ANNUAL REPORT ON PUBLIC DEBT IN IRELAND

JUNE 2017

An Roinn Airgeadais
Department of Finance

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Executive Summary

Taken at face value, the ratio of debt-to-GDP fell to 75 per cent last year from a peak that was just shy of 120 per cent at end-2013. There are, however, serious health warnings attached to such figures. In particular, this ratio is heavily distorted by developments in the denominator (GDP). While compiled in line with international standards, the level of Irish GDP is increasingly distorted by factors such as the on-shoring of intellectual property, which have limited, if any, impact on debt repayment capacity. For a more meaningful assessment of trends in public debt in Ireland, therefore, it is important to look beyond the simple debt-to-GDP ratio.

A host of other metrics clearly show that Irish public indebtedness remains elevated. For instance, at over €200 billion at end-2016, public debt amounts to around €42,000 per person resident in the State. Most of this debt was accumulated during the financial crisis and, while financial support to the banking sector undoubtedly played a role, the bulk of the increase reflects the mis-alignment of public revenue and expenditure at the time. Other metrics (debt interest payments as a percentage of revenue, the debt-to-revenue ratio, debt as a fraction of the national pay-bill) all point to high levels of public indebtedness.

Ensuring continued fiscal sustainability – that is reducing both the outstanding debt level and the debt burden – must remain a priority. Prudent management of the public finances is essential and, at a minimum, it is important that the budget is balanced over the economic cycle. Windfall gains should be used to retire debt, as is the policy of Government. Structural reforms that boost domestic employment and income levels are also part of the solution as these can impact favourably on the burden of debt.

Fiscal rules require a reduction in the debt-to-GDP ratio until the 60 per cent threshold is reached. Such a threshold is not necessarily optimal in an Irish context, given the distortions associated with GDP. In recognition of this, the Government has adopted a lower debt-to-GDP target of 45 per cent to be achieved by the mid-part of the next decade, growth permitting.

A lower threshold for the debt-to-GDP ratio is also motivated by the need to build up a safety buffer in order to cushion future downturns; a key lesson from the crisis is that 'tail risks' – low probability but high impact shocks – can, and do, materialise. High levels of uncertainty regarding medium-term prospects characterise the situation at present with, in particular, a lack of clarity regarding the future policy direction in the US and uncertainty regarding the EU-UK trading relationship post-UK exit from the European Union. Such uncertainty highlights the need to continue to prioritise reducing the debt burden.

Annual report on public debt developments

June 2017[1]

Section 1 – Introduction and background

Taken at face value, the debt-to-GDP ratio has declined significantly in recent years. However, while compiled in line with international standards, the level of GDP in Ireland overstates the underlying level of true economic activity in Ireland due to *inter alia* the on-shoring of high income-generating assets such as intellectual property in recent years.[2] An important side effect of this is that the debt-to-GDP ratio paints an excessively benign picture of public indebtedness in Ireland. A range of other metrics clearly show that public debt remains high both by historical and international standards. A key policy priority, therefore, must be to reduce the debt burden to safer levels in order to minimise the interest burden and reduce the economy's vulnerability to shocks.

Because reducing the debt burden will take time, it is important to set out key staging posts along the way in order to anchor progress and further enhance credibility. The first step is to comply with the legal requirements as set out in the Treaty on the Functioning of the European Union (the 'Treaty'), and operationalised by way of secondary legislation in the Stability and Growth Pact (the 'Pact'), to bring the debt ratio below 60 per cent of GDP.[3]

This threshold, however, is not necessarily optimal in an Irish context, given the limitations of the debt-to-GDP ratio as a measure of sustainability. With this in mind, the Government has adopted a lower target for the debt ratio of 45 per cent of GDP to be attained by the mid-part of the next decade, growth permitting.[4] Reducing the debt ratio beyond the simple legal threshold set out in the Pact is also motivated by the need to improve the resilience of the Irish economy, as lower levels of public indebtedness will enable the economy to better absorb shocks. This is particularly relevant at the current juncture, given the high level of uncertainty and the potentially damaging effects for Ireland of exogenous factors such as the UK's exit from the European Union in early-2019 (and uncertainty regarding the future trading relationship) and any shift in policy direction in the US. Indeed, in terms of enhancing the resilience of the economy to cushion shocks, both the International Monetary Fund (IMF) and European Commission have assessed the lower debt target as being an appropriate policy instrument.[5]

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[1] This report was produced by the Economic Division of the Department of Finance, and does not necessarily reflect the views of the Minister of Finance or the Irish Government. The focus of this report is General Government Debt, a measure of the total gross consolidated debt of the State, compiled by the Central Statistics Office (CSO). The analysis in the report is based on data available as of mid-May.

[2] See, for instance, *Report of the Economic Statistics Review Group*, December 2016.

[3] The 60 per cent legal threshold for public debt is also enshrined in the *Fiscal Compact*.

[4] Budget 2017, speech by the Minister for Finance.

[5] See: https://ec.europa.eu/info/news/economy-finance/statement-european-commission-and-ecb-staff-following-conclusion-seventh-post-programme-surveillance-mission-ireland_en; and

A key strategic goal of the Department of Finance is the achievement of a "*sustainable macro-economic environment and sound public finances*".[6] Given the importance of sound public finances, the motivation for this document – which will be updated annually – is to report on public debt developments in Ireland, and to monitor progress towards the interim, legal debt target (60 per cent of GDP) and towards the end-point (45 per cent of GDP).

This report is structured as follows. To put the current situation in context, a backward-looking perspective is outlined in section 2 where the evolution of debt since the mid-1990s is presented. In section 3, recent debt dynamics in Ireland are contrasted with those elsewhere in the European Union while, in section 4, key structural features of Irish public debt are highlighted. Reflecting the limitations of GDP as a measure of underlying economic activity in an Irish context, the burden of debt is assessed using alternative metrics in section 5. A forward-looking perspective is provided in section 6 where a debt sustainability analysis is also presented. Finally, some policy-relevant conclusions are outlined in section 7. Additional variables which are routinely monitored by the Department of Finance from a debt sustainability perspective are set out in the appendix.

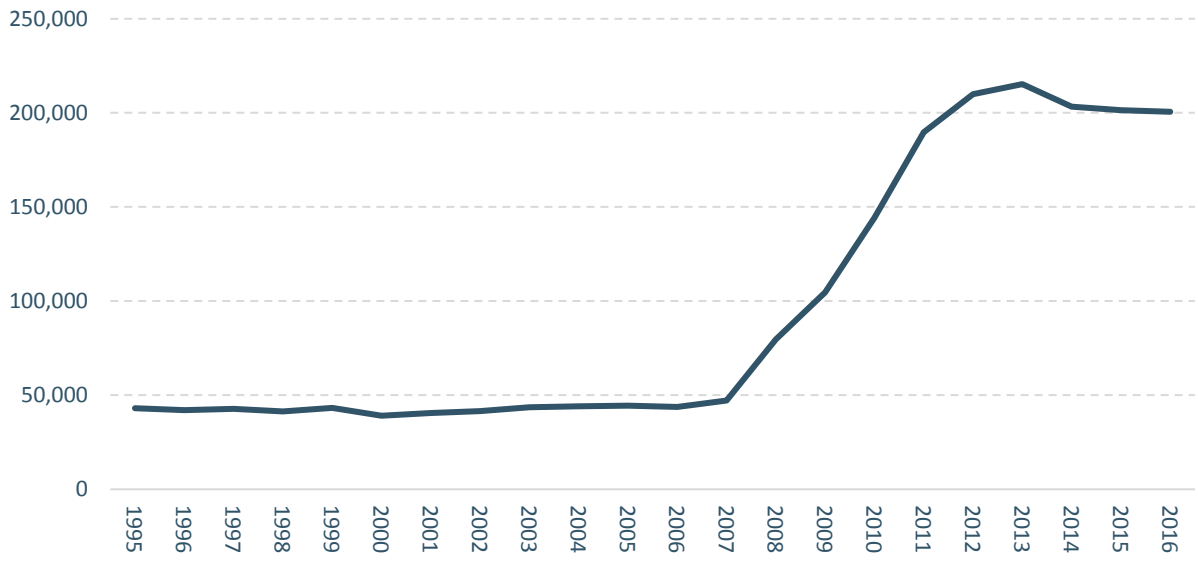
Section 2 – Debt developments: 1995 – 2016

In order to better understand how the current situation has been arrived at, the evolution of public indebtedness since the mid-1990s – the earliest period for which general government debt figures are available – is articulated below.

2.1: debt developments in nominal terms

The outstanding amount of public debt in nominal terms from the mid-1990s onwards is shown in figure 1.

Figure 1: Gross public debt, € millions



Source: CSO and European Commission (AMECO database).

https://www.imf.org/en/News/Articles/2017/05/12/ms051217-ireland-staff-concluding-statement-of-the-2017-article-iv-consultation.

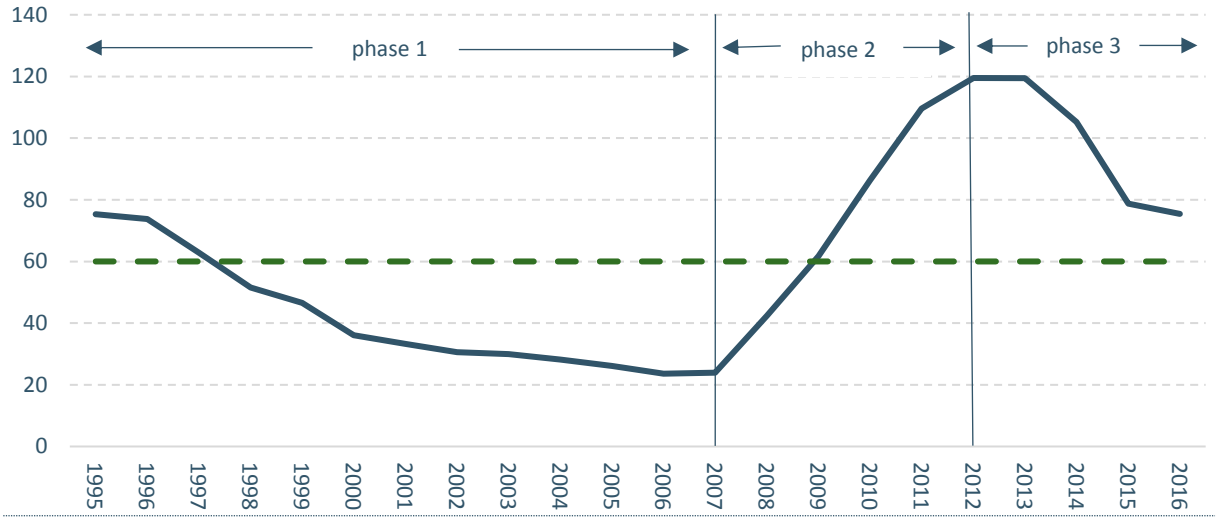
[6] *Statement of Strategy 2016-2019*, Department of Finance.

Public debt was remarkably stable over the period 1995-2007, averaging around €43 billion per annum, with very little annual variance around this figure. As is evident, the onset of the financial crisis had a major impact on public indebtedness in Ireland with a substantial accumulation of debt observed over the period 2008-2013. At end-2013, nominal public debt peaked at €215 billion, a five-fold increase from that which immediately preceded the crisis. A modest reduction in outstanding public indebtedness occurred in 2014, largely due to the winding down (detailed later) of the Irish Banking Resolution Corporation (IBRC). At the end of last year, public debt amounted to €201 billion, the equivalent of around €42,000 for every person resident in the State.[7]

2.2: debt developments as a percentage of national output

The standard approach internationally to presenting public debt is to express the nominal amount as a fraction of GDP; for Ireland this is set out in figure 2 below. Three distinct phases can be observed. During the first phase, debt as a percentage of GDP declined steadily, with a cumulative, peak-to-trough decline of just over 50 percentage points recorded over the period 1995-2007. At end-2007, the debt ratio reached its low-point of 25 per cent of GDP, well below the 60 per cent of GDP threshold set out in the Treaty. This decline was solely due to the increase in nominal GDP over the period, given that the numerator (nominal debt) was largely unchanged during this time (as outlined earlier).

Figure 2: Debt-to-GDP, per cent



Dotted line represents the Treaty reference value.
Source: European Commission (AMECO database) for 1995-1999 data; CSO for data from 2000 onwards.

The impact of the economic, fiscal and banking crisis on Irish public indebtedness was severe. During this second phase – which covers the period 2008-2012 – the debt ratio increased by just under 96 percentage points, a pace of increase that is almost unprecedented for an advanced economy. The debt-to-GDP ratio rose above the Treaty reference value in 2009 and continued rising thereafter, peaking at just under 120 per cent in 2012 / 2013.

[7] According to the 2016 Census, the population was 4,761,765 in April last year.

