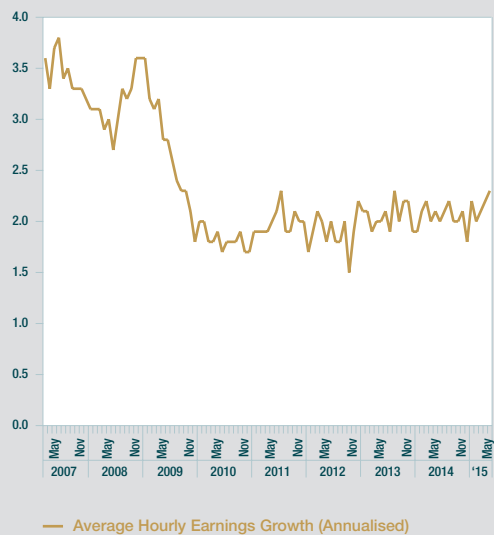
Box A: US Monetary Policy: Looking Beyond Headline Unemployment*By Arsenios Skaperdas*

- Chart 2 contains broader measures of unemployment, showing that the number of underemployed and discouraged workers (U6 unemployment) remains high.⁵ This indicator also helps inform the Federal Reserve's view of the labour market. As economic conditions strengthen, we would expect to see the U6 rate decrease, as workers currently in part-time employment are able to find full-time jobs. This measure persists in spite of the fact that the headline unemployment rate has converged near the US Congressional Budget Office's estimate of the natural rate of unemployment, which attempts to measure unemployment not arising from fluctuations in aggregate demand.
- Other indicators that remain below pre-recession levels⁶ are the hire rate⁷ (3.5 per cent in May compared with 3.8 per cent) and the share of long-term unemployed⁸ (28.6 per cent in May compared with 19.1 per cent). The quit rate, which measures the percentage of employees who voluntarily leave their jobs, was also at 1.9 per cent in April in comparison to 2.1 per cent before the crisis⁹. These are all measures that Fed Chair Janet Yellen has stated as important for determining labour market slack, and that she has pointed to in order to justify loose policy thus far¹⁰.
- Finally, average hourly earnings have grown very slowly since the crisis (Chart 3). This is mirrored by similar trends in business sector compensation per hour (1.85 per cent year-on-year in 2015 Q1). In a labour market characterised by supply constraints, one would expect workers to bargain for higher wages. One indicator that has picked up slightly is the employment compensation index, which grew by 0.7 per cent in 2015 Q1. As the headline rate continues to fall, we should at some point see other measures of wage growth increase as well.

Box A Chart 2: Measures of US Unemployment

— U6 Unemployment- Includes Underemployed and Marginally Attached
 — Unemployment Rate
 — Natural Rate of Unemployment (Short Term, Quarterly, Congressional Budget Office)

Source: Federal Reserve Bank of St. Louis (FRED), Congressional Budget Office.

Box A Chart 3: US Earnings Growth

— Average Hourly Earnings Growth (Annualised)

Source: Federal Reserve Bank of St. Louis (FRED).

⁵ Referred to as U-6.

⁶ Levels are 2004-2007 (pre-recession) averages.

⁷ The hire rate is defined as workers hired as a percentage of total employees.

⁸ Long-term unemployed are those unemployed for 27 weeks or longer.

⁹ Also 2004-2007 average.

¹⁰ <http://www.bloomberg.com/infographics/2014-04-02/yellens-labor-market-dashboard.html>

Box A: US Monetary Policy: Looking Beyond Headline Unemployment*By Arsenios Skaperdas*

This Box has gone behind the headline unemployment data to show how, despite the improvement in the headline rate, weakness remains in other US labour market indicators. In particular, the recovery has been characterised by both persistently low wage growth and high broad unemployment measures. Since the Federal Reserve's mandate encompasses both the unemployment and inflation rates, market participants, as well as the FOMC, will be analysing a range of indicators to determine the strength of the labour market. Ultimately, however, more information than that contained in labour market statistics or inflation rates may be important for understanding US policy. The FOMC ended its June (latest update) statement by declaring that it may still keep rates lower than warranted in comparison to normal times, even if inflation and employment levels are close to those mandated.

Section 2: Euro Area Monetary Policy Developments

There were two major policy developments in the euro area since the last Bulletin. First, the European Court of Justice announced its judgement on the compatibility of the ESCB programme of outright monetary transactions with EU law, and second, purchases under the expanded asset purchase programme, which began in March, continued apace.

On June 16, the European Court of Justice (ECJ) found that the ECB's programme of outright monetary transactions (OMT) is permitted under European Treaties. The issue had been referred by the German Constitutional Court, which asked for guidance on whether the programme is within the powers of the ESCB and whether it is compatible with the prohibition of monetary financing. The ECJ found that OMT was compatible in both instances. The Court ruled that the OMT programme is a monetary policy programme rather than, for instance, a broader economic programme, and that its objective was to maintain the 'singleness' of euro area monetary policy, which is a requirement under EU Treaties. As such, it is within the powers of the ESCB. In relation to the issue of monetary financing, the Court found that this prohibition does not prevent the ESCB from adopting the OMT programme and implementing it under conditions which do not result in the ESCB's intervention having an effect equivalent

to directly purchasing government bonds in primary markets.

Purchases began in the expanded asset purchase programme (APP) in March and the monthly €60 billion targets have since been reached. At the 3 June press conference, President Draghi reiterated the intention to continue purchases until at least September 2016 and, in any case, until the Governing Council sees a sustained adjustment in the path of inflation that is consistent with the aim of achieving inflation rates below, but close to, 2 per cent over the medium term.

President Draghi also noted a number of positive effects of the programme, including an increase in inflation expectations, an improvement in financing for households and corporates, and an easing in financing conditions. Chart 4 shows that inflation expectations, particularly at longer horizons, have recovered from lows in mid-January, but remain below historical averages. Furthermore, borrowing conditions for households and firms have improved somewhat, particularly for non-financial corporates. The April 2015 bank lending survey shows that banks continued the trend visible since 2015 of easing their terms and conditions on all lending to non-financial corporates and households with the exception of loans to households for house purchase. This improvement was mainly driven by a further narrowing of margins. Furthermore, the survey on the access to finance of enterprises

Box B: Monetary Policy Rates and Shadow Short Rates*By Valentina Colombo¹*

This Box discusses how the monetary stance can be assessed when non-standard measures, such as the expanded Asset Purchase Programme (APP) in the euro area, are being implemented. Typically central banks seek to influence inflation and the real economy by changing official interest rates. If inflation is low, central banks tend to reduce interest rates in an attempt to stimulate consumption, economic growth and inflation (policy is expansionary). Similarly, when inflation is high, a central bank is likely to raise interest rates slowing the wider economy and reducing inflation (policy is contractionary). Thus, whether interest rates are high or low indicates the ‘monetary stance’ of the central bank: whether it believes inflation is too high or too low. However, when interest rates hit the zero lower bound, and non-interest rate measures are used, how can the monetary stance be assessed?

During the Great Recession, central banks of the main advanced economies attempted to counteract the economic downturn by adopting an extraordinarily expansionary monetary policy stance. Although operating in different economic contexts, the Federal Reserve (Fed), the European Central Bank (ECB), the Bank of England (BoE) and the Bank of Japan (BoJ) lowered policy rates close to zero to stimulate the economy and avoid the risk of a persistent deflationary process. However, with monetary policy rates close to the zero lower bound (ZLB), when further stimulus was needed, central banks turned to non-interest rate, or non-standard, policy measures.

The measures adopted by central banks to counteract deflationary pressures and to foster economic growth included increased liquidity provision, extending the term of lending, modifying the collateral framework, forward guidance and asset-purchase programs (i.e., quantitative easing, QE). The aims of these programs have been to reduce long-term interest rates and thereby stimulate the economy.² While these measures have no impact on the official interest rate, and therefore do not affect the ‘price’ of money, they affect the ‘quantity’ of money, and thereby have substantial effects on the size and the composition of central banks’ balance sheets. Chart 1 depicts the balance sheets of the four major central banks. The chart shows that since the bankruptcy of the Lehman Brothers in September 2008, the balance sheets of central banks have increased in size. Initially, this was due to the liquidity requirements of the financial system in the immediate post-Lehman period. Later, the Fed launched a number of large scale asset purchase programmes (APPs) from as early as 2008, with the BoE and the BoJ following suit in 2009 and 2010, respectively. At the end of 2011 the BoE, given the contraction of economic activity, expanded its QE programme further increasing its balance sheet. The BoJ significantly expanded its asset purchases with a new programme in 2013 which had a large effect on its balance sheet. The ECB extended large amounts of liquidity into the financial system with two three-year long-term refinancing operations in December 2011 and February 2012. Once repayment of the LTROs began in early 2013, the ECB’s balance sheet started to decline. From the end of September 2014 it increased again with the launch of other programs (i.e., the Targeted Long-Term Refinancing Operations, the third Covered Bond Purchase Program, and the Asset-Backed Security Purchase Program). Since March 2015, the ECB has been purchasing €60 billion a month in assets, further increasing its balance sheet.

However, assessing the effect of these unconventional monetary policies on the overall stance of monetary policy is an open issue and no consensus has yet been reached.

¹ Monetary Policy Division

² Several studies show the negative relation between term premium and economic activity. Rudebusch et al. (2007) show that an (decrease) increase in the term premium of Treasury yields affects (positively) negatively the GDP. Gilchrist et al. (2009) find that unexpected increases in bond spreads cause large and persistent contractions in economic activity.

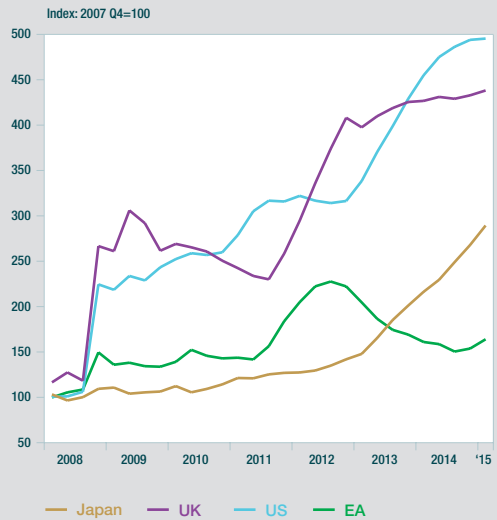
Box B: Monetary Policy Rates and Shadow Short Rates

By Valentina Colombo

As such, a number of methods have been adopted in the literature to estimate a ‘shadow short rate’ (SSR) for monetary policy, which would be similar to the official interest rate if no other measures were being employed, but which can take different figures (including negative ones) when non-standard measures are being implemented. Based on Black’s (1995) seminal work, Krippner (2012, 2013) and Wu and Xia (2014) estimate the shadow rate relying on financial variables describing the full term structure.³ Another method, employed by Lombardi and Zhu (2014) for the US, constructs an SSR measure based on dynamic-factor model. They extract ‘factors’, which explain the co-movements of several variables linked to conventional and unconventional monetary policy tools (interest rate, monetary policy aggregates, assets and liabilities of central bank balance sheet) employed by the Fed, as proxies for monetary policy stance. Overall, such shadow rates describe the interest rate that may be observed in absence of ZLB environment.

3 Black’s approach (1995) relies on the shadow rate term structure model (SRTSM). The idea is that the interest rate that we observe cannot be materially negative, otherwise holding cash (at zero interest rate) provides a free-risk investment. According to Black, the zero interest rate can be seen as an option. Black suggests computing the value of the option to hold cash at the ZLB, and then to subtract it from the observed nominal yield at ZLB. This renders the shadow yield curve (a yield curve that would exist in absence of the option to hold cash). Following Black, the short term interest rate can be expressed as the maximum of the shadow rate and the zero lower bound. In Black (1995) the shadow rate is linear in Gaussian factors (latent variables). However, an analytical solution is known only in a one-factor model. Krippner (2012, 2013) models the interest rate as an option, as in Black (1995). However, to simplify the model he computes the value of the call option to hold cash by relying on two factors and on the bond option-price framework. Alternatively, the shadow rate proposed by Wu and Xia (2014) relies on forward rates and three factors, with the estimation based on a Kalman filter.

Box B Chart 1: Central Bank Balance Sheets: Total Assets

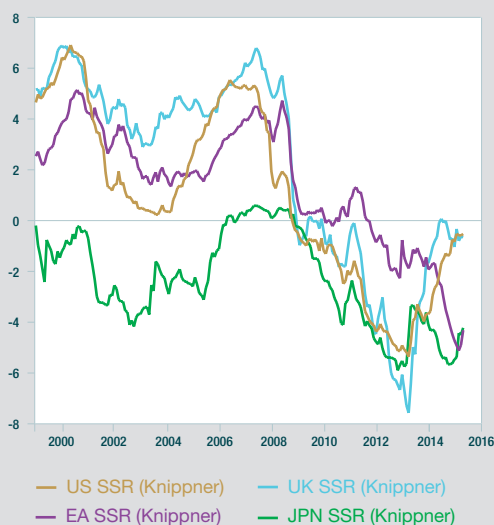


Source: Bloomberg and Federal Reserve Bank of St. Louis (FRED).

Box B: Monetary Policy Rates and Shadow Short Rates*By Valentina Colombo*

Below, we focus on the estimates of Krippner (2012, 2013), since the author uses the same methodology to construct SSRs for a number of countries, enabling a comparison of the monetary policy measures in different jurisdictions.⁴

What does the shadow short rate tell us about the current and overall stance of monetary policy? Chart 2 depicts the SSRs for the UK, US, euro area and Japan. While Japanese monetary policy was generally more expansionary (the SSR is lower) prior to 2008, the stance of monetary policy in all four economies followed broadly the same pattern, by Krippner's measure. Following the onset of the crisis, all central banks dramatically loosened monetary policy, as evidenced by the rapid decline in the SSRs. However, around 2010, there is a divergence in policy stance: while the SSRs for the other three economies continue downwards, in the euro area it levels off briefly before declining again in 2012. This coincides with the interest rate cut by the ECB, following the rate increase of July 2011. At the beginning of 2013 the BoJ announced the expansion of its asset purchase programme. By the end of 2013, policy in the US and UK had begun to tighten. This reflects the Fed's announcement that it would reduce its asset purchase programmes, and the improvement of economic activity in the UK. Conversely, in the euro area policy continued to be loosened. Through 2014, policies diverged significantly as the Governing Council announced its package of measures in June, and details of the ABS and covered bond purchase programmes in September.⁵ The announcement of the PSPP in January 2015 further lowered the SSR, suggesting a more accommodative environment.

Box B Chart 2: Shadow Short Rates

Source: Reserve Bank of New Zealand.

This Box has shown the difficulty in determining the monetary stance when non-interest rate measures are used, in particular in light of the expanded APP in the euro area. A number of methods to estimate the monetary stance were outlined, which took into account not just the official interest rate set by the central bank, but also the non-standard measures being employed at any given time. Focussing on one methodology for estimating the shadow rate and comparing the monetary stance internationally indicates that the current stance of monetary policy in the euro area is expansionary with respect to the other central banks.

⁴ The data consist of month-end government interest rates and overnight indexed swap (OIS). For the euro area German government bond data are employed. Wu and Xia (2014) propose SSR measures also for the euro area and the UK spanning until the beginning of 2014. We focus on Krippner's measures, since it is available also for Japan and they are updated monthly.

⁵ See the ECB Monthly Bulletin, July 2014.

Box B: Monetary Policy Rates and Shadow Short Rates*By Valentina Colombo***References**

- Black, F., 1995. "Interest rates as options", *Journal of Finance*, 50: 1371-1376.
- Gilchrist, S., V. Yankov, and E. Zakrajšek, 2009. "Credit Market Shocks and Economic Fluctuations: Evidence from Corporate Bond and Stock Markets", *Journal of Monetary Economics*, 56 (4): 471-93.
- Krippner, L., 2012. "Modifying Gaussian term structure models when interest rates are near the zero lower bound", Reserve Bank of New Zealand Discussion Paper.
- Krippner, L., 2013. "A tractable framework for zero-lower-bound Gaussian term structure models", Reserve Bank of New Zealand Discussion Paper.
- Lombardi, M., and F. Zhu, 2014. "A shadow policy rate to calibrate US monetary policy at the zero lower bound", BIS WP No 452
- Rudebusch, G.D., B.P. Sack, and E.T. Swanson. 2007. "Macroeconomic Implications of Changes in the Term Premium", *Review (Federal Reserve Bank of St. Louis)*, 89 (4): 241-69.
- Wu, J. C. and F. Xia, 2014. "Measuring the macroeconomic impact of monetary policy at the zero lower bound", NBER WP No 20117

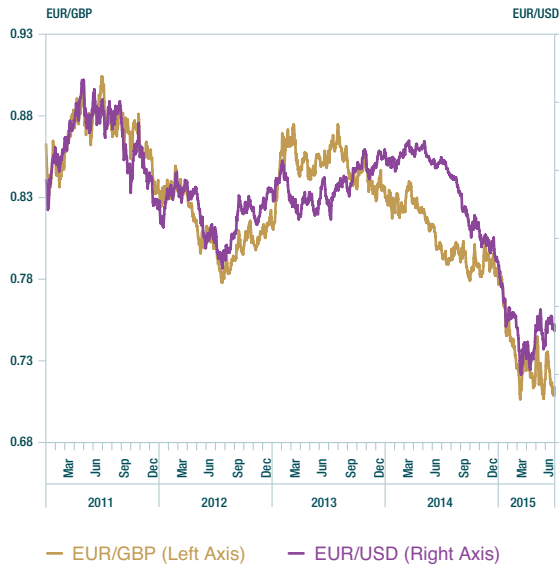
(SAFE) indicated that credit market conditions improved for firms, including small and medium-sized enterprises.

The programme has lowered the yields on most euro-area government bonds (Chart 6). Through to the end of May, ten-year yields fell in the range of 1 to 8 basis points lower in Germany, France and Spain and were around 30 to 75 basis points lower in Ireland and Portugal than in November last year when expectations of ECB asset purchases began to form. The fall in yields had been more noticeable for longer-term bonds than those at shorter maturities. Since bonds with shorter maturities tend to have lower yields, it is likely that the announcement that the ESCB would only purchase bonds with a yield above that of the deposit facility (-0.2 per cent) has contributed to this asymmetric movement. However, developments through June, in direct response to the uncertainty regarding the Greece negotiations with creditors, reversed most of these.

Euro area yields in May and June also reflected higher volatility. This volatility is partly a consequence of the broader low yield environment: at very low levels of interest rates, asset prices tend to show higher volatility. Other causes include a number of positive surprises regarding the euro area economy, technical market factors (such as supply pressures and low market liquidity) and a learning process whereby the market is adapting to the Eurosystem's large-scale purchases of public sector bonds. More recently, uncertainty regarding the Greek financing situation increased the volatility of Greek government bond yields substantially, with some volatility spillover to other peripheral countries also evident.

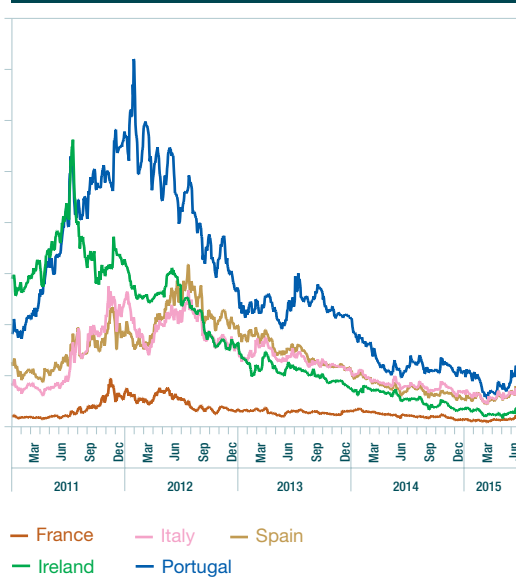
The expanded APP appears to have affected a number of other financial market indicators. In most countries, the other asset classes purchased under the APP – covered bonds and asset-backed securities (ABSs) – mirrored the developments for higher-rated sovereign bonds. In some countries, however, covered

Chart 5: Euro Exchange Rates



Source: Thomson Reuters Datastream.

