



**Irish Fiscal
Advisory Council**

The Government's Balance
Sheet after the Crisis:
A Comprehensive Perspective
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SUMMARY OF MAIN MESSAGES

- The financial crisis has transformed the public finances in Ireland. Substantial government deficits and costs related to rescuing the banking sector have led to a large increase in government debt and created significant contingent liabilities.
- While discussion often focuses around the debt-to-GDP ratio as referenced by the EU Stability and Growth Pact, the reality is far more complex. This paper takes a comprehensive look at the Government's balance sheet following the financial crisis. This involves assessing assets and liabilities of the General Government sector, off-balance sheet contingent and implicit liabilities as well as the wider public sector.
- The comprehensive analysis draws on multiple sources but is by no means exhaustive. While there is often a search for a single number of "how much is owed?", there is no simple answer as adding up different categories of assets and liabilities can be misleading. In any analysis of the Government's balance sheet, it is important to be clear as to what is being included and how it is measured.

GENERAL GOVERNMENT BALANCE SHEET

- General Government financial liabilities have increased four-fold since 2007, reaching €208 billion (127 per cent of GDP) in 2012. Over this period, Ireland experienced the largest increase in the indebtedness (relative to GDP) of any Euro Area country.
- The Government has substantial holdings of financial assets. These increased modestly over the same period to reach €73 billion (45 per cent of GDP) in 2012. The main assets are cash balances, holdings of semi-state entities and investments in the banking sector. The Government injected approximately €64 billion, including more than €30 billion in promissory notes, into the banking sector during the financial crisis. However, these investments have been heavily written down and were valued in the National Accounts at around €11 billion at end-2012.
- The Government's net financial assets (NFA), subtracting financial liabilities from financial assets, gives a broader measure of the financial position of government. NFA have declined from a position of balance in 2007 to a net liability of €135 billion (82 per cent of

GDP) in 2012. Using this broader measure, the Irish government was the third most indebted country in the Euro Area in 2012 (as a share of GDP).

- The Government also has substantial holdings of non-financial (physical, intangible) assets, amounting to almost a third of GDP. Adding these assets to NFA gives overall General Government Net Worth. The Central Statistics Office (CSO) estimate that Net Worth was in a negative position at €77 billion (47 per cent of GDP) in 2012 (Summary Table).

SUMMARY TABLE: GOVERNMENT BALANCE SHEET INDICATORS IN 2007 AND 2012

	2007		2012		Change	
	€bn	% of GDP	€bn	% of GDP	€bn	% of GDP
1. Financial Assets	55	29	73	45	19	16
2. Financial Liabilities	54	29	208	127	154	98
3. Net Financial Assets (=1-2)	1	0	-135	-82	-135	-82
4. Non-Financial Assets	n.a.		57	35		
5. Net Worth (=3+4)	n.a.		-77	-47		

Source: Central Statistics Office and Eurostat end-year figures.

Note: numbers may not sum due to rounding.

LOOKING BEYOND THE GENERAL GOVERNMENT BALANCE SHEET

- The General Government is only part of the wider more comprehensive public sector, which includes the semi-state enterprises and financial corporations such as the Central Bank of Ireland. There can be important interactions between institutions inside and outside of the General Government sector. This has become more relevant since the banking crisis, as many of the vehicles used to help resolve it have been drawn from the wider public sector. From a comprehensive perspective, the impact of these operations on the Government's Net Worth and its exposure to risks is important.
- The Government and wider public sector have potentially important off-balance sheet (contingent and implicit) liabilities that should feature in any comprehensive analysis. Contingent liabilities are commitments, such as guarantees, that could lead to liabilities if triggered, while implicit liabilities have no contractual basis but could nevertheless lead to expenses for the Government in the future. The CSO has estimated that exposure to

contingent liabilities (which include bank guarantees and Public Private Partnerships) and pension liabilities amounted to €235 billion (144 per cent of GDP) at end-2012.

THE WINDING-UP OF IBRC FROM A COMPREHENSIVE PERSPECTIVE

- In February 2013, the Government announced a set of transactions related to the liquidation of the state-owned Irish Bank Resolution Corporation (IBRC). This marked an important step in dealing with the legacy of the banking crisis. The transactions are complex and involve a number of instruments, including the promissory notes, and government and related bodies including the Exchequer, the Central Bank of Ireland, the National Asset Management Agency (NAMA) and IBRC itself.
- A comprehensive analysis shows that a number of elements of both pre- and post-2013 support for IBRC and its loan book were effectively offsetting each other. Indeed, support was based in part on a somewhat circular flow of funds between the Exchequer, IBRC and the Central Bank. To the extent that Exceptional Liquidity Assistance (ELA) funding for this arrangement substituted for non-Irish sources, these arrangements amounted in part to borrowing from the Eurosystem through the TARGET2 payments system.
- Viewed from a comprehensive perspective, the impact on the net worth of the public sector of the liquidation of IBRC depends on a range of assumptions about future outcomes. A model developed and outlined in this paper suggests that the February transactions could lead to substantial gains over a range of reasonable assumptions. Relative to the size of government debt, however, the gains are small. The gains could increase substantially if the risk spread on Irish government debt were to narrow before the new bonds are sold to the market; conversely a deterioration in risk spreads could eliminate any gains.
- A key gain from the liquidation of IBRC and the ending of ELA will be to provide greater certainty about future funding needs. This gain is difficult to quantify but should be borne in mind when assessing present value calculations. While the Government faces short-run costs from the liquidation of IBRC and the acceleration of additional losses on its involvement, this may largely amount to drawing a line under costs that are likely to have been incurred in any event at a later date.

1. INTRODUCTION

The financial crisis has transformed the public finances in Ireland as substantial government deficits and costs related to rescuing the banking sector have led to a large increase in government debt. At the same time, the Government has acquired assets in the banking sector, built up cash reserves and made significant shifts in its financial portfolio, as well as taking on a range of contingent claims.

These changes can only be understood by taking a comprehensive view of the Government balance sheet, looking beyond standard General Government deficit and debt measures. While discussion often focuses around the deficit and debt ratios targeted by the EU Stability and Growth Pact, the reality is far more complex. The commonly used debt-to-GDP ratio only captures one aspect of the picture and ignores financial and non-financial assets of Government, as well as the wider public sector and off-balance sheet (contingent and implicit) liabilities. The comprehensive approach adopted in this paper should help to foster a more complete understanding of both sides of the Government's balance sheet (Box A).

BOX A: WHY DOES THE GOVERNMENT'S BALANCE SHEET MATTER? THE GOVERNMENT'S INTERTEMPORAL BUDGET CONSTRAINT

One way to analyse the sustainability of the public finances is to look at the Government's intertemporal budget constraint. This basically states that the value of the Government's assets and future tax revenues must be greater than, or equal to its current debts and future spending:

$$L(0) + \sum_{t=1}^{\infty} \frac{1}{(1+r)^t} G(t) \leq A(0) + \sum_{t=1}^{\infty} \frac{1}{(1+r)^t} T(t)$$

where $L(0)$ and $A(0)$ are respectively the present discounted value of Government liabilities and assets at time zero (0). $G(t)$ is primary Government spending in year t , $T(t)$ is Government revenues (e.g., taxes) in year t , and r is the interest rate (which is assumed for simplicity to be constant).

The constraint shows that government spending cannot exceed revenues and resources over a sustained period of time. It also emphasises the importance of government assets and liabilities in discussing the sustainability of the public finances (as well as future taxation and spending plans). The constraint highlights that there are wider considerations than just the General Government deficit and debt-to-GDP ratios.

Ideally, any assessment of the intertemporal budget constraint should include all assets and liabilities, including future tax revenues and spending, measured in terms of their present discounted value. The latter provides a consistent measure of the value of money across time allowing for inflation and the opportunity cost of money. One obvious test of sustainability is whether current policies are consistent with the intertemporal budget constraint (see, e.g., Office for Budget Responsibility (OBR), 2011).

The relevant government assets and liabilities in principle should include both those recorded on the Government balance sheet as well as off-balance sheet contingent and implicit liabilities. The value of these liabilities depends both on the notional maximum exposures and the probability that they will be realised.

A key concept related to the intertemporal budget constraint is Net Worth (NW), defined here as:

$$NW(0) = A(0) + \sum_{t=1}^{\infty} \frac{1}{(1+r)^t} T(t) - L(0) - \sum_{t=1}^{\infty} \frac{1}{(1+r)^t} G(t)$$

This shows that the net worth of government is affected by changes in the size of government assets and liabilities as well as revenues and expenditures.

This paper uses the CSO's measure of General Government net worth, which is narrower than the theoretical benchmark set out above. The CSO includes the current market value of financial assets, non-financial assets as well as financial liabilities of General Government.

There are limitations in measuring certain asset and liability classes (see OBR, 2012). A particular problem is that most published government data reflect the effects of past decisions. Typically, the costs of future spending and taxation decisions (e.g., population ageing pressures or the ability to raise taxes in the future) are not adequately factored into the accounts of government.

It can also be difficult to draw a line between government and non-government activities. This raises a difficult question as to what assets to include in any given measure of government net worth. Some assets are too illiquid to be included. One potential approach might be to list assets according to a liquidity spectrum, with cash and demand deposits at one end and assets that would be near impossible (or at least highly undesirable) to liquidate at the other.¹

¹ An example of the latter might be heritage-related assets.

This paper draws on multiple sources of data to present an in-depth look at the Government's financial position.² A broad range of assets and liabilities is considered. Some of these are easily quantifiable, whereas others are difficult to measure and assess.

While there is often a search for a single number of "how much is owed", this is complicated by valuation difficulties when comparing different financial instruments and conceptual differences across measures. At the same time, simply 'adding up' different categories of assets and liabilities can be misleading, particularly for contingent and implicit liabilities that are uncertain and have different probabilities of being realised. In any analysis of the Government's balance sheet, it is important to be clear as to what liabilities and assets are included and how they are being measured.

The paper is structured as follows:

Section 2 looks at the balance sheet of the Government and wider public sector in detail. This focuses on the financial assets, liabilities and non-financial assets of the General Government sector. It includes a comparison of the financial position of the Government in Ireland with other Euro Area countries. The wider public sector is also briefly considered.

Section 3 focuses on off-balance sheet contingent and implicit liabilities. These liabilities have come very much to the fore as a result of the banking crisis, resulting in very real and tangible costs for the public finances.

Section 4 analyses the February 2013 transactions to liquidate IBRC from a comprehensive perspective. This approach is particularly apt given the complexity of the arrangements surrounding support to IBRC and its legacy assets. An analysis of the transaction in net present value terms is undertaken, building on earlier analysis by Whelan (2012/13a).

² While a lot of public finance data are available in Ireland, publication of the data is dispersed across a range of agencies and not reported in a regular or harmonised manner.

2. THE GOVERNMENT AND PUBLIC SECTOR BALANCE SHEETS

SUMMARY

- Over the past five years, Ireland has experienced the single largest increase in indebtedness in the Euro Area (relative to GDP) and was the third most indebted Euro Area country in 2012 based on the National Accounts measure of General Government Net Financial Assets (NFA).
- General Government liabilities have increased four-fold since 2007, predominantly reflecting a series of large budget deficits and support provided to the financial sector. Liabilities amounted to €208 billion (127 per cent of GDP) at end-2012 and mainly consisted of sovereign bonds, Troika/bilateral loans and promissory notes.
- Government financial assets have increased much more modestly in size as a result of the crisis and were valued at €73 billion (45 per cent of GDP) at end-2012. These mainly consisted of cash balances, ownership of semi-state entities and investments in the banking sector.
- The composition of financial assets and liabilities has changed significantly as a result of the crisis. On the liabilities side, significant debt has been accumulated as a result of €64 billion in direct support provided to the banking sector and a series of large budget deficits. The banking investments, however, have been heavily written down in the National Accounts and were valued at approximately €11 billion at end-2012.
- The Government's holdings of non-financial assets (land, stocks, intangible assets) were valued at €57 billion in 2012. Adding this figure to the net stock of financial assets gives overall General Government Net Worth of -€77 billion (47 per cent of GDP).
- The General Government is only part of the wider more comprehensive public sector. The latter includes semi-state enterprises and financial public corporations such as the Central Bank of Ireland. There can be important interactions between the General Government and institutions in the wider public sector through flows of income and cross-claims. This has become more relevant since the banking crisis, as many of the vehicles used to help resolve it have been drawn from outside of the General Government sector and are not

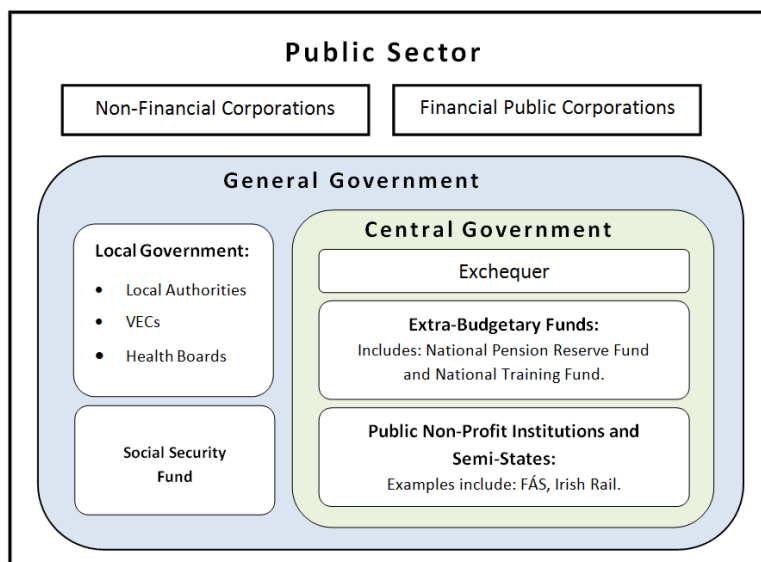
included on the General Government’s balance sheet. From a comprehensive perspective, the impact of these operations on the Government’s Net Worth and its exposure to risks is important.

2.1 INTRODUCTION

This section first looks at the most commonly reported measure of Government indebtedness, namely public or General Government debt (Section 2.2). Section 2.3 takes a comprehensive look at both sides of the Government’s balance sheet, focusing on financial assets and liabilities. The analysis draws on the CSO’s General Government Financial Statistics (GFS) database. Much of these data are also available across the EU, which enables international comparisons to be drawn in Section 2.4. The Irish data are then expanded in Section 2.5 to consider non-financial assets of Government to derive a figure for overall Government Net Worth. Section 2.6 concludes by looking at the wider public sector.

In this section and for statistical reporting purposes, entities are classified as either private or public sector (Figure 1). If an agency is directly or indirectly controlled by the Government it is classified as public sector. If an agency is mainly financed by government, it is included as part of the General Government sector within the public sector.

FIGURE 1: COMPOSITION OF THE PUBLIC SECTOR³



³ Figure draws on a presentation by the CSO on *Government Finance Statistics, April 2013*.

2.2 MEASURES OF GOVERNMENT DEBT

The most commonly used measure of Government indebtedness is public debt or General Government debt (Maastricht basis). This is defined in the Maastricht Treaty as the outstanding amount of consolidated General Government gross debt at nominal value at the end of the year (see Annex A, Table A1 for a breakdown). This measure of debt includes a defined set of financial liabilities reported under the Excessive Deficit Procedure, namely currency and deposits, securities other than shares (excluding financial derivatives) and loans. It is a gross (debt) measure as no financial assets are deducted in its calculation.

Using this measure, Government debt in Ireland in 2012 amounted to €192 billion or 118 per cent of GDP (Table 1). There has been a four-fold increase in Government debt over the past five years, reflecting a series of large budget deficits and the cost of direct support provided to the banking sector. On this basis, Ireland had the fourth highest debt ratio in the Euro Area in 2012, whereas in 2007 Ireland had the second lowest ratio.⁴

TABLE 1: PUBLIC DEBT (MAASTRICHT BASIS) IN IRELAND AND THE EURO AREA, 2000-2012

% OF GDP	2000	2005	2007	2010	2011	2012
Public debt, € Billions	37	44	47	144	169	192
Public debt	35.1	27.3	25.1	92.1	106.4	117.6
Public debt (Euro Area)	69.2	70.3	66.4	85.4	87.3	90.6

Source: Eurostat.

While General Government or public debt is the most common measure of debt in the EU, there are two other important measures, net Government debt and Government financial liabilities (on a national accounts basis).

Net Government debt is obtained by deducting the corresponding financial assets from those liabilities used to estimate public debt (Central Statistics Office (CSO), 2013a). These assets were valued at just over €40 billion in 2012 and largely consisted of relatively liquid (cash) balances. The Net Government debt-to-GDP ratio amounted to 93 per cent in 2012 (Table 2).

⁴ Only three Euro Area countries had debt-to-GDP ratios in excess of Ireland's at end-2012 according to Eurostat estimates: Greece (156.9 per cent), Italy (127.0 per cent) and Portugal (123.6 per cent).