The narrowing of public finance deficits and the resumption of economic growth ushered in a third phase from 2013 onwards, during which the debt ratio firstly stabilised and subsequently resumed a downward trajectory. The most recent figures show that the debt ratio amounted to just over 75 per cent of GDP at the end of last year.

2.3: decomposition of change in debt ratio

In order to better understand the driving forces behind the evolution of debt over time, it is insightful to decompose the annual change in the debt ratio – ΔGGD_t – into its constituent parts. The standard framework for this is formally set out in equation 1:

$$\text{equation 1:} \quad \Delta GGD_t = PB_t + \left(\frac{r_t - g_t}{1+g_t}\right) * GGD_{t-1} + SFA_t$$

According to this framework, the change in the debt ratio from one period to the next is the sum of three components: the primary balance, the snow-ball effect and the stock-flow adjustment.

The first component of the equation is the **primary balance** (PB), which is simply the headline fiscal balance once interest payments on public debt are excluded.

The second component refers to the so-called **'snow-ball' effect**, which measures the impact on the debt ratio of the differential between the effective interest rate (r_t) on the stock of debt[8] and nominal GDP growth (g_t). *Ceteris paribus* when the effective interest rate is lower than nominal output growth (i.e., $r_t < g_t$), the debt ratio falls automatically, and *vice versa*.

The final component refers to the so-called **stock-flow adjustment** (SFA), which captures that part of the change in the debt (stock) not captured by the deficit (flow). The SFA arises because of *inter alia* the acquisition / disposal of financial assets by the general government sector as well as valuation changes.

Over time, the contribution of the SFA to debt dynamics is usually neutral: positive contributions in one period are typically offset by negative contributions in other periods. In these circumstances, the debt ratio is stable (i.e. $\Delta GGD = 0$) when the primary balance is equal to the snowball effect; this is referred to as the debt-stabilising primary balance (DSBP in equation 2 below). This, in turn, means that nominal growth of output is crucially important for debt dynamics – weak nominal growth will *ceteris paribus* require larger primary surpluses (or smaller primary deficits) in order to stabilise the debt ratio.[9]

Formally, if the SFA is assumed to be zero, then to stabilise the debt ratio requires:

$$\text{equation 2:} \quad DSPB_t = \left(\frac{r_t - g_t}{1+g_t}\right) * GGD_{t-1}$$

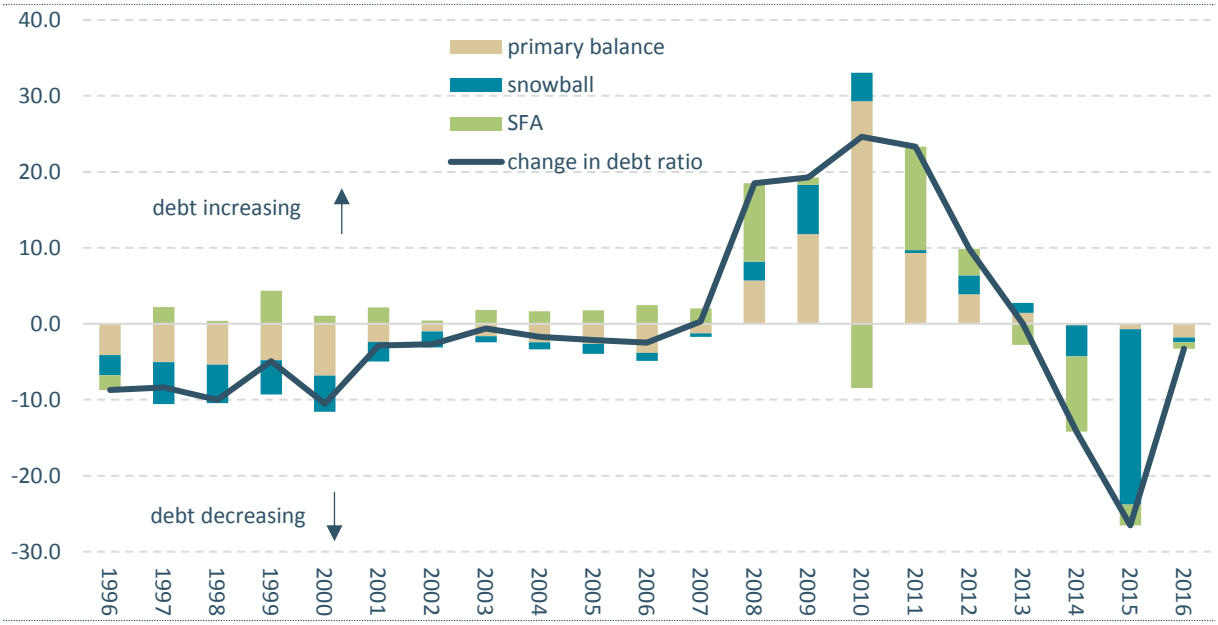
Using this framework, the decomposition of the annual change in the Irish debt-to-GDP ratio since the mid-1990s is set out in figure 3. Over the period 1995-2007, the decline in the debt ratio reflected a combination of persistent primary surpluses (which averaged 3.4 per cent of

[8] Interest payments in a given period as a percentage of the stock of debt outstanding in the previous period.
[9] The actual primary and debt-stabilising primary balances over time are set out in figure A2 in the appendix.

GDP per annum over this period) and a positive 'snowball' effect (i.e., $r_t < g_t$). In relation to the latter, very strong real income growth together with relatively-high economy-wide inflation (the 'denominator effect'), effectively eroded the burden of public debt. This passive decline in the public debt ratio arising from the denominator effect conceals the fact that the monetary amount of outstanding debt was broadly unchanged over this period, a common feature internationally.

The massive accumulation of public indebtedness during the crisis period is also evident from figure 3, with a substantial contribution from the primary deficit during this period (detailed further in section 2.4). In addition, the snowball effect – which had been debt-reducing up to 2007 – went into reverse between 2008 and 2013, mainly as a result of nominal output growth moving into negative territory (i.e., $r_t > g_t$) for a number of years. Finally, the SFA was for the most part debt-increasing during this period, with a very strong contribution in 2008 arising from the accumulation of large liquidity buffers – acquisition of financial assets – that year as a forward-looking response to the deterioration in market conditions at the time. The contribution from the SFA in 2011 was mainly due to the classification of IBRC liabilities within the general government sector. [10]

Figure 3: decomposition of change in debt ratio, percentage points



Source: Department of Finance calculations.

The debt ratio peaked in 2012 / 2013 and has subsequently been on a declining path. At end-2016, the debt ratio was just over 75 per cent of GDP, a decline of around 44 percentage points since its peak. The main factors driving the significant decline have been the SFA – largely the winding down of IBRC – and the positive snowball effect. This snowball effect stems mainly from the exceptional nominal output growth recorded in 2015 (see box 1).

[10] The liabilities of IBRC were classified within general government in 2014 (with retrospective application to 2011). IBRC has subsequently been wound down, although there are some residual IBRC liabilities which are part of general government debt.

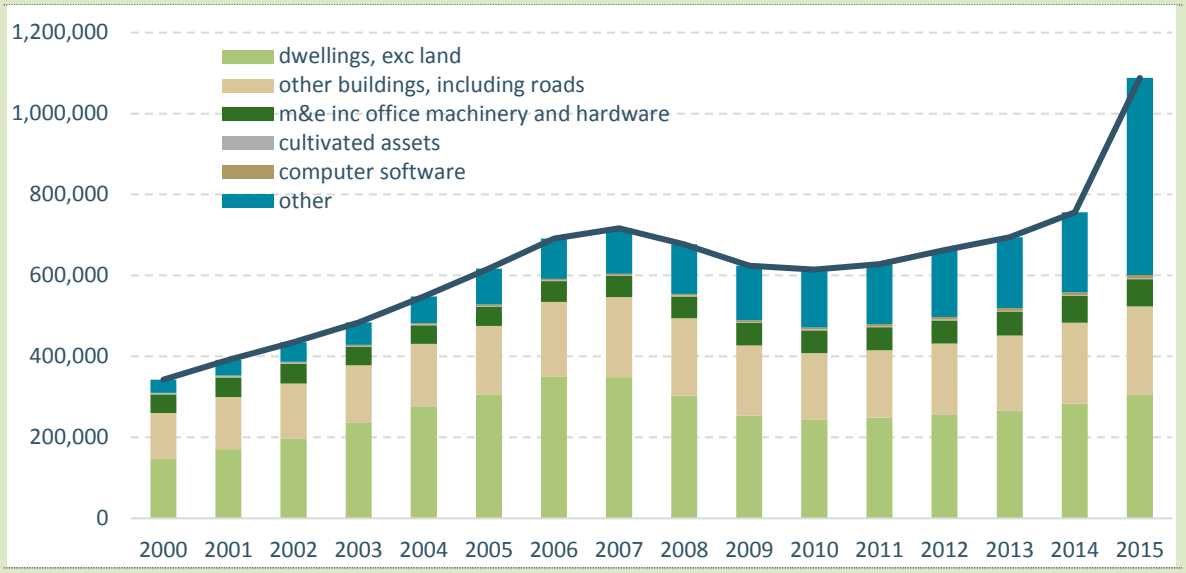
Box 1: 26 per cent GDP growth and public debt

Nominal GDP rose by 32.4 per cent in 2015. The impact of this exceptional growth rate – unprecedented for an advanced economy – had a major impact on the public finances with, in particular, a purely mechanical reduction of 25 percentage points in the debt-to-GDP ratio (relative to a counter-factual situation in which there had been no growth). In terms of understanding debt dynamics in Ireland, it is important to outline the reasons for this increase in nominal output.

The nominal output increase was composed of a 26.3 per cent increase in 'real' economic activity together with an implied deflator of 4.9 per cent. The latter – which was also a very strong rate of growth – was mainly due to an improvement in the terms-of-trade (the price of exports relative to the price of imports) reflecting the significant depreciation of the euro-dollar bilateral rate at the time.

Not surprisingly, it is the increase in real activity that has received more attention. The exceptional rate of real growth was, in large part, driven by a small number of firms relocating their entire balance sheets to Ireland. This led to a substantial level-shift in the Irish capital stock in 2015 of approximately €330 billion, with the bulk of the increase in the form of intellectual property (IP) assets (see figure below). While GDP is a flow (as opposed to a stock) concept, these IP assets typically depreciate more rapidly than physical assets. In terms of the income side of the national accounts, GDP can be thought of as the sum of labour income, profit income, taxes less subsidies and depreciation. Hence, the increase in the size, as well as the composition, of the capital stock led to a doubling of the depreciation bill that year which *inter alia* resulted in a substantial increase in GDP. While located in Ireland, most of these assets are foreign-owned, and the high level of depreciation reduces the rate of return (profits) on these assets, depressing cross-border profit flows and, hence, boosting the current account of the balance of payments and raising the level of GNI.

Figure 4: Capital stock by asset type, € millions



Other category mainly consists of intangible assets; m&e is machinery and equipment.
Source: CSO.

In terms of the expenditure side of the accounts, real activity was primarily boosted by a substantial increase in net exports linked to so-called 'contract manufacturing'. This is a form of outsourcing where an Irish-resident firm outsources production to a third country but retains ownership of all inputs – including the valuable IP rights - into the production process. The subsequent exports from the third country are, under the European System of Accounts 2010 (the European-wide template for compiling national accounts), treated as Irish exports. This contract manufacturing phenomenon has been a notable feature of the Irish national accounts in recent years but, prior to 2015, it was largely GDP-neutral as the associated exports were largely offset by a corresponding royalty payment (for use of the IP associated with the contracted production) to an offshore entity where the IP rights were housed, i.e. an import payment by the Irish-resident firm. The on-shoring of these IP rights in 2015 resulted in a large decline in out-bound royalty payments and a substantial contribution (nearly 20 per cent) from net exports to aggregate demand.

2.4. role of banking support and 'underlying' fiscal balance

The Irish government provided considerable support to the domestic banking system during the financial crisis. To illustrate the impact of this on the public finances, table 1 shows the annual revenue and cost to the State from its direct support to the banking system, i.e. the impact on the general government balance (and, hence, the impact on general government debt) each year.

Table 1: general government impact of banking support, per cent of GDP

	2008	2009	2010	2011	2012	2013	2014	2015	2016
revenue	0.1	0.5	1.0	1.8	1.7	1.6	1.2	0.8	0.6
: guarantee fees	0.1	0.3	0.6	0.7	0.5	0.2	0.1	0.0	0.0
: interest	0.0	0.2	0.3	0.6	0.9	0.6	0.4	0.2	0.1
: dividends	0.0	0.0	0.0	0.2	0.3	0.4	0.4	0.4	0.3
: other	0.0	0.0	0.1	0.3	0.0	0.3	0.3	0.3	0.3
expenditure	0.1	2.7	22.3	5.4	1.3	1.0	0.8	1.3	0.4
: interest	0.1	0.4	1.1	1.2	1.2	1.0	0.8	0.5	0.4
: capital injections	0.0	2.4	21.2	4.1	0.2	0.0	0.0	0.8	0.0
: other capital transfer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
: other	0.0	0.0	0.0	0.1	0.2	0.3	0.4	0.3	0.3
net cost of support *	0.0	-2.2	-21.3	-3.7	0.2	0.2	0.0	-0.7	0.0
headline deficit	-7.0	-13.8	-32.1	-12.7	-8.0	-5.7	-3.7	-2.0	-0.6
underlying deficit ~	-7.0	-11.6	-10.9	-9.0	-8.3	-6.0	-3.7	-1.3	-0.6

* a negative number implies a net cost to the general government sector of banking support while a positive number implies a revenue gain.
~ the underlying deficit is the headline deficit excluding banking-related support.
Rounding can affect totals.
Source: Eurostat and CSO.

