



An Roinn Airgeadais
Department of Finance

Ireland's Public Sector Balance Sheet

April 2021



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Executive Summary

Ireland's public sector balance sheet (PSBS), the first of its kind for Ireland, compiled under the European System of Accounts 2010 (ESA 2010) methodology shows that Ireland entered the global financial crisis (GFC) from a position of strength, both by international and historical standards.

In 2007, Ireland's public sector net worth (PSNW) stood at 64 per cent of modified gross national income (GNI*). As the aftermath of the crisis unfolded, PSNW deteriorated to -40 per cent of GNI* in 2014. Over the next five years, a considerable improvement followed and at end-2019, Ireland's PSNW stood at -8 per cent of GNI*.

The GFC had a disproportionate effect on sectors within the public sector. General government deficits were largely responsible for the deterioration in PSNW while the public capital stock, not directly impacted by the crisis, suffered from a significant decline in public investment. Public corporations, for the last twenty years, have been a source of strength, adding positive value to Ireland's PSNW. Furthermore, a high-level financial assessment concludes that public corporations currently pose a reduced fiscal risk to the Exchequer.

Ireland's intertemporal PSBS illustrates that the future fiscal path can be a source of strength or weakness depending on how ambitious the policy response is to age related demographical shifts. In present value terms, pension reform and a modest policy response to aging related expenditure pressures can reduce public sector financial net worth (PSFNW) by 284 per cent of GNI* which would still leave a PSFNW of over 3 1/2 times its value in 2019. Thus, a more ambitious response would be required to improve on our current PSFNW metric.

Finally, considering the impact of the last crisis on the overall health of Ireland's PSBS, a policy to target PSNW, whether from increased investment in non-financial assets or the targeted reduction of national debt, would be prudent to increase fiscal buffers to withstand future fiscal shocks.

Section 1: Introduction

A PSBS provides the most comprehensive picture of public wealth, accounting entirely for what the State owns and owes, by bringing together all the accumulated assets and liabilities that the government controls; thus offering a broader picture beyond deficits and debt.

Standard fiscal analysis concentrates on government's financial flows such as revenue, expenditure and borrowing with the exception of general government gross debt being the only stock measure that enters into the discussion. Consequently, limiting the analysis to flows, a blind spot can exist, in terms of asset creation or disposal, for fiscal policymakers in the absence of a balance sheet approach.

To enrich fiscal policy and noting fiscal policy is inherently a forward looking exercise, more and more countries are looking to use a balance sheet approach as another tool in fiscal sustainability analysis. International organisations, such as the IMF and the OECD are encouraging countries to develop a PSBS, which would enable them to explore the future fiscal path under various scenarios to assess the impact on public finances and future generations. Other benefits to enrich fiscal policy via a balance sheet approach include; improved transparency, accountability and the identification and management of risk. Moreover, empirical evidence¹ from the latest cross country economic research highlights that countries with stronger PSBS's can borrow at a more favourable rates, experience shorter and shallower recessions and are more resilient to economic shocks.

In Ireland, limited attention has been given to public assets and net worth as a source of macroeconomic strength. As Fitzgerald and Lane (2016) highlight, public sector balance sheets are actively managed by governments during episodes of financial distress; under these conditions the stock of gross public debt is not a sufficient statistic for fiscal sustainability. Hughes (2019) outlines how a balance sheet approach can capture the full scope and cost of government intervention in the economy and can provide insight into understanding competing fiscal strategies for long-term sustainability. These important concepts reinforce the power of a balance sheet approach for fiscal sustainability and future fiscal planning.

A key strategic goal of the Department of Finance is the achievement of a “*sustainable macroeconomic environment and sound public finances*”². By broadening the scope of fiscal reporting and analysis to the entire public sector, the Department can develop additional fiscal metrics to achieve this goal.

To develop and utilise a balance sheet approach for fiscal analysis in Ireland, the Department of Finance has compiled a PSBS from 2000-2019 and constructs an intertemporal balance sheet to assess future fiscal policy scenarios.