Government financial liabilities on a national accounts basis provide a broader measure of indebtedness. This measure encompasses some elements of the Maastricht measure but there are some important differences:

- Government financial liabilities include a wider set of liabilities, including liabilities in derivatives, equity and insurance liabilities and accounts payable.
- Liabilities are valued at current market prices (as opposed to face values).⁵
- Liabilities can be measured on both a consolidated basis across the General Government sector, meaning that claims between entities within the sector are consolidated out, and on an unconsolidated basis, which includes all liabilities including those issued within the sector.

This measure yields a larger number for Government liabilities, given its wider definition. At end-2012, it stood at 127 per cent of GDP (Table 2). Government financial liabilities are outlined in more detail below.

TABLE 2: ALTERNATIVE MEASURES OF DEBT IN IRELAND IN 2012

Measure	Valuation	% of GDP	€ billions
1. Public (General Government) debt (Maastricht basis)	Face value	117	192
2. Net General Government debt	Face value	93	152
3. Government financial liabilities (National Accounts basis)	Market value	127	208

Source: CSO.

2.3 THE GENERAL GOVERNMENT BALANCE SHEET

A more complete and detailed picture of the General Government sector's financial position can be derived by looking at financial assets as well as liabilities using the CSO's General Government Financial Statistics (Table 3). These data are published on a national accounts basis. By end-2012, the Government had financial assets amounting to €73 billion with liabilities of €208 billion.

⁵ It is important to recognise that from the Government's perspective, it is the face value of debt that is to be repaid.

Taken together, net financial assets (financial assets less liabilities, or NFA) were an estimated -82 per cent of GDP at end-2012. This compares with a roughly balanced position in 2007. Over the same period, there has also been a marked change in the composition of Government assets and liabilities. These developments are discussed below.

TABLE 3: NET FINANCIAL ASSETS OF GOVERNMENT, 2000-2012

€ Billions	2000	2005	2007	2010	2011	2012
1. Financial Assets	25	43	55	65	62	73
2. Total Liabilities	42	53	54	138	167	208
3. Net Financial Assets (NFA) (-1-2)	-16	-10	1	-73	-105	-135
NFA, % GDP	-15	-6	0	-46	-64	-82
NFA, % GNP	-18	-7	0	-55	-80	-101

Source: Eurostat and CSO, end-year figures.

GOVERNMENT LIABILITIES

Government liabilities have risen four-fold since 2007 reflecting cumulative budget deficits over the period and direct support provided to the banking sector.⁶ There has also been a notable shift in the composition and level of Government liabilities (Figure 2 and Annex Table A2) from primarily Government bonds (in 2007) to bonds, EU/IMF and bilateral loans as well as promissory notes (in 2012). These liabilities are discussed in turn.

Bonds including short-term debt are the largest liability of Government. At end-2012, Government bonds outstanding were valued at €94 billion based on the price of bonds on the secondary market with shorter-term debt (e.g. treasury bills) and derivatives accounting for a further €4 billion. The stock of bonds and short-term debt effectively doubled between 2007 and 2010 and surpassed actual borrowing needs. This reflected a desire to build up a buffer of funding given concerns around the economic and financial outlook. Bond liabilities declined in 2011, reflecting the absence of new bond issuance and on-going redemptions, but again increased in 2012 by €18 billion.⁷

⁶ From 2008 to 2012, the cumulative General Government deficit (excluding banking crisis interventions) amounted to approximately €78 billion.

⁷ In terms of long-term funding in 2012, the NTMA engaged in bond switches (€4.6 billion); the issuance of conventional bonds (€4.2 billion); and the issuance of a new instrument, Irish Amortising Bonds (€1.0 billion).

FIGURE 2a: COMPOSITION OF GENERAL GOVERNMENT LIABILITIES IN 2007

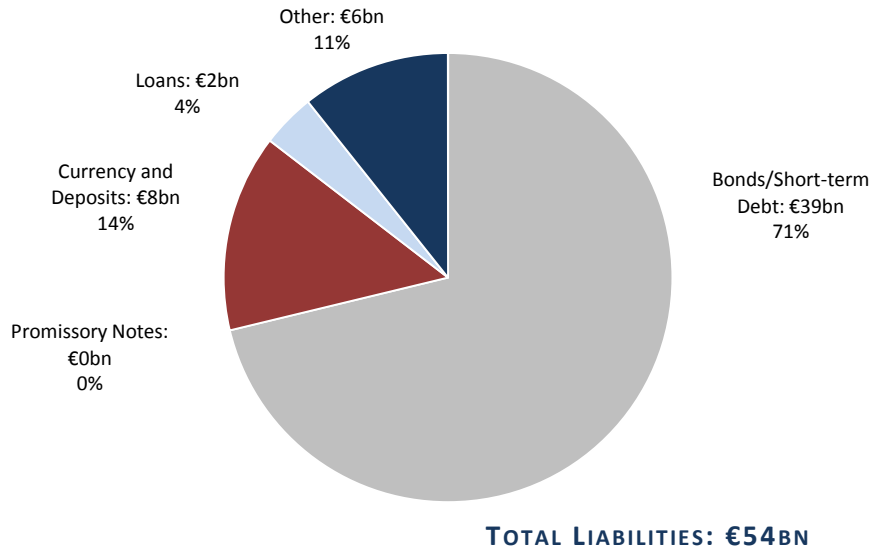
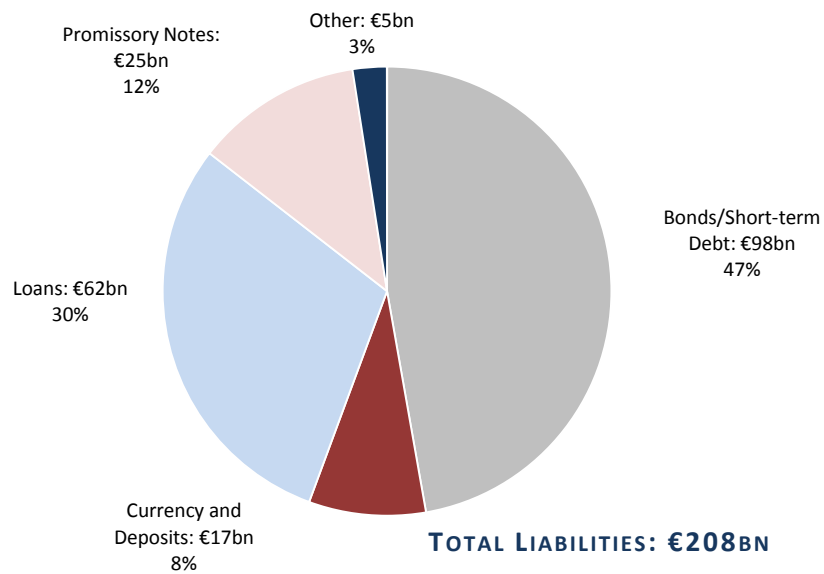


FIGURE 2b: COMPOSITION OF GENERAL GOVERNMENT LIABILITIES IN 2012



Source: Eurostat and Authors' calculations.

Loans (including official financing from the EU/IMF, bilateral lending and short-term loans)

constituted a small liability up until 2010, but have significantly increased over the past two years. This followed from the loss of access to market funding at sustainable rates in 2010 and the decision to enter into the programme supported financially by the EU/IMF. In total, the programme will provide €67.5 billion in loans, about a third of which comes from the IMF with another third from the EFSM (European Financial Stabilisation Mechanism) and the remainder from the EU EFSF (European Financial Stability Facility) and bilateral loans (see Annex B).

The **Promissory Notes** were issued by the Government to the Irish Bank Resolution Company (IBRC), at the time Anglo Irish Bank and Irish Nationwide, to the value of €30.6 billion in 2010.⁸ The full value of the promissory notes was added to the stock of public debt in 2010. The issuance of the notes was treated as a capital transfer (Government expenditure) to a loss making bank, as opposed to an acquisition of equity. At end-2012, the promissory notes liability had declined to €25 billion as a result of payments made by the Exchequer in 2011 and 2012. In February 2013, the promissory notes held by the IBRC were replaced by long-term Government bonds. This transaction is discussed in detail in Section 4.

Currency and Deposits include retail savings schemes operated by the NTMA (€14 billion). There has been a notable increase in the amount of money held in small savings schemes in recent years. Post Office savings bonds are also included in this category. On the currency side, coinage in circulation and legacy currency are included as a liability of General Government (while paper money is a liability of the Eurosystem).

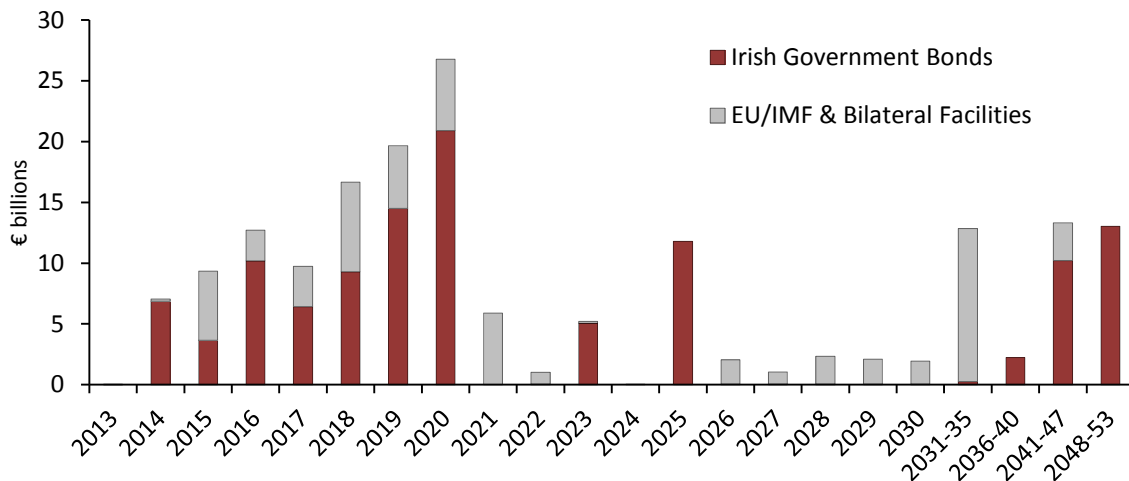
Other Liabilities are much smaller and primarily relate to liabilities of the Health Services Executive, Government departments, local government, social security funds, Irish Rail, voluntary hospitals and other semi-states bodies.

⁸ There was also a promissory note of €0.3 billion issued to EBS (now part of AIB) in 2010.

MATURITY PROFILE OF GOVERNMENT LIABILITIES

The current maturity profile of long-term and official debt is shown in Figure 3. As of end-August 2013, outstanding bonds amounted to €115 billion with troika and bilateral borrowings of €62 billion.⁹ The rising share of liabilities under the EU/IMF programme is important for a number of reasons, including from a market creditworthiness perspective as ‘official financing’ from these sources may be considered to have a more senior status. The IMF is widely accepted to have preferred creditor status. EFSF/EFSM loans are both officially considered *pari passu* with private claims.

FIGURE 3: MATURITY STRUCTURE OF LONG-TERM AND OFFICIAL DEBT



Source: NTMA, end-August 2013.

GOVERNMENT FINANCIAL ASSETS

Alongside its liabilities, the Government has substantial holdings of financial assets. These were valued at €73 billion in 2012, up from €55 billion in 2007 (see Annex Table A3 for details). Three main classes of assets dominate: equity holdings (including bank investments), cash balances and the equity value of government-owned semi-state enterprises (see Figures 4a and 4b). The Government has built up large holdings of essentially liquid assets (the category ‘currency and deposits’). ‘Shares and other equity’ have declined as a share of total assets, despite significant injections of capital into the banking sector, in part because the value of bank investments has been largely written down. Around one-fifth of the

⁹ The figure reflects the maturity extensions agreed in June 2013. See www.ntma.ie for more details.

Government’s assets are held in the National Pension Reserve Fund (NPRF), the composition, and size of which, has changed significantly due to the crisis (Box B).

FIGURE 4a: COMPOSITION OF GENERAL GOVERNMENT FINANCIAL ASSETS IN 2007

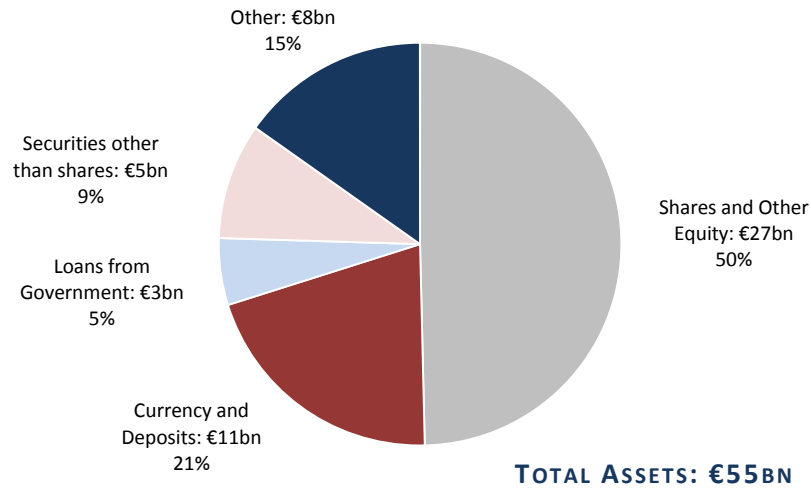
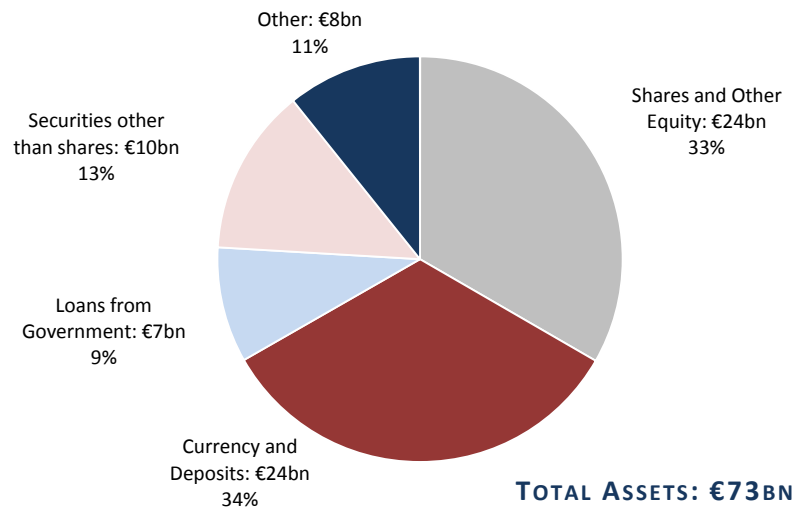


FIGURE 4b: COMPOSITION OF GENERAL GOVERNMENT FINANCIAL ASSETS IN 2012



Source: Eurostat and Authors’ calculations.

BOX B: THE NATIONAL PENSION RESERVE FUND (NPRF)

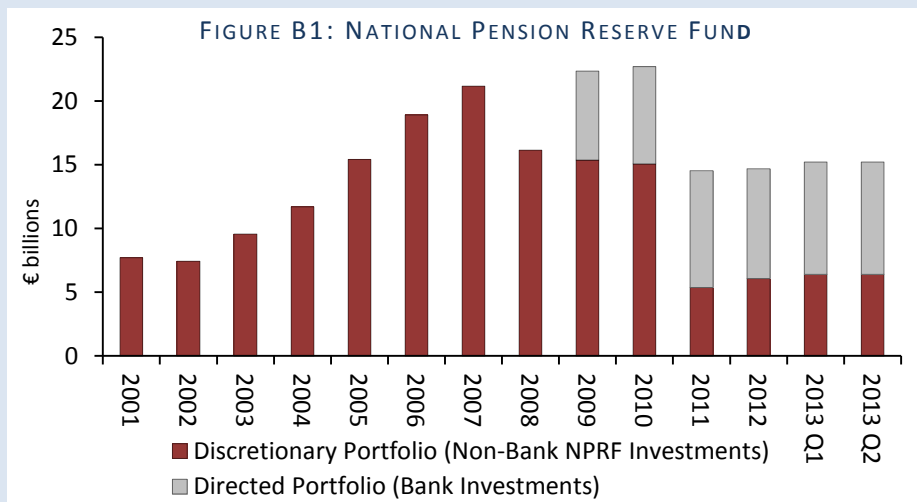
The NPRF was established in 2001, with the aim of contributing to future pension and social welfare costs from 2025 to at least 2055. The initial fund of approximately €6.5 billion came from privatisation receipts with a commitment by the Government to invest a further one per cent of GNP each year, subject to the approval of Dáil Éireann.