It is important to highlight that the impact of the financial crisis on the debt ratio is wider than the annual impact of banking support on the deficit arising from the fact that part of the State's support was provided via the National Pensions Reserve Fund (NPRF – essentially a sovereign wealth fund within the general government sector).[11] In addition, it should be recognised that financial support to the banking system has generated an annual income stream for the general government sector, mainly in the form of guarantee fees, interest and dividend payments.

The bulk of the fiscal support to the financial sector occurred over 2009-2011 and was mainly in the form of capital injections which amounted to 28 per cent of GDP over this period. From a general government accounting perspective, these fiscal supports raised both the headline and primary deficits. But it is also evident that, when this financial support is excluded, there was a substantial mis-alignment between government revenue and expenditure at the time which played a more prominent role in debt accumulation. For instance, the underlying

[11] The actual (gross) amount of bank support amounted to €64 billion (40 per cent of 2011 GDP); however, not all of this impacted on general government debt as part of the support was provided via the NPRF.

deficit – that is excluding the banking-related support – averaged nearly 9½ per cent of GDP per annum over the period 2008-2012. This was mainly due to the collapse of taxation revenue associated with the loss of transitory revenue streams from the construction sector which had been used to finance permanent increases in public expenditure.

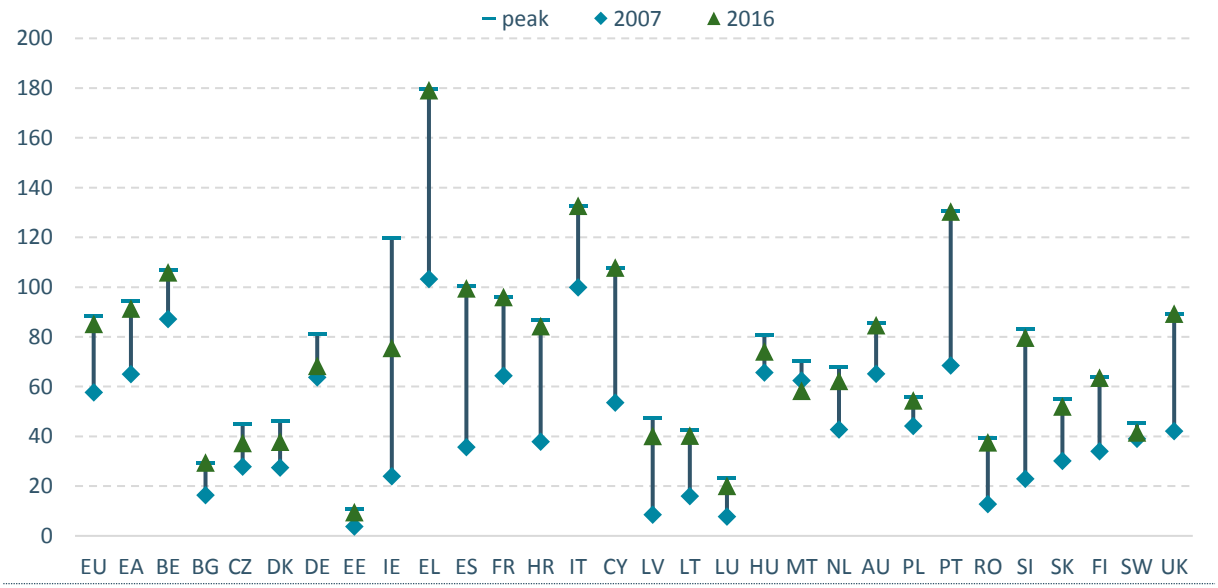
2.5: summary

In summary, therefore, the crisis left a substantial increase in public indebtedness in its wake. From a relatively low level of debt at the beginning of the crisis, the inter-related economic, banking and fiscal crisis had a massive detrimental impact on the public sector balance sheet. More recently, the closer alignment of government revenue and expenditure, as well as the resumption of robust nominal growth, have resulted in a downward trajectory for the debt ratio.

Section 3 – Irish debt developments in a European context

As well as assessing developments in a historical context, it is insightful to compare debt developments in Ireland with those elsewhere. Figure 5 puts Irish debt dynamics since the beginning of the crisis in a European context.

Figure 5: debt dynamics in the EU during the crisis, per cent of GDP



Source: Department of Finance calculations based on European Commission (AMECO) data.

Prior to the onset of the crisis, the Irish debt-to-GDP ratio was amongst the lowest in the EU28. Indeed, as recently as 2007, only seven Member States (BG, LT, LV, LU, EE, SI, RO) had a lower public debt ratio than Ireland. Indeed, by 2007 net public indebtedness in Ireland was closer to 14 per cent of GDP as significant assets had been accumulated in the NPRF at the time.

The crisis had an adverse impact on pubic indebtedness across the Union with all Member States – to varying degree – recording an increase in their debt ratios. At the level of the Union as a whole, the debt ratio increased by 31 percentage points from the period immediately before the crisis and its peak. Particularly large increases were recorded in

Greece (77 pp), Spain (65 pp), Cyprus (54 pp), Portugal (62 pp) and Slovenia (60 pp). However, the increase in Ireland (96 pp) was by far the largest of any EU Member State, and reflects the three-pronged nature of the crisis (banking recapitalisation, collapse of transitory tax revenues, declining nominal GDP).

Figure 4 also shows that the decline in the debt ratio in Ireland since its peak has been the largest in the EU28. In a majority of Member States the debt ratio has peaked (i.e. the 2016 figure is below the peak), although in a number of Member States (FI, PL, LU, LT, IT, FR, RO) the debt ratio is still rising.[12] In all Member States, with the notable exception of Malta, the debt ratio is now higher than at the beginning of the crisis.

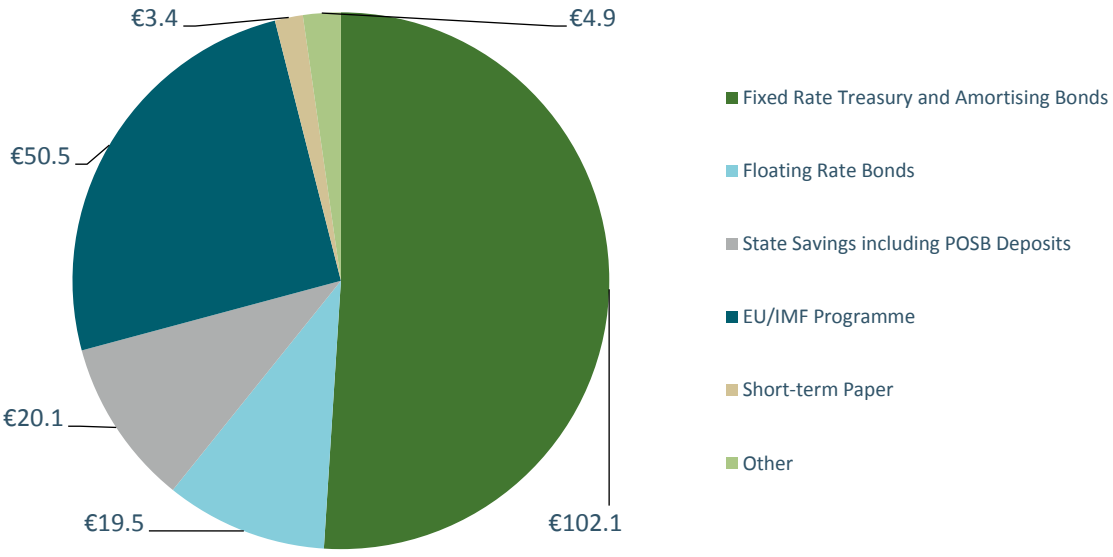
Section 4 – Structural aspects of Irish public debt

In assessing debt sustainability, it is important to assess the evolution of debt over time as well as to compare debt dynamics with those elsewhere. However, a fuller assessment of the State's credit-worthiness must also take structural aspects of public indebtedness into account, the most important of which are detailed below.

4.1: composition of public debt

In monetary terms, the stock of gross government debt outstanding amounted to €201 billion at end-2016. The composition of these liabilities by debt instrument is set out in figure 6 below.

Figure 6: composition of Irish debt, € billions



Rounding can affect totals.
The 'other' category includes consolidation adjustments in respect of debt, including Government bonds, held by general government entities.
Source: NTMA / CSO.

At the end of last year, just over half of outstanding debt – around €102 billion – consisted of government bonds (fixed rate treasury and amortising bonds). A further 10 per cent (€19.5

[12] The Commission's Spring 2017 forecasts show that the debt-GDP ratio in these Member States in 2017 will be higher than in 2016, although not all of these increases are 'crisis' related.

billion) of general government liabilities related to the outstanding balance of floating rate notes (FRNs) issued in 2013 to replace the IBRC promissory notes held by the Central Bank of Ireland. State savings, short-term paper and 'other' debt instruments constituted a further 14 per cent of the total.

The remaining one-quarter of the stock of outstanding debt at end-2016 related to official sector funding, i.e. outstanding loans secured under the joint EU-IMF Programme. The European loans were sourced from both the European Financial Stabilisation Mechanism (EFSM – an EU28 loan facility backed by the Union budget) and the European Financial Stability Facility (EFSF – a euro area loan facility that has subsequently been replaced by the European Stability Mechanism). Outstanding official sector liabilities also include bilateral loans from the UK, Sweden and Denmark. Importantly, outstanding official sector liabilities have declined as a result of the early redemption of the bulk of the IMF loans and their replacement with cheaper, market-based funding.[13]

4.2: interest rates

The sustainability of public debt is a function not just of the stock of debt but also the cost of its servicing. The decline in the cost of market-based funding – partly due to the policy-induced reduction in risk premia as well as the non-standard monetary policy ('quantitative easing') being implemented by the *eurosystem*[14] – has had a very favourable impact on the cost of servicing Irish debt.[15] In particular, active debt management by the National Treasury Management Agency (NTMA) has enabled the rollover of maturing debt at lower, more favourable rates.

Furthermore, while 10-year yields in the secondary market peaked at 14 per cent at the height of the financial crisis, the Irish sovereign was absent from capital markets at this time, with financing instead achieved via the official sector at concessional rates. All of these factors have helped reduce the effective rate of interest on the stock of Irish debt, which fell to an estimated 3.1 per cent last year, down from around 4½ per cent at the beginning of the last decade (and from 6½ per cent in the mid-1990s (figure 7)).

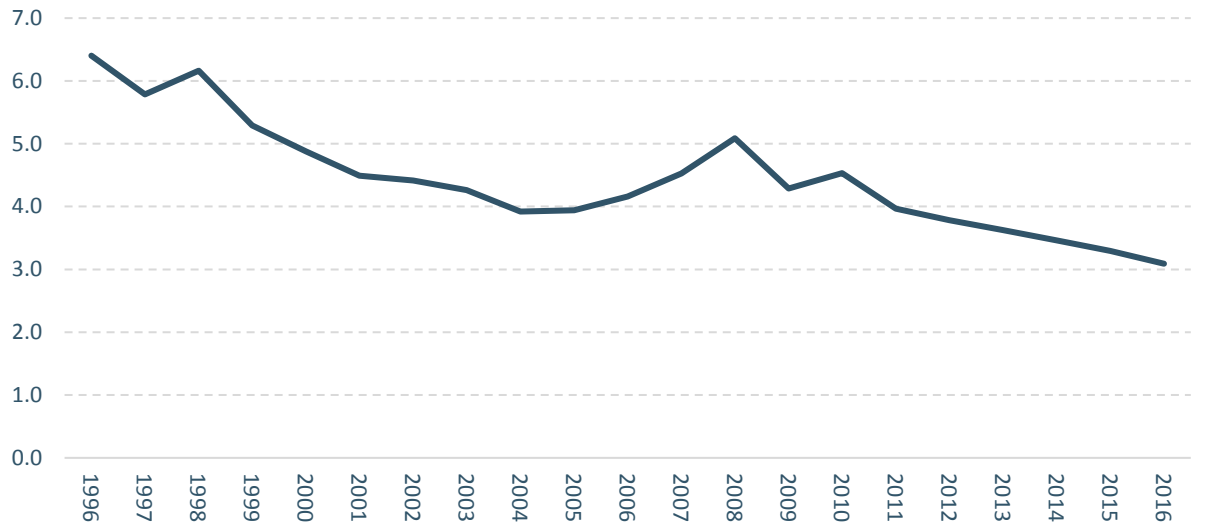
From a debt sustainability perspective, a noteworthy feature is that the vast bulk of Irish sovereign debt – well over 90 per cent of the total – is at fixed rates, when account is taken of the interest rate hedging that is in place. Through active debt management, the NTMA has been able to lock-in considerable volumes of debt at relatively low rates. This reduces the exposure of the economy to an interest rate shock – in the event of a deterioration in borrowing costs, the incremental cost of debt (i.e. the marginal cost of additional debt) would take some time to pass-through to the average cost of debt (the effective interest rate).