The remainder of this paper is organised as follows. The next section introduces Ireland's PSBS over the period 2000-2019, illustrating the evolution of the PSBS metrics over this period. Section III studies public corporations at an individual and aggregated level and looks at their role and contribution to the PSBS. Section IV constructs and investigates the effect of various policy scenarios on Ireland's intertemporal public sector balance sheet. Finally, a conclusion is outlined in section 5.

¹ <https://www.imf.org/en/Publications/WP/Issues/2019/08/06/Public-Sector-Balance-Sheet-Strength-and-the-Macro-Economy-48529>

² <https://assets.gov.ie/5311/281218143746-1b1ae2a331f94830ab76223972cdbab6.pdf>

Section 2: Ireland's Static Public Sector Balance Sheet 2000-2019

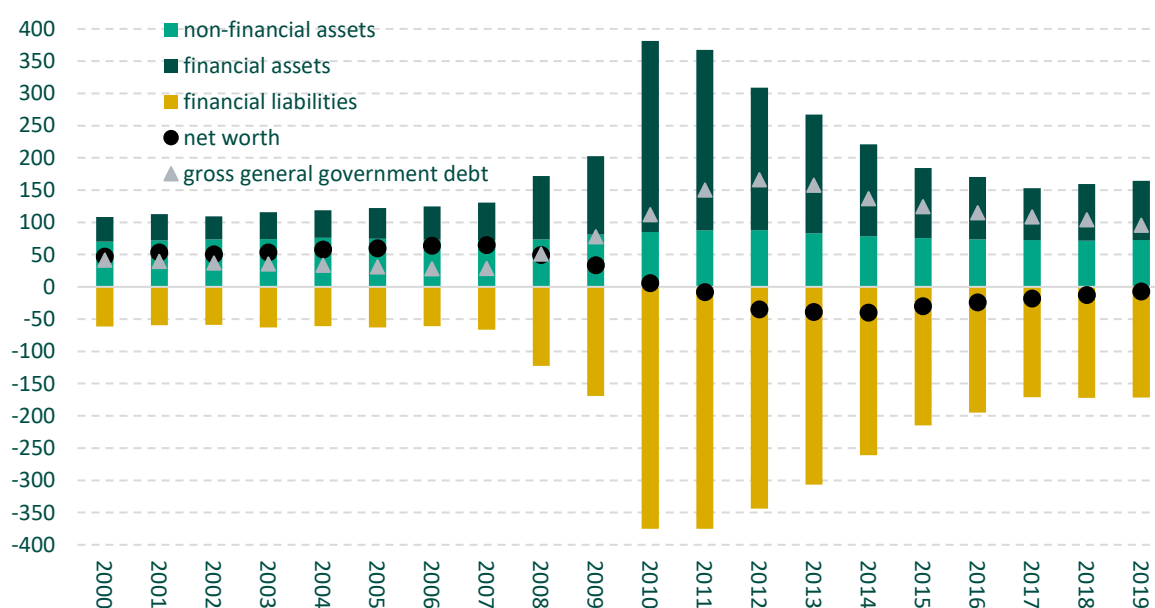
2.1: Overview of Ireland's static public sector balance sheet

The size, composition and net worth of Ireland's PSBS transformed significantly as a result of the GFC. At end-2010, the PSBS expanded³ to a peak of 381 per cent of GNI*, a three-fold increase from 2007 - the year which immediately preceded the crisis. Financial instruments drove the expansion while non-financial assets remained relatively stable over this period.

PSFNW, a measure used to describe the net position of the stock of financial assets and liabilities, declined from a peak of -8 per cent of GNI* in 2007 to a trough of -123 per cent of GNI* in 2012. Non-financial assets, measured on a net basis, increased as a percentage of national income over the period 2008-2012. However, this is due to the denominator effect.