Chart 6: Selected Euro Area 10-Year Sovereign Bond Yield Spreads over Germany (bps)



Source: Thomson Reuters Datastream.

bonds and ABSs were affected by the uncertainty surrounding Greece's access to finance, resulting in some increases in covered bond spreads and discount margins for ABSs. Euro area equities have increased with the programme. There are indications that banks' funding costs are being pushed down. Over time, this should lead to a further improvement in credit conditions for euro area businesses and households. Finally, since November when expectations that an APP would be adopted started to form, the euro has depreciated sharply, also reflecting divergent economic prospects and monetary policy stances across the major economies.

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.

Data Gaps and Shadow Banking: Profiling Special Purpose Vehicles' Activities in Ireland

Brian Godfrey, Neill Killeen and Kitty Moloney¹

Abstract

The role of shadow banking and securitisation has gained increasing national and international attention since the start of the global financial crisis in 2007. Ireland has a sizeable non-bank financial sector with a number of key components including money market funds (MMFs), investment funds (IFs) and other financial intermediaries (OFIs). This Article focuses on the activities of financial vehicle corporations (FVCs) and special purpose vehicles (SPVs) within the OFI sector. The main features of these vehicles and their linkages to the Irish and international economies are examined. The Article also discusses recent regulatory developments and potential financial stability issues arising from their activities. In order to address data gaps and to improve oversight of the SPV sector, the Central Bank of Ireland will extend quarterly reporting requirements to SPVs.

¹ The authors are Economists in the Statistics Division and the Markets Supervision Directorate of the Central Bank of Ireland. The views expressed in this Article are solely the views of the authors and are not necessarily those held by the Central Bank of Ireland or the European System of Central Banks (ESCB). The authors would like to thank Kenneth Devine, Anastasios Matopoulos and Naoise Metadjer for excellent research assistance. We are grateful to John Flynn, Brian Golden, James Leen, Joe McNeill, Gareth Murphy and David Owens for helpful comments on earlier drafts of the Article.

1. Introduction

The role of shadow banking and securitisation has gained increasing national and international attention since the start of the global financial crisis in 2007. In November 2010, the G20 called for the Financial Stability Board (FSB) to develop recommendations to strengthen the oversight and regulation of the shadow banking system. The FSB defines shadow banking as 'credit intermediation involving entities and activities fully or partially outside of the regular banking system.'² Various definitions of shadow banking comprise some or all of the entities in the non-bank financial sector.³

Ireland has a sizeable non-bank financial sector comprising money market funds (MMFs), investment funds (IFs) and other financial intermediaries (OFIs). This paper focuses on the activities of financial vehicle corporations (FVCs) and special purpose vehicles (SPVs)⁴ within the OFI sector. These vehicles are set up as tax neutral in accordance with Section 110 of the Taxes Consolidation Act 1997 (Section 110).⁵ Since the fourth quarter of 2009, the Central Bank of Ireland has collected data on Irish FVCs. These data feed into the European Central Bank's (ECB) FVC data and gives an indication of the level of securitisation activity across the euro area. However, at present there is no comparable Irish or euro area dataset for SPVs.

This data gap presents challenges for financial authorities engaged in mapping and monitoring the shadow banking sector in Ireland and Europe.⁶ The main contribution of this paper

is to fill in some of the data gaps for the Irish shadow banking system, thereby improving the transparency and oversight of this sector. To that end, this paper examines both the activities of Irish FVCs engaged in securitisation activity and the activities of other SPVs registered in Ireland.

Section 2 discusses the definitions of FVCs and SPVs and outlines our research methodology. Section 3 examines the FVC and SPV industry in Ireland and briefly describes the development of this sector in Ireland. The main findings on the activities of FVCs and SPVs are discussed in Section 4. Section 5 focuses on the new and existing financial services regulations, which can shed light on FVCs' and SPVs' activities in Ireland and briefly discusses potential financial stability issues. Section 6 concludes.

2. Definitions of FVCs/SPVs and Methodology

2.1 Definitions of FVCs and SPVs

FVCs and SPVs are legal entities that are originated by a sponsoring firm, usually a bank, finance company or insurance company. Irish FVCs and SPVs engage in a wide range of activities which may include investment transactions, securitisation transactions, distressed debt transactions, balance sheet management, and fundraising. FVCs are securitisation vehicles and are obliged to report to the Central Bank of Ireland under an ECB Regulation.⁷

² See FSB (2014).

³ The FSB, in its annual mapping exercise defines shadow banking as the total assets of the non-bank financial sector. FSB (2014) also produce a narrower measure of shadow banking, which is constructed by filtering out non-bank financial activities that have no direct relation to credit intermediation (e.g. equity investment funds, intra-group activities of non-financial groups and retained securitisation). In the academic literature, a number of alternative definitions of shadow banking have been proposed. For example, Claessens and Ratnovski (2014) define shadow banking as "all financial activities, except traditional banking, which rely on private or public backstop to operate."

⁴ For the purpose of this Article, SPVs refer to those vehicles which do not meet the ECB's FVC definition, see Section 2.

⁵ See Section 3 for an overview of the Section 110 framework in Ireland.

⁶ See Godfrey and Golden (2012).

⁷ Regulation ECB/2008/30 concerning statistics on the assets and liabilities of FVCs, which are engaged in securitisation type transactions. An entity would qualify as an FVC if their principal activity meets the following criterion: 'it intends to carry out, or carries out, one or more securitisation and is insulated from the risk of bankruptcy or any other default of the originator'. On the issuance side, an entity must 'issue or intends to issue, securities, securitisation fund units, other debt instruments and/or financial derivatives' in either a public or private issuance. Furthermore, if the vehicle is part of a multi-vehicle structure where one of the other vehicles is an FVC then it would also be considered an FVC even if it was not directly involved in securitisation itself.

An entity is an FVC if its main activity is securitisation⁸ as defined by the ECB FVC Regulation. The FVC Regulation seeks to collect data on securitisation vehicles' linkages with the banking system. The financing arrangement supporting a securitisation transaction should result in the issuance of some form of marketable debt instrument. Securitisation involves the transfer of credit risk from a bank's balance sheet to a FVC's balance sheet. This transfer of credit risk is funded by the issuance of debt securities, which in some cases, can be brought back on to the balance sheet of the bank (i.e. retained securitisation) and used as collateral with the ECB in monetary operations. Alternatively, the debt securities can be sold on to other investors (e.g. other banks, insurance companies, pension funds, hedge funds).

SPVs have many characteristics of FVCs but fall outside the ECB definition. The main activity of Irish SPVs is loan origination even if a minority of its activities pertain to securitisation. SPVs can also issue debt securities or they may be set up for the purpose of financing a group or part of a group through the use of loans. One of the key challenges of analysing SPVs incorporated in Ireland is the categorisation of these activities owing to the complexity and opaqueness of their transactions.

2.2 Methodology

To examine this sector we construct a unique firm-level dataset of FVCs and SPVs registered with the Companies Registration Office (CRO) in Ireland. This dataset is based on 2012 financial accounts. A number of variables are chosen to review the activities of these entities. These include firm-level information such as total assets under management, the date and address of incorporation, the number of direct employees and the fees paid to Irish corporate service providers (e.g. legal fees, administration fees, audit fees). Information is also collected on relevant counterparties such

as the name, location and sector of the FVCs' and SPVs' creditors and debtors. In addition to collating the dataset, a series of meetings were held with the directors of 26 SPVs. The meetings took place from January to March 2015 and assessed to what extent the vehicles were within scope of existing and forthcoming financial services regulations.

The methodology outlined above has a number of limitations. Firstly, there is significant heterogeneity regarding the information reported in the financial accounts. For example, some financial accounts include information on the name and location of the debtors, creditors and derivative counterparties while other accounts do not disclose this level of granularity. Secondly, the heterogeneous nature of the activities within this sector means it is difficult to categorise the vehicles within our dataset. Finally, the analysis is based on data collected from a one-off exercise of 2012 financial returns.

3. The FVC and SPV Industry in Ireland

Based on our analysis of financial accounts of FVCs and SPVs, we estimate that there are approximately 1,300 vehicles located in Ireland at the end of 2012. These vehicles are set up as broadly tax neutral under Section 110.⁹ Of this total, approximately 700 entities are FVCs, while the remaining 600 entities can be classified as SPVs. Since the fourth quarter of 2009, data on Irish FVCs has been collected by the Central Bank of Ireland.¹⁰ The most recent FVC data shows that there are 779 FVCs resident in Ireland in the first quarter of 2015 (Chart 1).

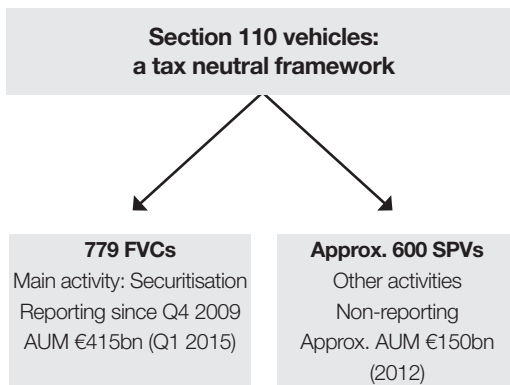
Within the euro area there are ten countries which have resident FVCs. Ireland has the largest proportion of domiciled FVCs by numbers and assets of any euro area country (Chart 2). Other jurisdictions such as Luxembourg and the Netherlands also have

⁸ Securitisation is defined as a transaction(s) where the credit risk of an asset is transferred to the balance sheet of an entity, either through the economic transfer (purchase) of the asset or through the use of derivatives.

⁹ Section 55 of the Finance Act 1996, <http://www.irishstatutebook.ie/1996/en/act/pub/0009/print.html#sec55>

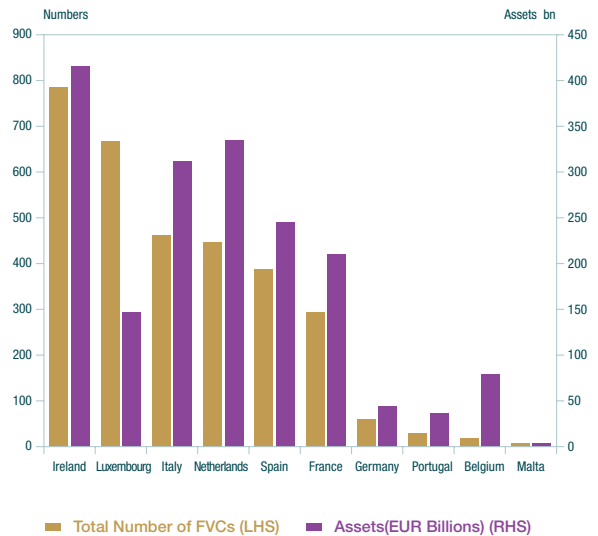
¹⁰ See Godfrey and Jackson (2011).

Chart 1: Overview of Section 110 vehicles in Ireland



Sources: Central Bank of Ireland, Companies Registration Office (CRO) and authors' calculations.
Note: FVCs include NAMA vehicles.

Chart 2: Q1 2015: Number and Assets of FVCs in Euro Area



Sources: Central Bank of Ireland and European Central Bank (ECB).

sizeable FVC populations. However, at present there is no comparable euro area dataset for SPVs who fall outside the FVC definition.

Certain taxation provisions in Ireland allow FVCs and SPVs to be structured as broadly profit- and tax- neutral. These provisions were originally introduced in 1991¹¹ to facilitate the securitisation of mortgages. These provisions were extended to transactions outside the IFSC with the implementation of Section 110 (effective in 1999). The Section 110 regime was expanded by the Finance Act 2003¹², the Finance Act 2008¹³ and again in the Finance Act 2011¹⁴ to broaden the range of financial assets a Section 110 company can hold, manage or lease.

A company must meet a number of conditions to qualify under the Section 110 framework. Firstly, the company must be resident in Ireland. Secondly, it must acquire “qualifying assets” which include shares, bonds, investment in money market funds, commodities, leases, hire purchase agreements, greenhouse gas emissions, contracts for insurance and reinsurance, and the ownership, management and leasing of

plant and machinery. Thirdly, the market value of the qualifying assets must be at least €10 million on the date the assets are first acquired by the newly incorporated Section 110 company. Finally, the company must notify the Irish tax authorities if it wishes to avail of the Section 110 framework.

In addition to the Section 110 provisions, other reasons for FVCs and SPVs locating in Ireland include an extensive double taxation treaty network, a common law environment, a corporate administration support network, an efficient listing of securities on the Irish Stock Exchange (ISE), and Ireland's membership of the OECD and European Union.

11 Section 31 of the Finance Act 1991, <http://www.irishstatutebook.ie/1991/en/act/pub/0013/print.html#sec31>
 12 Section 48 of the Finance Act 2003, <http://www.irishstatutebook.ie/2003/en/act/pub/0003/sec0048.html#sec48>
 13 Section 36 of the Finance Act 2008, <http://www.irishstatutebook.ie/2008/en/act/pub/0003/sec0036.html#sec36>
 14 Section 40 of the Finance Act 2011, <http://www.irishstatutebook.ie/2011/en/act/pub/0006/sec0040.html#sec40>

4. Main Findings

This section presents the main findings of our research which is divided as follows: technical features, domestic linkages, international linkages and a series of case studies. The case studies are generic but reflect some of the business models employed by FVCs and SPVs incorporated in Ireland.

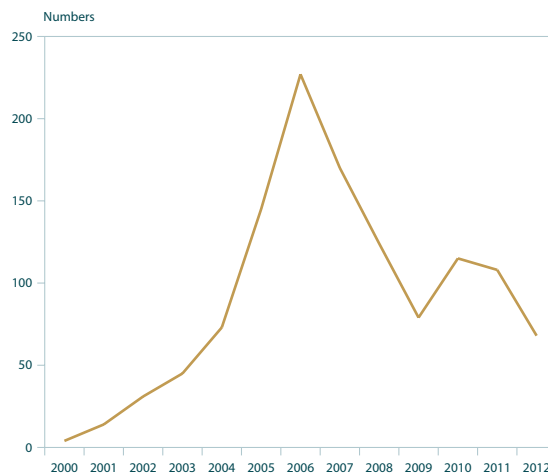
4.1 Technical features of FVCs and SPVs

Our analysis of firm-level financial accounts found that many of these vehicles are set up using an orphan entity ownership structure. As noted by BIS (2009), one of the consequences of this ownership structure is that it ensures that the entity is not owned by the originator, but rather by a charitable trust. These trusts are usually set up by a corporate service provider or a law firm. This structure ensures that the entity should not be affected by any legal claims against the originator (BIS, 2009). In addition, our analysis found that the majority of FVCs and SPVs incorporated in Ireland have no direct employees.

Other legal protections used by the industry include the use of "limited recourse" and "non-petition" covenants within the legal contracts. "Limited recourse" means that creditors of the vehicle only have a claim on what the entity is paid. "Non-petition" refers to a situation whereby creditors give up the right to petition for liquidation of the vehicle. Many of the contracts underpinning the incorporation and activities of these vehicles are governed by UK or US law even though the entities are registered in Ireland. In this way, the industry continues to use the legal frameworks of jurisdictions where the main legal tenets have generally been tested, even though the vehicles are registered outside of these jurisdictions.

The lifecycle of a FVC or SPV is dependent on the motivation and nature of its activities. Based on our discussions with industry, the average lifecycle of a vehicle can range from approximately five to ten years. Using financial

Chart 3: Number of new FVCs and SPVs in Ireland by year of incorporation, at end-2012



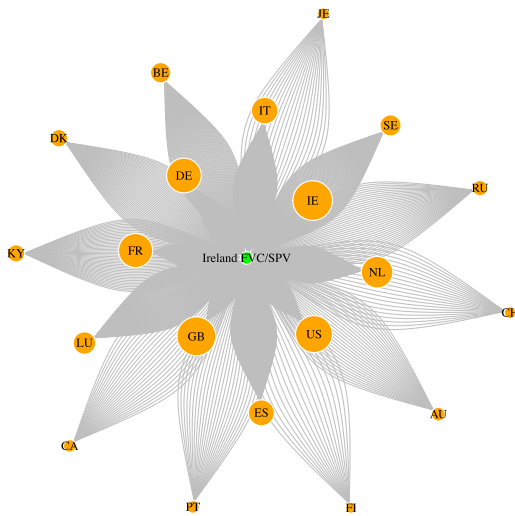
— Number of newly incorporated SPVs

Sources: Companies Registration Office (CRO) and authors' calculations.

account information for FVCs and SPVs that are active in 2012, we found that most vehicles were established in 2006 (Chart 3). It is noteworthy that the number of new vehicles incorporated in Ireland falls significantly in 2009 which coincides with the global financial crisis and the collapse in the securitisation market in Europe.

Irish domiciled FVCs are usually funded through a number of different types of debt issuance depending on the nature of the securitisation that the FVC is involved in. This can range from commercial or consumer asset backed securities, commercial or residential mortgage backed securities, commercial paper, profit participation notes and different types of floating notes. Debt securities issued by FVCs have to be marketable and are usually issued in multiple tranches depending on the level of subordination of the security issued. The more senior notes would have first claim on any cash that a FVC receives, while the more junior notes would have more risk exposure but would receive a higher rate of interest in compensation.

Chart 4: Top 20 Cross-Border Linkages – FVC/SPV Debtor Links



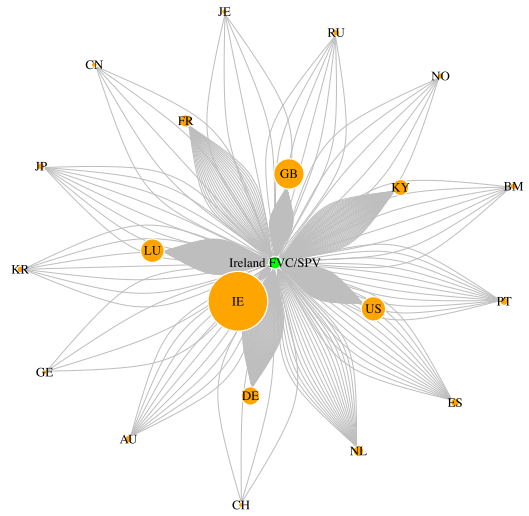
Source: Companies Registration Office (CRO) and authors' calculations

Irish domiciled SPVs can be funded via the issuance of different note types including, for example, profit participation notes, loan notes, index linked notes, floating rate notes and limited recourse notes. The risks and characteristics associated with these notes vary widely. For example, the returns from a profit participation note relate to the profits of the SPV. The number of investors can also vary significantly, for example, depending on whether it is a privately issued loan note or a publically listed note.

4.2 Domestic linkages

There are 22 FVCs with approximately €39 billion linked to Irish banks in the first quarter of 2015. The remaining FVCs and SPVs have limited direct links to the Irish economy as the majority of their assets and liabilities are located outside of Ireland. The main benefit to the Irish economy comes through fees paid to Irish corporate service providers, law firms, auditors and the ISE. Based on our analysis of FVCs' and SPVs' financial accounts, we

Chart 5: Top 20 Cross-Border Linkages – FVC/SPV Creditor Links



Source: Companies Registration Office (CRO) and authors' calculations

Note: AU = Australia; BE = Belgium; BM = Bermuda; CA = Canada; CH = Switzerland; CN = China; DE = Germany; DK = Denmark; ES = Spain; FI = Finland; FR = France; GB = United Kingdom; GE = Georgia; IE = Ireland; IT = Italy; JE = Jersey; JP = Japan; KY = Cayman Islands; KR = Korea; LU = Luxembourg; NL = Netherlands; NO = Norway; PT = Portugal; RU = Russia; SE = Sweden; US = United States.

estimate that the average set up fees paid to Irish service providers is approximately €50,000 and the average annual administrative fees paid to Irish service providers ranges in broad terms between €40,000 to €80,000.¹⁵ While these vehicles have little interaction with the domestic economy, they can have a significant impact on Irish macroeconomic statistics. This is due to the fact that these vehicles are recorded as residents, meaning there is a sizable impact on external sector statistics.