The value of the NPRF rose steadily up to €21 billion by end-2007, on the back of Government transfers and returns made on investments (a mixture of equity, bonds and deposits). In 2008, the financial crisis led to a decline in the value of the NPRF to €16 billion, through falls in the market value of its equity assets (Figure B1).

In 2009, there were significant changes in the composition of the NPRF portfolio as a result of the banking crisis. The Minister for Finance directed the NPRF to invest €7 billion in preference shares issued by Allied Irish Banks (AIB) and Bank of Ireland (BOI). These investments were funded through the NPRF’s existing resources (€4 billion) and from an Exchequer contribution (€3 billion).¹⁰ The NPRF was split into a *directed portfolio* (bank investments (Irish banks)) and a *discretionary portfolio* (non-bank investments). Since 2009, the NPRF has invested €20.7 billion in AIB (€16.0 billion) and BOI (€4.7 billion). The NPRF owns 15.1 per cent of BOI and 99.8 per cent of AIB.

In 2010, the Minister for Finance announced that there would be no Exchequer contributions into the NPRF in 2012 and 2013 (*Credit Institutions (Stabilisation) Act 2010*). By end-June 2013, the NPRF was valued at €15.2 billion with a directed portfolio of €8.8 billion and a discretionary portfolio of €6.4 billion, based on market prices. To date, the Fund has received a total of €2.2 billion in cash from its BOI investment.¹¹

In June 2013, the Government announced that the NPRF will become the Ireland Strategic Investment Fund. As a result, the NPRF’s discretionary portfolio will become available to invest in commercial opportunities within Ireland. This aims to shift the focus of the NPRF to supporting domestic economic activity.



¹⁰ In addition, pension fund assets totalling €2.0 billion of six universities and ten non-commercial semi-states were transferred to the NPRF.

¹¹ This comprised preference share dividends, the repurchase of warrants and the sale of ordinary shares to private investors (NPRF, 2013).

The main components of Government financial assets as of end-2012 were:

Shares and Other Equity. This broad asset category was valued at €24 billion. It includes: (1) the value of semi-state assets, including the equity of General Government in the Central Bank; (2) a portion of the NPRF; and (3) other equity holdings.

- **Semi-state enterprises - valued at €12 billion.** This mainly constitutes the equity value of commercial semi-state enterprises, where the ultimate owner is the Government. Enterprises within this category include the Electricity Supply Board (ESB), Bord Gáis Éireann, An Post, Coillte, Dublin Port Company and the Dublin Airport Authority. Valuations are based on an assessment of net financial assets by the CSO. Considerable uncertainty, however, surrounds the value of these assets (Box C). Reserves of the Central Bank are also included in this asset category (€2 billion).
- **NPRF Assets - valued at €9 billion.** This category includes the discretionary portfolio of the NPRF and other bank shares held by the NPRF, excluding preference shares. The latter are included within the category 'securities other than shares'.
- **Other equity holdings - valued at approximately €3 billion.** This includes the value of direct holdings of bank equity by the Exchequer, investments in the insurance sector and capital contributions to the European Stability Mechanism.

Currency and Deposits. The Government holds a substantial amount of relatively liquid assets, which are managed by the NTMA. These were valued at €24 billion at end-2012. This figure includes cash balances held by the Exchequer (€18 billion), local government (€1.4 billion) and cash balances held by other Government bodies (such as the NPRF).

Between 2007 and 2010, there was a notable increase in this asset category reflecting a strategy to hold a sufficient buffer of liquidity due to concerns over the economic and financial outlook. Holdings of liquid assets increased significantly in 2012, as a result of the NTMA's return to the markets. This reflects a strategy to reduce refinancing risks in the coming years arising from the maturity profile of sovereign debt and to ease the exit from the EU/IMF programme.

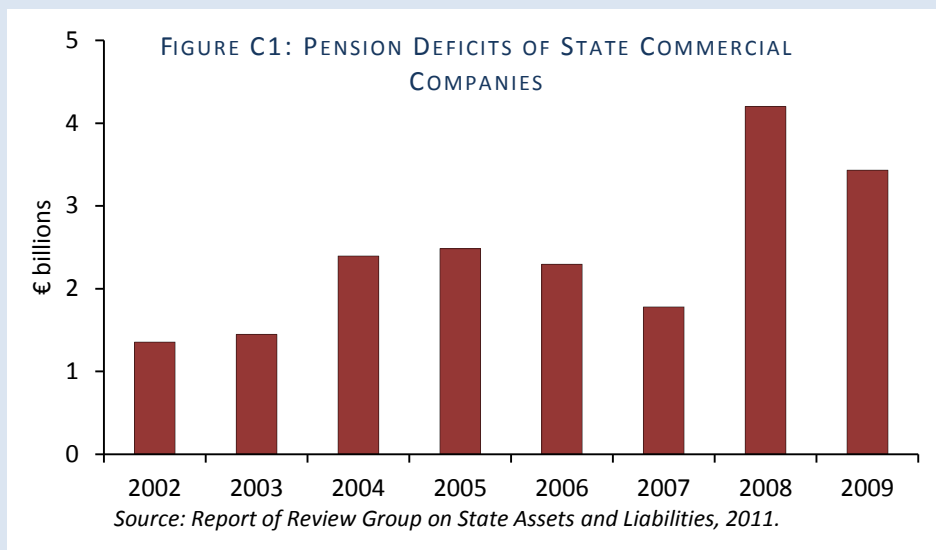
BOX C: THE REVIEW GROUP ON STATE ASSETS AND LIABILITIES

In 2011, the *Report of the Review Group of State Assets and Liabilities* estimated that the book value of the State's main commercial companies was €8.3 billion.¹² It was stressed in the report, however, that this figure should not be taken as the likely proceeds from sales in the marketplace.¹³

Given that shares in these companies are not traded, it is difficult to assess their market value. Furthermore, half of the total valuation of the major state companies was accounted for by one company (ESB). However, there were large unfunded pension liabilities in the state commercial companies (Figure C1).

The classification of these companies can change, leading to their assets and liabilities moving in or out of the General Government (GG) sector. For example, in recent years both Irish Rail and RTÉ were re-classified within the GG sector, whereas other large semi-state bodies (for example ESB, CIÉ and An Post), remain outside of GG and are therefore not included in the calculation of the GG deficit.

Based on the size of the balance sheets of companies that the State wholly or partly owns, the largest liabilities as of end-2011 were in the financial sector. The combined liabilities of AIB, Irish Life and Permanent, IBRC and NAMA amounted to 172 per cent of GDP (IMF 2013). Non-financial corporations which included ESB, BGE, CIE and the VHI had combined liabilities of 13 per cent of GDP.



¹² This was the value in 2009 based on aggregated shareholder funds. The report assessed the following major commercial state bodies: Dublin Airport Authority, Irish Aviation Authority, Dublin Port, CIE, An Post, RTÉ, Coillte, ESB, Bord Gais Éireann, Bord na Móna and Eirgrid. The book values of the commercial companies were based on aggregate shareholder funds according to their most recently published sets of accounts. CIE and An Post had a combined shareholder deficit of just under €0.4 billion, which reduced the estimated aggregate shareholder value of the State's commercial enterprises to €7.9 billion. The report is available from: <http://per.gov.ie/wp-content/uploads/Report-of-the-Review-Group-on-State-Assets-and-Liabilities.pdf>

¹³ As part of the Memorandum of Understanding (MoU) with the EU, the Government has been examining assets for disposal.

Securities other than shares. These assets were valued at €10 billion and are mainly a subset of banking related investments made since 2009. It includes the market value of the NPRF's holdings of preference share warrants of €5 billion. Also included is 'contingent capital' provided by the State to Bank of Ireland, AIB and Permanent TSB (€3 billion).¹⁴

Loans and Other Assets (such as Accounts Receivable). This category was valued at €15 billion and includes a broad range of assets, namely loans from the Housing Finance Authority (HFA) (€4 billion), other Government loans, tax accrual adjustments (mainly VAT and PAYE (€3 billion)) and a range of smaller assets such as collaterals, EU transfers and mobile spectrum receipts.

THE VALUE OF THE GOVERNMENT'S BANKING INVESTMENTS

The Government has injected approximately €64 billion in gross terms into the banking sector using a variety of instruments, including almost €31 billion in the form of promissory notes. These interventions, which are listed in Box D, include a range of equity and debt instruments. The issuance of the promissory notes was treated by Eurostat as a capital transfer (Government expenditure) rather than as a financial investment on which a return may be likely.

A key difficulty in valuing the banking investments arises from the fact that current market prices may not provide a reliable basis for assessing long-term value, given the large public stakes, the potential for their sale to move market prices, high risk premia and large remaining risks.

With these caveats in mind, the market value (as of end-2012) of the Government's banking investments can be derived from the Government Financial Statistics data. This is done by summing across the main banking asset sub-categories. These include:

- the NPRF's holdings of bank equity: €4 billion.
- Exchequer preference share holdings: €4 billion.
- The value of contingent capital in the banks: €3 billion.

¹⁴ In January 2013, the State sold €1 billion in Bank of Ireland Contingent Capital notes. This transaction does not affect the size of the Government's balance sheet but only the composition.

Overall, this gives a market value of the State's bank investments of approximately €11 billion as of end-2012, representing a substantial write down on the initial investments.¹⁵ In the long term, the value of these investments will depend on a range of factors, including the performance of the overall economy and the ability of bank management to generate profitable returns.

BOX D: DOMESTIC BANK RECAPITALISATION TO END-2012

Since 2009, the Government has injected approximately €64 billion into the banking sector. This has involved a number of institutions, instruments and vehicles (Table D1).

TABLE D1: DOMESTIC BANK RECAPITALISATION: GROSS COST

€ Billions	AIB	BOI	IL&P	IBRC	Total
Pre-PCAR 2011					
Preference shares	3.5	3.5			7.0
Ordinary shares				4.0	4.0
Promissory notes	0.3			30.6	30.9
Special Investment Shares	0.6			0.1	0.7
Ordinary Share Capital - NPRF	3.7				3.7
Total pre-PCAR 2011	8.1	3.5		34.7	46.3
PCAR 2011					
Exchequer	3.9		2.7		6.6
NPRF	8.8	1.2			10.0
Total PCAR 2011	12.7	1.2	2.7		16.5
Irish Life ¹⁶			1.3		1.3
Total	20.8	4.7	4.0	34.7	64.1
Source of Funds					
Promissory Notes	0.3			30.6	30.9
Exchequer	4.5		4.0	4.1	12.6
NPRF	16.0	4.7			20.7

Source: NTMA and Department of Finance.

¹⁵ This figure represents the current market value and may not reflect the long-term economic value or future market prices. Furthermore, it only represents a sub-set of the full range of financial interactions between the banks and other public sector entities.

¹⁶ In February 2013, the sale of Irish Life to Great-West-Lifeco (subject to the approval of the European Commission) for €1.3 billion was confirmed.

In 2009 and 2010, the Government made recapitalisation payments of €46.3 billion. The 2011 PCAR exercise resulted in capital injections of approximately €16.5 billion. The total gross cost of the recapitalisation (including the purchase of Irish Life) amounted to €64 billion. Of this, €43.5 billion was sourced from the Exchequer (€12.6 billion in cash and €30.9 billion by way of the promissory note) with a further €20.7 billion sourced from the NPRF.

In terms of the General Government accounts, the bulk of the bank investments, approximately €43 billion, were classified by Eurostat as deficit-increasing capital transfers (Table D2). Most of this was accounted for by promissory notes. These transactions resulted in large increases in the General Government deficit in 2009, 2010 and 2011. In 2012, banking interventions actually improved the General Government deficit as a result of dividend and bank guarantee fee income (CSO, 2013a,b).

TABLE D2: GENERAL GOVERNMENT IMPACT OF BANKING INVESTMENTS

€ Billions	2009	2010	2011	2012
General Government Balance (GGB)	-22.4	-48.3	-21.3	-12.5
GGB (% of GDP)	-13.8	-30.5	-13.1	-7.6
Deficit Impact of Banking Crisis Interventions	-3.8	-31.5	-5.7	+1.6
Underlying deficit excluding banking crisis interventions	-18.6	-16.7	-15.5	-14.1
Underlying deficit excluding banking crisis interventions (% of GDP)	-11.5	-10.6	-9.6	-8.6

Source: CSO.

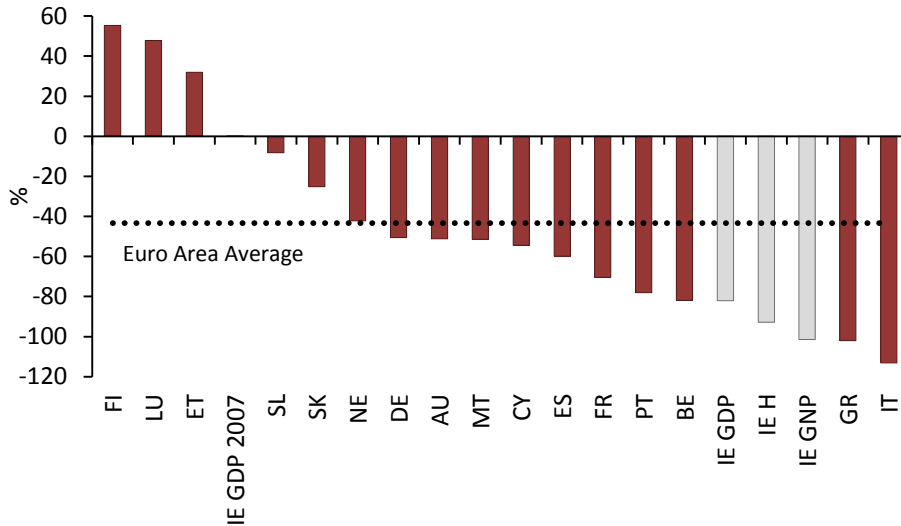
2.4 THE IRISH GOVERNMENT'S NET FINANCIAL ASSET POSITION IN A EURO AREA CONTEXT

From the sections above, it is evident that there has been a marked rise in the overall indebtedness levels of Government. Given the extent of the economic downturn and the financial crisis across Europe in recent years, it is useful to put Irish developments in context. This is done in Figure 5 by comparing Government Net Financial Assets (NFA) across the Euro Area. In 2012, relative to GDP, Ireland was the third most indebted Euro Area country (Figure 5a). The Irish position is also shown using alternative measures of output, namely GNP and the Irish Fiscal Advisory Council's Hybrid measure of output (H).¹⁷

¹⁷ For a discussion on the Hybrid measure of output, see IFAC (2012).

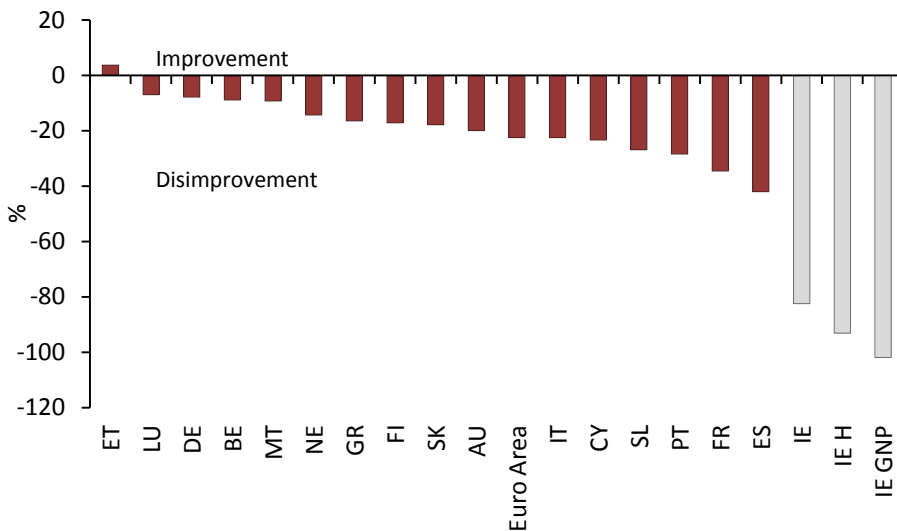
Over the past five years, Ireland experienced the largest cumulative deterioration in its net financial position in the Euro Area (Figure 5b and Annex Table A4). This deterioration mainly reflects the accumulation of financial liabilities during the crisis and the reduction in the value of banking investments.

FIGURE 5a: NET FINANCIAL ASSETS OF GOVERNMENT IN 2012, % OF GDP



Source: Eurostat and Authors' calculations.
 Note "IE H" refers to net financial assets relative to the Hybrid measure of Irish output.

FIGURE 5b: CHANGE IN NET FINANCIAL ASSETS OF GOVERNMENT SINCE 2007, % OF GDP



Source: Eurostat and Authors' calculations.

There are also some notable differences in the composition of financial assets across the Euro Area. The Irish Government for example (as well as some of the other heavily indebted Euro Area countries) has accumulated relatively large holdings of liquid assets (for more details see Annex Table A5).