PSNW, total assets minus liabilities, a measure used to illustrate the overall health of the PSBS, deteriorated from a peak of 64 per cent of GNI* in 2007 to -40 per cent of GNI* in 2014, a 104 percentage point swing over a seven year period.

Figure 1: Public Sector Balance Sheet, per cent of GNI*



Source: Department of Finance calculations

The composition of Ireland's PSBS transformed during the GFC. Non-financial and financial assets accounted for on average 62 and 38 per cent of the total assets respectively, over the period 2000-2007. This trend reversed at the beginning of the GFC and continues to hold in 2019. After a period of deleveraging of financial instruments, 2012-2016, non-financial and financial assets accounted for 44 and 56 per cent of the total assets in 2019.

³ In 2010, the Central Statistics Office classified the Allied Irish Bank Group (AIB Group) and Permanent Trustee Savings Bank Group (PTSB Group) into the Public Financial Corporation Sector of the economy, which contributes to the sharp expansion in 2010.

2.2: Structure of Ireland's static public sector balance sheet

A PSBS extends the coverage from the general government to the entire public sector, bringing in public corporations, including the Central Bank of Ireland (CBol). The contribution of public corporations to PSNW and PSFNW for 2019 are set out in table 1.

Table 1: Ireland's static public sector balance sheet, end-2019, per cent of GNI*

	General Government	Consolidation ¹	Total	Public Corporations	Consolidation ²	Public Sector
Assets	103	-12	92	109	-36	164
Non-financial	60	0	60	11	0	72
Financial	43	-12	31	97	-36	92
Liabilities	115	0	115	93	-36	172
Financial	115	0	115	93	-36	172
Financial net worth	-72		-84	4		-79
Net worth	-11		-23	16		-8

Rounding may affect totals.

Financial net worth = financial assets – financial liabilities

Net worth = financial net worth + non-financial assets

1. Public corporation equity accounted for in the general government balance sheet.

2. Crossholdings between entities in the public sector.

Source: Department of Finance calculations

General government and public corporations play an important role in determining Ireland's PSNW. However, an important aspect of compiling a PSBS is accounting for cross-holdings between all public sector bodies. Cross-holdings arise when an asset for one entity is a corresponding liability for another entity. For example, general government may place deposits with the CBol, resulting in the CBol recording an asset in the form of cash and a corresponding liability to general government. An unconsolidated balance sheet after merging the general government and CBol balance sheets will show two assets and one liability, thus an inflation of the balance sheet occurs. However, the net position remains neutral. Although, cross-holdings do not affect PSNW or PSFNW metrics, they do inflate PSBS instruments, thus impacting gross metrics based on these instruments.

Before the financial crisis, the relationship between the various subsectors of the public sector was weak. From 2000-2007, the average cross-holdings for Ireland's public sector was just under 4 per cent of GNI*, which is in stark contrast to the average of just over 50 per cent of GNI*, over the period 2008-2019.

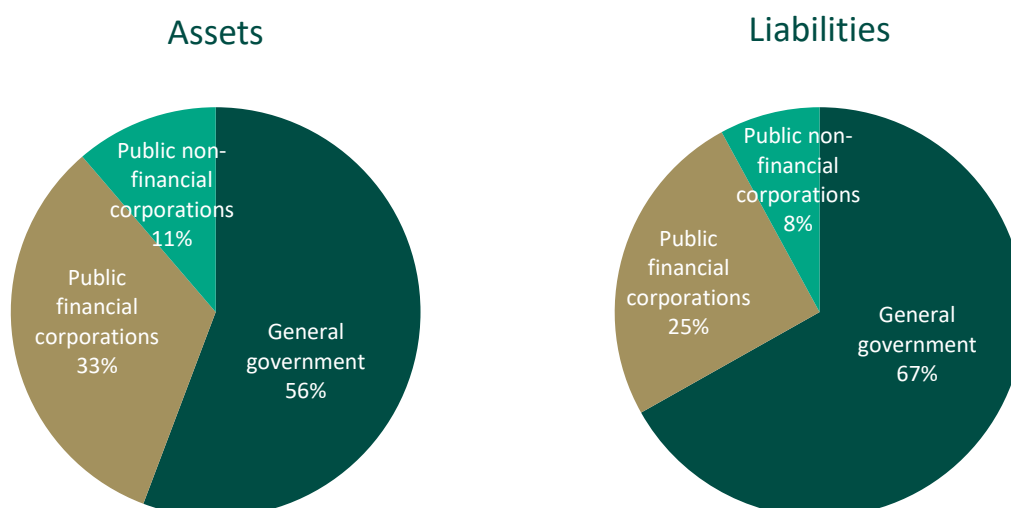
At-end 2019, cross-holdings amounted to 36.1 per cent of GNI*. The main component, debt securities, which is primarily government bonds, amounted to 24.5 per cent of GNI*. Currency and deposits amounted to 11.5 per cent of GNI*.