[13] Over the period December 2014 – March 2015, the State repaid over €18 billion of IMF loans, thereby redeeming 81 per cent of the original €22.5 billion IMF loan. It was estimated at the time that this replacement of IMF loans with cheaper, market-based funding would generate interest savings of over €1.5 billion over the original lifetime of the loan.

[14] Comprising the European Central Bank and the National Central Banks of euro area Member States.

[15] This 'quantitative easing' involves *inter alia* large-scale secondary market purchases of euro area sovereign debt. At end-April 2017, the *eurosystem* had purchased nearly €21 billion of Irish sovereign debt under the programme.

Figure 7: effective interest rate on Irish public debt, per cent



Source: Department of Finance calculations.

4.3: maturity profile of public debt

The maturity profile of the outstanding debt stock is an additional important structural feature that warrants attention. The redemption profile of Ireland's long-term marketable and official debt at end-2016 is set out in figure 8.

The weighted average maturity of Irish government bonds, including the FRNs, was 11 years at end-2016. The NTMA has been implementing a strategy geared towards the issuance of long-dated debt instruments, including ultra-long dated instruments, in order to lock-in lower interest rates and lengthen the maturity profile. Indeed, the NTMA issued Ireland's first 100-year note in March last year with an amount of €100 million sold by private placement at a yield of 2.35 per cent. More importantly from the perspective of lengthening the average maturity, considerable volumes of 15-, 20- and 30-year bonds have been issued.

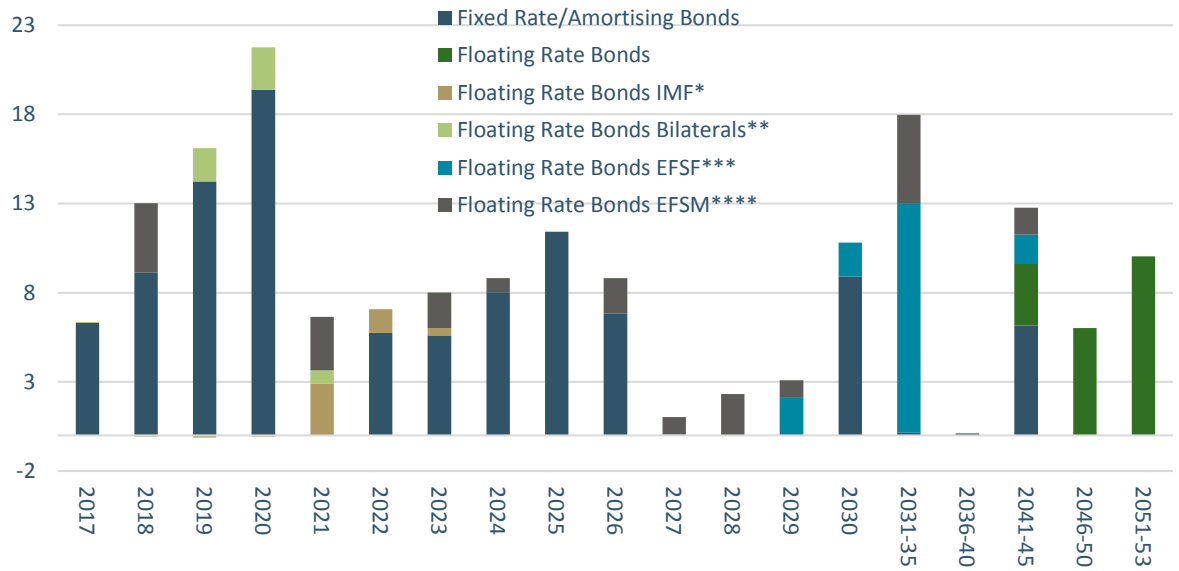
Notwithstanding actions taken by the NTMA in recent years, including bond switching, early IMF loan repayments and pre-funding ahead of future obligations to build up cash balances, a noticeable amortisation hump amounting to around €46 billion of bonds and programme loans arises over the period 2018-2020. It can be reasonably expected that, in line with past experience, normal debt management activity will help smooth this amortisation hump. Beyond 2020, the elongated maturity structure of Irish debt limits rollover risks.

Official sector loans carry a relatively long maturity, reflecting the EFSF and EFSM maturity extensions agreed with European partners in June 2013.[16] The revised maturity dates of individual EFSM loans will only be determined as they approach their original maturity dates.

[16] In June 2013, the eurogroup (Finance Ministers of the euro area MS's) agreed to a 7-year extension of EFSF loans. Ecofin (Finance Ministers of the EU28) also agreed to an extension for EFSM loans but, for technical reasons, these can only be extended as each loan matures. While these loans are included in figure 7 as maturing as early as 2018, it is not anticipated that Ireland will have to refinance any of its EFSM loans before 2027.

The next official loans maturing relate to the bilateral loans which will be redeemed over the period 2019 – 2021. The residual IMF loan balance matures over the period 2021-2023.

Figure 8: maturity profile of Irish government bonds and official debt at end-2016, € billions



*IMF and Bilaterals reflect the effect of currency hedging transactions.
**Bilateral loans were provided by the United Kingdom, Sweden and Denmark.
***EFSF loans reflect the maturity extensions agreed in June 2013.
****EFSM loans are also subject to a seven year extension. It is not expected that Ireland will have to refinance any of its EFSM loans before 2027. However, the revised maturity dates of individual EFSM loans will only be determined as they approach their original maturity dates. The table and graph above reflect both original and revised maturity dates of individual EFSM loans.
Source: NTMA.

4.4: credit rating of public debt

Determined policy implementation to row-back the public deficit, to put the debt ratio on a downward path and to support economic recovery have helped re-build credibility of the Irish sovereign. This is evident from the decline in borrowing costs (see figure A in the appendix) as well as the fact that the Irish sovereign is now rated as investment grade by all of the main rating agencies (table 2). This improved credit-worthiness has generated a virtuous circle in which investment grade status has boosted demand for Irish government paper from rating-sensitive investors which, in turn, has widened and diversified the investor base.

Table 2: Irish Sovereign Credit Ratings, end-April 2017

Rating Agency	**Long-term rating**	**Short-term rating**	**Outlook**
Standard & Poor's	A+	A-1	Stable
Moody's	A3	P-2	Positive
Fitch Ratings	A	F1	Stable
DBRS	A (high)	R-1 (middle)	Stable Trend
R&I	A-	a-1	Positive

The evolution of the rating since the crisis is set out in figure A6 in the appendix.
Source: NTMA.

4.5: net public indebtedness

General government debt is a gross measure of all the liabilities of general government at a point-in-time. In any analysis of public indebtedness, it is important to recognise the other side of the government balance sheet, i.e. that the general government sector has also accumulated considerable financial assets (such as cash and loan assets).

The concept of net public indebtedness – financial liabilities of general government less financial assets of general government – is an important one; all countries will maintain a stock of liquid assets in order to provide a safety buffer against short-term fluctuations in sovereign debt markets. But it is particularly relevant in an Irish context as considerable liquid assets were accumulated in order to smooth market re-entry during the programme period. At end-2016, financial assets amounted to 9.4 per cent of GDP, mainly in the form of currency and deposits. Thus, net public indebtedness amounted to 66 per cent of GDP (table 3).[17] Importantly, this figure does not include the value of the equity that the State holds in the domestic banking system – valued at €12.6 billion (4.7 per cent of GDP) at end-2016.[18] It is government policy that the State will divest itself of these assets over time, with the proceeds used to retire debt.

Table 3: net debt, per cent of GDP

	end-2016
Gross debt	75.4
Financial assets	9.4
Net debt	66.0

Source: CSO.

4.6: contingent liabilities

While not explicitly included in public debt, a wider measure of the Government's balance sheet would incorporate so-called 'contingent liabilities'. These are obligations of the Government which are potential in nature as opposed to actual obligations. In other words, these are, in the normal course of events, not liabilities of Government but could become a liability if adverse developments were to materialise. These data are available from 2009 onwards, with contingent liabilities mainly consisting of Government guarantees and public-private partnerships (figure 9).

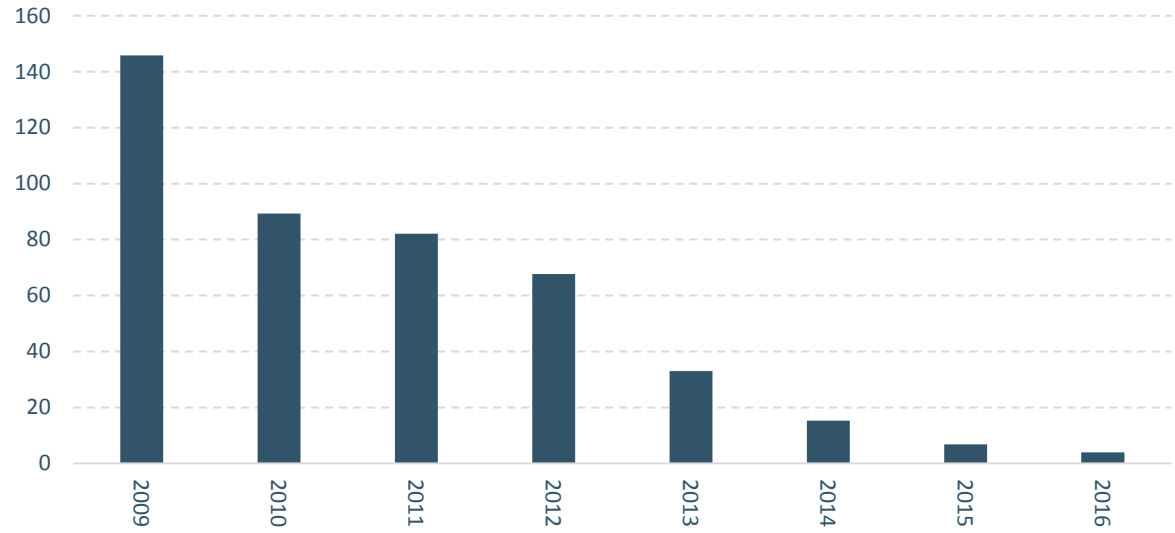
The data show a continuous and substantial decline in the State's contingent liabilities in recent years. In 2009, contingent liabilities amounted to nearly €250 billion (146 per cent of GDP); at end-2016, the equivalent figure was just over €10 billion (4 per cent of GDP). All of the decline is accounted for by a fall in the amount of guarantees – mainly guarantees provided to the financial sector – provided by the State. This substantial decline in contingent

[17] The evolution of net public indebtedness over time is shown in figure A3 in the appendix. In principle, this would be a better means of assessing cross-country debt dynamics given that financial assets can be used to repay debt. However, such cross-country comparisons of net indebtedness are hampered by *inter alia* different definitions of financial assets mainly due to a lack of consistency in the classification of financial assets that can be liquidated at short notice.

[18] Valuation by ISIF available at http://isif.ie/portfolio/performance/overview/.

liabilities has reduced the exposure of the State's balance sheet and is a key factor underpinning the enhanced credibility of the Irish sovereign.

Figure 9: contingent liabilities, per cent of GDP



Source: CSO.

It is also worth highlighting that the National Asset Management Agency (NAMA – a fully independent commercial agency which acquired eligible land and development loans from a number of Irish banks) has only €500 million to repay out of €30.2 billion of senior debt guaranteed by the State. NAMA fully expects to redeem the remaining €500 million in 2017 and expects to ultimately deliver a surplus of around €3 billion (1.1 per cent of projected 2017 GDP) to the State when it has completed its work.[19]

4.7: summary

In summary, therefore, several structural aspects of Irish public debt – the elongated maturity profile, the large portion of fixed-rate debt – help to enhance debt sustainability in Ireland. In addition, the accumulation of financial assets means that net public indebtedness is significantly lower than the gross figure, while the significant decline in contingent liabilities has further enhanced the State's credit-worthiness in more recent years.

Section 5 – Burden of debt

The Irish economy is one of the most globally-integrated economies in the world. Multinational corporations generate significant value-added in Ireland and are an integral part of Ireland's economic model. One important side-effect of the substantial foreign multinational presence is that GDP – or, more precisely, GDP per capita – can overstate the living standards of Irish residents. This is increasingly the case in more recent years, with the on-shoring of sizeable volumes of intangible assets such as intellectual property. It is important in these circumstances that variables which are expressed as a fraction of GDP are interpreted with due caution. This is especially the case with fiscal variables, notably the debt-to-GDP ratio which, viewed in isolation, can present an overly benign assessment of the burden of Irish public indebtedness.