2.5 GENERAL GOVERNMENT NET WORTH

As well as financial assets and liabilities, the Government also has substantial holdings of non-financial (physical, intangible) assets. These had a market value of approximately €57 billion at end-2012, according to the CSO, and included:

- fixed assets;
- stocks;
- land (including other natural assets);
- intangible assets.

The CSO does not yet provide a detailed breakdown of these assets. To the extent that these assets yield a return or a flow of public services over time, they contribute to fiscal sustainability. Some of these assets could also be sold to raise revenues or as collateral to fund borrowing.

Adding non-financial assets to NFA gives an estimate of the overall Net Worth of General Government of -€77 billion (47 per cent of GDP) at end-2012 (Table 4).¹⁸

TABLE 4: GENERAL GOVERNMENT NET WORTH, 2009-2012

€ billions	2009	2010	2011	2012
1. Non-financial Assets	61	58	57	57
2. Financial Assets	72	65	62	73
3. Liabilities	114	138	167	208
4. Net Financial Assets (=2-3)	-41	-73	-105	-135
5. Net Worth (=1+4)	20	-15	-48	-77
Net Worth % of GDP	12	-9	-29	-47

Source: CSO (2013).

¹⁸ The CSO measure of net worth differs from the concept discussed in Box A.

2.6 LOOKING BEYOND GENERAL GOVERNMENT: THE WIDER PUBLIC SECTOR

The analysis above has focused on the General Government sector. While this includes a large part of Government activities going well beyond the Exchequer, it does not include the whole of the public sector as well as other areas of Government influence (Figure 1). The wider public sector includes:

- financial public institutions such as the Central Bank of Ireland, AIB, Irish Life and Permanent, etc;
- the semi-state enterprises.¹⁹

The Government's equity in these bodies is included in the General Government balance sheet, as noted above, but the assets and other liabilities of these entities themselves are not. In some cases, including the Central Bank, the Government owns these institutions, although they are operated independently of Government. There can be important interactions between these institutions and the General Government, for example, through the remittance of profits or payment of fees to the Exchequer and through the creation of contingent or implicit liabilities (see Section 3).

This wider public sector perspective has become more relevant since the banking crisis, as many of the vehicles used to help deal with the problems in the banking sector have been drawn from outside of the General Government sector. This includes the Central Bank through its provision of Exceptional Liquidity Assistance (ELA), the creation of NAMA (Box E) in which the Government has an equity stake (and whose bonds are 95 per cent Government guaranteed), and the banks that are either state-owned or have some Government financial participation. Section 4 explores these interactions in more detail in the case of the IBRC, the promissory notes and ELA.

Whether or not some entities remain outside the General Government can depend on very technical issues around classification standards. This is determined by Eurostat. In the case of IBRC and specifically Anglo Irish Bank, the institution was classified as outside of the General Government sector as Anglo retained a banking licence and so remained on the list of Monetary Financial Institutions maintained by the European Central Bank (ECB) (see Cussen and Lucey, 2011). NAMA is also classified as outside of the General Government sector.

¹⁹ See IMF (2013).

From a comprehensive perspective and to more fully appreciate risks, it is important to understand what is included in the General Government sector, what lies in the wider public sector and the interactions between them.

Box E: NAMA

NAMA was established in December 2009 to acquire distressed property assets from banks. NAMA acquired €74 billion in loans from five financial institutions at a cost of €32 billion. The values of the loans transferred to NAMA were based on estimated long-term economic values. These estimates relied principally on the current value of each property and loan as of 30 November 2009, as well as an assumed uplift factor, which averaged eight per cent across the spectrum of acquired assets.

NAMA purchases were paid through debt securities issued by the NAMA special purpose vehicle (SPV). These securities are 95 per cent guaranteed by the Minister for Finance (see Section 3 for more details). NAMA is classified as outside of the General Government sector as a result of its structure: “A Eurostat 2009 special note on the financial crisis allows for the exclusion from General Government debt and deficit statistics of a short-term new special purpose vehicle that is privately owned, is not expected to make losses and whose purpose is to deal with the financial crisis” (*Department of Finance, 2012a*).

The NAMA SPV (National Asset Management Agency Investment Limited, NAMA-IL) was established with Eurostat’s approval in this way. The SPV is 51 per cent privately owned. In April 2012 Eurostat expressed a reservation about the classification of NAMA-IL outside of the General Government sector. This arose from a change in the status of Irish Life (from private to public), which held shares in NAMA. Irish Life’s stake in NAMA was subsequently sold to a private investor and the Eurostat reservation was lifted.

3. OFF-BALANCE SHEET LIABILITIES

SUMMARY

- From a comprehensive perspective, the financial position of Government depends on more than just the assets and liabilities recorded on the balance sheet. Off-balance sheet contingent and implicit liabilities have the potential to impact directly on Government Net Worth.
- Contingent liabilities are commitments, such as guarantees, that could result in a Government liability in the future. In the case of Ireland, these exposures are large and mainly relate to guarantees associated with the banking sector.
- The Government faces potentially large public sector pension liabilities, as well as liabilities arising from public private partnerships. These liabilities are not recorded in the General Government accounts.
- Implicit liabilities can arise from implicit Government commitments, such as the need to maintain financial stability or social commitments embodied in the welfare system. These liabilities have had very real effects on the Irish Government's balance sheet as a result of the banking crisis.
- Considerable uncertainty surrounds the size of off-balance sheet liabilities. Ideally, contingent liabilities should be assessed based on expected present discounted values. In reality, contingent liabilities tend to be reported solely in terms of their maximum possible exposure. Hence, great care is warranted in interpreting contingent liability figures as they are not informative about the likelihood of becoming actual costs.

3.1 INTRODUCTION

From a comprehensive perspective, the financial position of Government depends on more than just the assets and liabilities recorded on the balance sheet. Government Net Worth can be affected by off-balance sheet liabilities. These include contingent and implicit liabilities. The former can be defined as liabilities where the realised cost is contingent on (*ex ante* uncertain) future outcomes. In the case of Ireland, these exposures are large and mainly relate to guarantees associated with the banking sector.

Implicit liabilities relate to obligations for which there is no contractual basis but where the Government may be thought to have an implicit commitment (e.g. the future cost of public sector pensions). The recent banking crisis highlights the potential for the Government to incur costs arising from an implicit commitment to maintain financial stability. A clear case where implicit and contingent liabilities overlapped to create tangible costs for Government.

Section 3.2 presents an overview of key contingent liabilities. Section 3.3 discusses off-balance sheet liabilities, with implicit liabilities discussed in Section 3.4.

3.2 CONTINGENT LIABILITIES

The risks associated with contingent liabilities should be assessed based on expected present discounted values. However, this is typically not the case as contingent liabilities tend to be reported solely in terms of their maximum possible exposure. For example, the original banking guarantee scheme (outlined below) created a very large exposure for the Government, although the likelihood of it being fully called was very low.

Comparisons across contingent liabilities are difficult, both because the probability may be hard to assess and because different liabilities carry different risks. It is inappropriate to simply add the maximum value of each contingent liability and to aggregate across liabilities given the inherent uncertainty associated with individual items.

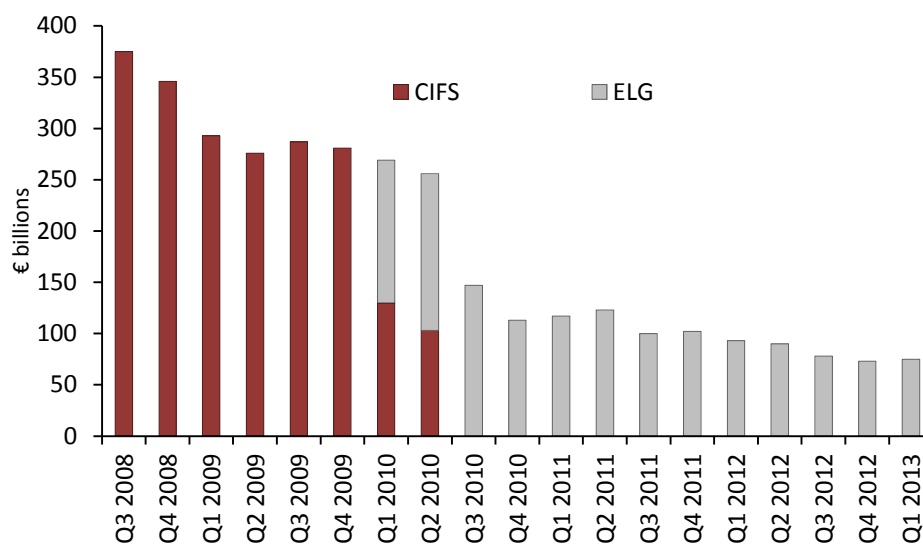
This section focuses on three main types of banking related contingent liabilities most relevant in Ireland's case:

- the bank guarantee scheme
- “letters of comfort” provided to the Central Bank from the Minister for Finance with respect to part of ELA extended by the Central Bank of Ireland
- guarantees of NAMA debt.

THE BANK GUARANTEE SCHEME

The Government introduced a blanket guarantee of bank liabilities on 30 September 2008 for a period of two years, referred to as the Credit Institutions Financial Support Scheme (CIFS). Initially this covered banking liabilities of €375 billion (Figure 6). The CIFS was replaced by the Eligible Guarantee Scheme (ELG) in 2010. This provided a State guarantee for eligible liabilities, including deposits, of up to five years in maturity.²⁰

FIGURE 6: EVOLUTION OF BANK LIABILITIES UNDER STATE GUARANTEE SCHEMES



Source: Department of Finance.

The ELG scheme is more limited and narrower in scope than the CIFS as not all of the entities under the previous scheme remain covered. It covers retail deposits in participating institutions not already covered by the *Deposit Guarantee Scheme* (see below), as well as

²⁰ The ELG scheme was reviewed every six months by the European Commission.

corporate deposits.²¹ Guarantees under the ELG would be triggered, and the Government liable for any shortfall, if a participating institution were unable to fund its specified obligations.

Institutions participating in the scheme are required to pay fees to the Government. A total of €3.8 billion had been paid in fees to the Government as of end-2012 (Department of Finance 2013a).

The exposure of the Government under the ELG has steadily declined (Figure 6). This reflects bank deleveraging and the removal of certain claims from the scheme. In February, the Government announced the closure of the ELG Scheme to new liabilities from 28 March 2013. (This announcement did not affect liabilities already guaranteed under the ELG.) The total amount guaranteed under the Scheme at the date of discontinuation amounted to €75 billion (NTMA 2013a).

Also in February 2013, following the liquidation of IBRC (see Section 4), the first ever payments under the ELG were triggered, amounting to an estimated €1.15 billion. This will add directly to the General Government deficit in 2013; a clear case where a contingent liability has impacted directly on the General Government accounts.

DEPOSIT GUARANTEE SCHEME (DGS)

The DGS is a long-standing scheme that pre-dates the financial crisis but has been modified since. Under the scheme, deposits by individuals of up to €100,000 are guaranteed by the Government. The DGS is funded by credit institutions depositing funds (to the value of 0.2 per cent of total deposits) in a Deposit Protection Account at the Central Bank.²² Payments from this account do not represent a direct cost to Government, unless funds in this account were to prove insufficient. In that eventuality, DGS payouts would be made from the Government's Central Fund. The Government would then seek to recoup these costs from the banking sector. Balances placed by credit institutions in the Deposit Protection Account amounted to €403 million, compared to €156 billion in deposits at covered banks at end-2012.

²¹ ELG also covers interbank deposits.

²² Since end-November 2012, credit unions are required to make contributions to the Fund.

EXCEPTIONAL LIQUIDITY ASSISTANCE (ELA) RELATED GUARANTEES

ELA was extended to banks, most recently only to IBRC, by the Central Bank of Ireland and part of the extension of ELA was associated with the provision of guarantees from the Government. ELA backed by this guarantee has since been fully unwound. This is discussed in detail in Section 4.

GUARANTEE OF NATIONAL ASSESSMENT MANAGEMENT AGENCY (NAMA) BONDS

As discussed in Box E, NAMA acquired €74 billion in loans from five financial institutions at a cost of €32 billion (Table 5). These purchases were made through senior and subordinated debt securities issued by the NAMA special purpose vehicle (SPV). The contingent liability arises from the fact that the Government has guaranteed 95 per cent of debt issued by NAMA, i.e., the senior debt that NAMA issued. According to the most recently published CSO data, the Government's potential exposure under 'special purchase entities' (which includes the Government guaranteed bonds of NAMA-IL) was €29 billion.²³ This contingent liability is likely to have fallen given that NAMA has redeemed €6.25 billion worth of senior debt including a further €1.5 billion in the first half of 2013.

TABLE 5: NAMA ACQUIRED LOAN ASSETS, BY INSTITUTION

€ Billions	AIB	Anglo	BOI	EBS	INBS	Total
Loan balances transferred	20.4	34.1	9.9	0.9	8.7	74.0
Consideration paid	9.0	13.4	5.6	0.4	3.4	31.8
Discount, %	56	61	43	57	60	57

Source: NAMA.

Developments in the Irish residential and commercial property markets will have a major impact on the performance of NAMA. Since NAMA conducted its property valuations, Irish residential property prices have declined by approximately one-third.²⁴ Two-thirds of NAMA's property assets (commercial and residential) were classified as investment assets, with one-third land and development assets. NAMA's performance is also dependent on

²³ The CSO refers to special purpose entities as entities where the government has a significant role, including a guarantee, but which are classified outside the General Government sector.

²⁴ The IMF reported that NAMA was confident that it would at least break-even if Irish property prices recovered back to end-2009 levels by 2020 (IMF, 2012, p45).

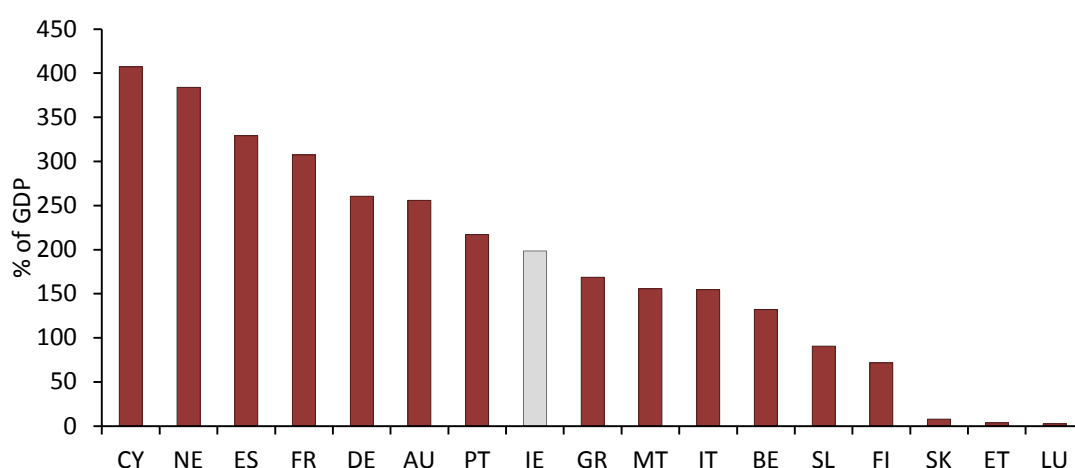
markets outside of Ireland. At end-2012, 54 per cent of property assets were located in Ireland, 33 per cent in Britain and 3 per cent in Northern Ireland. As of end-June 2013, close to 80 per cent of NAMA sales (mainly in the commercial sector) have involved assets in the UK (mainly London).

NAMA is expected to have disposed of all its assets by end-2020. In the event that NAMA runs into financial difficulties, there is a risk that the Government may be called upon, especially via its role of guarantor of NAMA bonds. This could arise if the property market fails to recover sufficiently, and/or in the event of a negative economic shock affecting the ability of borrowers to repay. On the upside, NAMA has been profitable and has generated significant rental income from its stock of properties and also benefits from a favourable funding structure.

BANKING RELATED RISKS

The banking sector has been the main source of shocks to the Government’s balance sheet in recent years. Irish (covered) bank liabilities were valued at €289 billion at end-2012 (Annex C).²⁵ The latest internationally comparable data from the ECB showed that Irish domestic banking liabilities were in the mid-range in the Euro Area at the end of 2012 (Figure 7).

FIGURE 7: DOMESTIC BANK LIABILITIES, % OF GDP (END-2012)²⁶



²⁵ This refers to the total liabilities of AIB, BOI and PTSB.

²⁶ Banking liabilities from ECB Consolidated Banking Data statistics, GDP taken from Eurostat.

The main official assessment of the state of the Irish banking system was provided in the 2011 Financial Measures Programme (FMP), (see Central Bank of Ireland, 2011). This aimed to place the Irish banking system in a position where it can fund itself and generate capital without further undue reliance on the Government and the European Central Bank. It consisted of three elements:

- the Prudential Capital Assessment Review 2011 (PCAR), which involved a stress test of the capital requirements of AIB, BOI, ESB and Permanent TSB (PTSB), to meet Central Bank capital requirements;
- an independent loan loss assessment exercise performed by BlackRock Solutions;
- the Prudential Liquidity Assessment Review (“PLAR”) 2011, which establishes funding and deleveraging targets for the PCAR banks.