4.3 International linkages

FVCs and SPVs are connected to the wider global financial system as the majority of their creditors and debtors are located outside

¹⁵ Fees depend on the complexity of the vehicles (number of debt securities issued etc.) and stage in the life cycle of the vehicle (e.g. fees are higher in year 1 with start-up fees). The financial accounts are not consistent in the treatment of fees and thus our estimated range is a guide only.

of Ireland. Charts 4 and 5 present the top 20 cross-border linkages of Irish domiciled FVCs and SPVs. The charts are un-weighted networks and therefore the size of the node represents the number of FVCs and SPVs linked to that country as opposed to the euro value of the exposure. Chart 4 shows that the top 20 locations of debtors to Irish domiciled FVCs and SPVs. The United States, the UK, Germany, France, Italy, Russia and the Netherlands are the top locations of debtors for these vehicles.

On the creditor side (Chart 5), the top locations are the UK, the US, Germany, Luxembourg and the Cayman Islands. The large node for Ireland in the creditor graph is explained by FVCs and SPVs that issue debt securities on the ISE, intra-sector flows and domestic linkages. Information on the location of the

final investor is not readily available for debt securities as data are collected on a first counterparty basis. In addition, financing linkages between FVCs and SPVs can also impact the creditor links. As these vehicles can be part of multi-vehicle structures, an Irish registered entity may be listed as a creditor to another Irish registered FVC or SPV. However, the ultimate creditor may be located outside of Ireland.

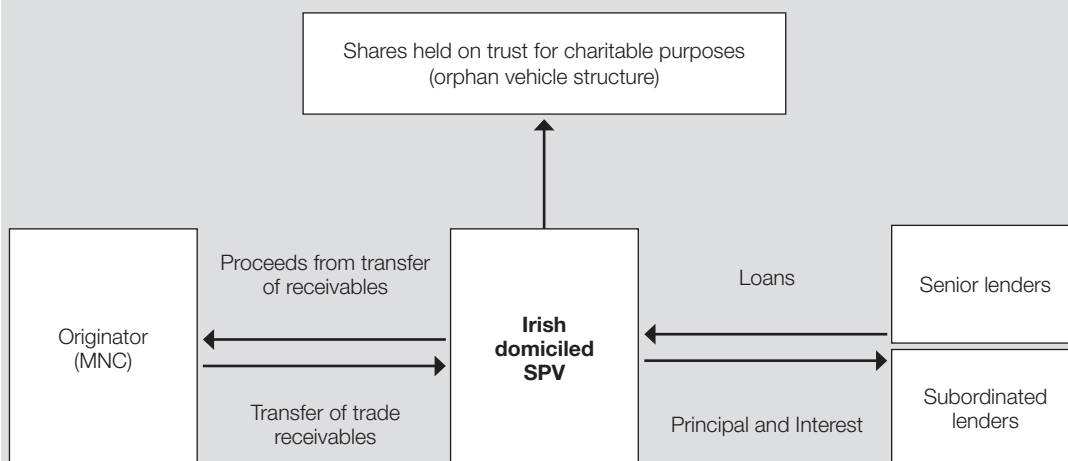
4.4 Case Studies

This section describes some generic case studies of FVCs' and SPVs' activities.

Case Study A: Irish domiciled SPV used as bankruptcy remote funding vehicle

This case study outlines a structure which uses an Irish domiciled SPV to ensure bankruptcy remoteness. Chart A summarises the transaction and the role of the Irish SPV.

Chart A: Summary of Transactions

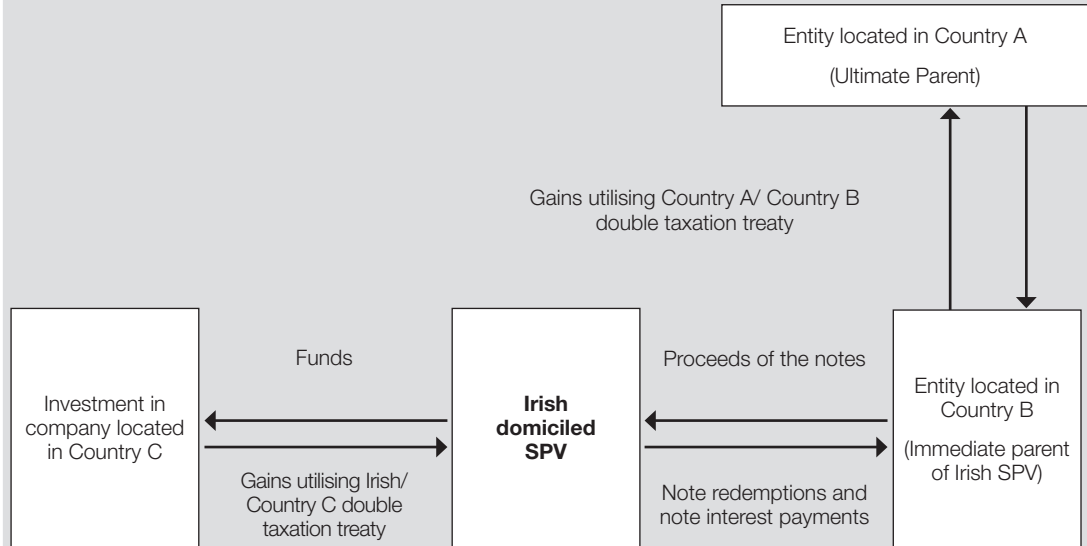


The multinational corporation (MNC) transfers its receivables into an Irish domiciled SPV which uses these assets to attract cheaper funding. The Irish domiciled SPV receives loans from a syndicate of senior and subordinated lenders and uses these funds to buy the trade receivables from the originator (the MNC). The MNC would have to pay a much higher rate if it were to raise finance directly but benefits from cheaper funding by simply isolating the receivables in an Irish domiciled SPV. In order to ensure bankruptcy remoteness, the Irish domiciled SPV is set up using an orphan vehicle structure whereby the shares of the SPV are held on trust for charitable purposes.

Case Study B: Irish domiciled SPV used in a tax efficiency structure

This case study outlines a structure which uses an Irish domiciled SPV to ensure tax efficiency. Chart B summarises the transaction and the role of the Irish SPV.

Chart B: Summary of Transactions

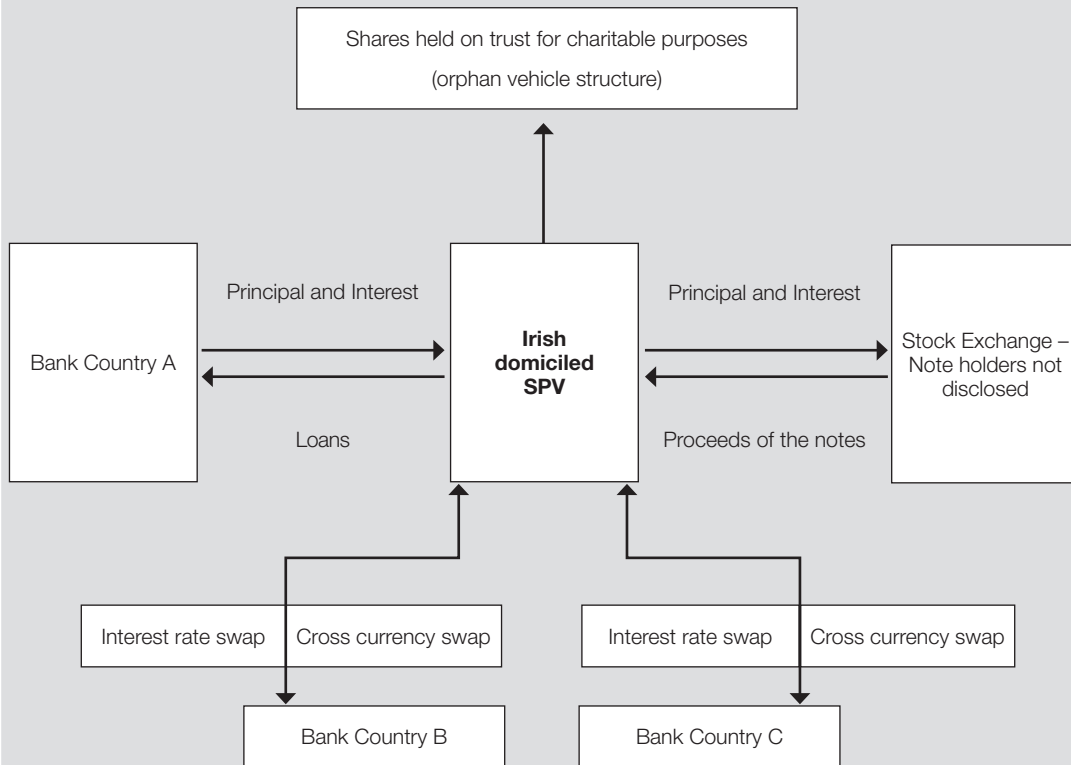


Cross-border payments made by the Irish SPV under a profit participating note to a country within the EU or with whom Ireland has signed a double taxation treaty are free of Irish withholding tax. However, in this case study, payments by an Irish SPV to Country A do not gain this exemption owing to the fact that Ireland does not have a double taxation treaty with Country A. Country B, on the other hand, has a double taxation treaty with Country A which allows the payments to be made free of withholding tax. Ireland is often the chosen host jurisdiction for investment vehicles owing to Ireland's wide network of comprehensive double taxation treaties. As illustrated in Chart B, the Irish domiciled SPV is utilised to take advantage of the Irish tax treaty with Country C owing to the fact that it is a more favourable treaty than the tax treaty between Country B and C.

Case Study C: Irish domiciled SPV structure and relevant regulations

Chart C presents an example of a simple SPV structure which makes loans to a regulated European bank.

Chart C: Summary of Transactions

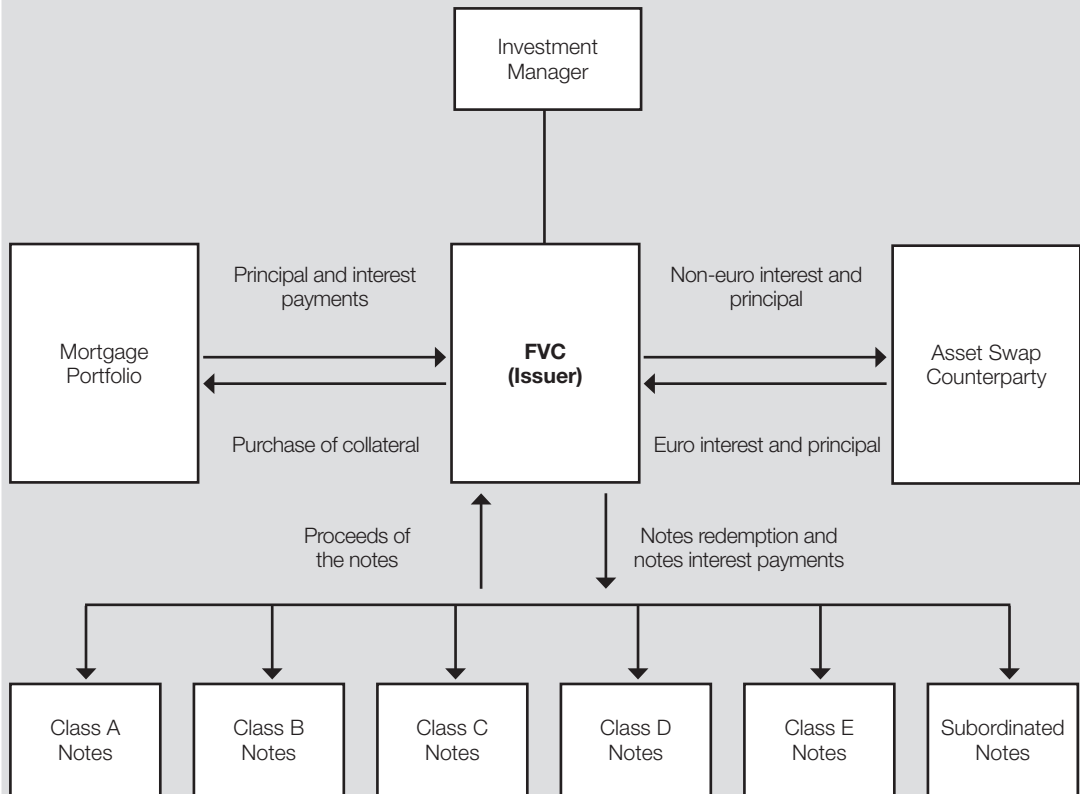


The SPV funds itself by issuing paper which is listed on a stock exchange and must therefore comply with disclosure requirements and listing rules (e.g. Prospectus and Transparency Directives). As the SPV hedges various exposures with derivatives it must comply with the European Market Infrastructures Regulation (EMIR) and report information on its derivatives trades to a trade repository. SPVs with strong cross-sector and border interlinkages (including SPVs with strong interconnectedness with the regulated banking system as illustrated in Chart C), can raise concerns regarding contagion and financial stability.

Case Study D: Irish domiciled FVC structure investing in mortgage backed securities

Chart D presents an example of a FVC structure which invests in mortgage backed securities and issues different types of debt securities.

Chart D: Summary of Transactions



This FVC funds itself by issuing multiple “tranches” of debt securities and invests in a portfolio of mortgages from a bank. These transactions can be cross-border in nature. Each class of debt security has a different seniority with a credit rating assigned depending on the level of seniority. The notes are redeemed in order of seniority and any defaults affect the subordinated notes first which results in the lower rated securities receiving higher interest payments. An asset swap counterparty can also be involved to hedge any currency risks if the notes have been issued in a different currency to that of the mortgages held.

Considering the complexity of these transactions in terms of the number of vehicles, securities and jurisdictions involved, it is possible that these entities may be used by originators to obscure the true economic nature of their activities.

5. Regulatory Developments and Financial Stability Issues

5.1 Relevant securities and markets regulations

No single regulation covers all of the activities of FVCs and SPVs. As noted by the Central Bank of Ireland (2014), various sectoral financial services regulations are likely to apply, directly or indirectly, to these vehicles (e.g. banking, insurance and fund regulations, investor disclosure and market monitoring regulations). These regulations will better inform regulators seeking to assess the financial stability impact of FVCs' and SPVs' activities.

For example, FVCs and SPVs who engage in derivative trading will be within scope of the European Union regulation on derivatives, central counterparties and trade repositories, the European Market Infrastructure Regulation (EMIR). EMIR imposes reporting requirements on all entities entering into derivative contracts. Our analysis suggests a significant minority of Irish domiciled FVCs and SPVs are involved in derivative contracts.

FVCs and SPVs may also fall under the Prospectus and Transparency Directives should they decide to publically issue debt.¹⁶ The prospectus must contain all information which, according to the particular nature of the issuer (and of the securities issued), is necessary to enable investors to make an informed assessment of the investment. Information includes details of the assets and liabilities, financial position, profit and losses, and prospects of the issuer and of any guarantor; and the rights attaching to such securities. Publicly listed debt issuances have fewer reporting requirements than equity issuances under the Regulation. There is, for example, no

public register requirement of debt securities holders as exists for equity. Regulators may be able to get information on a first counterparty basis but this may not identify the beneficial owner of the debt. If the first counterparty is a stock exchange, regulators have no information on the final investor. Our initial analysis shows that most FVCs and some SPVs are issuing debt publically but there are a significant number issuing debt privately.

The Securities Financing Transaction Regulation (SFTR) is a new proposal by the European Commission to develop a reporting regime for securities financing transactions (i.e. lending and borrowing of securities and commodities, repurchase or reverse repurchase transactions, or buy-sell back or sell-buy back transactions). Our analysis suggests the use of securities transaction financing by Irish domiciled FVCs and SPVs is relatively limited.

In addition to the securities and markets regulations outlined above, there are forthcoming requirements under the Credit Ratings Agencies Regulation (CRA3) for reporting of financial information on rated instruments. This will provide some information on privately issued debt which is rated. Unrated privately issued debt by SPVs will continue to fall outside of scope. Risk retention requirements have also been put in place for banks and insurers issuing securitisations.¹⁷ There have been calls from the Bank of England and ECB (2014, 2015), European Commission (2015) and Segoviano *et al.* (2015) amongst others, to standardise and simplify securitisation in order to reduce the financial stability risks posed by the lack of transparency in the sector.

Overall, while these existing and new regulations will improve oversight and transparency of this sector, some FVCs and SPVs may remain partially or fully outside the regulatory perimeter. This presents challenges for authorities engaged in mapping and monitoring FVC and SPV activities and the shadow banking system in general. In addition, due to the cross-sectoral and global flow of funds within the FVC and SPV sector (see

¹⁶ On a regulated market or make an offer of securities to the public within the European Economic Area.

¹⁷ By virtue of Article 135(2) of Directive 2009/138/EC (Solvency II) for insurance undertakings and by virtue of Article 405 of Regulation (EU) No 575/2013 (CRR) for credit institutions.

Sections 4.3 and 4.4), good macro-oversight of this sector will require data sharing and general co-operation amongst regulators.

5.2 Financial Stability Issues

Securitisation and other non-bank credit intermediation allow investors to diversify and manage risk. This allows borrowers to reduce the cost of capital by ring-fencing assets and activities or by accessing new pools of credit. However, despite these benefits, distress in the non-bank financial sector can also lead to the build-up of systemic risk and thereby threaten the functioning of the entire financial system (Segoviano *et al.*, 2015). Some potential risks identified by international standard setters such as the FSB (2011) and others include the concentration of business models and assets, high leverage, maturity or liquidity mismatch, illiquid assets, and imperfect credit risk transfer. Our analysis, although preliminary in nature, identified some of these features in Irish domiciled FVCs and SPVs (e.g. similar business models, illiquid assets, etc.)

FVCs and SPVs have significant interconnectedness with the regulated banking system owing to direct contractual arrangements such as funding linkages.¹⁸ The extent of the interconnectedness is hard to measure accurately as the linkage may be implicit rather than explicit.¹⁸ This complexity makes risk assessment more challenging. For example, it obscures the assessment of the loss absorption capacity of the vehicle and makes balance sheet data (e.g. leverage) less meaningful.

Non-bank entities such as FVCs and SPVs are subject to both lighter regulatory requirements and less intensive supervision than banks. As these entities remain on or outside the regulatory perimeter, they can also potentially exacerbate the vulnerabilities within the financial system. Given the limitations in regulatory oversight, Constancio (2015) highlights the need to develop a monitoring framework for the non-bank financial system including the expansion of macroprudential tools for non-bank financial entities.

To fully assess the financial stability implications of this sector, detailed granular data is required. As SPV risks are mainly external, these data are required to map the international linkages of SPVs and their interconnectedness with the regulated banking system. In order to fill some of these data gaps, the Central Bank of Ireland will extend its reporting requirements to include SPVs, requiring them to report the same quarterly data as FVCs.

6. Conclusion

The global financial crisis highlighted the need to better understand the activities of entities within the shadow banking system. Owing to limited granular data for a significant portion of the shadow banking system in Ireland, it is difficult to assess fully the financial stability implications of activities within this sector. Motivated by these data gaps, we construct a unique firm-level dataset of FVCs and SPVs which are incorporated in Ireland and which avail of the Section 110 framework. Based on these data, we estimate that there are approximately 1,300 FVCs and SPVs registered in Ireland in 2012. These vehicles are engaged in a broad array of activities including investment transactions, securitisation transactions, distressed debt transactions, balance sheet management, and fundraising. Irish domiciled FVCs and SPVs also have significant interconnectedness with the regulated banking system.