[19] See: https://www.nama.ie/about-us/news/news-detailed-view/news/nama-reports-2016-profit-of-EUR15-billion.

Gross National Product – which is a broadly similar measure to the more widely used Gross National Income (GNI) – is sometimes put forward as a more appropriate measure of living standards in Ireland as it excludes the repatriated profits of foreign-owned multinationals based in Ireland. However, this metric is also affected by the on-shoring of IP, due to the high depreciation rate on such assets which, in turn, reduces the returns (i.e. profits) to the non-resident owners of these assets (see box 1).

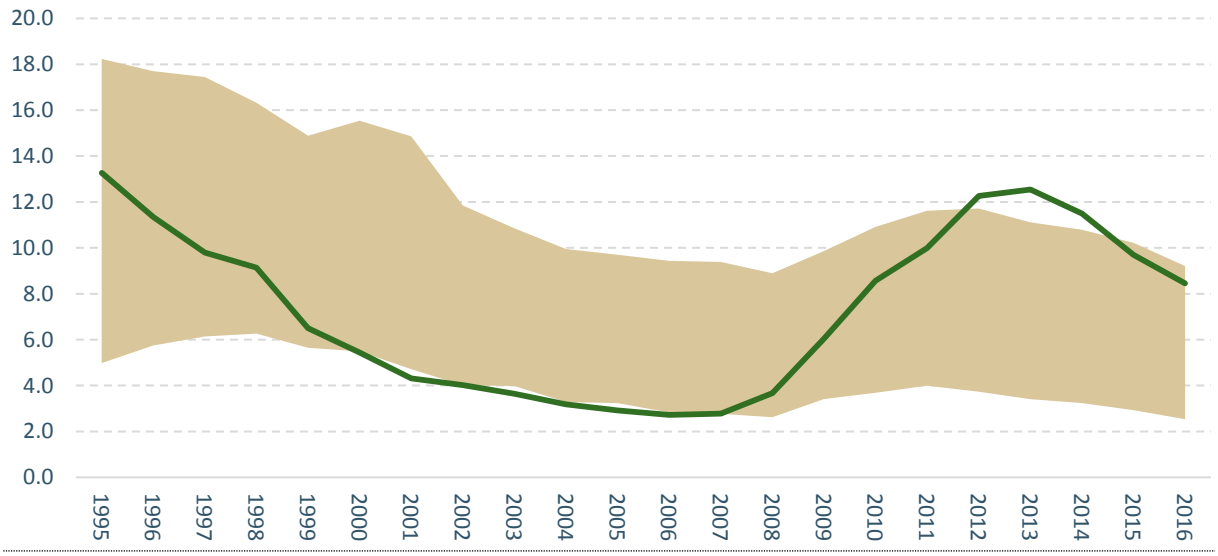
In order to address this important information-gap, the Central Statistics Office will shortly begin to publish a new measure of Gross National Income (so-called GNI*) that will better reflect domestic living standards.[20] GNI* will exclude the retained earnings of firms that have re-domiciled their headquarters to Ireland (from a national accounting perspective the global profits of such firms are recorded in the Irish national accounts) as well as the depreciation of foreign-owned capital assets located in Ireland (this depreciation must be absorbed by the foreign shareholders rather than by Irish residents).

In order to gain a fuller insight into the burden of public debt in Ireland, therefore, it is important to review and assess a more comprehensive set of variables and not focus exclusively on debt-to-GDP.

5.1: interest-to-revenue ratio

Perhaps the most common way of assessing the burden of public debt is to examine the interest burden. Figure 10 shows the portion of general government revenue absorbed by debt interest payments over the period 1995-2016. As this measure is dependent on domestic revenue streams, it is less prone to distortion by the effects of globalisation on the Irish economy and, accordingly, provides a better insight into repayment capacity.

Figure 10: debt interest-to-revenue ratio, IE relative to EU28 second and third quartiles



Shaded area shows the 25-75 percentile range for EU28; the green line shows the evolution of Irish position.
Source: Department of Finance calculations based on European Commission (AMECO) data.

[20] Further versions of this annual debt report will express debt as a fraction of GNI*. While it is not possible to estimate the level of GNI* at present, it is certainly conceivable that the ratio of debt-to-GNI* in 2016 may have exceeded 100 per cent.

In the mid-1990s, debt interest payments absorbed 13 per cent of general government revenue, a function of the relatively high level of public debt and high borrowing costs at the time. Over the following decade or so, on foot of the decline in borrowing costs (partly related to participation in monetary union) and the increase in general government revenue (much of which proved transitory), the debt interest-to-revenue ratio fell to a low-point of just 3 per cent in 2006.

The sharp decline in revenue (tax revenue declined by 28 per cent between 2007-2010) combined with an increase in the interest bill (reflecting both higher borrowing costs, i.e. interest rates, together with the larger volume of debt) led to a steep increase in the interest-to-revenue ratio from 2008 onwards. By 2013 the ratio was back close to its previous high water-mark. However, that year also marked a turning point; thereafter the decline in borrowing costs – partly due to the stance of monetary policy and the concurrent replacement of relatively expensive debt instruments with cheaper market-based funding – led to a reduction in the ratio, which last year was below 9 per cent. In monetary terms, debt interest payments amounted to €6.2 billion last year.

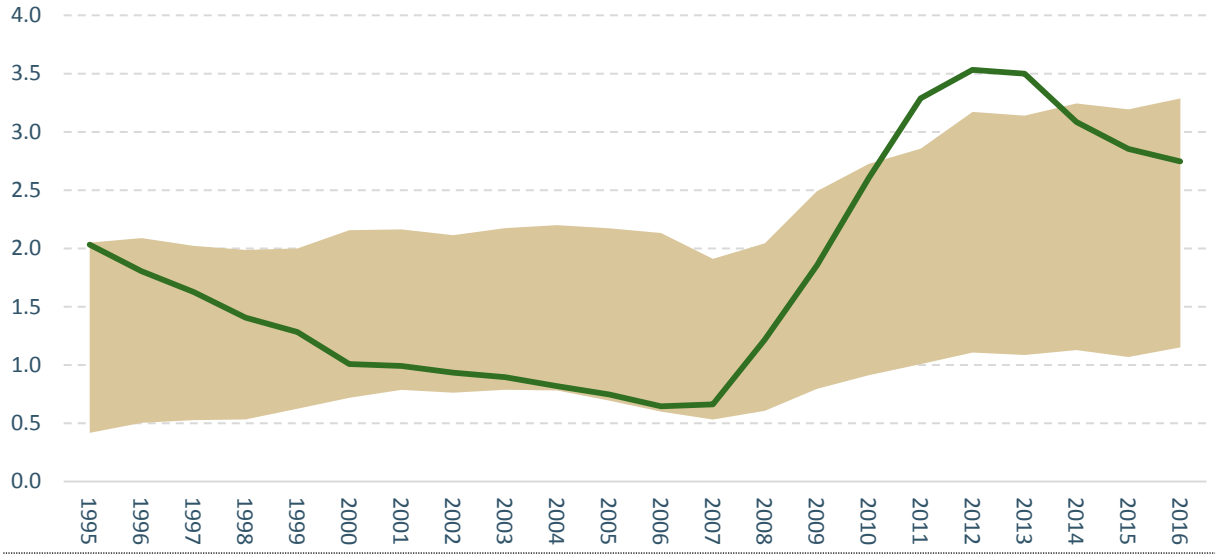
It is also useful to assess how this interest-to-revenue variable compares with developments elsewhere. Figure 10 also shows the EU28 inter-quartile range for this variable; the shaded area shows observations in the second and third quartile, i.e. the middle (50 per cent) ranked Member States. While declining, this metric clearly shows that the burden of Irish debt remains high by European standards.

As well as being a measure of the burden of debt, high levels of interest payments can have a detrimental impact on living standards (both current and future), by diverting scarce resources from productive investment towards debt servicing. Debt service payments are a first charge on revenue – payments are made via the so-called central fund and hence not subject to a parliamentary vote in Dáil Éireann. Figure A5 in the appendix shows that interest expenditure as a percentage of total (non-banking related) expenditure rose from a low-point of 2.9 per cent in 2007 to a peak of nearly 11 per cent in 2013. Interest expenditure currently accounts for around 9 per cent of total general government expenditure.

5.2: debt-to-revenue ratio

An alternative – though not unrelated – means of assessing the burden of debt is the debt-to-revenue ratio, as shown in figure 11. The trend is very similar to that shown in figure 9 with a decline in the ratio up to 2007 and a sharp reversal thereafter. The debt-to-revenue ratio peaked at 3.5 in the early part of this decade and, while it has been on a downward trajectory since, the figure remains at the higher end of the European Union spectrum.

Figure 11: debt-to-revenue ratio, IE relative to EU28 second and third quartiles

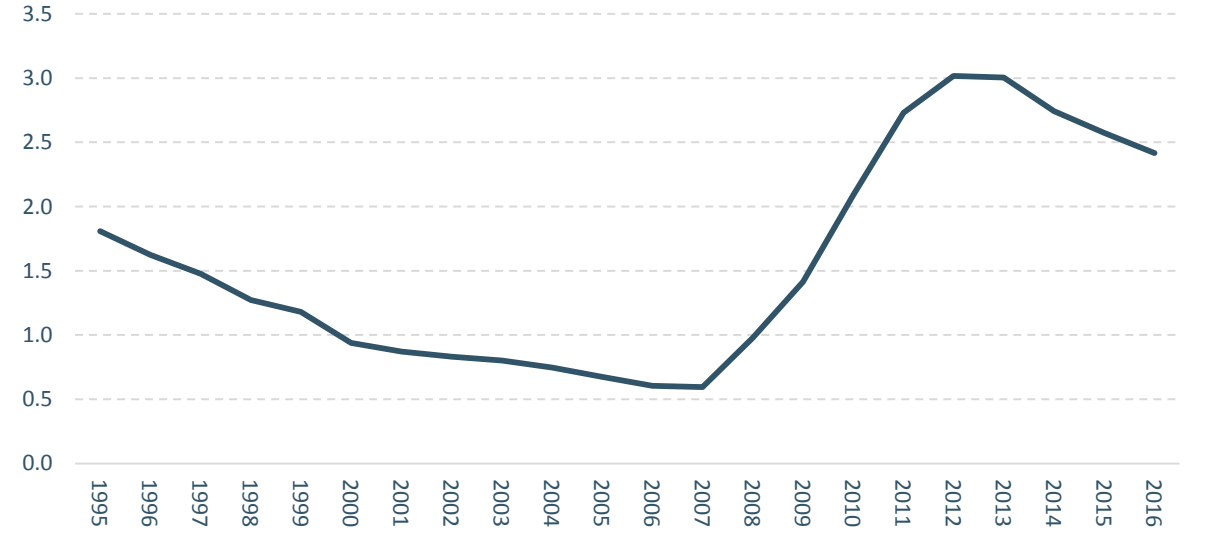


Shaded area shows the 25-75 percentile range for EU28; the green line shows the evolution of Irish position.
Source: Department of Finance calculations based on European Commission (AMECO) data.

5.3: debt as a fraction of the national pay-bill

In terms of the burden of public debt, it is particularly striking that, at the end of last year, the Government held debt of around €42,000 for every individual resident in the State. Assessing how this has evolved over time is complicated by the fact that per capita income also changes over time. In a similar vein, cross-country comparisons of debt-per-capita are complicated by differences in per capita income. One way of overcoming this is to express debt as a fraction of the national pay-bill, i.e. the total annual remuneration of all employees in the State.[21] An additional benefit of this approach is that the national pay-bill figures are not distorted by the multinational sector and, in particular, the high profitability of this sector in Ireland.

Figure 12: Debt as a fraction of the national pay bill



Source: Department of Finance calculations.

[21] An alternative would be to express public debt as a fraction of household disposable income.

These data are presented in figure 12. In the mid-1990s, outstanding public debt amounted to 1.8 times the national wage bill that year. While nominal debt was largely unchanged over the period 1995-2007, the expansion in the workforce combined with increases in per capita earnings lead to a significant expansion of the national pay-bill. As a result, the ratio of outstanding debt to the pay-bill fell to a low-point of 0.6 in 2007. Thereafter, both the numerator (the increase in outstanding public sector liabilities) and denominator (the decline in the wage bill on foot of falling employment levels post-2008) had a detrimental impact on the ratio, which peaked a 3.0 in 2013. In more recent years, the ratio has resumed a downward trajectory, largely on foot of the expansion in employment, reaching 2.4 at the end of last year.