The 2011 PCAR recapitalised the ‘pillar’ banks with €24 billion in capital (including a buffer of €5.3 billion) over the period to 2013. The stress tests involved both a baseline and a risk scenario (Table 6). The projected losses under the base case amounted to €20 billion. Nearly two-thirds of these losses were associated with residential mortgages and commercial real estate lending. In the stress case, projected losses increased to €28 billion, with property related losses dominating.

TABLE 6: SUMMARY OF PROJECTED LOSSES DERIVED FROM 2011 FMP (2011-2013)²⁷

	AIB		BOI		Total	
	Base	Stress	Base	Stress	Base	Stress
Total (€ billions)	9.5	12.6	7.4	10.1	20.0	27.7
% of Portfolio	10.2	13.4	5.9	8.0	7.3	10.1

Source: Central Bank of Ireland, 2011.

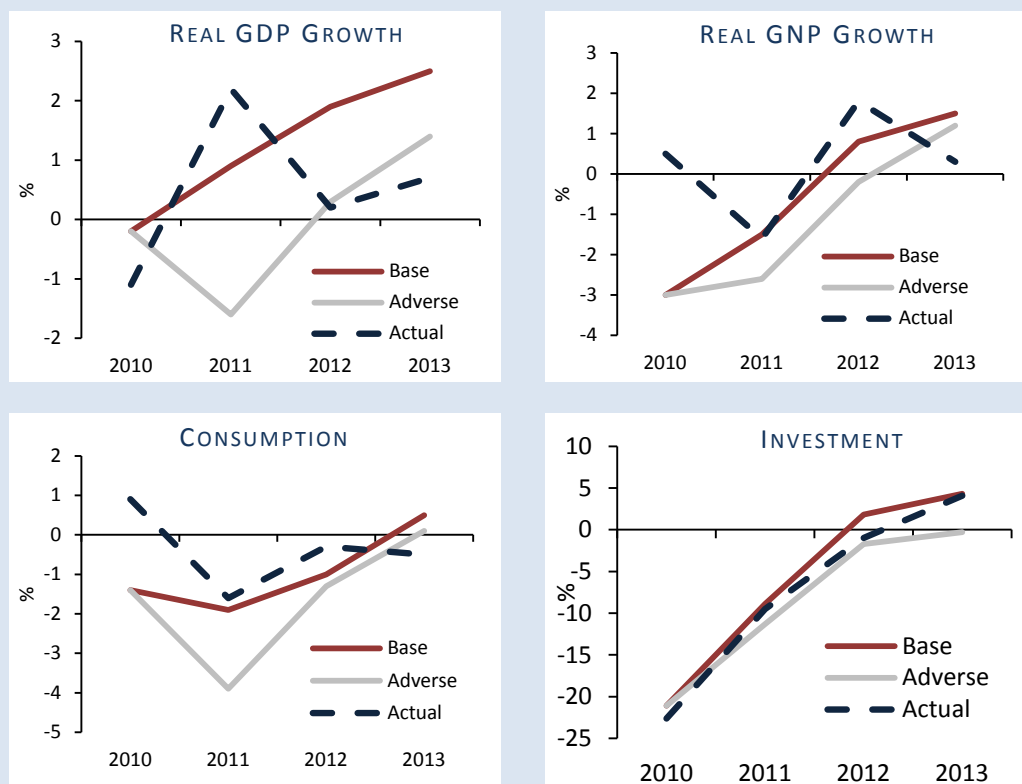
²⁷ The table does not show projected losses associated with ILP and EBS. These were €2.1 billion and €1.0 billion respectively in the base case and €3.4 billion and €1.6 billion in the stress case.

Whether the PCAR banks will need additional capital will depend inter alia on the outcome of the 2014 stress tests. It would appear that the performance of the macro economy is closer to the 'stress scenario' of the PCAR exercise (Box F). A Central Bank report (*PCAR 2011 Review*) reviewing the performance of the PCAR banks to end-June 2012 reported that the capital requirements of the banks were between the base and stress scenarios (Central Bank of Ireland, 2012).

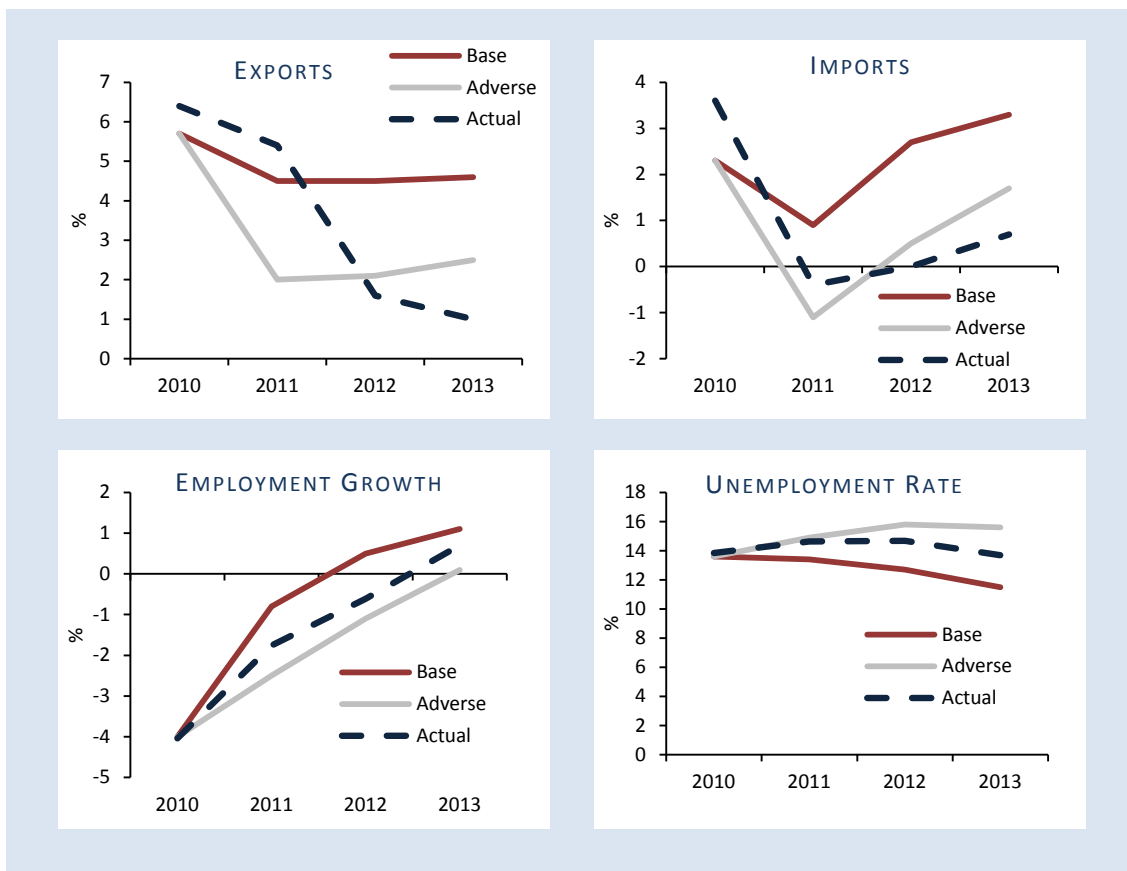
BOX F: THE FINANCIAL MEASURES PROGRAMME: SCENARIOS VS OUTTURNS

The Financial Measures Programme (FMP) calculated banking loan requirements under base and adverse scenarios over the period to 2013. Using published data as well as the latest Central Bank forecasts, it is possible to compare how these scenarios have fared for a selection of key macroeconomic indicators. Figure F1 indicates that actual outcomes are closer to the adverse scenario.

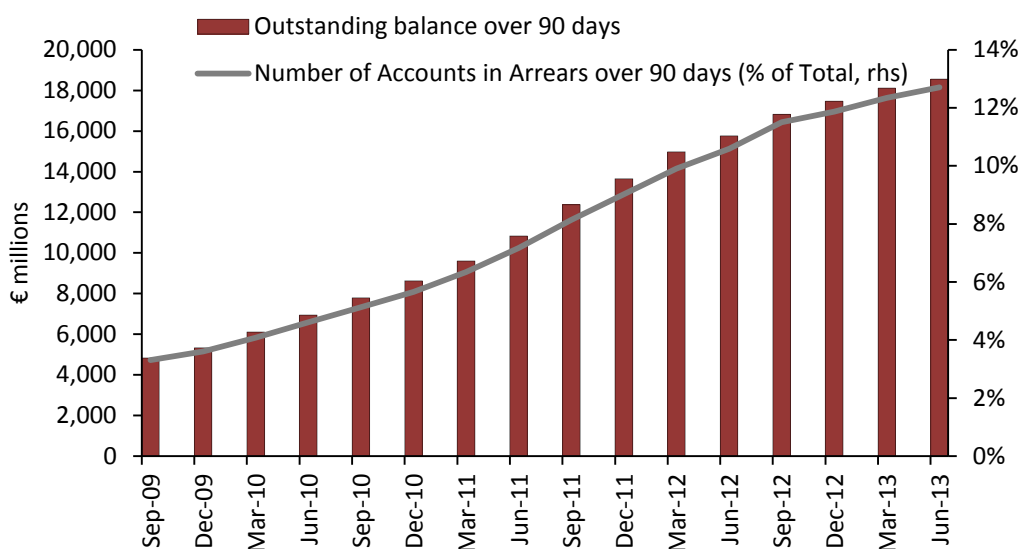
FIGURE F1: KEY ECONOMIC VARIABLES UNDERLYING PCAR²⁸



²⁸ The figures were updated with Central Bank forecasts from *Quarterly Bulletin July 2013*.



The IMF noted the high levels of reported capital in the PCAR banks but also the high proportion of non-performing loans (IMF, 2013). The latter accounted for nearly 25 per cent of total loans and was cited by the IMF as an immediate concern. Central Bank data to end-June 2013 reported that 13 per cent of mortgages for primary dwellings were in arrears of over 90 days with an aggregate outstanding balance of €18.6 billion (Figure 8). Similarly, just over 20 per cent of residential mortgages accounts for buy-to-let properties were in arrears of over 90 days to end-June (up from approximately 17 per cent a year previously). The effect of these and other developments on the banks profitability levels and capital requirements will not be known until the 2014 stress test.

FIGURE 8: PRIVATE RESIDENTIAL MORTGAGES IN ARREARS²⁹

In the event that banks need additional capital and private capital was not forthcoming and/or additional losses were incurred, there is a risk that any shortfall would have to be injected by the Government (the major shareholders in the Irish banking system). The EU agreement in June 2013 potentially opens the way for private sector and European Stability Mechanism (ESM) support, once the Single Supervisory Mechanism (SSM) is operational, but this is not expected until well into 2014.

It is important to distinguish between the need to raise additional capital to meet regulatory requirements and the ultimate value of the banking investments in terms of the Government's Net Worth. For example, if capital is required to meet a fall in the economic value of the banks, this amounts to a reduction in the Government's Net Worth to the extent that it has a stake in the banks (irrespective of whether or not additional capital is needed).

Risks to the Government's balance sheet and the banking sector are not necessarily all to the downside. The experience of previous banking crises indicates that the costs may turn out to be less than appeared during the height of the crisis.³⁰

²⁹ Figure refers to private residential mortgage accounts for principal dwelling houses in arrears of over 90 days. See Central Bank of Ireland, 2013b.

³⁰ For a comprehensive study of past systemic banking crises see Laeven, Luc and Fabián Valencia (2008 & 2012).

OVERALL CONTINGENT LIABILITIES

Irish contingent liabilities were estimated by the CSO at €119 billion (73 per cent of GDP) at end-2012 (Table 7). This included €114 billion in public guarantees, mainly relating to the banking sector (ELG scheme and the NAMA SPV,) as well as off-balance sheet Public Private Partnership (PPP) liabilities of €5 billion (discussed below). In 2013, contingent liability exposures of the Government have steadily declined reflecting the ending of the ELG scheme, redeemed NAMA debt and the ending of the ELA provided to IBRC (Section 4).

TABLE 7: IRISH CONTINGENT LIABILITIES, END-YEAR ESTIMATES

€ billions	2009	2010	2011	2012
Guarantees	281	157	142	114
Off-balance sheet PPPs	5	5	5	5
Total	286	162	147	119

Source: CSO, Government Financial Statistics 2013.

3.3 OFF-BALANCE SHEET LIABILITIES

Certain contractual obligations entered into by Government can be considered as off-balance liabilities. These include public sector pensions and public private partnerships.

PUBLIC SECTOR PENSIONS

Public service pension schemes cover approximately 400,000 persons (300,000 staff and 100,000 retired staff including dependents).³¹ Most of these are defined benefit schemes. As of end-2009 (the most recent estimate), the estimated liability on occupational pensions of public servants was €116 billion (Comptroller and Auditor General, 2012). This figure represents the estimated present value of future pension payments that are likely to arise over the next 60 years.³² It was recommended by the Commission on Public Service Pensions that actuarial reviews of public service pensions be carried out on a three-year basis. The most recent C&AG report noted that this has not been the case. A review is needed now especially given that there has been a number of changes made in relation to public pensions since 2009, including pay cuts, revised entitlements for new entrants, a levy on existing public service pensions as well as a large number of retirements.

³¹ Special Report 68, Public Service Pensions, presented to Dáil Éireann on 22 October 2009.

³² This is based on the present value of future payments to current staff, their dependents as well as existing pensioners and former employees with pensions.

PUBLIC PRIVATE PARTNERSHIPS

Public Private Partnerships (PPPs) refer to commitments by the Government to jointly invest with the private sector. PPP contracts can arise in the provision of certain types of infrastructure or services and can be considered as off-balance sheet liabilities. Usually, there is an element of risk transfer from the public to the private sector.³³ PPPs can also arise where the Government retains some of the risk related to the PPP project. For example, in the past, the Government has had to pay out on road construction projects where traffic and toll revenue has been below agreed levels.

Data to end-2011 revealed that there were 37 listed PPP projects focused mainly on road infrastructure (Table 8) (PPP, 2012). More recent data to end-2012 from the CSO estimate that the contractual value of PPP projects was €5.5 billion. However, only €0.5 billion was recorded on the Government's balance sheet with an off-balance sheet liability of €5 billion.

In July 2012, the Minister for Public Expenditure and Reform announced a new €2.25 billion investment stimulus package in infrastructure related projects, with €1.4 billion raised as part of a new phase of PPPs. The details on the expected value of these projects have not been provided on grounds of commercial sensitivity.

³³ PPPs can also entail a commitment from the Government to make future payments for services, such as for the number of hospital beds, prison spaces or the use of school facilities.

TABLE 8: EXPENDITURE AND COMMITMENTS UNDER PPP CONTRACTS AT END-2011

	No. of Projects	Expenditure Prior to 2011 €m	Expenditure In 2011 €m	Outstanding Commitment €m
Department/Agency				
Education and Skills	5	206	49	1,078
Courts Service	1	39	20	567
Office of Public Works	1	41	54	658
National Roads Authority	10	1,072	213	1,689
Environment, Community and Local Government	20	594	54	37
Total	37	1,952	390	4,029

Source: Report on the Accounts of the Public Services 2011.

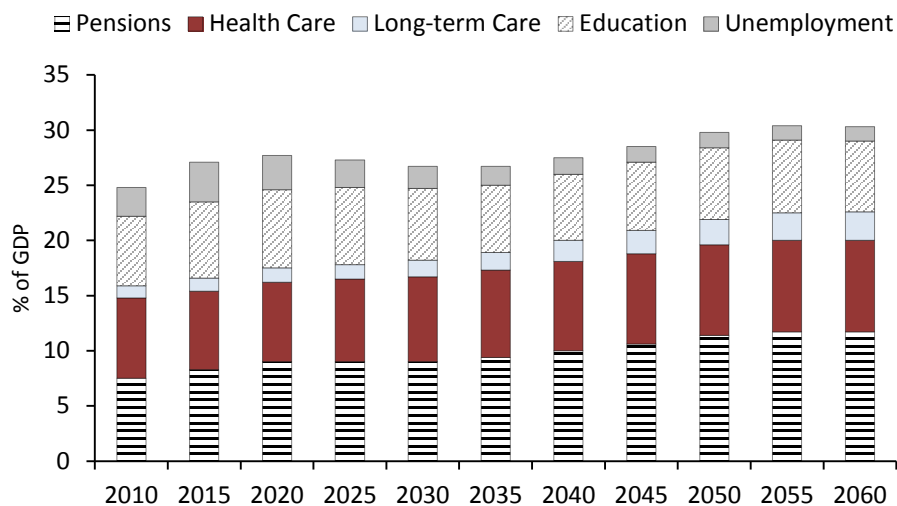
3.4 IMPLICIT LIABILITIES

In the discussion of liabilities above we have assumed the existence of explicit contractual obligations. However, as the recent banking crisis has made clear, certain burdens can be taken on by the State even where no contractual commitment exists. Government guarantees in relation to the banking crisis reflected an implicit Government commitment to maintain financial stability. It is often assumed that there is an implicit commitment by Governments to support their banking system in times of crisis. This is reflected in credit agency ratings for banks, which explicitly take into account the possibility of state support. Proposals at the EU level as part of the proposed 'banking union' aim to reduce the likelihood of recourse to national Governments in the event of banking difficulties.