While existing and new financial services regulations will improve oversight and transparency of this sector, some SPVs may remain fully or partially outside the regulatory perimeter. This presents challenges for authorities engaged in mapping and monitoring SPV activities and the shadow banking system in general. Some of the characteristics of Irish FVCs and SPVs could potentially pose risks to international financial stability (as outlined by the FSB and others) owing to their activities, their international financial linkages and the limited oversight of the sector. Later this year, the Central Bank of Ireland will extend its FVC reporting requirements to SPVs in order to improve the transparency and oversight of this sector.

¹⁸ See Gorton and Souleles (2007) and Archarya *et al.* (2013) for discussions of the importance of funding linkages and sponsor support in determining the functionality of the SPV market.

References

Acharya, V., Schnab, P., and G. Suarez (2013), "Securitization without risk transfer.", *Journal of Financial Economics*, 107 (3), p. 515-536.

Bank of England and ECB (2014), "The case for a better functioning securitisation market in the European Union", A Joint Discussion Paper, 2014.

Bank of England and ECB (2015), "An EU framework for simple, transparent and standardised securitisation", Joint response from the Bank of England and the European Central Bank to the Consultation Document of the European Commission.

Bank for International Settlements (BIS) Basel Committee on Banking Supervision, (2009), "The Joint Forum: Report on Special Purpose Entities", September.

Central Bank of Ireland (2014), "Box 6: Monitoring FVC and SPV Activity in Ireland", Macro-Financial Review, p. 39, December 2014.

Claessens, S., and L. Ratnovski (2014), "What is Shadow Banking?", IMF Working Papers 14/25, International Monetary Fund.

Constancio, V. (2015), "Reinforcing financial stability in the euro area", Speech at the OMFIF Golden Series Lecture, London 8 May 2015.

European Commission (2015), "An EU framework for simple, transparent and standardised securitisation", Consultation Document, February 2015.

FSB (2011) "Shadow Banking: Strengthening Oversight and Regulation; Recommendations of the Financial Stability Board" October.

FSB (2014), "Global Shadow Banking Monitoring Report 2014", November.

Godfrey B. and B. Golden (2012), "Measuring Shadow Banking in Ireland using Granular Data", Central Bank Quarterly Bulletin Q4 2012.

Godfrey B. and C. Jackson (2011), "Meeting the Statistical Challenges of Financial Innovation: Introducing New Data on Securitisation", Central Bank Quarterly Bulletin Q3 2011.

Gorton, G. B., and N. S. Souleles, (2007), "Special purpose vehicles and securitization". In *The risks of financial institutions* (pp. 549-602). University of Chicago Press.

Segoviano, M., Jones, B., Linder, P., and J. Blankenheim (2015), "Securitization: The Road Ahead", IMF Staff Discussion Note, International Monetary Fund, January.

The Expanded Asset Purchase Programme – What, Why and How of Euro Area QE

By Peter Dunne, Mary Everett and Rebecca Stuart¹

Abstract

This article explains the what, why and how of the ECB's expanded asset purchase programme, commonly referred to as 'Quantitative Easing'. The scope and scale of this purchase programme is unparalleled in the euro area and it is expected to have a large effect on the euro area economy. This article discusses the details of the programme, the reasons it was introduced, and the various channels through which it is expected to affect the real economy.

¹ The authors are economists in the Monetary Policy Division. We thank Danielle Kedan, Reamonn Lydon, Martin O'Brien and Gillian Phelan for comments. The views expressed are the authors' and do not necessarily represent those held by the Central Bank of Ireland or the European System of Central Banks.

1. Introduction

On 22 January 2015, the Governing Council of the ECB announced that it would purchase government bonds on a large scale², a practice commonly referred to as ‘Quantitative Easing’. With this announcement, the Eurosystem committed to purchasing more than €1 trillion of securities by September 2016. When the programme was announced, headline inflation had been below 1 per cent for over a year, and had turned negative the previous month. The purpose of the programme is to return inflation to a path consistent with the ECB’s stated objective of below, but close to, 2 per cent, over the medium term.

Purchasing public sector bonds is not a new concept. Indeed, the ECB has done so previously, although to a much smaller extent, in the Securities Markets Programme which was initiated in 2010. Furthermore, a number of other central banks, notably the Bank of England and the Federal Reserve have initiated similar programmes since the financial crisis. However, the scale and scope of the current programme is unparalleled in the euro area. The programme is likely to have wide reaching effects on the euro area economy. This article discusses the programme, why it was implemented, its aims, and the channels through which it is expected to affect the real economy.

The article is structured as follows. The next section discusses the context and details of the expanded asset purchase programme. Section 3 discusses the channels through which the programme is expected to affect the real economy. Section 4 concludes.

2. What and why: reasons for and details of the programme

Traditionally, central banks ease monetary policy by reducing interest rates. However,

sometimes central banks cut interest rates so low that they cannot reduce them any further; this is referred to as the zero lower bound (ZLB).³ When this happens, central banks must find other ways to ease monetary policy to increase inflation. In July 2013, with the euro area having reached what was considered to be very close to the zero lower bound⁴, the Governing Council of the ECB attempted to do this by introducing ‘forward guidance’ on the future path of the ECB’s policy rate conditional on the economic outlook – essentially indicating that interest rates would remain at present or lower levels for an extended period of time.⁵

However, having fallen to less than 1 per cent in October 2013, the inflation rate continued to decline through much of the first half of 2014, with little expectation of a near-term pick-up. As a result, on 5 June 2014, the Governing Council announced a package of measures to further ease monetary policy. That package included intensifying preparatory work related to the outright purchases in the asset-backed securities (ABS) market. On 4 September 2014, the Governing Council lowered the main refinancing rate to 0.05 percent and announced that the Eurosystem would purchase simple and transparent ABSs and covered bonds issued by euro area financial institutions, referred to as the asset-backed securities purchase programme (ABSPP) and the third covered bond purchase programme (CBPP3).

These announcements were made in the context of falling inflation and downward revisions to ECB staff projections of inflation and growth. Through the end of 2014 and into early 2015, many indicators of actual and expected inflation in the euro area continued to drift downwards. The Governing Council noted that since *‘potential second-round effects on wage and price-setting threatened to adversely affect medium-term price developments, this situation required a forceful monetary policy*

2 It was also announced that the bonds of agencies and European institutions would be purchased.

3 Although it is referred to as the ‘zero lower bound’, in practice the zero lower bound is not so clearly defined and is considered to be marginally above zero.

4 At that time, the interest rate was 0.5 per cent. Since then three further cuts to the rate have been made, most recently to 0.05 per cent in September 2014.

5 The Governing Council had used several other non-standard measures prior to forward guidance, including the expansion of the collateral framework, the extension of fixed rate full allotment and the provision of very long term liquidity (in the form of VLTROs implemented in December 2011 and February 2012).

response'.⁶ Furthermore, the sharp decline in crude oil prices had reinforced market expectations of lower inflation, economic slack remained sizeable and credit growth was subdued. As a result, on 22 January 2015 the Governing Council announced that it was adding a public sector purchase programme (PSPP) to the existing ABSPP and CBPP3 programmes. Collectively, they are referred to as the expanded asset purchase programme (expanded APP).

The Governing Council has stated that under the expanded APP it will purchase €60 billion of securities monthly at least until September 2016. These purchases began in March 2015. The PSPP will make up the majority of these purchases. Since it is so much larger in size and scope than the other components of the expanded APP, commentators only began using the term 'Quantitative Easing' after the PSPP was announced (similarly, large asset purchase programmes in other countries also attracted the same name, see Box 1). However, the expanded APP includes all three of these programmes; for instance, the

monthly €60 billion purchase target relates to purchases under the CBPP3, the ABSPP and the PSPP.

The aim of the expanded programme announced in January 2015 was to fulfil the ECB's price stability mandate, and to mitigate the risk of a too prolonged period of low inflation by firmly anchoring medium to long-term inflation expectations. With interest rates at their lower bound, the Governing Council intends that the purchase of securities, and the easing in the monetary stance that this entails, will improve financing conditions for firms and households in the euro area. Furthermore, it is intended that the programme will reinforce the Governing Council's forward guidance and highlight the differences in the monetary policy cycle between major advanced economies, since it has been stated that the monthly purchases will continue until the Governing Council believes that the inflation path is consistent with rates in line with the ECB's medium term target, but at least until September 2016.

Box 1: Quantitative Easing programmes in the US and the UK

By Danielle Kedan

Many central banks have conducted quantitative easing programmes in response to the financial crisis. This Box discusses those initiated by the Federal Reserve and the Bank of England, and outlines some evidence of the impact of these programmes.

Federal Reserve

The Federal Reserve has conducted three QE programmes since late 2008, in the wake of the collapse of Lehman Brothers. These are popularly referred to as QE1, QE2 and QE3. In November 2008, the Federal Open Market Committee (FOMC) of the Federal Reserve announced a programme (QE1) to purchase up to \$600bn in agency mortgage-backed securities (MBSs) and agency debt⁷ with the stated aim of reducing the costs of borrowing and increasing the availability of credit for house purchases. With the continued economic contraction, however, the FOMC decided in March 2009 to substantially expand the programme in order to support economic recovery and preserve price stability. It was announced that up to \$1.25 trillion of agency MBS would be bought, along with up to \$200bn of agency debt and up to \$300bn of longer-term Treasury debt. These purchases were completed in early 2010 and amounted in total to just under 12 per cent of US GDP.⁸

⁶ See press statement, 22 January 2015: http://www.ecb.europa.eu/press/pr/date/2015/html/pr150122_1.en.html

⁷ The agencies associated with this debt were housing-related government-sponsored enterprises. Debt issued by these agencies was viewed by market participants as benefitting from an implicit government guarantee.

Box 1: Quantitative Easing programmes in the US and the UK*By Danielle Kedan*

In November 2010, it was announced that the Federal Reserve would expand its balance sheet further by purchasing an additional \$600bn in longer-term Treasuries by the end of the second quarter of 2011, at a pace of about \$75bn per month (QE2). With the aim of supporting economic recovery and ensuring that inflation would be at levels consistent with price stability over time, the FOMC decided in September 2011 to extend the maturity of its securities holdings.

The Maturities Extension Program, also known as “Operation Twist”, involved the purchase of \$400bn of Treasury securities with remaining maturities of 6 to 30 years, funded by the sale of an equal amount of Treasury securities with remaining maturities of 3 years or less. The last expansion of the Federal Reserve’s asset purchases (QE3) was announced in late 2012, when the FOMC decided to purchase additional agency MBS at a pace of \$40bn per month and to continue reinvesting principal payments from agency debt and agency MBS in agency MBS. In addition, the Committee decided to further expand its holdings of Treasury securities at a pace of \$45bn per month. Purchases were reduced gradually throughout 2014 and were concluded in October of that year. In total, the Federal Reserve’s asset purchases amounted to over 20 per cent of US GDP.

Bank of England

In early 2009, the Bank of England’s Asset Purchase Facility (APF) was established. The objectives of the APF were twofold. First, high-quality private sector securities (commercial paper and corporate bonds) could be purchased with the aim of improving market liquidity and increasing the flow of corporate credit. Second, the APF could be used for monetary policy purposes to ease the stance of policy through the purchase of medium- to long-maturity UK government bonds via the creation of central bank reserves. Although some private sector securities were purchased as part of the Bank of England’s asset purchase programme, purchases of UK government bonds dominated the APF.

Purchases under the APF began in March 2009, when the Monetary Policy Committee (MPC) stated that it would buy £75bn of assets over three months. In May of that year, the MPC announced an extension of asset purchases by an additional £50bn. The APF was extended again later in 2009, bringing purchases to £200bn by the end of the year.⁹ Amid deterioration in the medium-term inflation outlook, the Bank of England announced another expansion of asset purchases by £75bn in October 2011. Further expansions were announced in 2012, bringing the total size of the APF to £375bn by end 2012, which amounted to over 20 per cent of GDP.

The table below presents a broad summary of the Federal Reserve and Bank of England QE programmes.

	Assets included	Maturities of sovereign bonds purchased	Total amount purchased (sovereign +other)
Federal Reserve			
QE1 12/08-03/10	US Treasuries, agency debt and agency MBS	Focus on 2-10 years	\$1,750bn
QE2 11/10-06/11		Focus on 2-10 years	\$600bn
QE3 09/12-10/14		Focus on 7-10 and 20-30 years	\$1,630bn
Bank of England			
03/09-11/12	UK gilts, corporate bonds and commercial paper	Focus on 5-25 years	£375bn

Box 1: Quantitative Easing programmes in the US and the UK

By Danielle Kedan

Estimated impact of these measures

Studies find that central bank asset purchase programmes in the US and UK during the financial crisis had a positive effect on both GDP and inflation. Estimates of the magnitude of the effects of QE fall within a wide range, however, as illustrated in a literature review by the IMF (2013). Direct comparison of results across studies is complicated by the fact that sample periods vary between papers and different approaches can be used to assess the macroeconomic impact of QE. Focusing on a recent paper, Weale and Wieladek (2014) find that asset purchases worth 1 per cent of nominal GDP have positive effects on real GDP and inflation of 0.36 per cent and 0.38 per cent in the US, and of 0.18 per cent and 0.3 per cent in the UK, respectively.

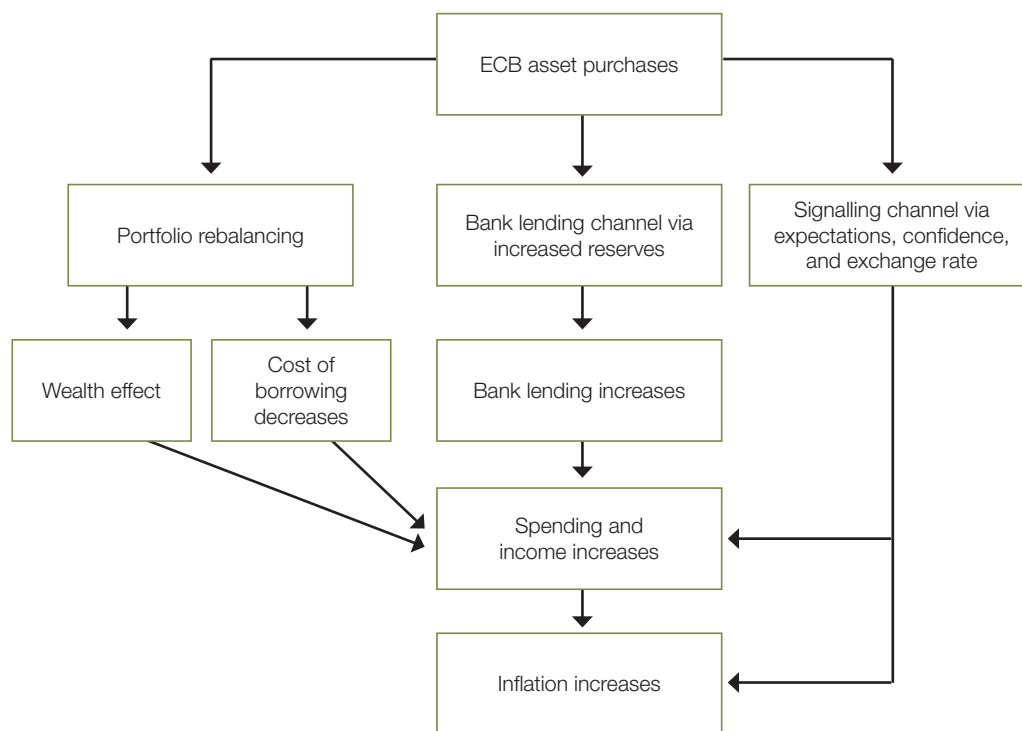
⁸ Nominal GDP in 2010.

⁹ For further discussion of the Bank of England's quantitative easing policy, see Joyce et al. (2011).

3. How will the expanded APP work?

This section describes the main channels through which the expanded APP can be expected to affect the real economy. Care must be taken in interpreting indicators at this stage. Firstly, changes in economic data can occur for a number of reasons, including a general economic upturn, and we do not attempt to disentangle these effects. Secondly, monetary policy tends to affect the economy with long and variable lags. It is thought that when central banks change interest rates the economic effect is only felt 1-2 years later, while purchases under the expanded APP have only been taking place since March 2015. As such what is presented in this Section describes the likely ways in which the programme will impact the economy, rather than attempting to quantify the actual impact at this early stage. Nonetheless, a more in-depth analysis will allow firmer conclusions to be drawn. Ample international literature points to effects of quantitative easing programmes in other countries across a range of variables. Drawing on this, the Central Bank will estimate the impact of the expanded APP on the euro area economy as more data become available. Box 2 gives an overview of some of the methods that could be employed.

The mechanism through which central bank asset purchases is expected to work is to expand broad money supply, thereby raising asset prices, lowering bond yields and reducing long-term interest rates. As a result, there should be a greater incentive to spend money today rather than save, and thus the economy can be stimulated, and inflation increased. In this context, three primary channels through which a central bank's purchases of government securities can affect the real economy have been identified in the economic literature: the portfolio rebalancing channel, the bank lending channel and the signalling channel. Figure 1 presents a stylised framework that highlights these three transmission channels and their macroeconomic outcomes. In the following sections, these three channels are discussed in more detail.

Figure 1: Transmission channels of asset purchases to the macro economy**Box 2:** Conducting in-depth analysis of the effect of the expanded APP on the euro area*By Peter Dunne and Mary Everett*

As of yet there are too few data observations to conduct an in-depth analysis of the macroeconomic effect of the expanded APP. Furthermore, it cannot be inferred that changes observed so far in macroeconomic and financial data are caused by the programme itself or by other factors, such as the general economic upturn. However, once more data are available a number of techniques can be used. This Box describes some of these methods.

The direct and indirect price-effects of the expanded APP can be assessed by using an ‘event-study’ methodology.¹⁰ This method seeks to isolate the effect of programme purchases, or ‘events’, by using high frequency event data. The relationship between bond price movements and purchase amounts (in a variety of pre- and post-‘event’ windows) is estimated and tested for statistical significance. Other variables that normally explain variation in bond price movements are included to control for their effects. The effect of the announcement of the expanded APP, and the anticipation of the announcement, can be assessed in a similar way, with the price effects averaged across a number of individual bonds and across different bond markets.

Event study methods can also be used to isolate the impact of the expanded APP on corporate bond prices and other close substitutes for sovereign bonds. These wider effects of the expanded APP can be expected as a result of the portfolio rebalancing behaviour of investors (discussed in Section 3.1). Examination of changes in investors’ portfolios compared to their historical behaviour (using the methods of Butt et al., 2012) can help determine whether the expanded APP is the main cause of recent developments. In addition, the positive effects of asset purchases on new bond issuance activity can be assessed using regression techniques that control for other potential explanations of such activity.¹¹

Box 2: Conducting in-depth analysis of the effect of the expanded APP on the euro area
By Peter Dunne and Mary Everett

The signalling effects of intervention programmes can be measured by analysis of adjustments in inflation and interest rate expectations. This can be assessed by examining whether revisions in these expectations around the time of the expanded APP are statistically significant, and whether they indicate a change in perceptions about how effective the Eurosystem will be in achieving its inflation objectives. Two broad approaches have been taken in the literature. The first assesses whether the term structure of interest rates has changed due to the pass-through to longer term yields of the expectations that short term rates will stay lower for longer than usual (e.g., Bauer and Rudebusch, 2013). A second assesses whether there has been any change in the anchoring of long term inflation expectations by modelling the Phillips curve which controls for the effects of a narrowing of the output gap (e.g., Kaihatsu and Nakajima, 2015). Whether changes in inflation expectations matter for actual inflation through their influence on wage bargaining and price setting, as described by Krugman (1998), Svensson (2003) and Woodford (2012), may be considered as part of post-expanded APP research plans using an approach similar to Gilchrist et al., 2015.

¹⁰ For example, an event study can be used to identify the response of a price variable to an unanticipated event, such as the ECB's announcement on January 22nd on euro area government bonds.