5.4: summary

The analysis presented in this sector provides clear evidence that the burden of public debt in Ireland remains relatively high, notwithstanding the decline in the debt-to-GDP ratio and highlights the importance of assessing a suite of indicators in an Irish context. Analysis of additional variables – especially the ratio of debt-to-GNI* once it is published over the summer – will be included in future Department of Finance publications.

Section 6 – Forward-looking analysis

Heretofore, the analysis has been rear-view-mirror based, in order to understand how the debt ratio has arrived at its current level. From a policy perspective, it is also crucially important to understand the likely evolution of debt into the future, and to understand how sensitive the debt-to-GDP trajectory is to alternative assumptions for key driving factors such as nominal growth and interest rates.

6.1: short- and medium-term debt forecasts

While it is generally understood that GDP overstates the level of economic activity in Ireland, our international obligations[22] require the production of debt-to-GDP forecasts. The Department's latest forecasts for nominal debt as well as the debt-to-GDP ratio are set out in table 4. These are sourced from the 2017 Update of the Stability Programme, published in early May.

Table 4: forecasts for gross debt, end-year

	2016	2017	2018	2019	2020	2021
Gross nominal debt, €bn.	200.6	204.6	209.8	214.1	209.7	210.9
Debt-to-GDP, per cent	75.4	72.9	71.2	69.5	65.2	62.9

Source: Stability Programme 2017 Update, Department of Finance.

The outstanding amount of debt is projected to peak in 2019 and begin declining thereafter. These figures make no provision for the disposal of the State's assets in the domestic banking sector. Reflecting the assumption of continued nominal GDP growth, the debt-to-GDP ratio

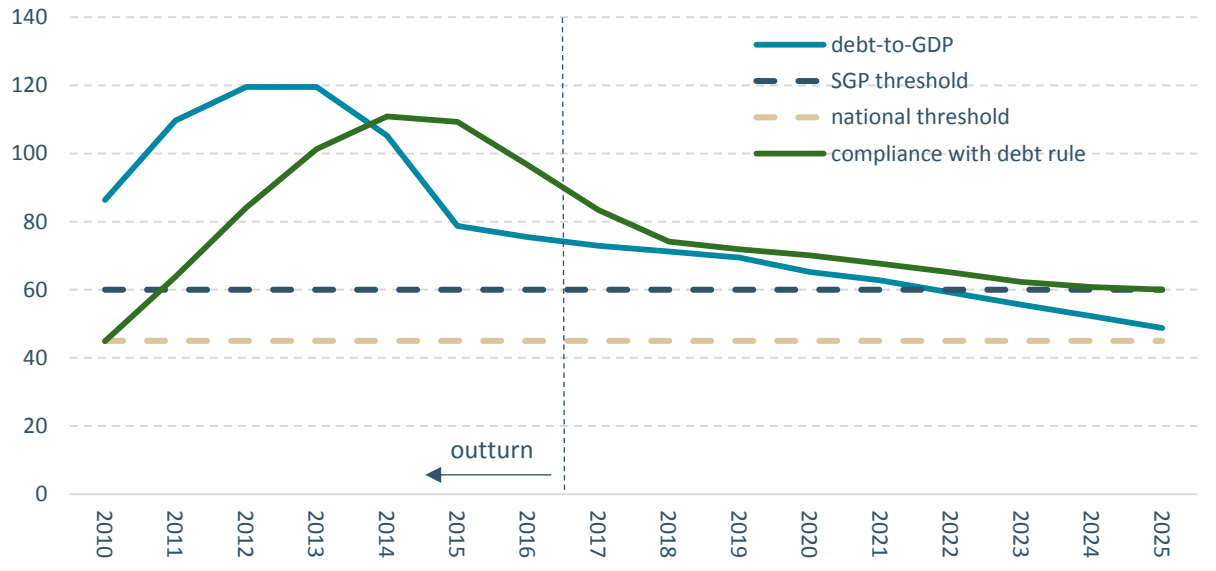
[22] As set out, for instance, in the Code of Conduct that governs the template of Stability Programmes published by EU Member States.

is forecast to decline to just below 63 per cent by the early part of the next decade. This would bring the ratio very close to the Treaty reference value.

6.2: future debt ratio targets

Article 126(2) of the Treaty sets out that compliance with budgetary discipline is assessed on the basis of "*whether the ratio of government debt-to-GDP exceeds a reference value, unless the ratio is sufficiently diminishing and approaching the reference value at a satisfactory pace*". Protocol 12, annexed to the Treaty, sets this reference value at 60 per cent of GDP.[23] Reforms to the Pact adopted in 2011 in response to the crisis sought *inter alia* to operationalise the correction of 'excessive' debt. In particular, regulation 1467/97[24] states that where the debt-to-GDP ratio exceeds the 60 per cent ceiling, it will be considered as diminishing sufficiently and approaching the reference value at a satisfactory pace if the differential between a Member State's debt ratio and the reference value declines by 1/20th per annum as a benchmark.[25] This is known as the debt correction rule.

Figure 13: general government debt in Ireland and the debt reduction rule, per cent of GDP



Source: Department of Finance.

To gauge Ireland's compliance with the debt correction rule, figure 13 sets out an illustrative trajectory for the debt-to-GDP ratio over the period to 2025. The projection to 2021 is based on the Department of Finance projections sourced from the Stability Programme 2017 Update, with key inputs (primary balance, effective interest rates, nominal growth) kept

[23] An 'excessive' deficit is defined as 3 per cent of GDP. At the time of the negotiation of the Maastricht Treaty, the estimated potential growth rate of the euro area was 3 per cent. Assuming an inflation target of 2 per cent, this would equate to medium term nominal growth of 5 per cent in the euro area. In the long-run, an annual deficit of 3 per cent combined with a nominal growth rate of 5 per cent would result in the debt-to-GDP ratio converging to 60 per cent (i.e. 3/5) of GDP.

[24] As amended by Regulation 1177/2011; this is the so-called corrective arm of the Pact.

[25] On average over a three year horizon. In the decision-tree, there are backward- and forward-looking elements as well as the concept of debt adjusted for the impact of the economic cycle. While these are not detailed here, more information is available in the '*Vade Mecum*' on the Stability and Growth Pact.

unchanged thereafter in order to construct a central scenario to 2025.[26] The green line shows the path for the debt-ratio that is consistent with compliance with the (backward-looking) debt-correction rule set out in the reformed Pact. As is clear, reasonable assumptions for nominal GDP, interest rates and the primary balance imply compliance with the debt correction rule, and suggest that the 60 per cent threshold should be achieved in the early part of the next decade. It should be noted that in all of these calculations, no allowance is made for the receipt of any proceeds resulting from the divestment by the State of its equity in the domestic banking system. As these receipts are to be used for debt reduction, any disposals would *ceteris paribus* bring forward the achievement of the 60 per cent of GDP threshold.

High levels of debt reduce economic growth *inter alia* by diverting resources away from productive use towards debt servicing. In addition, high levels of public debt increase the vulnerability of the economy to shocks in the sense that the capacity of the automatic stabilisers to provide counter-cyclical support may be reduced by market access considerations. There is, therefore, a premium attached to reducing the debt-to-GDP ratio, especially for a small, open economy like Ireland where GDP is much more volatile than elsewhere.

With this in mind, the Minister for Finance announced in Budget 2017 that the Government has adopted a lower national debt target of 45 per cent of GDP. The rationale for a lower national target is to enhance the resilience of the public finances, so that the economy can absorb adverse shocks that will inevitably emerge from time-to-time. A lower level of public indebtedness will facilitate the adoption of counter-cyclical fiscal policies – including the operation of the automatic stabilisers – in response to such shocks while, at the same time, maximising the probability that market access on reasonable terms is maintained.

6.3: debt sustainability analysis – shocks to the baseline scenario

While the figures presented in figure 13 can be considered a reasonable baseline scenario over the medium term, it is appropriate to test the sensitivity of the debt path to different macroeconomic assumptions. The conventional approach to assessing debt sustainability – and that employed by multilateral institutions such as the IMF and the European Commission – involves an assessment of the sensitivity of the debt path to a range of macro-fiscal shocks: in effect a fiscal 'stress test'. Within this framework, debt sustainability is achieved once the debt-GDP ratio is stabilised and subsequently put on a downward path. On the other hand, de-stabilising debt dynamics arise when mutually-reinforcing forces lead to an explosion of the debt ratio.

Three shocks to the baseline are presented here, namely a GDP shock, an interest rate shock and an 'extreme' shock involving a very sharp deterioration in the GDP growth rate together with a fiscal shock. Although purely hypothetical by construction, these can provide indicative orders of magnitude or variance around central assumptions for the debt path. The SFA is assumed to make no contribution, positive or negative, to debt dynamics in the first two cases. It is important to stress that no policy change is assumed in order to capture the pure dynamics; in reality it is reasonable to assume that policy would respond accordingly if the

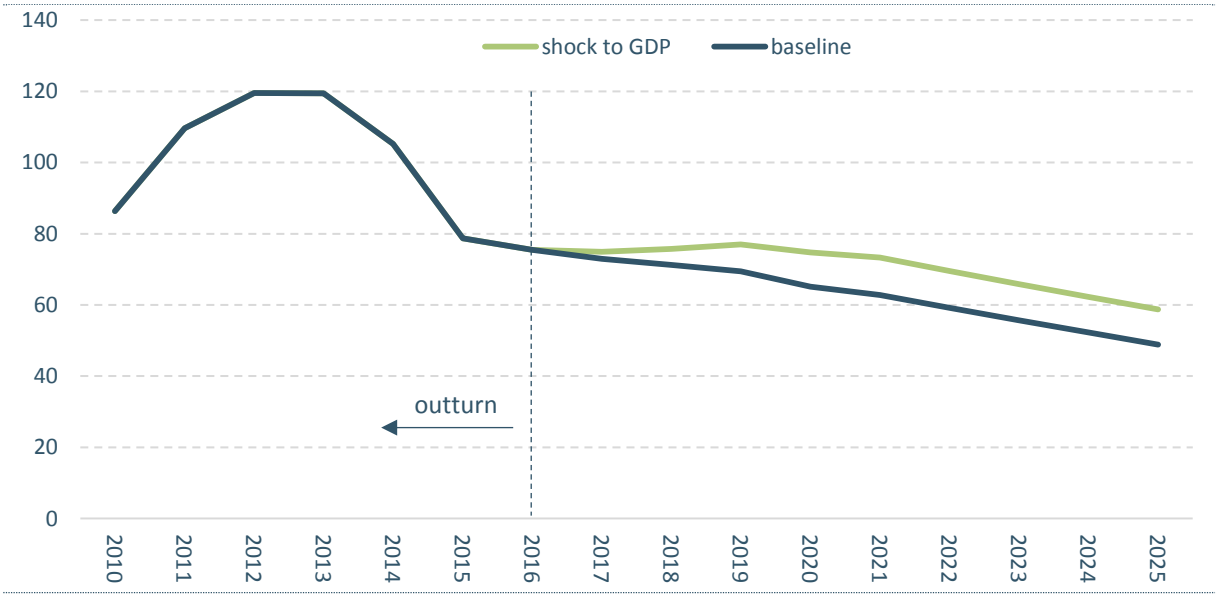
[26] The figures beyond 2021 should not be considered as a formal forecast; instead, the figures for key inputs are simply held unchanged at 2021 levels in order to construct a baseline scenario.

debt ratio deviated significantly from the current trajectory. Finally, the impacts outlined are broadly linear and it should be recognised that non-linear responses are regular.

6.3.1: GDP shock

In order to simulate a GDP shock, a number of purely technical assumptions are made. Firstly, real GDP growth over the period 2017-2019 is reduced by half a standard deviation in the outturn over the past ten years. With an assumed unchanged GDP deflator, this equates to a nominal growth rate which is 2.1 percentage points lower than in the baseline scenario. Post-2019, the nominal growth rate is assumed to gradually revert to that which underpins the central scenario thereafter, i.e. there is a permanent, downward 'level-shift' in GDP. Secondly, the fiscal feedback is captured by assuming the revenue-GDP ratio is unchanged and that the level of primary expenditure is unchanged (an approach that broadly follows the toolkit of the IMF). Finally, because it is assumed that there is no policy intervention, the deterioration in the primary balance is assumed to increase sovereign borrowing costs, with each 1 percentage point deterioration adding 10 basis points to the effective interest rate.

Figure 14: GDP shock, per cent of GDP



Source: Department of Finance calculations.

The analysis shows that, without policy intervention, the debt-to-GDP ratio is around 10 percentage points higher than baseline by the mid-part of the next decade (figure 14). The Treaty reference value for public debt would not be achieved until the second half of the next decade. Importantly, however, the debt ratio remains on a downward trajectory, although this simple simulation demonstrates that the debt path in Ireland is highly sensitive to assumptions regarding nominal GDP.