Public financial corporations, notably, the CBol and Allied Irish Bank (AIB) hold the largest share of debt securities for 2019 in the public sector, 21.5 per cent of GNI* and 2.5 per cent of GNI* respectively. General government deposits, deposited with the CBol, accounted for 10.3 per cent of the 11.5 per cent of GNI* of currency and deposits for 2019. A modest 0.2 per cent of GNI* for currency and deposits are

attributed to public non-financial corporations. Therefore, the significant majority of cross-holdings is due to the interaction between government and public financial corporations. For more details on cross-holdings in the public sector over the period 2000-2019, see figure A3 in Annex 3.

After accounting for cross-holdings in 2019, Ireland's total assets accounted for 164 per cent of GNI* and liabilities accounted for 172 per cent of GNI*. For the contribution of total assets and liabilities by each sector for 2019, see figure 2 below.

Figure 2: public sector assets and liabilities by sector, end-2019



Source: Department of Finance calculations

General government, for 2019, holds a significant stock of non-financial assets, 60 per cent of GNI*, together with financial assets representing 43 per cent of GNI*. However, when combining the general government balance sheet with the public corporation balance sheet to compile a PSBS, it is necessary to remove the equity of public corporations accounted for in the general government balance sheet for 2019, 12 per cent of GNI*. This increases the negative contribution from general government for financial net worth, -84 per cent of GNI*. Overall, general government contributed -23 per cent of GNI* to PSNW in 2019.

The CBol, AIB, Permanent Trustees Savings Bank (PTSB) and Voluntary Health Insurance (VHI) make up the public financial corporation sector within the public sector. Although only four corporations, they accounted for just over 85 per cent of all public corporation assets at end-2019 and contributed 11 per cent of GNI* to Ireland's PSNW, which is made up of 1 and 10 per cent of GNI* from non-financial assets and financial net worth respectively.

There is a far greater number of corporations within the public non-financial corporation sector. For the purpose of this paper a sample of 23 corporations have been included in the analysis, for the criteria on the selection of corporations see Annex 1. Corporations include all the significant Ports, large utility corporations such as Electricity Supply Board Group (ESB), the Ervia Group, Eirgrid and Bord na Móna. Coillte which manages approximately 7 per cent of the land in Ireland and the largest public transport corporation, Córas Iompair Éireann (CIÉ) is also included. Dublin Airport Authority and Irish Aviation Authority is also included. The former owns and operates Dublin and Cork airports while the latter is the regulatory body for safety aspects of air travel. Shannon Group which operates the Shannon airport is

included. An Post who is the State provider of postal services and finally the seven Universities is included. For a detailed description of the Ports and Universities see table A1 in Annex 1.

Public non-financial corporation contributed 5 per cent of GNI* to Ireland's net worth, which is made up of 11 per cent from non-financial assets and -6 per cent from financial net worth.

Combining financial and non-financial corporations, public corporations added 16 per cent of GNI* to Ireland's net worth. Non-financial assets accounted for 11 per cent of GNI* while financial net worth accounted for 4 per cent of GNI* in 2019.