¹¹ See Marco Lo Duca, Giulio Nicoletti and Ariadna Vidal Martinez (2014).

3.1. Portfolio rebalancing channel

The portfolio rebalancing channel is frequently considered to be the most effective channel through which central bank asset purchases impact the real economy. Since the central bank purchases government securities with cash¹², institutions that sell securities have two choices in terms of what to do with the cash: firstly, they may retain the proceeds of their sales on deposit (the consequences of this for bank lending are discussed below), or, secondly, they may use the cash to purchase other assets (reallocate their portfolios towards other assets), for example corporate bonds and/or equity securities. Greater demand for these assets increases their prices and lowers their yields. Higher asset prices increase the wealth of holders, which should result in a boost to their spending. Falling bond yields reduce the borrowing costs for corporates (and other issuers of bonds) resulting in investment, thereby improving the prospects for the real economy.

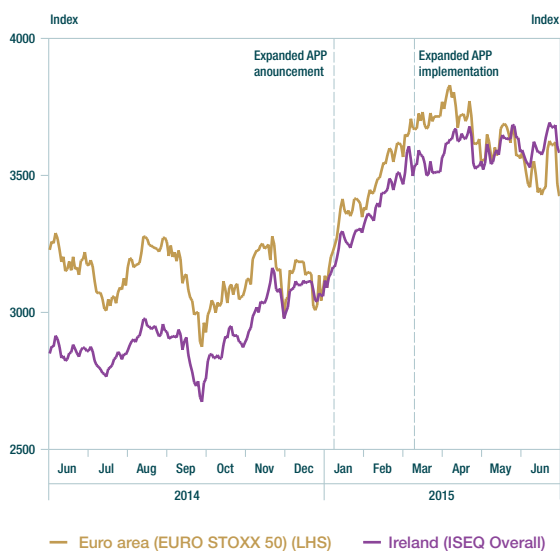
Empirical evidence in support of this transmission mechanism has been found in studies for the US, UK and Japan. In their study of the Federal Reserve's public and private asset

purchase programmes, Carpenter et al. (2015) found that sellers to the Federal Reserve were mainly households and other non-bank financial institutions, comprising hedge funds, broker dealers and insurance companies. Subsequent portfolio rebalancing by these investors was largely towards corporate bonds. Joyce et al. (2014) examine the effects of the Bank of England's quantitative easing policy on the investment behaviour of institutional investors. Their micro-level analysis of UK insurance companies and pension funds shows that sales of UK Gilts to the Bank of England give rise to reinvestment in riskier assets by these investors in the form of corporate bonds. An examination of portfolio rebalancing in Japan is presented in Hogen and Saito (2014). During the Quantitative and Qualitative Monetary Easing programme introduced in April 2013, Japanese banks and foreign investors were the largest sellers of government bonds to the Bank of Japan. Portfolio rebalancing towards bank loans, equity securities and corporate bonds took place following sales by these investors of their government bonds.

Given the expected transmission mechanism of the portfolio rebalancing channel, the impacts of the expanded APP may be seen in

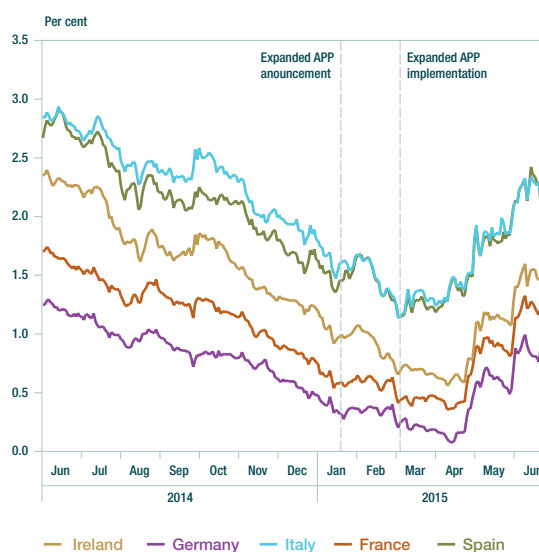
¹² The "cash" received in exchange for government securities by banks is technically termed central bank reserves. The deposit accounts of non-bank investors are credited in exchange for selling government securities to the central bank.

Figure 2: Irish and euro area equity indices



Data source: Thomson Reuters Datastream.

Figure 3: Irish and selected euro area government 10 year bond yields



Data source: Thomson Reuters Datastream.

developments in equity prices and government bond yields. In particular, should it act to raise demand for both of these assets, we would expect the price of both to rise, with the effect that government yields fall.¹³ The value of equities in Ireland and elsewhere in the euro area increased following the ECB's announcement of the expanded APP on January 22, and this trend continued following the start of purchases on March 9 (Figure 2). Following the announcement of the programme, yields on Irish government bonds continued their downward trajectory (Figure 3). More recent increases in Irish and euro area government bond yields in May and June may reflect improved macroeconomic fundamentals, increased euro area government bond issuance, developments in the UK and US and the overshooting of yield declines.

3.2. Bank lending channel

The central bank 'creates' money when it buys government securities from a bank.¹⁴ Banks

require a certain amount of cash to meet daily requirements¹⁵, however banks will not usually choose to hold cash in excess of these requirements, and will instead seek to make a return on it. Since cash attracts a low rate of interest (currently a negative rate in the euro area), banks could benefit from an expansion of lending to the real economy, subject to their own capital constraints.¹⁶

Even if the central bank buys assets from financial institutions that are not banks (for instance, pension funds hold large quantities of government bonds) this can still indirectly affect bank lending. When a non-bank investor sells government bonds to the central bank, the cash it receives becomes a deposit at its commercial bank. If they do not use this cash to invest in an alternative asset, the deposits held by the commercial bank expand. The bank may choose to employ these new deposits by expanding its credit supply to the real economy.

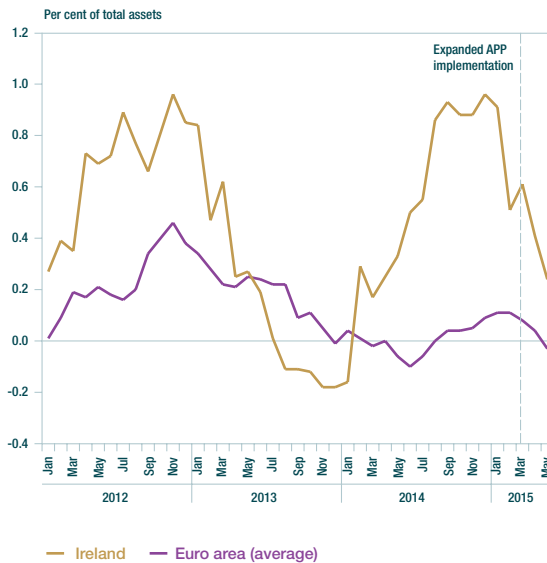
¹³ Indeed, the reduction in sovereign borrowing costs across the euro area as well as the repatriation of central bank profits to governments is likely to have an impact on euro area public finances.

¹⁴ That is, there is an increase in the monetary base, or reserves held by banks at the central bank plus currency in circulation equal to the amount of central bank asset purchases.

¹⁵ Particularly, reserve requirements and liquidity needs.

¹⁶ A detailed discussion of how an asset purchases programme affects money supply can be found in Butt et al. (2012).

Figure 4: Change in Irish and euro banks' holdings of euro area government securities as a percentage of total assets



Data sources: Central Bank of Ireland Money and Banking Statistics and ECB Statistical Data Warehouse.

Another indirect effect, which acts counter to the above, is the impact on bank lending through a reduction in long-term interest rates. This can lower banks' net interest margins, and, if they are capital constrained, reduce their ability to lend to the real economy.

In terms of the impact of the bank lending channel in Ireland, according to the ECB's April Bank Lending Survey (BLS), Irish banks expect the expanded APP to support their credit supply to households and non-financial corporates due to increased availability of liquidity, as opposed to an easing of credit standards. However, it is not possible at this stage to determine the extent to which this has occurred. The BLS responses also indicated that Irish banks intended to increase asset sales in the second quarter of 2015. Holdings of euro area government securities by Irish and euro area banks have been declining since the beginning of 2015, a trend which has continued since the implementation of the ECB's PSPP in March (Figure 4). If non-bank financial institutions, including insurance companies and pension funds, were selling

government securities to the ESCB their deposits in commercial banks would also rise.

3.3. Signalling channel

The announcement and implementation of an asset purchase programme by a central bank demonstrates its intention to meet its inflation objective and signals that it expects to maintain interest rates at a low level for a sustained period.¹⁷ Increased confidence and certainty in the economic outlook, alongside the low level of long-run real interest rates should not only encourage spending but could also increase credit demand. Furthermore, by weakening the euro against other currencies, the programme can raise inflation expectations since demand increases for exports, and imports become more expensive. Finally, higher inflation expectations could cause firms to raise prices in anticipation, leading to a more direct impact on inflation.

4. Conclusion

The announcement of the expanded APP by the Governing Council of the ECB in January 2015 marked the beginning of an unprecedented programme of asset purchases in the euro area, the effect of which is likely to be wide ranging. This article has discussed the reasons behind the decision to introduce the programme, the details of how the programme will be carried out, and the channels through which it is expected to affect the real economy. Three channels in particular are highlighted: the portfolio rebalancing channel, the bank lending channel and the signalling channel. Finally, the article outlines some of variables which might reasonably be affected by the programme. However, it is beyond the scope of this article to draw firm conclusions on the effect of the programme. Ample international literature points to effects of quantitative easing programmes in other countries across a range of variables. Drawing on this, the Central Bank will estimate the impact of the expanded APP on the euro area economy as more data become available.

¹⁷ Indeed, this is explicitly part of the intention with the announcement of the PSPP, see Section 2 for discussion.

Box 3: The role of national central banks in the expanded APP*By William Hynes and Rebecca Stuart*

This Box outlines some of the details of how purchases will be made under the expanded APP and the effect that purchases will have on central banks' balance sheets. The programme will be conducted on a decentralised basis, thereby having a significant impact on the balance sheet of national central banks (NCBs). In conducting these purchases, NCBs are guided by the modalities of the programme as set out by the Governing Council, some of which are also discussed here.

During the programme, €60 billion in securities will be purchased per month. The vast majority of this will be under the PSPP, through which bonds issued by euro area central governments, agencies and European institutions will be purchased in secondary markets. With regard to agencies and institutions who sell assets to the ECB, the intention is that these institutions will buy other assets and extend credit to the real economy. In terms of central government debt, each NCB will focus exclusively on its home market, with purchases determined by the ECB's capital key.

Public sector securities must have a remaining maturity of between 2 and 30 years at the time of purchase. The Eurosystem will be considered on the same level as private investors in terms of creditor treatment. To ensure that the Eurosystem does not obtain a blocking minority in the event of a debt restructuring involving collective action clauses, the securities will also be subject to an issue limit of 25 per cent, and an issuer limit of 33 per cent. The issuer limit is also intended to *'safeguard market functioning and price formation as well as to mitigate the risk of the ECB becoming a dominant creditor of euro area governments'*.¹⁸ Purchases of securities of European institutions (which will be 12 per cent of PSPP purchases) will be subject to loss sharing, but NCBs' purchases of sovereign bonds will not.

The primary impact of asset purchases is to increase the balance sheet size of NCBs as well as the Eurosystem as a whole. In meeting their monthly purchase quota, each NCB is likely to purchase bonds from both domestic and international counterparties. Purchases from domestic counterparties will result in an increase in their current account holdings¹⁹ at the NCB corresponding to the value of the assets purchased. Purchases from international counterparties are slightly more complicated, and may well result in higher Eurosystem liabilities for the purchasing NCB rather than increased current account holdings of domestic institutions. Nonetheless, regardless of the location of the counterparty, the same outcome of asset purchases follows for the Eurosystem; increased central bank asset holdings funded by the provision of additional liquidity to the banking system.

¹⁸ See Q&A on PSPP: <https://www.ecb.europa.eu/mopo/liq/html/pspp-qa.en.html>

¹⁹ This is because, any excess liquidity in the system will, by default, end up on the central bank's balance sheet. An institution's current account with the central bank is made up of its minimum reserve requirement plus any excess to this amount. Minimum reserve requirements are remunerated at the MRO rate (0.05%), while any excess above this amount as well as holdings in the deposit facility are remunerated at the deposit facility rate (-0.2%).

References

- Bauer, M. D. and Rudebusch, G. D. (2013). "Monetary policy expectations at the zero lower bound," Federal Reserve Bank of San Francisco Working Paper Series, 18.
- Butt, N., Domit, S., McLeay, M., Thomas, R. and Kirkham, L. (2012). "What can the money data tell us about the impact of QE?" Bank of England Quarterly Bulletin, Bank of England, Vol. 52, No.4, pp. 321-331.
- Carpenter, S., Demiralp S., Ihrig, J. and Klee, E. (2015), "Analyzing Federal Reserve asset purchases: From whom does the Fed buy?" *Journal of Banking & Finance*, Vol. 52, pp. 230–244.
- Gilchrist, S., Schoenle, R., Sim, J. W., and Zakrajsek, E. (2015). "Inflation Dynamics During the Financial Crisis," Washington Board of Governors of the Federal Reserve System, Finance and Economics Discussion Series, 2015-012.
- Hogen, Y. and Saito, M. (2014). "Portfolio Rebalancing Following the Bank of Japan's Government Bond Purchases: Empirical Analysis Using Data on Bank Loans and Investment Flows," Bank of Japan Research Papers 14-06-19, Bank of Japan.
- IMF (2013). "Unconventional monetary policies – recent experience and prospects," Staff note, 18 April.
- Joyce, M., Tong, M. and Woods, R. (2011). "The United Kingdom's quantitative easing policy: design, operation and impact," Bank of England Quarterly Bulletin, Bank of England, Vol. 51, No. 3, pp. 200-212.
- Joyce, M., Liu, Z. and Tonks, I. (2014). "Institutional investor portfolio allocation, quantitative easing and the global financial crisis," Bank of England working papers 510, Bank of England.
- Kaihatsu, S. and Nakajima J. (2015). "Has Trend Inflation Shifted?: An Empirical Analysis With a Regime-Switching Model," Bank of Japan Working Paper Series, No. 15-E-3.
- Krishnamurthy, A. and Vissing-Jorgensen, A. (2011). "The Effects of Quantitative Easing on Interest Rates: Channels and Implications for Policy," NBER Working Papers 17555, National Bureau of Economic Research.
- Krugman, P. R. (1998). "It's Baaack: Japan's Slump and the Return of the Liquidity Trap," Brookings Papers on Economic Activity No. 2, pp.137-206.
- Lo Duca, M., Nicoletti, G. and Vidal Martinez, A. (2014). "Global Corporate Bond Issuance: What Role for US Quantitative Easing?" ECB Working Paper Series No. 1649.
- Svensson, L. E. O. (2003). "Escaping from a Liquidity Trap: The Foolproof Way and Others," *Journal of Economic Perspectives*, 17(4), pp.145-166.
- Weale, M. and Wieladek, T. (2014). "What are the macroeconomic effects of asset purchases?" External MPC Unit Discussion Paper No. 42, Bank of England.
- Woodford, M. (2012). "Methods of Policy Accommodation at the Interest-Rate Lower Bound," Working Paper for Jackson Hole Symposium.

Labour Cost Adjustment during the Crisis: Firm-level Evidence

Suzanne Linehan, Reamonn Lydon and John Scally¹

Abstract

This paper introduces a new firm-level dataset, based on the results from a survey on the wage-setting practices of Irish firms in the second half of 2014. These survey results represent a useful resource for policy makers, allowing for firm-level analysis of the approach to the adjustment of labour demand and wages in the face of a large negative shock. A number of findings are worth highlighting in relation to these results: in terms of the labour cost cutting approach, firms relied upon both reductions in the quantity (employment and hours) and the price of labour (wages); employee numbers was the most widely used margin of adjustment, followed by wage cuts and hours. While the majority of Irish firms opted to freeze base wages, in the region of 60 per cent, there is strong evidence of downward wage flexibility, with almost one quarter of firms surveyed cutting wages. A comparison with previous findings in relation to Ireland and other euro area countries points to a dramatic increase in the incidence of wage freezes and wage cuts amongst Irish firms during the 2008-2013 period.

¹ Irish Economic Analysis Division, Central Bank of Ireland. The views expressed in this article are those of the authors only and do not necessarily reflect the views of the Central Bank of Ireland or the ESCB. We would like to acknowledge the work of the staff of Ipsos MRBI, who co-ordinated the survey fieldwork as well as Brian Condon and Stephen Byrne for assistance with data and charts. We are grateful to John Flynn for helpful comments on previous drafts of the Article.

1. Introduction

This article presents the results from a survey carried out in the second half of 2014 on the wage-setting practices of Irish firms. The aim of the survey, which was undertaken as part of the Central Bank of Ireland's participation in the Eurosystem's Wage Dynamics research Network (WDN), was to understand exactly how firms adjusted their labour demand and wage levels in the face of a large economic shock. Whilst the WDN survey looks at a broad range of cost factors at the firm level, such as non-labour input and finance costs, it is a particularly rich source of information on labour costs.

Aggregate data on labour costs, such as the National Income and Expenditure accounts or the CSO Employment Hours Earnings and Cost Survey (EHECS) data, does not show a pronounced pattern of downward wage flexibility during the crisis. The prevailing view is that a substantial proportion of the reduction in firms' *overall* wage bill was achieved by cutting the number of people in work.² There are, however, inherent limitations to aggregate wage data – for instance, wage dynamics at a macro level do not solely reflect developments at a firm level as changes in the composition of employment also play a role. As a result, a number of Irish studies have gone beyond the use of aggregate wage data. The main messages from these papers are as follows:

- Doris et al. (2014), using an administrative dataset on employees' tax returns, find considerable heterogeneity in annual earnings developments - whilst the share of workers who saw a cut rose to 54 per cent at the height of the recession in 2009, a significant proportion of employees (44 per cent) also experienced earnings increases.
- CSO (2010) uses firm-level data from EHECS to show that almost two-thirds of employers had cut their wage bill by more than 2 per cent during 2008/2009, with the primary method of reduction being employment, followed by hours and hourly pay.

- Walsh (2012), in a longitudinal study of firm level data, concludes that changes in the wage bill over the 2009 to 2011 period largely came about through reductions in employment, with a smaller contribution from changes in average hourly earnings and weekly paid hours.
- Bergin et al. (2012) find similar results to Walsh (2012) - that firms chose to reduce staff numbers, hours worked and bonus payments in preference to reducing wages.
- Using a database on the earnings of recent college graduates, Conefrey and Smith (2013) show that new labour market entrants experienced a significant decline in earnings during the recession.

The WDN survey results provide an ideal opportunity to examine Irish firms' approach to labour cost adjustment during the crisis using a firm-level dataset and thereby add to the findings of the studies cited above. The results of the survey allow us to distinguish between the main channels of labour cost adjustment to a shock, namely: the quantity of labour employed (which covers both numbers in employment and average hours per worker) and the price of labour (wages).

Results from previous WDN waves yielded considerable evidence of the existence of downward wage rigidities both in Ireland and the euro area³. Therefore, one of the key issues to be considered using this firm-level dataset is the degree of wage flexibility during the crisis. A more general motivation is to gain a better understanding of the wage setting process, which is of particular relevance to central banks given the link between wage formation and the monetary policy transmission mechanism.

The paper is structured as follows. Section 2 describes the survey, its design and sample characteristics in more detail. Section 3 presents the main survey results relating to the composition of labour cost adjustment amongst the firms surveyed. Section 3.1 examines the quantity margin of labour cost

² CSO - National Income and Expenditure Accounts and Quarterly National Household Survey.

³ See Bertola et al. (2010), Keeney and Lawless (2010) and Rõõm and Messina (2009).

adjustment via employment and hours worked, while section 3.2 considers the issue of price or wage flexibility, with a particular emphasis on the degree to which downward wage adjustment occurred. Section 4 briefly outlines some of the other findings from the WDN survey and section 5 concludes.