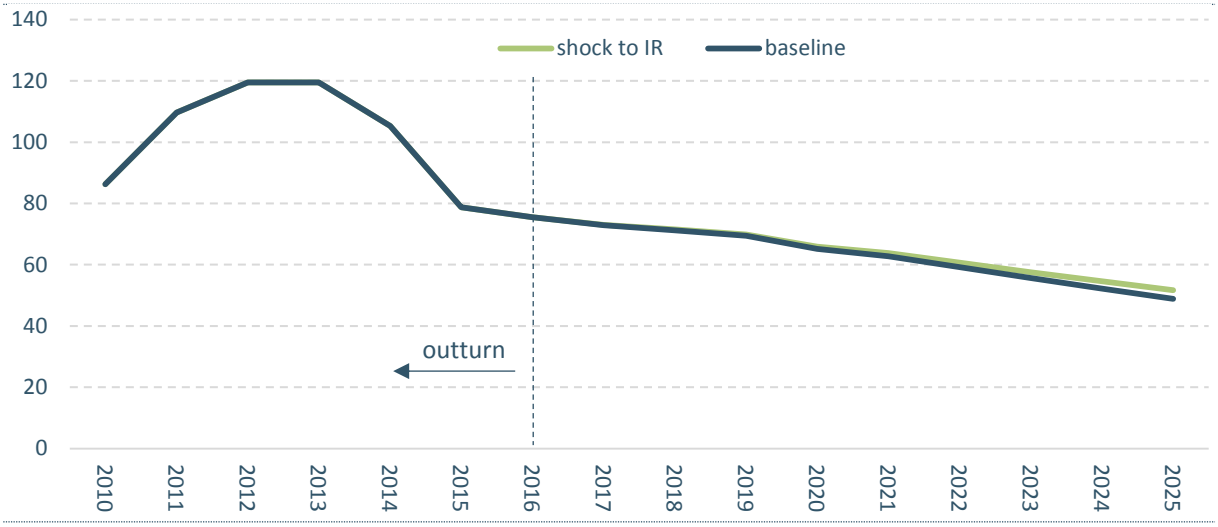
6.3.2: interest rate shock

In order to gauge the impact of rising sovereign borrowing costs, the effective interest rate is increased by 0.1 percentage points each year so that by the mid-part of the next decade, the effective interest rate is a full percentage point higher than under the baseline assumptions. While unlikely, given the interest rate structure of Irish debt, it is noteworthy that over the period 2004-2008, the increase in the effective interest rate amounted to 1.2 percentage

points. A simplifying assumption is made that there is no feedback onto the growth rate of the economy in this scenario and that the primary balance is unaffected.

As is evident from figure 15, the debt trajectory is largely unchanged. Thus, it can be concluded that, given the interest rate structure of the existing debt stock, the debt path is not particularly sensitive to different assumptions for sovereign borrowing costs. This finding is broadly similar to that of multilateral organisations that conduct debt sustainability analysis for Ireland. Having said that, it must be acknowledged that rising interest rates would make it more expensive for the Government to finance new projects.

Figure 15: interest rate shock, per cent of GDP



Source: Department of Finance calculations.

6.3.3: combined macro-fiscal shock

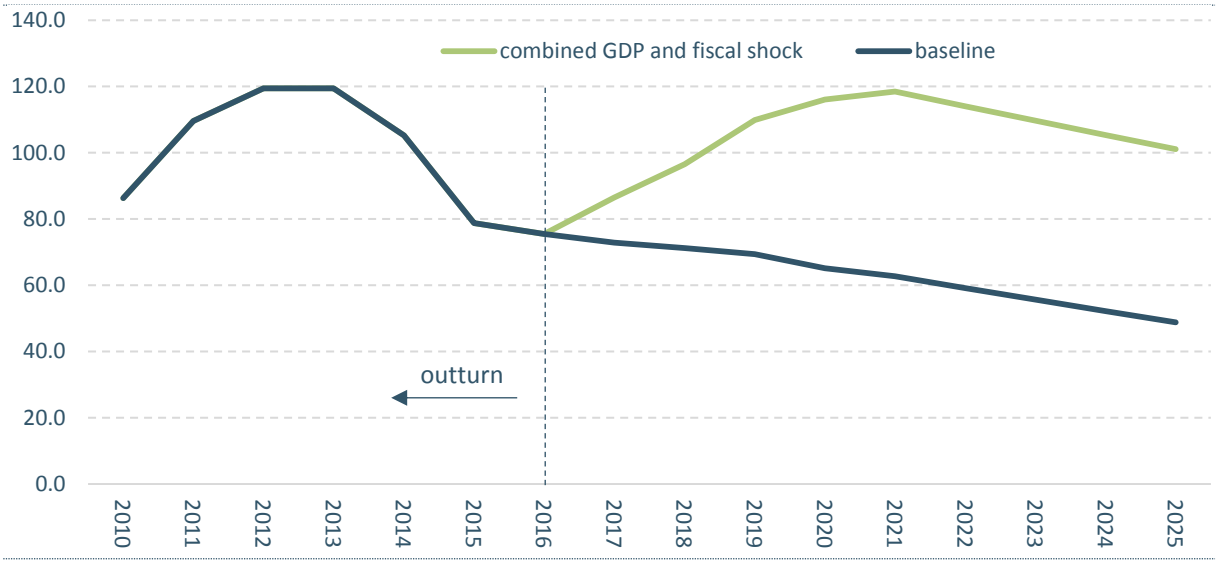
A key lesson from the financial crisis is that so-called 'tail-risks' can, and indeed do, materialise. Tail-risks can be thought of as low probability (and hence in the tail of the probability distribution) but high impact events. In the interests of completeness, therefore, and taking into account Ireland's recent experience, it is appropriate to consider the impact of an extreme growth shock coinciding with a fiscal shock.

To operationalise such a scenario, the real GDP growth rate over the 2017-2019 is reduced by 2 standard deviations in the outturn over the past ten years and the SFA is assumed to add 5 percentage points to the debt ratio next year. Again it is stressed that this is hypothetical, indicative and part of a scenario planning exercise. As before, the growth rate post-2019 is assumed to gradually revert to the baseline scenario. The fiscal feedback is the same as previously.

The results are set out in figure 16. The simulation shows that an extreme shock to the economy, combined with 'level shift' in public debt arising from a one-off (SFA) fiscal shock, results in a significant increase in the debt ratio. Assuming broadly linear effects, the debt path assumes a downward trajectory once the economy begins to stabilise.

Having said that, it should be recognised that non-linearities could be associated with such a shock. Moreover, it is conceivable that the duration of a shock could be more prolonged, with the recovery in output being slower. In these circumstances, de-stabilising debt dynamics could potentially emerge. In this extreme scenario, policy intervention would be necessary in order to put the debt trajectory on a sustainable path.

Figure 16: combined macro and fiscal shock, per cent of GDP



Source: Department of Finance calculations.

6.4: summary

In summary, under the baseline scenario of continued economic growth, Ireland should comply with EU obligations to bring the debt-to-GDP ratio below 60 per cent in the early part of the next decade. The 45 per cent national target should be achieved in the mid-part of the next decade, again growth permitting. A key lesson of the crisis, however, is that significant shocks can, and do, materialise. The analysis in this section has shown that the debt-to-GDP trajectory is very sensitive to nominal output growth and, in an extreme scenario, policy intervention could be necessary to ensure sustainability.

Section 7: Conclusion

The financial crisis of the late-2000s has left a high level of public indebtedness in Ireland in its wake. The pace and scale of the increase in public debt is largely unprecedented, and reflects the three-pronged nature of the crisis. Policy responded by front-loading measures to better align public revenue and expenditure and, post programme-entry, to improve the terms (interest rate reductions, maturity extensions) on concessional lending provided by the official sector. All these have helped to re-build credibility in the Irish sovereign, which is evident from the decline in risk premia.

The apparent improvement in the debt burden – as suggested by the decline in the debt-to-GDP ratio since 2012 / 2013 – must be treated with caution. While measured in line with international standards, GDP nevertheless overstates the level of 'true' economic activity in an Irish context, a feature that has become more prominent in recent years. Other metrics confirm that the debt burden has declined somewhat but that further reductions are needed to reduce the vulnerability of the Irish economy and minimise interest costs (interest payments are a 'first charge' on revenue and reduce the amount available to finance more productive public expenditure).

In summary, therefore, notwithstanding some progress in recent years, public indebtedness in Ireland remains a key challenge, albeit a manageable one. From a policy perspective, it is crucial that the challenge is indeed managed effectively. In particular, ensuring fiscal sustainability encompasses a number of policy elements.

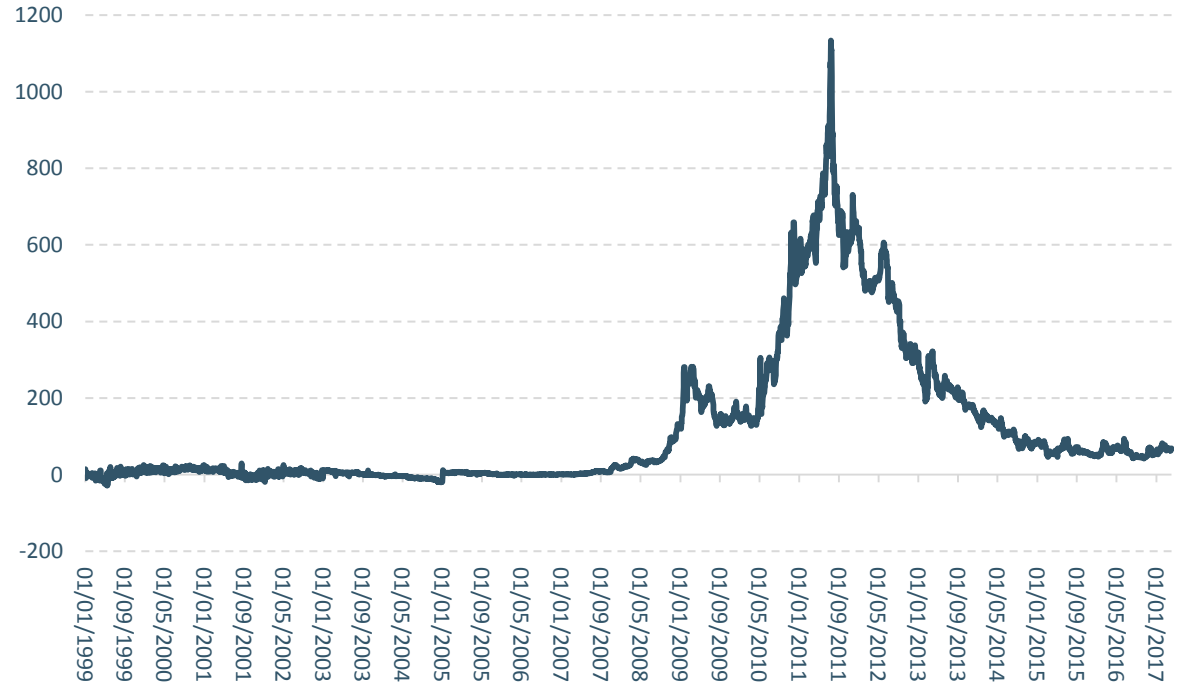
First and foremost, it is essential to **prevent the build-up of additional debt in nominal terms**. This involves ensuring fiscal discipline with, at a minimum, ensuring that a balanced budget over the economic cycle is achieved. It also involves using windfall gains – including those arising from the disposal of the States banking assets – for debt reduction, as is the policy of the Government.

Secondly, it is important to continue to **reduce the burden of debt**. This can be achieved by further enhancing credibility so that refinancing costs for the Irish sovereign, relative to the German equivalent, remain low. In addition, structural reforms that boost the growth potential of the economy – raising the level of employment, incomes, etc. – can reduce the 'per capita' burden of debt.

Finally, it is worth stressing that reducing the debt burden is undoubtedly a slow-burner. This makes it all the more important to **set out relevant staging posts** along the way and to monitor progress towards these targets. A credible flight-path towards these targets can serve to anchor expectations. In this context, the Department of Finance will continue to monitor progress towards the 60 per cent of GDP Treaty reference value and the 45 per cent of GDP national target, and update the analysis in this report on an annual basis.