Implicit liabilities are not just limited to the banking sector. There are a range of potentially significant other implicit liabilities, notably concerning welfare obligations and ageing costs. It may well be that the 'pay as you go' aspects of the social welfare pension system are based on some commitment that those currently contributing will be entitled to benefits in the future. The 2012 ageing report by the European Commission (European Commission, 2012), estimated that ageing costs in Ireland are set to increase by 5.4 per cent of GDP (Euro Area average increase of 4.1 per cent) over the period to 2060 on a no-policy change basis (Figure 9). Pension payments, long-term care, as well as health care costs are all predicted to increase as the population ages.

Any comprehensive assessment of the Government’s balance sheet should reflect ageing costs given their potential to significantly impact on the public finances.

FIGURE 9: AGEING COSTS IN IRELAND, 2010-60



Source: European Commission, 2012.

Finally, the Government also provides financial supports to a wide range of activities both on an on-going basis (often in terms of development funding) and on an *ad hoc* basis. The economic downturn has led to a number of significant examples of recourse to public financing for non-government activities outside of the banking sector. Recent instances, which serve to highlight the potential impact of implicit liabilities on the Government’s balance sheet include:

- loans of a combined €900 million to make up for a shortfall in the Insurance Compensation Fund, since 2011;³⁴
- the recapitalisation of the insurer VHI;
- the potential cost to the Government of funding private pensions (e.g., a recent European Court of Justice ruling in connection with former employees of Waterford Crystal could cost the Government up to €280 million).

³⁴ This arose out of a High Court Order to make payments to administrators of Quinn Insurance Limited. Under the 1964 Insurance Act the Minister for Finance may advance funds to the Insurance Compensation Fund (ICF) on the recommendation of the Central Bank. Payments to the ICF by the Exchequer are classified as financial transactions and do not affect the General Government deficit.

4. AN ILLUSTRATIVE EXAMPLE: A COMPREHENSIVE PERSPECTIVE ON THE WINDING-UP OF IBRC

SUMMARY

- In February 2013, the Government announced a set of transactions relating to the liquidation of the state-owned Irish Bank Resolution Corporation (IBRC). This marked a significant step in dealing with the legacy of bad bank loans built up during the property boom.
- Until February, IBRC's main assets were promissory notes from the Government and a portfolio of loans remaining after other assets had been transferred to NAMA. Its main source of funding was Exceptional Liquidity Assistance (ELA) from the Central Bank of Ireland.
- From a comprehensive perspective, these flows had a certain circularity with funds flowing largely from the Government to the nationalised IBRC to the Central Bank, with resulting profits remitted to the Government. However, to the extent that ELA was replacing non-Irish private sector funding sources, there was an increase in Central Bank borrowing through the TARGET2 system.
- As a result of the February transactions, the promissory notes were replaced by a portfolio of new long-term Government bonds. These will initially be held by the Central Bank before being sold to private investors when financial stability conditions permit. NAMA will acquire remaining IBRC assets using its own Government-guaranteed bonds issued to the Central Bank.
- The immediate impact of the February transactions is a significant reduction in near-term funding pressures with an expected improvement in the General Government deficit of approximately €1 billion a year (prior to accounting for transaction costs).
- Viewed from this comprehensive perspective, the impact of the liquidation of IBRC on Government Net Worth depends on a range of assumptions about future outcomes. A model developed and outlined in this section suggests that the February transactions

could lead to substantial gains over a range of reasonable assumptions. Relative to the size of overall Government debt, however, the gains are small.

- The gains could increase substantially if the risk spread on Irish Government debt were to narrow before the new bonds are sold to the market; conversely a deterioration in risk spreads could eliminate any gains.
- Some of the key gains arising from the transactions, however, are difficult to quantify. In particular, the pre-February scheme with its heavy reliance on ELA may not have been indefinitely sustainable with the ECB. Furthermore, any gains in terms of perceptions of Ireland's creditworthiness are difficult to quantify.

4.1 INTRODUCTION

In February 2013, the Government announced a set of transactions to liquidate the state-owned IBRC. This marked a significant step in dealing with the legacy of bad loans built up by Anglo Irish Bank and Irish Nationwide Building Society, which were merged to create IBRC.

The Government's support for IBRC prior to the February transactions was complex. This reflected, first, the number of bodies involved; including the Exchequer, the Central Bank, as well as IBRC itself and NAMA (49 per cent publicly owned). Second, there were a large number of interlinkages between these entities, including loans and bonds, interest and income flows, and guarantees.

Prior to the February announcement, IBRC's main assets were promissory notes from the Government and a remaining portfolio of largely loan assets. Most of IBRC's original assets were transferred to NAMA. IBRC was largely funded through the provision of ELA from the Central Bank. This was secured by the promissory notes, along with some NAMA bonds, a Ministerial Guarantee and a floating charge over all IBRC assets.

As part of the February transactions, the Central Bank took ownership of the promissory notes that it had held as collateral for the provision of ELA funding. It then exchanged these promissory notes for a portfolio of new long-term Government bonds. The Central Bank also

acquired a 2025 Government bond related to the 2012 promissory note payment.³⁵ The new bonds will be initially held by the Central Bank but will be sold to private investors, according to a set minimum timescale, subject to financial stability considerations.³⁶ NAMA acquired remaining IBRC assets using its own Government guaranteed bonds. This was funded by NAMA debt issued to the Central Bank.

Following the approach of earlier sections, the analysis that follows considers the impact of the transactions on the overall Government balance sheet in terms of the present discounted value of cash flows associated with funding the assets that were held by IBRC. It looks beyond the short-term impact on the General Government deficit and debt as was considered in IFAC (2013). The approach adopted consolidates across the various Government-owned actors to give a clearer picture of the net financial impact on the State arising from the liquidation of IBRC. The analysis builds on earlier work provided by the IFAC (2013), the NTMA (2013a), Coffey (2013) and Whelan (2012 and 2013a, b), as well as a range of official sources.

One difficulty with the analysis that follows is that there are a number of unquantifiable effects. These include the benefit of greater certainty around the new arrangements, as the pre-February scheme was reliant on the rolling of ELA and continued support for this from the ECB. The new arrangements will also ease the funding requirements of the State with potential creditworthiness implications. These effects are difficult to assess.

Section 4.2 gives the background on Government support to IBRC prior to February 2013. Section 4.3 outlines the IBRC situation post the February transactions from a comprehensive perspective.³⁷ Finally, Section 4.4 presents estimates of the net present value impact of the February transactions.

³⁵ The 2025 Government bond repo agreement between IBRC and Bank of Ireland was unwound with the Central Bank now holding this asset.

³⁶ The Central Bank has undertaken that a minimum of bonds will be sold according to the following schedule: €0.5 billion before end-2014, €0.5 billion per annum in 2015-2018; €1 billion per annum in 2019-2023, €2 billion per annum from 2024, until all bonds are sold.

³⁷ Much of this analysis draws on earlier work by the Irish Fiscal Advisory Council, see specifically *Fiscal Assessment Report April 2012*, Box B pp26-29 and *Fiscal Assessment Report April 2013*, Box C pp 34-38.

4.2 SUPPORT FOR IBRC AHEAD OF THE FEBRUARY TRANSACTIONS

IBRC'S ASSETS AND LIABILITIES

A range of instruments were used by the Government to support the banking system as a result of the financial and economic crisis. As noted in earlier sections, this included capital injections, transfers and guarantees.

Anglo Irish Bank and Irish Nationwide Building Society (INBS) were particularly affected by the banking crisis. Both were covered by the Government guarantees of bank liabilities given at end-September 2008. In 2009, Anglo received a capital injection from the Government of €4 billion.³⁸ In early 2010, the first promissory note was issued by the Government to Anglo Irish Bank in an amount of €8.3 billion. Subsequently, in 2010, the total amount of promissory notes issued to both Anglo and INBS increased to €30.6 billion (Anglo €25.3 billion and INBS €5.3 billion). The two entities merged in July 2011 and were renamed the Irish Bank Resolution Corporation (IBRC) in October 2011, which was Government-owned. A large share of IBRC assets were transferred to NAMA in exchange for NAMA bonds.

By mid-2012 (the period covered by the most recent set of published accounts (IBRC, 2012)), IBRC's balance sheet had two main assets: the promissory notes (owed by the Government); and a residual loan book remaining after other loans and assets had been transferred to NAMA (Table 9).

TABLE 9: SUMMARY OF IBRC BALANCE SHEET, 2011-2012, € BILLIONS

Assets	End-2011	June-2012	Liabilities	End-2011	June-2012
Promissory Notes	30	28	Bank Deposits	43	45
Loans	18	16	<i>Of which ELA</i>	40	42
Other	8	9	Debt Securities	5	1
			Other (incl. equity)	8	7
Total	56	53	Total	56	53

Source: IBRC 2012.

Note: numbers may not sum due to rounding. ELA figures proxied by sale and repurchase agreements with central banks (Note 23 of IBRC Interim Report, June 2012).

³⁸ The capital injections are described in Section 2.

IBRC's main source of funding was through ELA provided by the Central Bank as, by mid-2012, private creditors amounted to only a very small share of the remaining liabilities and deposit books had earlier been transferred to AIB in agreement with the Troika.³⁹ ELA lending by the Central Bank was supported by a 'letter of comfort' from the Government and a charge over IBRC's non-promissory note assets, as well as some NAMA bonds and the Government's commitment to pay the promissory notes. IBRC paid interest to the Central Bank on the ELA funding at an interest rate estimated to be the ECB main refinancing operations rate (MRO) plus a spread of 175 basis points (Whelan, 2012).

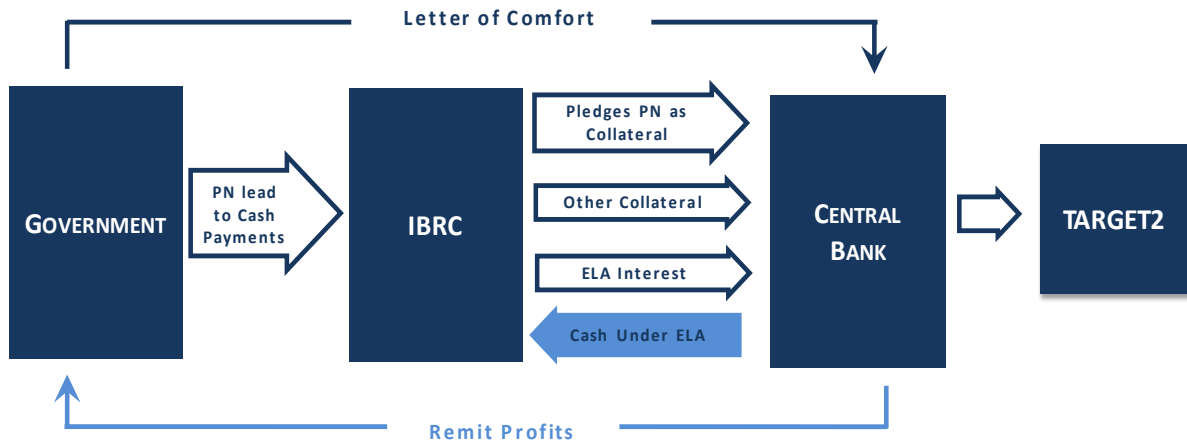
These funding arrangements had a certain circularity with funds flowing within the public sector largely from the Government (Exchequer) to the nationalised IBRC and then to the Central Bank, with resulting Central Bank profits remitted to the Government or accumulated in Central Bank reserves (Box G). The main elements of the funding not covered by this circular flow were the funds coming into IBRC from its loan portfolio and other assets, as well as Central Bank liabilities under TARGET2 that were related to the support of IBRC (see below).⁴⁰ Looked at another way, the Government's promissory note obligations were to the IBRC (which the Government owned) which in turn used these obligations as collateral to obtain ELA from the Central Bank. Looking at the Government sector as a whole, these claims could, therefore, largely be consolidated (except for those related to the loan portfolio). These arrangements are summarised in Figure 10.⁴¹

³⁹ At end-June 2012, IBRC had debt securities of €1.4 billion and just over €0.5 billion in subordinated debt.

⁴⁰ For a discussion on TARGET2, see Whelan, (2013b).

⁴¹ Central Bank profit reflects total profits remitted to the Exchequer as opposed to the IBRC related portion.

FIGURE 10: IBRC POSITION PRE-FEBRUARY UNDER THE ASSUMPTION THAT ELA WAS REPLACING NON-IRISH FUNDING



Note: ELG payments from IBRC to Government and cost of funding to the Central Bank not shown. Monies not remitted by the Central Bank to the Government add to reserves.

THE ROLE OF EXCEPTIONAL LIQUIDITY ASSISTANCE (ELA)

The provision of ELA by the Central Bank played the key role in the funding of IBRC (Whelan, 2012 and 2013).⁴² ELA involves the Central Bank crediting a bank with reserves funded by the creation of the Central Bank’s own liabilities (money). Unlike normal Eurosystem operations, this occurs on the Central Bank’s own balance sheet and there is no risk sharing with the Eurosystem, although the ECB must be consulted. To the extent that ELA was replacing non-Irish private sector funding sources, ELA led to increased borrowing from the Eurosystem through TARGET2. The Central Bank in turn had to pay interest (at the main refinancing rate) on intra-Eurosystem liabilities created as a result of ELA.⁴³

As mentioned above, the Central Bank received a margin over its ELA funding to IBRC estimated at approximately 175 basis points. Profits accruing from the ELA were largely remitted to the Government and otherwise added to Central Bank reserves. The only

⁴² In the IBRC 30 June 2012 Interim Accounts, the company had liabilities of approximately €50.4 billion. The bulk of these (€42.3 billion) were owed to the Central Bank, with ELA accounting for €41.7 billion. Other (non-Central Bank) liabilities amounted to €8.1 billion.

⁴³ In general, TARGET2 balances have no net cost for national central banks because interest charged on the liabilities nets out against monetary income. However, for certain liabilities, including ELA, the monetary income paid by the national central bank to the Eurosystem increases and therefore there is effectively a net cost at the MRO, see *Decision of the European Central Bank of 25 November 2010 on the allocation of monetary income of the national central banks of Member States whose currency is the euro (recast) (ECB/2010/23)*. This cost also arises for central bank holdings of the portfolio of new government bonds and NAMA bonds.

real cost from ELA was the interest incurred on intra-Eurosystem liabilities of the Central Bank. The provision of ELA by the Central Bank effectively enabled the funding of IBRC arrangements (the promissory notes and other loans on its balance sheet) at the ECB main refinancing rate (Figure 10).

BOX G: CENTRAL BANK BALANCE SHEET AND EXCEPTIONAL LIQUIDITY ASSISTANCE

Central Bank balance sheets are distinctive given the power to create money (Archer and Moser-Bohem, 2013). A simple depiction of the Central Bank of Ireland's balance sheet is shown in Table G1.

The Central Bank has a range of assets and liabilities, primarily relating to loans to Euro Area credit institutions. The provision of ELA appears on the Central Bank balance sheet as an asset, which peaked at €50 billion at end-2010.⁴⁴ ELA is advanced outside of the Eurosystem's normal monetary policy operations. The collateral underlying ELA included the promissory notes, some NAMA bonds and a Ministerial Guarantee, all of which were covered by formal letters of comfort from the Minister for Finance. As the ELA is repaid, the Central Bank reduces the size of ELA and the size of outstanding liabilities.

TABLE G1: SUMMARY OF CENTRAL BANK OF IRELAND BALANCE SHEET, 2009-2012

€ billion	2009	2010	2011	2012
Assets	125	204	176	137
Loans	93	132	107	71
ELA	12	50	42	40
Other	20	22	27	26
Liabilities	125	204	176	137
Intra-Eurosystem	67	160	136	95
Bank Notes	12	12	13	13
Capital & Reserves	2	2	2	2
Other	44	30	25	27

Source: Central Bank of Ireland Annual Reports, end-year figures 2009-2012.

4.3 SUPPORT FOR IBRC LEGACY AFTER FEBRUARY 2013

The February transactions centred around an orderly wind-up of IBRC. The bank will be liquidated and its remaining assets transferred to the Central Bank and other creditors. The removal of IBRC from the Irish financial landscape implies that the previous arrangements to fund it will be unwound and replaced by a new set of mechanisms.