2. WDN Survey Design and Sample Characteristics

2.1 Background to the Survey

In the second half of 2014, the Central Bank of Ireland (CBI) surveyed over 1,500 firms on a range of issues, including: wage-setting practices, factors affecting labour demand and price-setting behaviour as part of a coordinated research effort known as the Wage Dynamics Network (WDN). The WDN is a European System of Central Banks research network set up in July 2006, with the original aim of looking at the link between wage setting behaviour and price setting. The current WDN wave is specifically motivated by the need to gain some insight into how output shocks affected labour demand and wage-setting behaviour during the crisis. There have been two previous waves of WDN surveys - in 2007/2008 ("WDN 1") and 2009 ("WDN 2"). The Central Bank of Ireland (CBI) participated in the first wave (Lawless et al., 2009), but not the second wave. The current third wave of the survey was carried out in 2014 and 27 countries took part. The [WDN website](#) contains further information on the activities of the research network, as well as more background on the survey.

2.2 Survey Design

The Survey was designed in collaboration with other members of the Eurosystem's WDN. The questionnaire is divided into 'core' and 'non-core' sections or questions. The 'core' questions account for the bulk of the content and are common across countries, whereas the 'non-core' questions relate to country-specific issues. The survey was divided into five sections:

1. Information about the firm such as its structure, ownership, sector etc.
2. Changes to the firm's economic environment e.g. demand factors, costs and in particular labour costs.
3. Labour demand during and after the recession.
4. Wage setting practices - information on the frequency of wage changes, the extent of collective bargaining agreements, the prevalence of wage cuts and freezes and the reasons for reluctance to cut wages.
5. Price-setting – frequency of, and factors affecting, firms' approach to price setting.

The survey questions were generally qualitative in nature, with participants given categorical options from strong decrease to strong increase, for example. The survey asks about firm behaviour during two time periods: 2008-2009 and 2010-2013. In the case of Ireland, this split broadly refers to what might be termed the 'trough' years of the recession (2008-2009) and the 'bottoming out' and tentative signs of recovery (2010-2013).

2.3 Fieldwork and Sample Characteristics

Following a tender in early 2014, the Central Bank of Ireland commissioned Ipsos-MRBI to carry out a postal survey. The survey was completed by managing directors, financial controllers or other suitably qualified individuals and excludes public sector organisations.⁴ The 1,569 responses represent a response rate of 5 per cent. Responses are weighted to match population weights in terms of firm size, sector and region (Table 1).

As with any survey, there are a number of issues to be aware of when analysing the results. Firstly, the survey was conducted in 2014 and refers to periods up to seven years prior, raising the possibility that respondents could misremember, or fail to check, events in the more distant past. Moreover, the

⁴ In addition to the postal self-completion questionnaire, firms had the option to complete it online, although in practice few firms used this option.

Table 1: Characteristics of firms in the survey

Firms		1,569	
Size	%	Years in operation	%
Micro (2-10 emp)	77.4%	<=2 years	4.4%
Small (11-49)	18.1%	3-5 years	7.1%
Medium (50-249)	3.6%	6-10 years	17.1%
Large (250+)	1.0%	11-20 years	28.5%
		21+ years	43.0%
Sector		Structure	
Manufacturing	7.5%	Single establishment firm	86.5%
Construction	7.0%	Multi-establishment	7.1%
Retail & Transportation	29.6%	No answer/unknown	6.3%
Accommodation & Food	11.4%	Ownership	
Financial, Professional & Administrative	18.5%	Mainly domestic	66.1%
Other	26.0%	Mainly foreign	3.9%
		No answer/unknown	29.9%

two time periods - 2008-2009 and 2010-2013 - are quite broad; a lot happened within these periods, particularly in Ireland. Respondents could conceivably be suffering from a “recollection bias” given the significant length of time that has passed and the magnitude of the shocks experienced (this phenomenon is explored further in Box 1). Secondly, there is the possibility of a “survivor bias”. The respondents of the current survey are necessarily recession survivors, with the implication that these more resilient firms were

better able to adapt, either due to a more favourable initial position, better management or because they were more sheltered from economic shocks. Finally, there was a high non-response rate to certain questions that required more time and, in some cases, more quantitative input from the respondent. In order to gauge the recall issues, Box 1 below compares the responses to questions on wage flexibility with response from other surveys conducted between 2009 and 2013.

Box 1: Are the WDN Survey Results Consistent with Other Survey Data?

This Box examines the potential ‘recollection bias’ problem with the WDN, i.e. given the retrospective nature of the survey, are respondents remembering events correctly? We use the Business Sentiment Survey (BSS) – an unpublished internal Central Bank of Ireland survey of companies over the 2009-2013 period – to see if the long recollection period of the WDN (up to 7 years) correlates with events in a more timely survey. Whilst there are some concerns about comparing two surveys (wording, methodology, sample size, and composition), we believe the BSS provides a useful benchmark to gauge the WDN’s assessment of the labour market adjustment to the recession.

The sample size of the BSS (300 firms) is around one-fifth that of the WDN survey. However, it was distributed biannually and had the advantage of providing an up-to-date snapshot of economic activity. The two time periods covered by the WDN survey (2008-2009 and 2010-2013) were periods of substantial flux and the BSS reveals that significant changes are apparent between start and end-points of these two time periods. Given the dramatic changes over the time period, it is reasonable to ask whether the respondents to the WDN are ‘averaging out’ their experiences, or reporting peaks and troughs. The BSS sheds some light on this.

In the aggregate, the patterns in the BSS and WDN surveys are very similar, with both suggesting considerable flexibility in the Irish labour market during the crisis, in terms of the percentage of firms reporting wage cuts. In-line with the WDN results, Figure B1.1 suggests, that 27 per cent of surveyed firms in the BSS indicated that they had cut the basic hourly rate of pay in 2009 (the WDN figure is 24 per cent of firms).

Box 1: Are the WDN Survey Results Consistent with Other Survey Data?

There is more of a divergence between the surveys when we look at the 2010 to 2013 period. This is hardly surprising as the economic situation facing some Irish firms in 2010 was potentially different to that in 2013. In 2010, the BSS in November of that year indicated that 34 per cent of firms were cutting wages, declining to just 5 per cent by November of 2013; the mid-point of this range is 20 per cent. This compares to base wage cuts of 21 per cent over the entire 2010-2013 period as reported in the WDN. Taken together, these comparisons suggest that the wage dynamics recalled by WDN respondents may not suffer from serious recall problems.

Figure 3 indicates that the BSS points to a greater reduction employment in 2009 as the severity of the downturn became apparent, with 65 per cent of firms indicating that they had cut employment compared to 25 per cent in early 2008; the WDN recorded declines in employment of 31 per cent over this period. However, if we look at averages over the period, the two surveys correspond much more closely - the BSS averages 45 per cent compared to the WDNs 30 per cent employment cuts. The larger employment response in the BSS could be accounted for by the presence of more large multinationals in the sample. By 2013, the BSS indicates that businesses had emerged from job-shedding mode and had begun to rehire, with more firms increasing employment (33 per cent) than decreasing (16 per cent). Overall, it appears that the average BSS responses closely mirror developments in the WDN.

Figure B1.1: Base wage changes

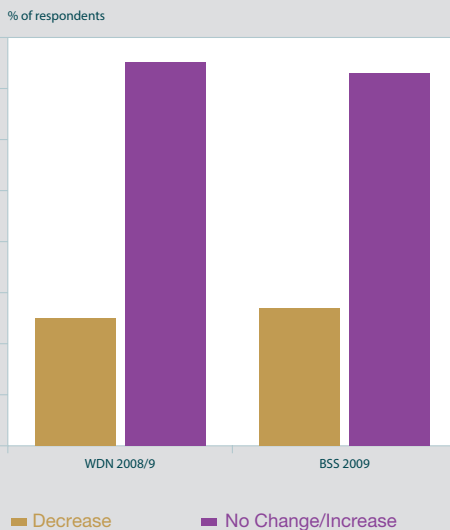


Figure B1.2: Base wage changes 2010/13

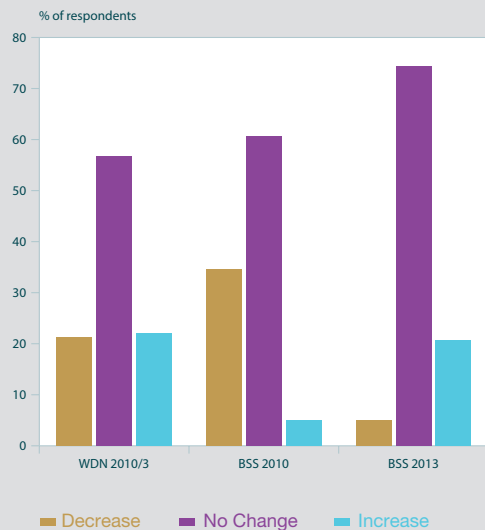


Figure B1.3: Employment changes 2008/9

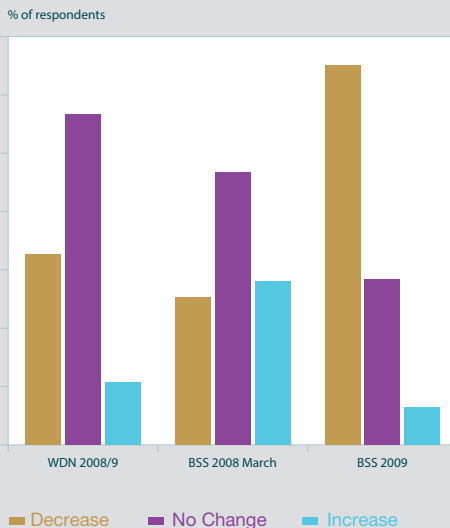


Figure B1.4: Employment changes 2010/13

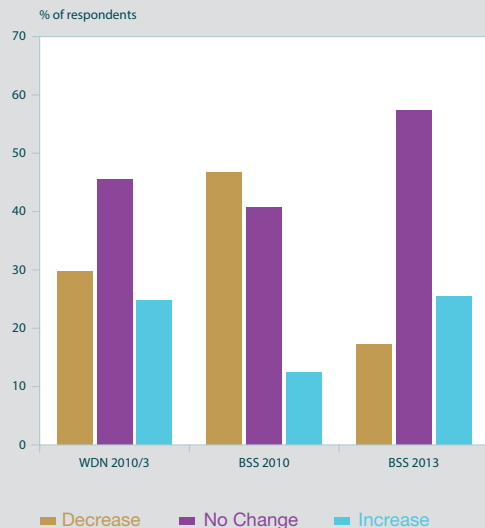
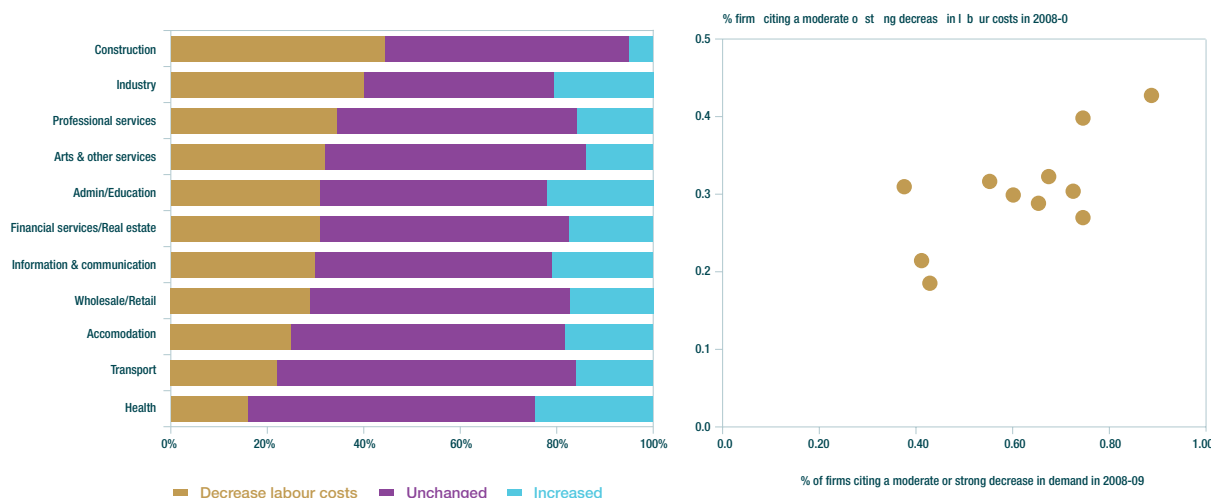


Figure 1: Changes in labour costs 2008-09 and the relationship between demand shocks and labour cost adjustment

3. Labour Cost Adjustment

We know from the aggregate data that at the onset of the recession in 2008 firms moved quickly to reduce labour costs. In the two years that followed, unemployment jumped from 4 to 15 per cent, employment dropped by 15 per cent and total hours worked by 20 per cent. In the WDN, around one-third of firms reported a strong or moderate reduction in labour costs during both 2008-09 and 2010-13. There is, however, considerable heterogeneity across sectors - for instance, 44 per cent of firms in the construction sector cut labour costs during the most intensive phase of the crisis; the corresponding share in the health services sector was around 15 per cent (Figure 1). The second panel in Figure 1 shows that there is a strong positive correlation between reductions in labour costs and demand shocks. We explore this relationship further below in a regression framework.

Firms were asked about the *composition* of changes to labour costs: specifically, in terms of base wages, permanent/temporary employees, working hours or flexible wage components or a combination, thereof. Survey results (Table 2) suggest that firms were relying upon all available mechanisms to adjust labour costs downwards, albeit to varying degrees. The most widely employed approach to

labour cost reduction during both sub-periods was to cut permanent employee numbers – approximately 30.6 per cent and 29.6 per cent of firms surveyed reported a reduction in employees during the 2008-09 and 2010-13 period, respectively. Such a finding is consistent with both available macro wage data and existing literature (CSO (2009), Walsh (2012)), which suggests that the employment channel was the dominant approach to labour cost reduction over the 2008 to 2012 period.

Looking to wage developments, the majority of firms surveyed froze wages, in the region of 60 per cent. Nevertheless, about 24 per cent of firms actually cut wages over both sub-periods. A similar share of firms, around one quarter, relied upon the more flexible components of wages such as bonuses and other discretionary compensation. Employee working hours represented a relatively less important margin of labour cost reduction amongst the firms surveyed. A further and more detailed analysis of the quantity and price adjustment of labour costs is provided in Sections 3.1 and 3.2, respectively.

It is not possible at this stage to do a full cross-country comparison as the results from the third WDN wave have yet to be released for all countries. Instead, in Table 3, we compare the Irish results with the responses of the

Table 2: Adjustment of Labour Cost Components (% of survey respondents)⁵

Main Strategy	2008-2009	2010-2013
Employment - Permanent		
Reduced	30.6	29.6
Unchanged	61.1	51.5
Increased	8.2	18.9
Hours Worked		
Reduced	21.1	22.4
Unchanged	70.7	62.3
Increased	8.3	15.3
Base Wages		
Reduced	23.9	23.3
Unchanged	62.2	58.0
Increased	14.0	18.7
Flexible Wages		
Reduced	25.6	22.7
Unchanged	69.5	68.4
Increased	4.9	9.0

WDN 2 survey, which was conducted amid the financial crisis, during the summer of 2009, in a subset of countries.⁶ The most noteworthy difference between the two sets of results is the pronounced increase in the incidence of downward wage adjustment amongst Irish firms during both sub-periods - reductions in both flexible wage components (e.g. bonuses) and base wages were much more heavily relied upon by Irish firms. The incidence of base wage cuts is second only to Estonia, where 44 per cent of firms cut wages⁷. As regards the adjustment of the quantity of labour, Irish firms relied more heavily on reductions in permanent employees and hours worked throughout the 2008-09 and 2010-13 period than was the case in WDN 2, when temporary employee adjustment dominated. Arguably, one reason for the higher incidence of base wage cuts and freezes was the greater intensity and nature of the negative shock experienced by Irish firms since 2008. Furthermore, the effective abandonment of collective wage bargaining and pre-existing weak employment protection

increased the scope to lower wages and permanent employment, thereby reducing the reliance on more flexible components such as hours worked and temporary employees. This is consistent with the findings of Babecky et al. (2008) that high country level bargaining coverage and the strictness of employment protection legislation increase downward nominal wage rigidity. In addition, the low inflation environment prevailing throughout 2008 to 2013 may have been more conducive to wage freezes and cuts.

3.1 Labour Cost Adjustment: Quantity

This section explores in more detail how firms sought to adjust the *quantity* of labour employed after 2008. We pay particular attention to the choice between adjustments at the intensive margin (hours) versus the extensive margin (numbers employed). Previous research has shown that the particular mode of adjustment can depend on

⁵ Table 2 includes firm responses in relation to four of the seven labour cost components.

⁶ Ten countries (Belgium, Czech Republic, Estonia, Spain, France, Italy, Luxembourg, Netherlands, Austria and Poland) participated in WDN 2, covering over 5500 firms. It updated the findings of WDN 1, which was based on a survey carried out pre-crisis. WDN 2 asked about firms' reactions to the negative demand shock in the context of the financial and economic crisis in 2008.

⁷ http://www.ecb.europa.eu/home/pdf/wdn_finalreport_dec2009.pdf

Table 3: WDN 2 (EA) vis-à-vis WDN 3 (IE) Labour Cost Reduction Following Shock

Main Strategy (% of firms)	WDN 2 ⁸ 2009	WDN 3 2008-09	WDN 3 2010-2013
Adjust the amount of labour			
Reduce number of temporary employees	27.5	16.7	17.4
Reduce number of permanent employees	16.6	30.6	29.6
Reduce hours worked per employee	15.4	21.1	22.4
Adjust the price of labour			
Reduce flexible wage components	8.6	25.6	22.7
Reduce base wages	1.5	23.9	23.3

a range of factors including; the institutional setup of the labour market in a given country or sector and the extent to which firms believe the shock to be permanent or temporary.⁹

Figure 2 charts the changes in employment and hours worked by sector. The construction sector, as expected, reported the largest declines over both periods, with almost 60 per cent of firms reporting reduced employment; the information and communication technology sector, on the other hand, registered the largest employment increases over both periods. With regard to hours worked, firms in the construction and the accommodation and food services sectors were more likely to have reduced hours, which is consistent with the view that these firms' employees are more likely to be contracted with flexible hours. Indeed, the accommodation sector registered the largest decrease in working hours in the 2010-13 period. Those in the administration and education sector reported the largest increase in hours in the 2010-13 period.

To investigate the possible drivers of the changes in employment, we run a probit regression where the dependent variable equals one if the firm cut employment in 2008-09 or 2010-13 (see Table 4). We control for firm size, sector, whether it is primarily foreign or domestically owned, the scale of the reported demand shock in each period, the share of labour costs in total costs and the

proportion of high-skilled workers in the firm.

This indicates that large firms were more likely to have decreased employment in both periods. Controlling for the size of the shock, firms in the construction, services and financial services sectors were also more likely to have reported reducing employment. There is a strong positive correlation between the incidence of demand shocks and employments cuts. Firms with a higher labour cost share were more likely to have decreased employment in both periods.

As highlighted above, the survey results in relation to employment adjustment corroborate the findings of comparable firm-level studies¹⁰ in suggesting that it was the most common approach to wage bill reduction in Ireland during the crisis. A reliance on the reduction of employee numbers could reflect the scale and distribution of the demand shock in Ireland, which had a high sectoral concentration and therefore a significant proportion of job losses in the labour-intensive construction and industry sectors. In order to gain insight into the composition of the employment adjustment, firms who claimed to have reduced their labour inputs in either period were asked to what extent certain measures were used to reduce the quantity of labour employed; firms could choose multiple options. We group the measures under the following headings: (i) *Layoffs (collective,*

⁸ ECB Monthly Bulletin, July 2010, pp. 61.