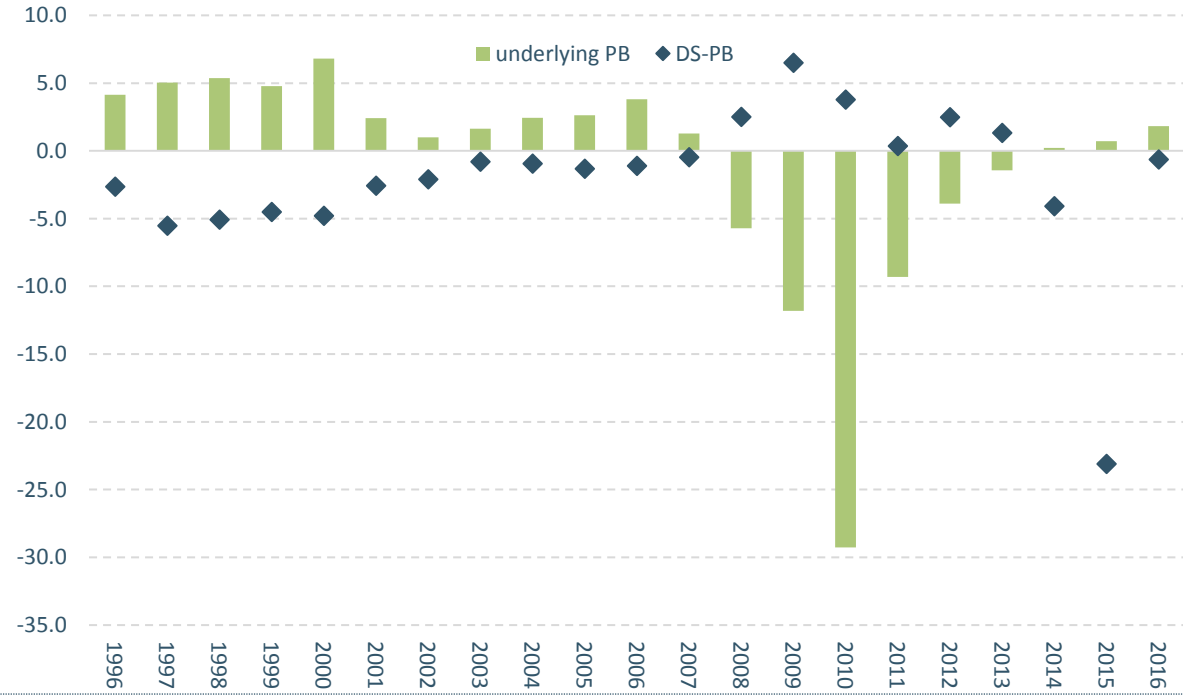
Appendix 1: additional variables monitored by the Department of Finance

Figure A1: yield on Irish 10-year paper relative to German equivalent, basis points



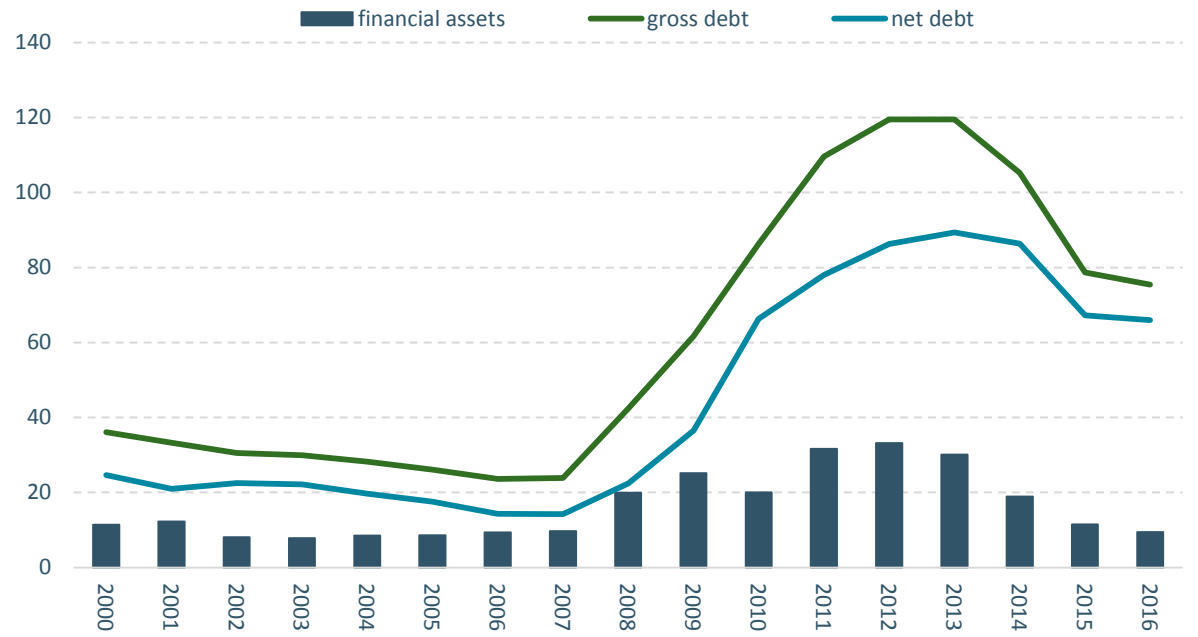
Data cover the period since the beginning of stage three of EMU to the present.
Source: Macrobond.

Figure A2: primary fiscal balance, per cent of GDP



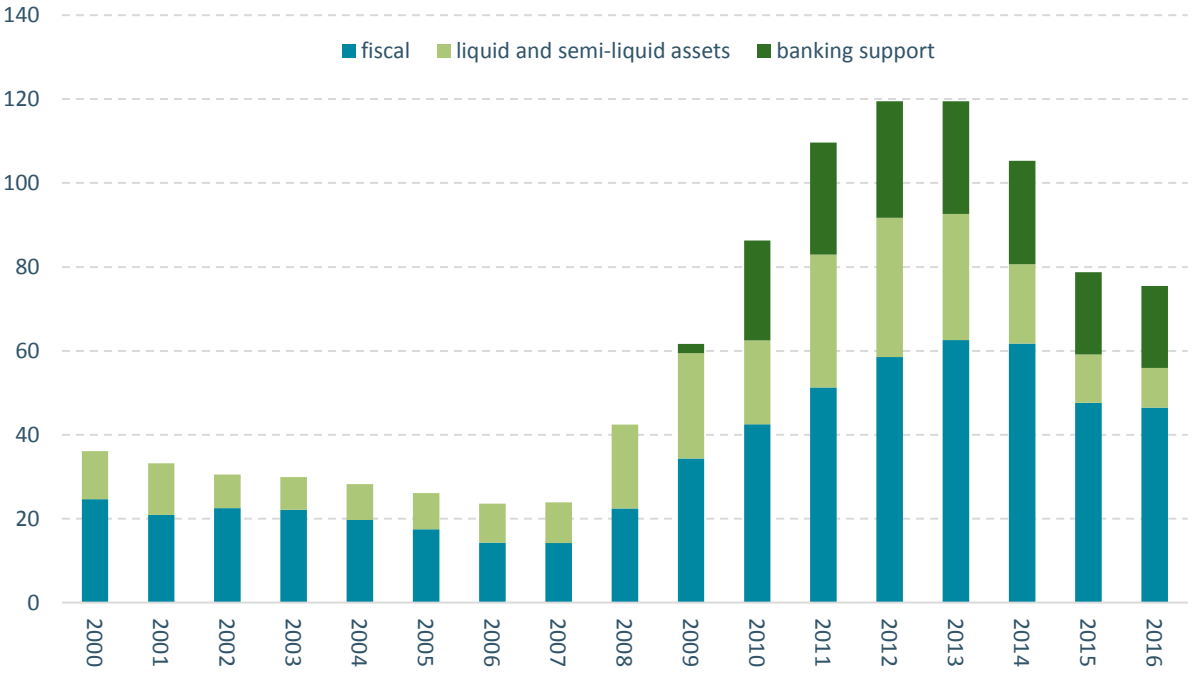
DS-PB = debt stabilising primary balance (see equation 2 in text).
Source: Department of Finance calculations

Figure A3: net public indebtedness, per cent of GDP



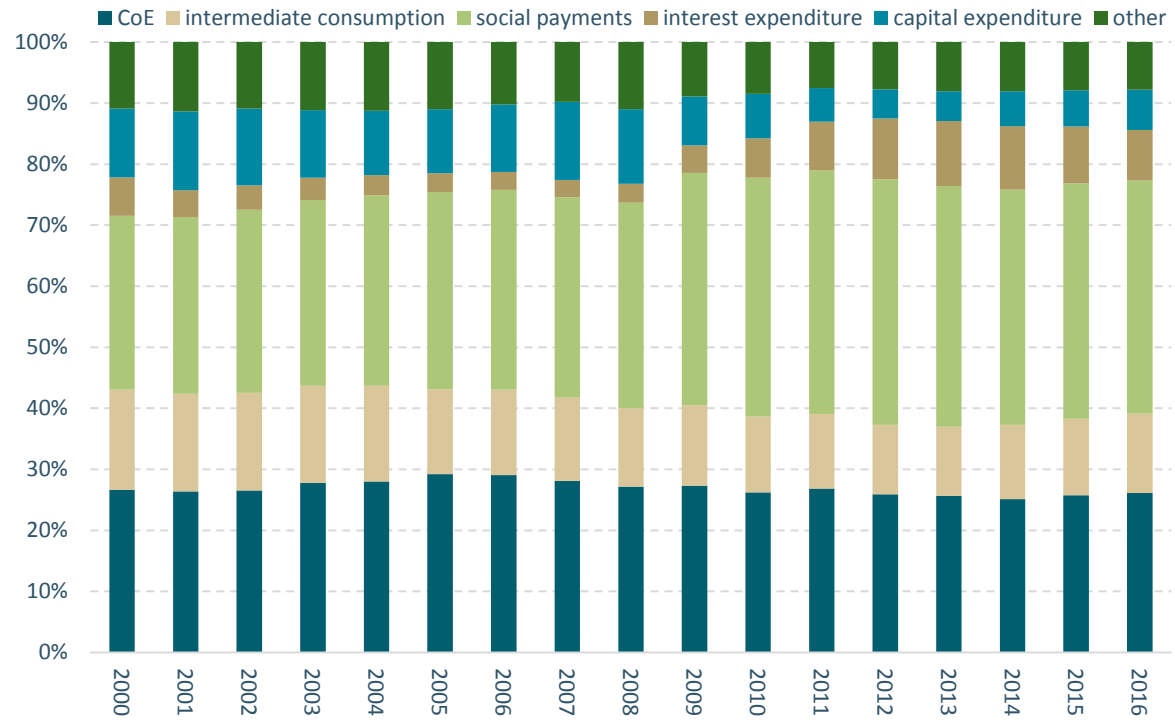
Source: CSO.

Figure A4: composition of gross public indebtedness, per cent of GDP



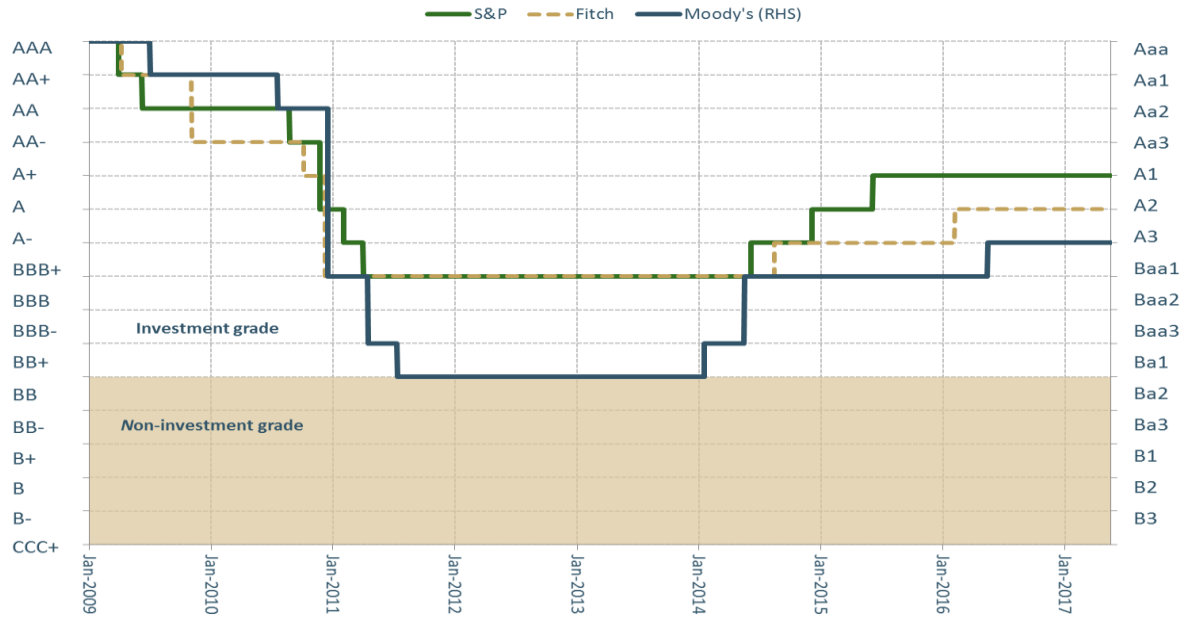
Figures are estimates.
Source: CSO and Department of Finance calculations.

Figure A5: debt interest expenditure relative to total (non-banking) expenditure



CoE is compensation of employees, i.e. the public sector pay bill. Intermediate consumption is the purchase of other (non-labour) goods and services by general government.
Expenditure is in general government terms.
Source: CSO and Department of Finance calculations.

Figure A6: trend in Irish sovereign credit rating



Source: NTMA.

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