The Central Bank took ownership of the assets that had been provided as collateral by IBRC in exchange for ELA funding. The amount of ELA outstanding at the time amounted to just

⁴⁴ In 2010, the Central Bank valued the asset category 'Other Assets' at €50.3 billion. This included an amount of €49.5 billion in relation to ELA advanced to domestic credit institutions.

under €40 billion. Outstanding ELA was eliminated as a result of the transactions and is replaced by new Central Bank asset holdings. The collateral consisted of the promissory notes, NAMA bonds and other IBRC assets. The promissory notes were then replaced by new long-term Government bonds. The Central Bank also took ownership of the 2025 Government bond, which was held by Bank of Ireland and used to effect the 2012 promissory note payment. NAMA acquired remaining IBRC assets using its own Government guaranteed bonds. This was funded by NAMA debt issued to the Central Bank. This transaction amounted to €12.9 billion.

The Special Liquidators of IBRC are required to dispose of remaining IBRC assets. Third parties will be entitled to bid for the charged assets and any charged assets not sold to third parties will be purchased by NAMA pursuant to a Ministerial direction. Proceeds from the sale of charged assets will be distributed to the creditors of IBRC. NAMA will receive proceeds of sale not distributed to super-preferential and preferential creditors up to the nominal value of NAMA bonds issued to the Central Bank. Any proceeds over this amount will go to the remaining creditors of IBRC. If the sale proceeds do not cover the nominal value of NAMA bonds issued to the Central Bank, any shortfall (to NAMA) will be made good by the Government. If the sale proceeds and loan values exceed the €12.9 billion issued, then the unsecured creditors in the IBRC liquidation could get some money back. The Government, however, has stated that it is unlikely that these assets will yield a sufficient amount to enable subordinated liability holders to be repaid (Department of Finance, 2013a and b).

The new Government bonds, which replace the promissory notes, have a longer maturity, different interest rates and a different repayment structure compared with the promissory notes. The maturities range from 25 to 40 years rather than the 7-8 year weighted average life of the promissory notes. Interest is on a floating, rather than a fixed basis, linked to the six-month Euribor interest rate plus a fixed interest margin which averages just over 2.6 per cent.⁴⁵ The new bonds have bullet redemptions, meaning that the capital is only repaid at end of the life of the bond rather than being amortised during the course of the loan.⁴⁶ For

⁴⁵ See NTMA (2013a) for details.

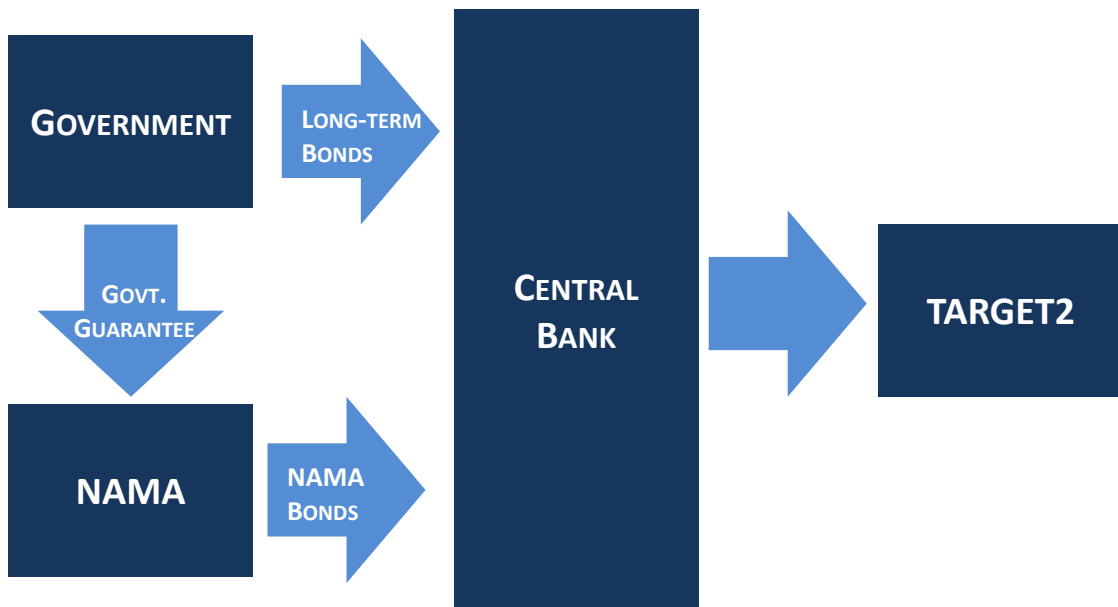
⁴⁶ The maturities are three tranches of €2 billion each maturing after 25, 28 and 30 years; three tranches of €3 billion each maturing after 32, 34 and 36 years; and two tranches of €5 billion each maturing after 38 and 40 years.

the NAMA bonds, there is no sales schedule and the debt is rolled over on the same terms on a six-month basis.

IMMEDIATE POST WIND-UP SITUATION

The somewhat circular flow of funds will continue in the immediate post-deal period with the Government and NAMA, which is partly Government-owned, paying interest to the Central Bank. This interest income in turn will accrue to the Government (Figure 11).

FIGURE 11: FUNDING OF FORMER IBRC ASSETS IMMEDIATELY POST-TRANSACTION



CENTRAL BANK BOND SALES WILL CHANGE THE DYNAMIC

The Central Bank has undertaken to sell the Government bonds acquired as a result of the liquidation according to an agreed minimum schedule subject to financial stability considerations. In terms of its market impact, other things being equal, the sale of Government bonds by the Central Bank to the market is equivalent to the issuance of new debt.

As the bonds are purchased by the private sector, there will be an immediate inflow of cash to the Central Bank (and the Government) with corresponding interest outgoings and repayments to the market bond holders in the future. The impact on TARGET2 liabilities will depend on the price at which the bonds are purchased and whether they are purchased by non-central bank non-Irish Euro Area investors. Overall, the sale of bonds to the private sector will break the circular flow of funds that existed as interest and principal payments will flow out of the system to the market (rather than to the Central Bank).

The sale of the Government bonds by the Central Bank to the market would result in the realisation of a capital gain if the market spread vis-à-vis the six-month Euribor interest rate is lower than the fixed spread on the Government bonds, or a loss if the spread has increased.^{47,48} The realisation of any gains by the Central Bank would in large part be remitted to the Exchequer.⁴⁹

It may appear paradoxical that the consolidated Government sector could seem to make a capital gain from the sale of its own debt to the market. However, this 'gain' is an accounting artefact. The spread on the new bonds is set at the current market spread and this is embodied in the current value of the bonds. However, the bonds will only be sold to the market at a later date. If the spread is then lower, selling debt to the private sector will be cheaper than it would have been today. However, this is only a 'gain' when compared with

⁴⁷ Only differences in the spread relative to the assumed level would have an impact. As the bonds are on a floating rate basis with the Euribor as the reference rate, unanticipated changes in the Euribor should not impact on the value of the bonds.

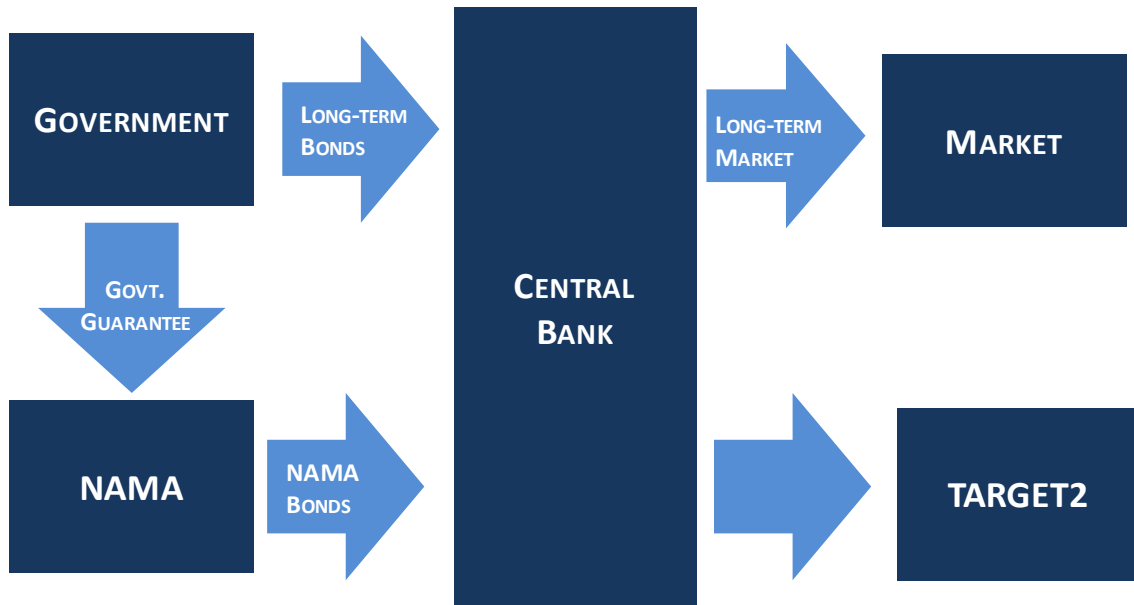
⁴⁸ This assumes that the Central Bank sells the existing floating rate debt. The bank has an option to convert the existing debt into fixed-rate bonds. In that second scenario, a similar logic would apply in terms of capital gains if the market rate differs from that initially assumed.

⁴⁹ The bonds, as trading assets, are marked to market on the Central Bank balance sheet. However, unrealised profits are not recognised but are maintained in a revaluation account

the hypothetical issuance of the debt at present. The Government is not making a true capital gain, but, if conditions improve, it benefits from waiting and issuing at a later date.

A graphical depiction of the position post-February 2013 is shown in Figure 12.

FIGURE 12: FUNDING POSITION POST-TRANSACTION



TARGET2

In terms of Central Bank intra-Eurosystem liabilities, much will depend on whether the Government bonds are sold to foreign or Irish investors. Sales to non-Irish euro investors would improve Ireland's TARGET2 balances. By contrast, there would be no direct change to TARGET2 balances if the bonds were purchased by Irish investors, although there could be effects running through other channels.⁵⁰ In terms of the interest costs to the Central Bank related to TARGET2, these would end, even if the balance is unchanged, because the TARGET2 balances would no longer be supporting the holding of the assets on the Central Bank's own balance sheet.

⁵⁰ There are some caveats to this description, such as the case where a foreign investor would liquidate other Irish assets to buy these bonds and those assets were purchased by a domestic institution, leading to no change in the TARGET2 balance.

OTHER ASPECTS OF THE LIQUIDATION OF IBRC

The liquidation of IBRC also has a number of other important implications.

First, it involves the calling of some guarantees that the Government provided to IBRC creditors (other than the Central Bank). As IBRC was covered under the ELG following its liquidation, there is a call on this guarantee estimated at approximately €1.1 billion in 2013. IBRC customers were also covered under the Deposit Guarantee Scheme (DGS). The Central Bank is working with IBRC and the Special Liquidators on this compensation. As was outlined in Section 3, this scheme is funded by the banks with payments through the Deposit Protection Account maintained by the Central Bank.

Second, the liquidation of the Government-owned IBRC raises the question of whether the Government's financial position is affected. While the most recent set of IBRC accounts showed that IBRC had positive net worth, the Government has indicated that the liquidation is unlikely to leave funds for the subordinated debt holders, suggesting that net worth is unlikely to be positive at the wind-up. This would confirm that the €4 billion equity injection into Anglo Irish Bank in 2009, outlined in Section 2, can be written off.

From an economic perspective, however, the liquidation may only have speeded up the realisation of the value of IBRC assets, as they are sold now rather than later, rather than changing their inherent value. While the promissory note assets were in principle easy to value, the value of the remaining IBRC assets is more difficult to judge. The Special Liquidator should be able to procure a more accurate and up-to-date estimate of the value of these assets. The risk of achieving low ('fire sale') values for these assets is reduced because assets are only sold if the Special Liquidator considers this the best option. The assets will be independently valued and, in the event that sales to third parties at or above the independent valuation are not agreed, the assets will be sold to NAMA at the independent valuation price. There may be some differences if NAMA turns out to be more or less efficient in recovering value from the assets than IBRC would have been.

Third, the liquidation of IBRC leaves the Government with a contingent liability as it is committed to making NAMA good according to the difference between the €12.9 billion in bonds issued to the Central Bank and the proceeds from the asset sales following the

liquidation.⁵¹ From a consolidated perspective, however, one could argue that there is no real change as the liability has moved from one Government-owned entity (IBRC) to NAMA under a Government guarantee.

Fourth, focusing on the narrower General Government basis, there is approximately a €1 billion per annum saving (prior to accounting for transaction costs) primarily as a result of lower accrued interest costs (IFAC, 2013).

4.4 ASSESSING THE IMPACT OF THE FEBRUARY 2013 TRANSACTIONS

To assess the overall impact of the February 2013 transactions, this section develops a model of the pre- and post-transaction costs of funding the assets of IBRC from a comprehensive perspective including the Exchequer, IBRC, NAMA and the Central Bank of Ireland.

A key feature of the transactions is the replacement of the promissory notes that had a weighted average life of 7-8 years, with a portfolio of long-term Government bonds ranging from 25-40 years in maturity. The assessment of the shift in the timing of interest and loan repayments requires a consistent measure of the value of money at different points in time, which can be proxied by the discount rate. Other important considerations are how much of the debt is held within the public sector and the impact on TARGET2 balances.

The results are highly stylised and dependent on a range of assumptions. The model provides estimates of the gains/losses against a counterfactual case in which the promissory notes continued in existence. Some of the key gains arising from the transactions however are difficult to quantify. In particular, the ending of ELA and the marked reduction in short-term funding needs are significant achievements. These cannot be fully captured in any quantitative assessment. In addition, the counterfactual case may not have been as favourable as the model presents. For example, it may well have transpired that the Government might have had to move more aggressively to secure funding from the market to run down the ELA balances.

This exercise considers the costs to the Government of the arrangements to provide funding to IBRC and to supports its assets after liquidation. This does not provide a full overview of all

⁵¹ NAMA will receive the proceeds of sales not distributed to preferential creditors, up to the value of the bonds that it issued to the Central Bank.

costs associated with supporting IBRC, including the Government's need to raise funding from the market to make cash payments under the promissory notes to IBRC and under the new arrangements to the Central Bank and then private bondholders.⁵² This would arguably be more difficult to model as it depends upon where the Government at the margin is funding these resources. Under the assumption that these funds are borrowed in the market, these payments and accumulated interest amount to a substantial cash flow outside the scope of this analysis.⁵³

MODEL

The model estimates the discounted present value cost of cash flows associated with funding the assets held by IBRC to the Government for both the pre- and post-February 2013 positions from a consolidated perspective. This is informed by, but differs from, the approaches set out by Whelan (2013) and by Coffey (2013), and is extended to include non-promissory note IBRC assets and NAMA bonds. The details of the approach are provided in Box H.

The model considers €40 billion of assets that were on the IBRC balance sheet in mid-2012 and provided as collateral to secure ELA funding.⁵⁴ This consisted of promissory notes to the value of €25 billion and remaining other assets valued at €15 billion.⁵⁵ Other (non-ELA related) assets and liabilities are not considered in the analysis.

From the comprehensive perspective adopted here, transactions related to promissory note interest effectively cancel out as do payments from the Government to the Central Bank under the new bonds, although principal payments on the promissory notes require real resources to be raised that are then used to reduce both Central Bank assets and liabilities. TARGET2 balances are a key part of the funding of these arrangements. These are assumed to vary one-for-one with the assets included in this exercise and there is a cost to the State in

⁵² For example, while the Government's payments under the promissory notes are effectively circular to the extent that payments to IBRC and the Central Bank both largely come back to the Government, the borrowing of the cash to make the initial payment does carry a cost for the Government.

⁵³ These costs are relatively higher under the promissory notes arrangement than under the more back-loaded new arrangements and are therefore relevant to the comparison of the two arrangements.

⁵⁴ The Central Bank (2013a) reported collateral held against ELA of €39.45 billion. This consisted of the promissory notes, NAMA bonds, the 2025 Government bond and other assets. See also: <http://www.finance.gov.ie/documents/publications/presentation/2013/newjimpres.pdf>

⁵⁵ The value of the promissory note asset is taken from the IBRC interim report (IBRC, 2012).

terms of TARGET2 balances held against ELA and bond holdings on the Central Bank's own balance sheet (at the ECB MRO interest rate).

The NPV estimates presented here also depend on a range of other precise modelling assumptions:

- The pace at which the NAMA SPV reduces its portfolio and thus repays bonds issued to the Central Bank (equivalently, the extent of sales by the Special Liquidator).
- Future market interest rates could change, including both the risk-free rate which is at historically low levels and the risk spread on Irish sovereign debt. This is relevant to the cost of the new floating rate, as well as Central Bank funding costs, but not the fixed-rate promissory notes.