⁹ See Bertola (2010) for a brief overview of the literature and some findings in respect of WDN 2.

¹⁰ See Walsh (2012) and Bergin (2012).

Figure 2: Changes in Employment and Hours Worked by Sector: 2008-09 and 2010-13

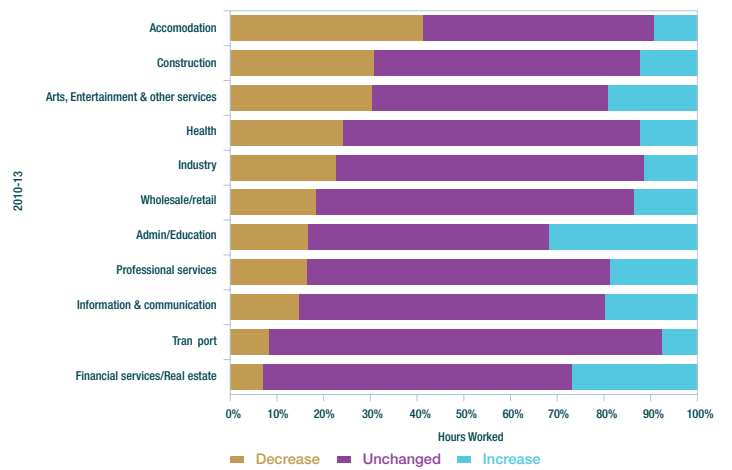
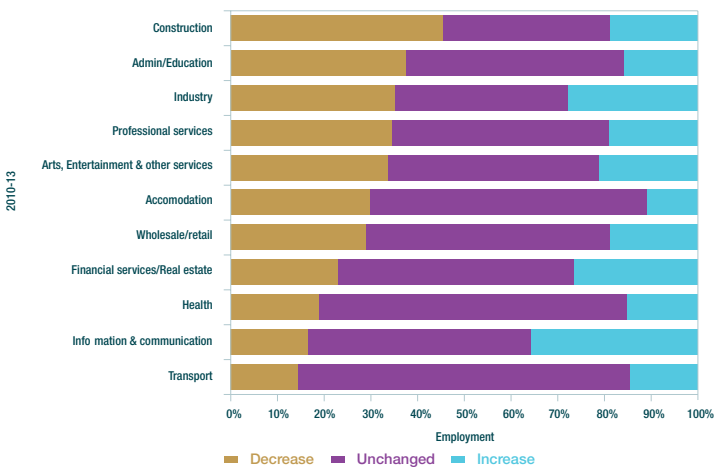
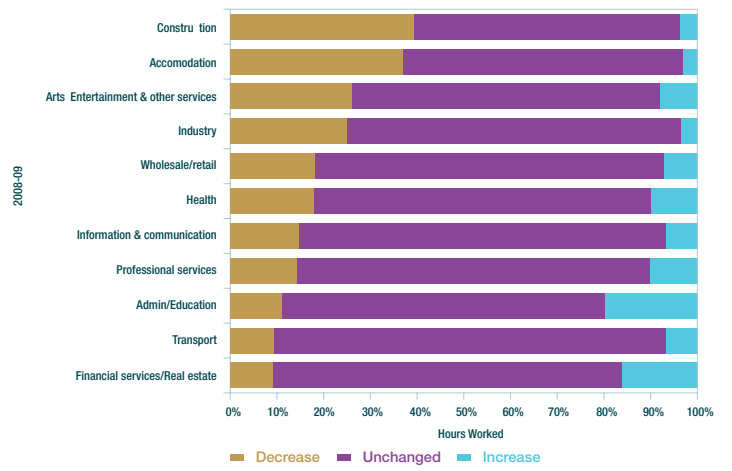
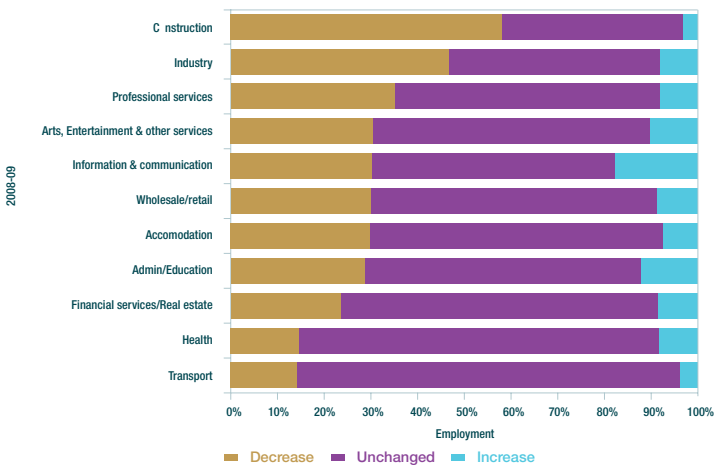


Table 4: Probit: dependent variable = 1 if firm cut employment in 2008-09 or 2010-13

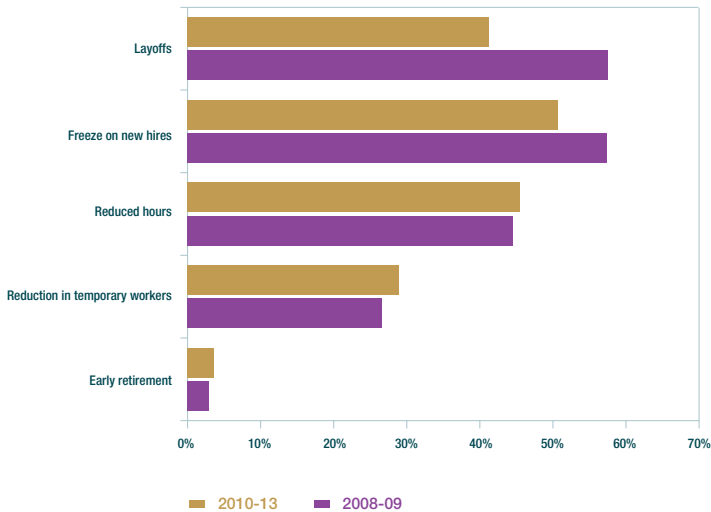
VARIABLES	2008-09		2010-13	
	Employment decrease	Margins	Employment decrease	Margins
Firm size				
Micro (2-10 emp)	[omitted]	0.294 (0.014)	[omitted]	0.2668 (0.0147)
Small (11-49 emp)	0.173* (0.0902)	0.340 (0.205)	0.145 (0.0890)	0.308 (0.0215)
Medium/Large (50+ emp)	0.577*** (0.136)	0.461 (0.0374)	0.337** (0.134)	0.368 (0.038)
Foreign owned				
No	[omitted]	0.327 (0.0116)	[omitted]	0.285 (0.015)
Yes	-0.550*** (0.192)	0.295 (0.042)	0.206 (0.162)	0.3475 (0.048)
Sector^(a)				
Industry	[omitted]	0.417 (0.038)	[omitted]	0.292 (0.036)
Construction	0.241 (0.212)	0.491 (0.054)	0.497** (0.207)	0.451 (0.057)
Services (excl. Financial Services)	-0.338** (0.135)	0.317 (0.013)	-0.0208 (0.132)	0.285 (0.013)
Financial Services	-0.656*** (0.180)	0.233 (0.031)	-0.185 (0.172)	0.239 (0.032)
Demand shock^(c)				
Strong decrease	[omitted]	0.598 (0.022)	[omitted]	0.556 (0.028)
Moderate decrease	-0.774*** (0.0920)	0.311 (0.0227)	-0.489*** (0.0986)	0.367 (0.025)
Unchanged	-1.551*** (0.122)	0.108 (0.018)	-0.966*** (0.119)	0.210 (0.02)
Moderate increase	-1.804*** (0.160)	0.701 (0.018)	-1.407*** (0.114)	0.107 (0.015)
Strong increase	-1.711*** (0.248)	0.828 (0.034)	-1.869*** (0.234)	0.0454 (0.037)
Labour cost share ^(b)	0.388** (0.191)	0.0653 (0.032)	0.127 (0.182)	0.024 (0.029)
%Hi-skill manual workers ^(b)	0.126 (0.159)	-0.0212 (0.026)	0.0518 (0.152)	0.0083 (0.024)
%Hi-skill non-manual workers ^(b)	0.327*** (0.118)	0.055 (0.0197)	0.0499 (0.112)	0.008 (0.018)
Constant	0.138 (0.172)		-0.0219 (0.168)	
Observations	1,331		1,388	

(a) NACE Rev 2 categories are group into four categories here for cell size reasons. The public and agricultural sectors are also excluded.

(b) The margins for continuous variables are calculated for a 0.5 percentage change, e.g. an increase in the labour cost share from 25 to 75 per cent, or an increase in the proportion of hi-skilled workers in the firm from 25 to 75 per cent.

(c) A demand shock is defined as a change in the level of demand for products/services.

Figure 3: Percentage of firms using a given measure to reduce labour input, conditional on answering ‘yes’ to a reduction in labour inputs



individual or temporary); (ii) reduced hours; (iii) early retirement; (iv) a reduction or freeze in new hires; or (v) non-renewal of temporary contracts. The responses are categorical, that is, firms could respond “Not at all (used)”, “Marginally”, “Moderately” or “Strongly”.

The most widely used measure for reducing labour inputs are layoffs or a freeze on new hires (Figure 3). The least important margins of adjustment are early retirement schemes or non-renewal of temporary/contract workers, although this may misrepresent the scale to which such measures were used as the charts neither conditions on the average age of workers within the firm nor the prevalence of contract workers in the firm.

Regarding the choice of adjustment at the intensive (hours) and extensive (workers) margin, we find a high degree of overlap between the two. For example, two thirds of firms that reduced hours in 2008-09 also used layoffs to reduce labour inputs. Similarly, around half of firms that used layoffs also reduced working hours during 2010-13. Analysing the responses of firms that chose

hours reductions over layoffs, we find that the majority of these firms are in the services sector (professional services, wholesale and retail trade and other services). Such a finding is consistent with the more flexible nature of employment contracts within these sectors. Conversely, firms that opted for layoffs tended to be more heavily concentrated in construction, industry and financial services. Given that these sectors bore the brunt of the demand shock – both on the basis of changes to output at the sectoral level and the fact that significantly more firms in these sectors in the survey cited negative demand shocks as a key factor affecting firm activity in 2008-09 – this tentatively suggests that the more ‘permanent’ the shock the less likely we are to observe hours reductions.

3.2 Labour Cost Adjustment: Price

This section examines firms’ reliance on wage adjustments in response to a shock. Firms were asked the following question:

Please indicate how [base wages or piece work rates / flexible wage components] changed during 2008-2009 and 2010-2013.

Responses are on a one to five scale ranging from “Strong decrease” to “Strong increase”. Figure 4 shows the percentage of firms by sector that decreased (bottom two categories), increased (top two categories) or left wages unchanged. In line with patterns highlighted in CSO (2010), a high proportion of firms in the construction (40 per cent) and industry (30 per cent) sectors cut wages in the early period in particular. The rankings are broadly unchanged when we look at flexible wages (the second panel in Figure 4), with one exception: the financial services / real estate sector. From being close to the bottom in the base wage change ranking (2008-09), the financial services / real estate sector moves up the ranking when we look at changes to flexible wage components. A possible explanation for this is that the flexible wage component accounts for a larger portion of the overall wage bill for firms in this sector. For example,

Figure 4: Changes in base and flexible wages by sector: 2008-09 and 2010-13

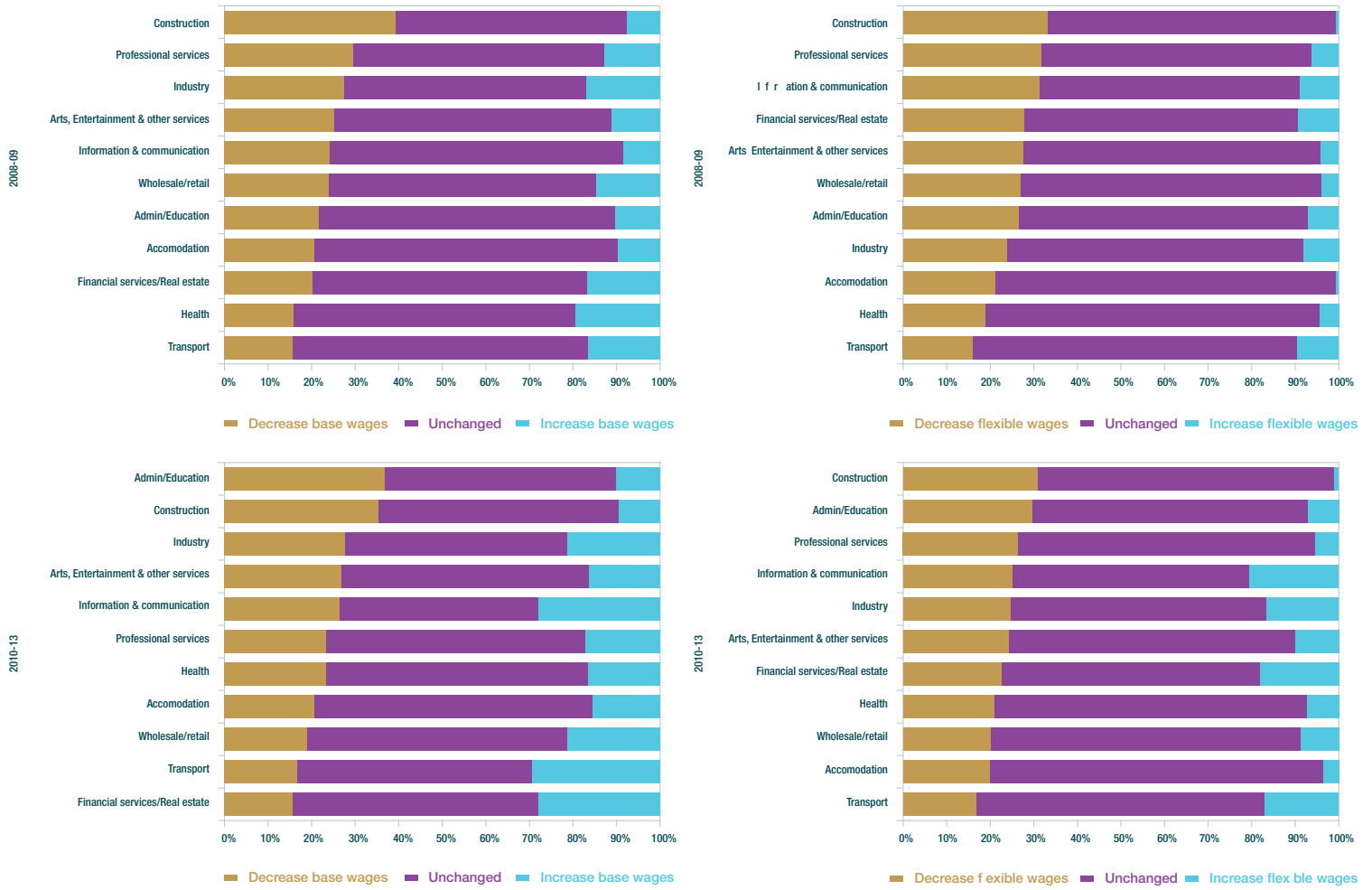


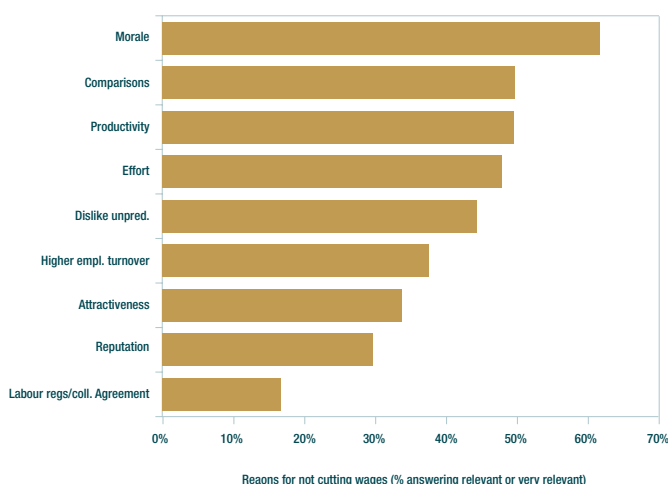
Table 5: Probit: dependent variable = 1 if firm cut base wages in 2008-09 or 2010-13

VARIABLES	2008-09		2010-13	
	Wage decrease	Margins	Wage decrease	Margins
Firm size				
Micro (2-10 emp)	[omitted]	0.221 (0.014)	[omitted]	0.207 (0.013)
Small (11-49 emp)	0.221** (0.0915)	0.280 (0.021)	-0.0476 (0.0934)	0.195 (0.019)
Medium/Large (50+ emp)	0.310** (0.137)	0.306 (0.037)	0.121 (0.144)	0.240 (0.037)
Foreign owned				
No	[omitted]	0.256 (0.011)	[omitted]	0.213 (0.011)
Yes	-0.550*** (0.192)	0.130 (0.034)	-0.524** (0.216)	0.101 (0.034)
Sector				
Industry	[omitted]	0.266 (0.037)	[omitted]	0.215 (0.035)
Construction	0.169 (0.217)	0.315 (0.053)	0.295 (0.214)	0.301 (0.055)
Services (excl. Financial Services)	-0.0290 (0.141)	0.258 (0.013)	-0.00706 (0.140)	0.213 (0.012)
Financial Services	-0.545*** (0.193)	0.137 (0.026)	-0.404** (0.192)	0.123 (0.026)
Demand shock^(a)				
Strong decrease	[omitted]	0.436 (0.023)	[omitted]	0.358 (0.027)
Moderate decrease	-0.528*** (0.0932)	0.251 (0.022)	-0.255** (0.101)	0.270 (0.023)
Unchanged	-1.199*** (0.124)	0.094 (0.017)	-0.891*** (0.134)	0.109 (0.02)
Moderate increase	-1.578*** (0.180)	0.046 (0.016)	-1.011*** (0.119)	0.088 (0.015)
Strong increase	-1.284*** (0.253)	0.081 (0.036)	-0.679*** (0.179)	0.152 (0.037)
Labour cost share ^(b)	0.390** (0.193)	0.0555 (0.0274)	0.220 (0.190)	0.029 (0.025)
%Hi-skill manual workers ^(b)	-0.0931 (0.165)	-0.013 (0.023)	-0.0249 (0.160)	-0.003 (0.021)
%Hi-skill non-manual workers ^(a)	0.391*** (0.119)	0.056 (0.0169)	0.291** (0.116)	0.038 (0.015)
Constant	-0.478*** (0.175)		-0.510*** (0.176)	
Observations	1,334		1,392	

(a) A demand shock is defined as a change in the level of demand for products/services.

(b) The margins for continuous variables are calculated for a 0.5 percentage change, e.g. an increase in the labour cost share from 25 to 75 per cent, or an increase in the proportion of hi-skilled workers in the firm from 25 to 75 per cent.

Figure 5: Firms' reasons for not cutting base wages



the survey results indicate that a greater proportion of the wage bill for firms in this sector is accounted for by performance related pay – 7 per cent in 2013, versus 3 per cent in all other sectors.

To investigate the correlations in the data more formally, as with employment changes, we run a probit regression where the dependent variable equals one if the firm cut base wages in 2008-09 or 2010-13 (Table 5). Again, we control for firm size, sector, whether it is primarily foreign or domestically owned, the scale of the reported demand shock in each period, the share of labour costs in total costs and the proportion of high-skilled workers in the firm.