The net present value cost of the two arrangements is then compared. The key assumptions under both calculations are set out in Box H. Simplified equations are given in Annex D and the spreadsheet used for the calculations is available online at: <http://www.fiscalcouncil.ie/>.

BOX H: DETAILED ASSUMPTIONS UNDERLYING THE NET PRESENT VALUE CALCULATIONS

The key assumptions are:

The analysis focuses on IBRC assets of €40 billion. This includes the promissory note (€25 billion), the 2025 Government bond and other assets used as collateral to obtain ELA.

Non-promissory note assets are resolved at a rate based on NAMA's target for its asset portfolio using linear interpolation to derive annual numbers from the various milestones (Comptroller and Auditor General, 2013). This applies both to the rate at which ELA would have been reduced on these assets and the rate at which NAMA will now repay the new bonds it has issued to the Central Bank.

The ECB MRO and Euribor interest rates are assumed to be the same and their future values are based on interest rate swap rates.

PRE-FEBRUARY 2013 SITUATION

The Exchequer makes annual promissory note payments of approximately €3.1 billion covering interest and principal payment to IBRC. These payments are used by the Central Bank to reduce ELA and continue until 2023 at which stage the ELA is repaid. This assumes that all other contractual obligations are written off because at that stage the transaction would occur entirely within the public sector.

The €3 billion 2025 bond (used as part of the 2012 promissory notes payment) is repaid in 2025 and is subject to an annual interest charge of 5.4 per cent.

It is assumed that the ELA, which was renewed on a two-week basis, would have continued to be rolled over and other options to resolve IBRC are not considered.

POST-FEBRUARY 2013 SITUATION

The Central Bank holds the new Government bonds to the value of €25 billion and sells these at the minimum schedule set out by the Central Bank. The bonds are fully owned by the private sector by 2032.

These bonds are purchased entirely by non-Irish Euro Area private buyers, leading to a corresponding fall in TARGET2 balances.

The underlying value of IBRC's assets, including its remaining loan book, is unaffected by the liquidation of IBRC and it is assumed that the Special Liquidator does not sell these assets.

The Central Bank acquires the 2025 bond and holds it until maturity.

The interest rate on the new bonds is the Euribor plus a margin of 2.6 percentage points.

The estimated present value costs of the arrangements, pre- and post-February 2013 are sensitive to the choice of discount rate. Higher discount rates imply that given future costs are worth less in terms of today's money and would tend to favour policies that push costs further into the future. There is no consensus on the appropriate discount rate, however there are good reasons for using a discount rate below the current Irish market interest rate (Box I). The model uses time-varying discount rates based on expected market (Euribor) rates with a range of fixed spreads consistent with this approach.

BOX I: APPROACHES TO THE DISCOUNT RATE

There is no clear benchmark for the choice of the discount rate (Kozack, 2005), and a number of different interpretations and perspectives can be given.

The approach to making a choice of discount rate typically rests on the opportunity costs of the economic agent. This can give rise to a difference between the creditor and debtor perspectives on what discount rate should be used.

For a lender, the opportunity cost of funds over time is the rate they could have gained through investing in a risk-free asset. By contrast, for a borrower, the opportunity cost is the marginal rate of borrowing.

Looked at from a (net) debtor perspective, an important question in Ireland's current situation is whether to use a country-specific interest rate or the Euro Area risk-free rate. The market interest rate on Ireland's debt reflects its costs as a borrower, but Kozack (2005, p8) notes that care is required when:

"...using a discount rate which includes, among other things, a high risk of non-payment which would reduce the NPV of a given debt-service stream compared with ones that includes a lower risk of non-payment.... However, from the country's perspective, the nominal amount of debt service is unchanged ...".

In short, while markets may demand a high risk premium, a Government committed to repaying its debts will nevertheless have to make the full face value of payments and not the fully discounted amount assumed by the markets.

These considerations argue for using a discount rate lower than the current market rate on Irish Government debt to the extent that current spreads reflect a non-negligible risk of default. However, it is likely that, even with an extremely low probability of default, Irish Government debt would trade at a discount relative to the Euro Area risk-free rate.

The rate of sales of Government bonds to the market by the Central Bank is a crucial parameter, as this effects how much of the lending is financed through the Central Bank at a fairly low cost and how much is financed in the market. The Central Bank’s minimum sales schedule effectively provides a lower bound and is used as a baseline. However, a faster sales schedule based on an (arbitrary) assumption that sales are completed by end-2022 rather than end-2032 under the minimum sales schedule is also considered.

THE IMPACT OF THE FEBRUARY TRANSACTIONS

The results of the modelling exercise in net present value terms are summarised in Figure 13 and Table 10. The model suggests that the present value gains from the February transactions are likely to be positive over a range of discount rates but dependent on the speed at which the Central Bank sells the bonds. These gains essentially arise from pushing out the repayment of the debt to a much later date in the future in the post-February scheme, combined with low interest costs in the early years. These effects more than offset the cost of borrowing in the market at a premium over a longer period. Overall, the gains in present value terms appear relatively modest given the stock of General Government debt (approximately €200 billion).

FIGURE 13: NET PRESENT VALUE COST: PRE- AND POST-FEBRUARY 2013

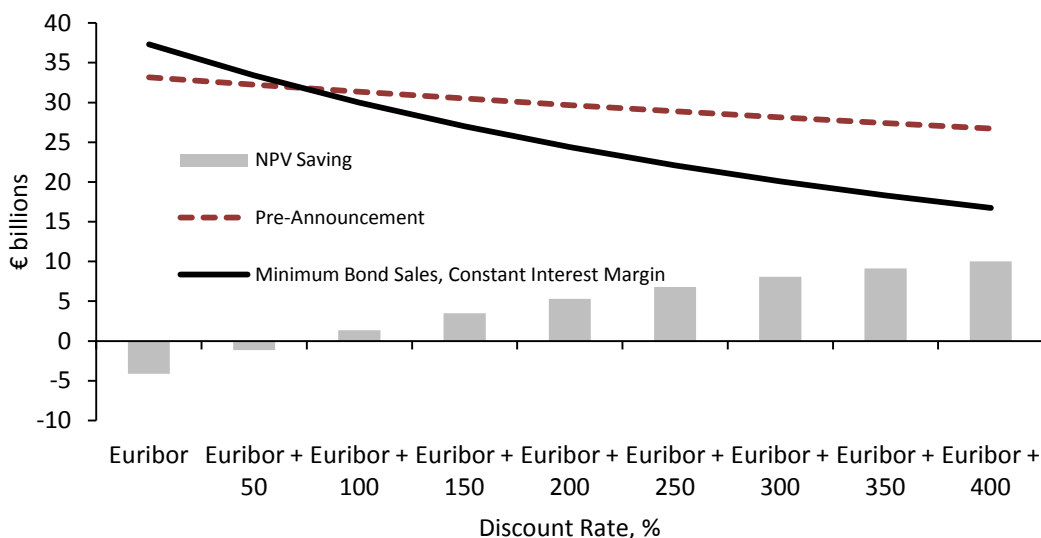


TABLE 10: NET PRESENT VALUES, € BILLIONS

Interest Rate	Pre-February	Post-February: Min Sales			Post-February: Faster Sales		
	€bn	€bn	Saving €bn	% Saving	€bn	Saving €bn	% Saving
Euribor	33	37	-4	-12%	41	-8	-25%
Euribor + 50	32	33	-1	-4%	37	-5	-16%
Euribor + 100	31	30	1	4%	34	-2	-7%
Euribor + 150	30	27	3	11%	31	0	0%
Euribor + 200	30	24	5	18%	28	2	6%
Euribor + 250	29	22	7	24%	25	4	12%
Euribor + 300	28	20	8	29%	23	5	17%
Euribor + 350	27	18	9	33%	21	6	22%
Euribor + 400	27	17	10	37%	20	7	27%

Source: Authors' estimates.

Note: numbers do not sum due to rounding.

The gains from the transactions could increase substantially if the risk spread on Irish Government debt were to narrow before the new bonds are sold to the market as this would lower the financing costs over the remaining years.⁵⁶ As shown in Table 11, for a given discount rate, gains from the deal are considerably larger for a spread (arbitrarily) assumed to fall by 100 basis points over the next ten years.⁵⁷ While lower spreads would increase the benefit from the deal, a renewed deterioration in risk spreads could eliminate any gains.

⁵⁶ In terms of the model this will appear as a capital gain for the Central Bank.

⁵⁷ Using a discount rate that does not vary with spreads in this way is consistent with the logic of not taking into account perceived default risk (and changes in it) in the choice of discount rate (See Box 1). If market interest rates are used as the discount rate and, therefore, vary with the spread, the gains are eliminated in this case as the lower spread would more than cancel out the lower financing costs. As can be seen by comparing the net present value savings assuming a discount rate of Euribor +250 basis points in the baseline case and Euribor +150 basis points in the lower spreads scenario.

TABLE 11: NET PRESENT VALUES, ALTERNATIVE ASSUMPTIONS, SELECTED DISCOUNT RATES

Base Case							
	Pre-February	Post-February: Min Sales			Post-February: Faster Sales		
	€bn	€bn	Saving €bn	% Saving	€bn	Saving €bn	% Saving
Euribor + 150	30	27	3	11	31	0	0
Euribor + 250	29	22	7	24	25	4	12
Spreads 100 Basis Points Lower than in Base Case							
Euribor + 150	31	24	7	22	27	5	15
Euribor + 250	30	20	10	33	22	8	25
Spreads 100 Basis Points Higher than in Base Case							
Euribor + 150	30	30	0	0	34	-5	-16
Euribor + 250	28	24	4	14	29	0	-2

Source: Authors' estimates.

Note: numbers do not sum due to rounding.

An important caveat to this modelling exercise is that if the liquidation of IBRC has no impact on the economic value of its assets and if it is neutral with respect to the remaining private creditors, the real impact of the transaction is given by the effects captured in the model. The immediate costs associated with the liquidation only bring forward costs that would have been incurred in any case.

Finally, as mentioned at the outset there are some unquantifiable effects associated with the new arrangements. These include both the benefit of greater certainty to the Central Bank and the Government from ending the provision of ELA to IBRC and the reduction in funding requirements over the next decade, which will help the creditworthiness of the State. These effects cannot be fully captured in any present value assessment but are likely to be significant.

ANNEX A: GOVERNMENT ASSETS AND LIABILITIES

TABLE A1: COMPONENTS OF GENERAL GOVERNMENT DEBT

€ Billions	2009	2010	2011	2012
1. Unconsolidated Exchequer Debt (Maastricht definition)	98	142	167	190
<i>2. of which: Liabilities to other Central Government bodies</i>	2	2	3	2
3. (= 1-2) Exchequer contribution to Central Government debt	96	139	164	188
4. Housing Finance Agency contribution to General Government debt	5	1	0	0
5. Other bodies contribution to Central and General Government debt	3	3	3	4
6. (=3+4+5) Central Government contribution to General Government debt	104	143	168	192
7. Local Government contribution to General Government debt	1	1	1	1
8. = (6+7) General Government debt	105	144	169	192

Source: CSO.

Note: numbers may not sum due to rounding.

TABLE A2: GENERAL GOVERNMENT LIABILITIES, 2000-2012

€ Billions	2000	2005	2007	2010	2011	2012
Liabilities	42	53	54	138	167	208
Bonds / short-term Debt	27	37	39	84	80	98
Loans	3	2	2	4	38	62
Promissory notes	0	0	0	31	28	25
Currency and deposits	8	8	8	14	15	17
Other liabilities	3	6	6	5	5	5

Source: Eurostat and Authors' calculations.

Note: numbers may not sum due to rounding.

TABLE A3: GENERAL GOVERNMENT FINANCIAL ASSETS, 2000-2012

€ Billions	2000	2005	2007	2010	2011	2012
Financial Assets	25	43	55	65	63	73
Shares and Other Equity	10	21	27	24	23	24
Currency and deposits	10	9	11	19	19	24
Securities other than shares	0	2	5	11	8	10
Loans from Government	2	3	3	4	5	7
Other Assets	4	8	8	8	8	8

Source: Eurostat and Authors' calculations.

Note: numbers may not sum due to rounding.

TABLE A4: FINANCIAL ASSETS AND LIABILITIES IN THE EURO AREA, 2007 AND 2012

% of GDP	2007			2012		
	Assets	Liabilities	NFA	Assets	Liabilities	NFA
Euro Area	29	73	-44	38	104	-66
Belgium	15	88	-73	22	104	-82
Germany	23	66	-43	38	89	-51
Estonia	35	7	28	46	14	32
Ireland	29	29	0	45	127	-82
Greece	34	119	-86	64	166	-102
Spain	25	42	-18	33	92	-60
France	37	73	-36	39	109	-70
Italy	24	114	-91	27	140	-113
Cyprus	28	59	-31	32	87	-54
Luxembourg	66	11	55	76	28	46
Malta	30	72	-42	36	88	-52
Netherlands	24	52	-28	40	83	-42
Austria	32	63	-31	34	86	-51
Portugal	26	76	-50	50	128	-78
Slovenia	48	30	19	53	61	-8
Slovakia	26	34	-7	31	57	-25
Finland	114	41	73	119	64	55

Source: CSO and Authors' calculations.

TABLE A5: LIQUID FINANCIAL ASSETS IN THE EURO AREA, 2000-2012

% of GDP	2000	2005	2007	2010	2011	2012
Euro Area	6	5	5	6	6	7
Belgium	2	2	2	3	3	3
Germany	10	7	8	9	10	10
Estonia	4	5	4	6	6	6
Ireland	9	6	6	12	12	15
Greece	4	4	4	8	7	11
Spain	9	8	10	9	7	8
France	2	3	1	2	3	3
Italy	4	4	4	6	5	5
Cyprus	7	11	12	7	11	8
Luxembourg	29	26	12	13	11	11
Malta	n.a.	8	9	9	10	6
Netherlands	4	3	3	2	2	2
Austria	4	4	4	4	5	5
Portugal	6	5	5	4	11	12
Slovenia	n.a.	4	6	10	12	12
Slovakia	5	6	6	3	2	5
Finland	4	6	6	9	9	8

Source: Eurostat.

Note: numbers may not sum due to rounding. This category refers to "currency and deposits" assets.

ANNEX B: LOANS DRAWN DOWN UNDER THE EU/IMF PROGRAMME

TABLE B1: LIABILITIES OUTSTANDING, AS OF END-AUGUST 2013

	€ billions	€ billions (full Programme)
EFSM	21.7	22.5
EFSF	15.1	17.7
UK	3.4	3.8
Sweden	0.5	0.6
Denmark	0.3	0.4
IMF	21.1	22.5
Total	62.1	67.5

Source: NTMA.

ANNEX C: SUMMARY OF BALANCE SHEETS OF 'COVERED BANKS'

€ billions	AIB	BOI	PTSB	IBRC	Total (excl. IBRC)
As at:	Dec-12	Dec-12	Dec-12	Jun-12	Dec-12
Assets:					
Loans and advances to customers	73.0	92.6	31.8	15.6	197.4
Promissory notes				27.8	
NAMA notes	17.4	4.4			21.8
Loans and advances to banks	2.9	9.5	1.4	2.1	13.8
Available for sale assets	16.3	11.1	0	4.5	27.4
Other	8.9	22.0	7.7	3.2	38.6
Cash	4.0	8.5	0.1	0.0	12.6
Total assets	122.5	148.1	40.9	53.2	311.6
Liabilities:					
Deposits from banks	28.4	21.3	13.8	45.5	63.5
Customer accounts	63.6	75.2	16.6	0.5	155.4
Debt securities	10.7	18.1	6.5	1.4	35.2
Subordinated liabilities	1.3	1.7	0.3	0.5	3.3
Other liabilities	7.3	10.1	0.8	2.6	18.1
Other liabilities - Life		13.2			13.2
Total liabilities	111.3	139.5	38.1	50.4	288.9
Total equity	11.2	8.6	2.8	2.7	22.7
Total liabilities and equity	122.5	148.1	40.9	53.2	311.6
Nominal GDP (2012)					163.9

Source: NTMA Investor Presentation, July 2013.

ANNEX D: NET PRESENT VALUE ARITHMETIC

The following two equations give the NPV in the two situations.

Equation (1) gives a simplified version of the NPV of the pre-February transaction situation:

$$1. NPV Cost = \sum_{t=1}^T \frac{1}{(I + \delta)^t} [(PN Outstanding_t + Other ELA_t) * MRO interest_t]$$

where t is the year, δ is the discount rate and the other terms are self explanatory.

For the post-February situation, the simplified cost is given by Equation (2):

$$2. NPV Cost = \sum_{t=1}^T \frac{1}{(I + \delta)^t} [(Govt and NAMA bonds_t) * MRO interest_t + (Interest Payments and Redemptions to Market)]$$

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