In the earlier period, smaller firms (≤ 10 employees) were marginally less likely to cut base wages. That said, over a fifth of these firms still cut wages in 2008-09, compared with almost a third for larger firms. More generally in the sample, there is a heavy reliance on wage freezes as a means of controlling wage costs during the two sub-periods. Around 62 per cent of firms claimed

they froze wages in the 2008-2009 period, falling only marginally to 58 per cent in the 2010-2013 period. The incidence of pay freezes was highest amongst smaller firms and those in the labour-intensive distributive trades sector.¹¹

Seven per cent of firms in the sample are majority foreign-owned. In both periods, these firms were significantly less likely to cut base wages, even after controlling for the extent of the demand shock and sector. Between one fifth and one quarter of domestically-owned firms cut wages in either period, whereas the same figure for foreign firms is 10 to 13 per cent. It is also the case that foreign firms account for *more than half* of the firms who claimed to be *raising* wages during the downturn.

There is a strong positive correlation between the incidence of demand shocks and wage cuts. As expected, firms with a higher labour cost share are more likely to opt for wage cuts, but only in the first period. There is a higher incidence of wage cuts amongst firms with a greater proportion of skilled non-manual workers. The extent of the shock may have been such that firms chose to cut the wages of these higher skilled non-manual workers rather than letting them go. In effect, they were banking on the severity of the downturn to dissuade even the higher skilled workers from leaving in the face of lower wages. This result, however, should be treated with caution as there was anecdotal evidence of a shortage of high-skilled workers in some sectors throughout the 2010-13 period. Firms with a greater proportion of skilled non-manual workers tend to be in the IT, Financial Services, Professional/Technical services or Other Administrative sectors.

Figure 4 shows that in addition to wage cuts, a majority of firms used wage freezes as a means of controlling wage costs during the two sub-periods. The most widely cited reason

¹¹ The distributive trades sector covers three broad areas, namely, motor, wholesale and retail trade.

Table 6: Labour cost of new hires versus existing workers (controlling for experience and tasks)

	% of firms saying new hires costs were much lower, lower, similar, higher or much higher		
	pre-2008	2008-09	2010-13
Much lower	2.7%	4.1%	6.2%
Lower	10.2%	18.3%	23.3%
Similar	76.9%	73.1%	62.7%
Higher	8.3%	3.7%	5.9%
Much higher	1.9%	0.9%	1.8%
	100.0%	100.0%	100.0%

for not cutting wages was the negative impact on employees' morale; firms surveyed also emphasised concerns about productivity and the impact on worker-effort (Figure 5).

To place the scale of the wage freezes and wage cuts in context, comparable results in respect of WDN 1 for Ireland are considered. Wave 1 of the WDN reported that in the five years prior to 2007, approximately 2.1 per cent of firms surveyed had reduced base wages, while a further 7.1 per cent were found to have frozen wages. Wage cuts and wage freezes were therefore much more frequently used by firms over the 2008-09 and 2010-13 period vis-à-vis the WDN 1 results. This dramatic increase in the incidence of wage freezes and wage cuts is likely to have reflected the scale of the shock and the fact that firms were forced to respond with more permanent measures as the crisis deepened. Furthermore, changes in the institutional wage setting arrangements in Ireland over recent years are likely to have facilitated the downward adjustment of base wages. It is also worth noting that the incidence of downward wage adjustment amongst firms in this survey contrast somewhat with previous cross-country studies - Bertola et al (2010) and Rõõm and Messina (2009) all find less than 2 per cent of firms/employees reduced base wages.

Consistent with the findings of Doris et al (2014) and Walsh (2012), a sizable share of firms did not implement pay freezes or cuts but increased wages, with almost 14 per cent of businesses surveyed actually increasing wages during the 2008-2009 period, rising further to 18.7 per cent in the 2010-2013 period. This may help to account for some of the apparent

rigidity in aggregate wage data as it is likely to have dampened the magnitude of wage adjustment at a macro level. Foreign-owned firms accounted for almost half of the firms indicating that they had increased wage rates throughout both sub-periods and, indeed, this is consistent with anecdotal evidence of multinational firms facing shortages of high-skilled labour in recent years, particularly in IT services.

An alternative to an outright cut in base wages may be to hire new employees at a lower wage level than similar workers and, as a result, the average wage change may understate the downward adjustment at the margin. There is some evidence to suggest that firms in recent years have hired new workers at lower pay, see Conefrey and Smith (2014). In the WDN, firms were asked about labour cost differences between new hires and existing workers with the same skill and experience set as existing workers. The responses received would seem to confirm this pattern, with an increasing proportion of firms paying newly hired workers at either a 'lower' or 'much lower' level relative to existing workers - this share was 12.9 per cent pre-2008, whereas by the 2010-13 period, it had more than doubled to 29.5 per cent (Table 6). The pattern is broadly similar across all sectors, with the exception of financial services firms, where the increase in the negative differential against new workers was more pronounced, jumping from 10.9 per cent pre-2008 to 35.5 per cent in 2010-13. Hiring new workers at lower wage rates than existing workers appears, on the basis of our survey results, to have become an increasingly common approach to reducing labour costs at the margin.

Table 7: Frequency of wage changes for main occupational group in the firm

	2006	pre-2008	2008-09	2010-13
At least once per year	58.4	45.7	22.5	14.7
Every two years	7.8	19.5	17.2	12.7
Less than once every 2 years	4.6	13.1	20.0	25.3
Never/Don't know	29.2	21.7	40.3	47.4

Notes: Data for 2006 is taken from the Wave 1 survey, as reported in Keeney et al. (2009)

The frequency with which firms change wages affects the speed with which they can respond to shocks. In an attempt to address this important aspect of wage rigidity, firms were asked about the frequency of base wage changes both before and during the recession. During the 2010-13 period, one quarter of firms surveyed indicated that they tend to review wages less than once every two years and a further 27 per cent change wages more frequently than that (Table 7). A pronounced pattern of declining wage changing frequency is evident - 58.4 per cent of firms responded that they set wages on at least an annual basis according to WDN 1 results, whereas this had fallen sharply to 22.5 per cent in 2008-09 and further to just 14.7 per cent by the 2010-13 period. Such a reduction in the frequency of wage change may serve to impede the ability of firms to react to unexpected economic developments in the future. It is, however, important to note that the results from the WDN 1 survey and the pre-crisis period pertain to a time during which centralised wage

bargaining agreements¹² were implemented and hence, wages are likely to have changed more frequently.

4. Other Findings from the Survey

While the focus of this article is on the approach to labour cost adjustment by firms during the crisis, this section briefly considers some other issues covered by the survey relating to wage and price dynamics, including institutional features of the labour market, price-setting and the forward looking elements of the survey.

4.1 Institutional Factors

Institutional factors (e.g. employment protection legislation, union density and wage bargaining institutions) are often cited as playing an important role in determining the composition of labour cost adjustment

Table 8: Collective bargaining agreements

% firms saying a collective pay agreement was in place

	2006/07	2008	2013
All firms	61.4	8.4	7.4
Industry & manufacturing	14.4	14.6	10.0
Construction	7.8	10.7	10.2
Retail and Transportation		7.7	6.0
Accommodation & Food	34.6	7.1	6.2
Financial, Professional & Administrative	-43.2	6.7	5.1
Other		8.5	9.7

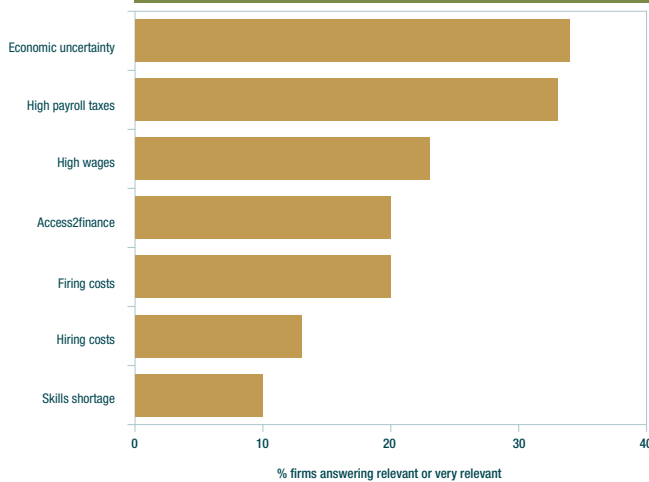
Notes: Figures for 2006/07 are from Tables 3 and 4 in Keeney et al. (2009). The sector data for 2006/07 refers to National Wage Agreements only. There was a change in the sector classification between the two survey waves, which means we have to group the distribution and services sectors from 2006/07.

¹² According to the WDN 1 results for Ireland, 61.6 per cent of firms surveyed applied the prevailing national wage agreement, namely, 'Towards 2016', either in full or partially (Lawless et al., 2009).

Table 9: Firms' expectations for their labour input for 2015

	Increase	No change	Decrease
Sales	43.6	38.4	22.5
Employment	21.2	66.4	6.6
Hours per worker	13.7	75.3	5.7
Base wages	23.2	68.7	2.5

Figure 6: Obstacles to hiring new workers



mechanisms used by firms and they have been highlighted as a major source of downward wage rigidity by previous WDN studies¹³. Institutional wage-setting arrangements are of further interest in an Irish context given that there have been some distinct changes in this area since the crisis began, most notably the changes to centralised wage bargaining processes and the reform of the framework for sectoral wage agreements.

As Table 8 shows, there has been almost a complete collapse in the application of any form of collective bargaining agreement since the start of the recession. In terms of the sectoral coverage, both industry and construction firms have similar levels of collective bargaining agreements (or, in the

case of 2006/07, National Wage Agreements). The main difference is in the services and distribution sectors, where coverage has fallen away significantly. The absence of a collective bargaining process and union representation reduces potential barriers to lowering wages from the perspective of a firm.

Firms were also asked if any obstacles existed to hiring new workers in 2013. A range of possible answers are provided, including *uncertainty about economic conditions, lack of required skills, high wages, etc.* The two standout factors cited by firms are *Uncertainty about economic conditions* and *High payroll taxes* (Figure 6). As regards the economic uncertainty 'obstacle', there is a stark difference between the answers of firms serving the domestic market vis-a-vis foreign - almost 40 per cent of domestically-oriented firms surveyed cite this as an obstacle to labour input expansion, whereas it is closer to 20 per cent in respect of firms serving foreign markets. A relatively small proportion (20 per cent) of firms cited 'High wages' as an obstacle to hiring new workers. Unsurprisingly, firms that had previously responded that it was easier to hire new workers at lower wages since the start of the recession - a large number of whom are in the construction sector - were far less likely to cite high wages as an obstacle to hiring.

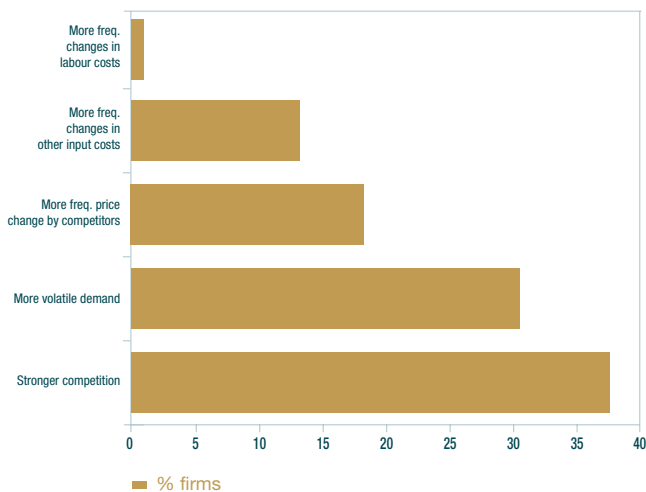
4.2 Labour Market expectations

Given the flexibility apparent in the Irish labour market, it is also of interest as to firms' future expectations of their labour input (Table 9). For

¹³ For instance, Babecky et al. (2008) find that high country-level bargaining coverage and the strictness of EPL increase downward nominal wage rigidity

Table 10: Price setting behaviour

How do you set prices...	% firms
Follow competitors	26.1%
Costs + profit margin	28.3%
Negotiate with customers	18.7%
Price is regulated	4.6%
Price set by parent	2.4%
Price set by main customers	2.2%
Price set by other influence	2.6%
No answer	14.9%
	100.0%

Figure 7: Frequency with which firms change prices of main product/service

example, following the downward adjustment, do firms expect their labour input to return to previous levels under more normal economic conditions? Will they adjust hours or numbers? Will they reverse any wage cuts? In light of this, the questionnaire included a question on future labour market expectations. Firms were asked about their expectations for wages, employment, hours and sales for the forthcoming year (referring to 2015). Table 9 shows that the proportion of firms expecting wages to decrease drops from 23 per cent in 2010-2013 to just 2.5 per cent in 2015, with 23 per cent of firms expecting wages to increase. This is suggestive of a considerable rebound in base wages. As sales expectations

improve, both employment and hours worked are forecast to pick up in 2015, suggestive of a more positive outlook for the labour market this year.

4.3 Price Setting

The final set of questions focuses on price setting behaviour and the degree to which prices are flexible. In terms of firms' approach to setting prices, around 28 per cent of respondents indicated that they use a cost-based approach, while an additional 26 per cent follow competitor's price-setting (Table 10).

In an attempt to uncover whether there had been a change in price flexibility post-crisis, a further question asked whether firms had altered the frequency of price changes over the 2010-13 period relative to pre-2008. Around 33 per cent of firms surveyed indicated that the crisis had resulted in a change in the frequency of price changes. Figure 7 illustrates that the most important factor behind the increased frequency of price changes over the 2010-13 period relative to pre-crisis was stronger competition in the main product market, with more than 35 per cent of firms citing this as the most relevant reason. A change in labour costs was the least cited reason for price changes. In the case of less frequent price changes, the main driver was reported to have been less frequent price changes by competitors (2.0 per cent) followed closely by less volatile demand (1.8 per cent

of firms), albeit of much smaller magnitude. Focussing specifically on developments in competitive pressures during the crisis, 40 per cent of firms surveyed indicated either a moderate or a strong increase in the 2008-09 period; the corresponding share for the 2010-13 period was approximately 50 per cent. It is noteworthy that the frequency of price adjustment is higher than is the case for base wages. The dominant factor behind firms reporting increased frequency of price adjustment was a higher level of competition, suggesting that wage costs were not the dominant factor here.

5. Summary of Survey Findings and Conclusions

An overview of the WDN survey results for Ireland highlighted a number of noteworthy findings in relation to the approach firms used to adjust labour costs in response to a negative demand shock:

- When examining the labour cost-cutting strategies implemented by firms surveyed, these consisted, to varying degrees, of both reducing the quantity of labour in terms of permanent employment and hours worked, as well as cutting wage costs via base wages and the more flexible components. Employee numbers were the most widely relied upon margin of adjustment, followed by wage cuts and hours.
- Irish firms predominantly controlled wage costs via wage restraint – approximately 60 per cent of firms indicated that they froze base wages during both sub-periods, with the incidence of pay freezes highest amongst small firms and those in the labour-intensive distributive trades sector. Such a high incidence of wage freezes could be interpreted as pointing to the existence of downward wage rigidity, in line with the literature. Nevertheless, there is strong evidence of downward wage adjustment, with almost a quarter of firms surveyed indicating that they had cut base wages during the 2008/09 and the 2010/13 period. A cross-country

comparison on the basis of WDN 2 results suggests that such an incidence of base wage cuts is second only to Estonia, where 44 per cent of firms cut wages.

- A comparison of WDN 3 survey results with the findings from WDN 1 in respect of Ireland suggests that a dramatic increase in the incidence of both wage cuts and wage freezes occurred during the crisis – the percentage of surveyed firms reporting wage freezes of around 60 per cent compares with 7.1 per cent in the five years prior to 2006/2007 (Lawless et al., 2009). The increased importance of wage freezes/cuts is held to reflect both the intensity and nature of the shock experienced by Irish firms as well as the institutional features of the Irish labour market.
- Reflecting a dichotomy in the types of firms operating in Ireland, a significant proportion of firms actually increased wages throughout 2008 to 2013. The presence of the high-tech sectors ensured that demand for skilled labour remained high. These firms were generally more insulated from domestic developments and continued to offer employees attractive remuneration packages in line with productivity. This firm-level survey suggests that these wage increases masked the extent of the downward wage adjustment in the aggregate wage data.

Overall, this firm-level survey revealed that, in keeping with Ireland's international reputation as having a flexible labour market, the response of firms to the crisis was remarkably flexible – both in terms of past experience and compared to other countries. The adjustment was not universal, however, some businesses experienced an unprecedented drop in output, with subsequent reductions in labour costs on all fronts, including basic wages; other employers were more insulated from the decline and continued to increase wages.

References

Bergin, A., Kelly, E. and McGuinness, S. (2012), "Explaining Changes in Earnings and Labour Costs During the Recession," Dublin: ESRI.

Bertola, G., Dabusinskas, A., Hoeberichts, M., Izquierdo, M., Kwapil, C., Montornes, J. and Radowski, D. (2010). "Price, Wage and Employment Response to Shocks: Evidence from the WDN Survey", European Central Bank, Working Paper No. 1164.

Central Statistics Office (2010), "Analysis of wage bill change in enterprises and components of change, Quarter 3 2008 to Quarter 3 2009", Central Statistics Office, Ireland.

Conefrey, T., and Smith, R. (2014). "On the slide? Salary scales for new graduates 2004-2012". Central Bank of Ireland, Economics Letters series, Vol. 2014, No. 1.

Dickens, W.T., L. Goette (2006), "Estimating Wage Rigidity for the International Wage Flexibility Project". Working Paper, Brookings Institution.

Dickens W.T., L. Goette, E.L. Groshen, S. Holden, J. Messina, M.E. Schweitzer, J. Turunen, and M.E. Ward (2007), "How wages change: micro evidence from the International Wage Flexibility Project", *Journal of Economic Perspectives*, 21(2), 195-214.

Doris, A., O'Neill, D. and Sweetman, O. (2013). "Wage Flexibility and the Great Recession: The Response of the Irish Labour Market," IZA Discussion Papers 7787, Institute for the Study of Labor (IZA).

European Central Bank (2009), 'New Survey Evidence on Wage Setting in Europe', European Central Bank, Monthly Bulletin, October.

European Central Bank (2010), 'Labour Market Adjustments to the Recession in the Euro Area', European Central Bank, Monthly Bulletin, July.

Keeney, M., Lawless, M. and Murphy, A. (2009). "Wage Setting and Wage Flexibility in Ireland: Results from a Firm-level Survey". Central Bank of Ireland, Quarterly Bulletin Article, October 2009.

Keeney, M. and M. Lawless (2010). "Wage Setting and Wage Flexibility in Ireland: Results from a Firm-level Survey", Central Bank and Financial Services Authority of Ireland, Research Technical Paper 1/RT/10.

Rõõm, T. and Messina, J. (2009). "Downward Wage Rigidity during the Current Financial and Economic Crisis", mimeo.

Walsh, K. (2012). "Wage bill change in Ireland during recession - How have employers reacted to the downturn?" *Journal of the Statistical and Social Inquiry Society of Ireland*, One Hundred and Sixty-Fifth Session 2011/2012.

Statistical Appendix

Statistical Appendix

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

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

STATISTICAL TABLES: CENTRAL BANK WEBSITE LINKS

Money and Banking:

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

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

Business Credit and Deposits:

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

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

Private Household Credit and Deposits:

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

- Credit Advanced to and Deposits from Irish Private Households

Money Market Funds:

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

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

Retail Interest Rates:

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

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

Investment Funds:

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

- Ireland: Investment Funds Data

Securities Issues:

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

- Securities Issues Statistics

Financial Vehicle Corporations:

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

- Irish Financial Vehicle Corporations

Locational Banking Statistics:

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

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

Quarterly Financial Accounts:

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

- Financial Accounts for Ireland: Q1 2012 to present

Public Finances and Competitiveness Indicators:

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

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

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

- Nominal and Real HCIs

T +353 1 224 6278

F +353 1 671 6561

www.centralbank.ie

publications@centralbank.ie



Banc Ceannais na hÉireann
Central Bank of Ireland

Eurosystem

Bosca OP 559, Sráid an Dáma, Baile Átha Cliath 2, Éire
PO Box 559, Dame Street, Dublin 2, Ireland