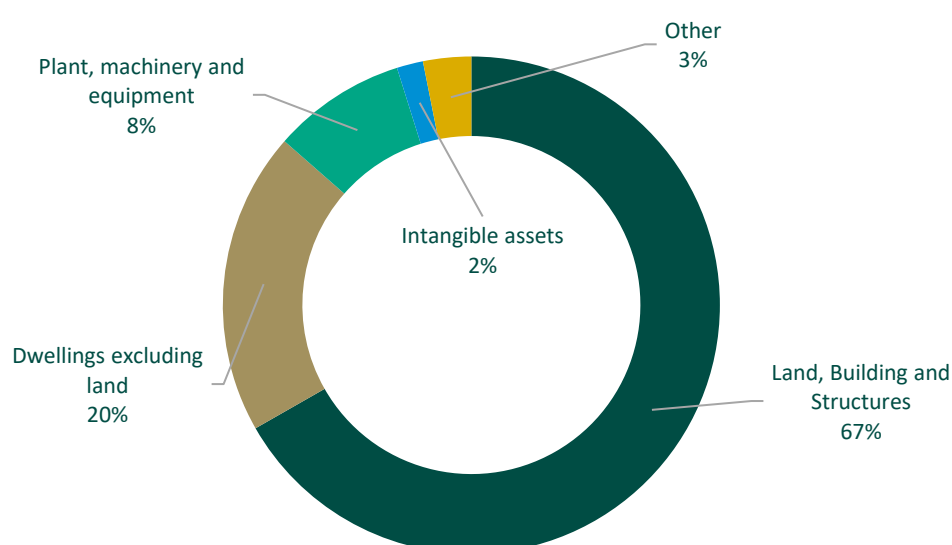
At end-2019, Ireland's PSNW stood at -8 per cent of GNI*, which comprised of 72 and -79 per cent of GNI* for non-financial assets and PSFNW, respectively. A notable feature of Ireland's PSBS is the substantial stock of non-financial assets and the large negative financial net worth, both are discussed in more detail in the following sections.

2.3: Non-financial assets

Non-financial assets play a significant role in determining net worth for Ireland. At end-2019, non-financial assets stood at 72 per cent of GNI*. The public capital stock is mainly comprised of these assets, which play an integral role in delivering economic and social objectives; they are typically illiquid and nonmarketable over the short term, however, they can be marketable over the medium to long-term via privatisation. Although, this would not apply to essential infrastructure such as school and hospital buildings etc. but more applicable towards non-financial assets such as toll roads or public land. A common example is where the State may exchange land in return for equity in a public-private joint venture.

The composition of non-financial assets for the public sector for 2019, is shown in figure 3. Land, buildings and structures represents assets such as public land and government buildings while dwelling excluding land consists of local authority and voluntary housing. Plant, machinery and equipment is very much dominated by public non-financial corporations where the ESB Group accounts for just over 75 per cent of these assets. A compositional breakdown of non-financial assets for public corporations is presented in Annex 3.

Figure 3: composition of non-financial assets for the public sector, end-2019



Source: Department of Finance calculations

The total stock of non-financial assets for the public sector amounted to €154 billion, or 72 per cent of GNI* at end-2019. General government accounted for €129 billion while public corporations amounted to €24 billion, or 60 and 12 per cent of GNI* respectively.

Public non-financial corporations accounted for a significant €22 billion, while public financial corporations accounted for €2 billion, 10 and 1 per cent of GNI* respectively. Moreover, the aggregate stock of non-financial assets in Ireland's public corporations is heavily concentrated, see figure 14. The largest non-financial corporation, ESB Group, accounts for just under 50 per cent of all public corporation non-financial assets.

Historically, Ireland's non-financial assets as a share of national income has been very stable, on average, 73 per cent of GNI* from 2000-2007. During the crisis, the spike in non-financial assets as a proportion of national income was attributed to the decline in national income. The recovery in the Irish economy witnessed non-financial assets gradually return to the more stable average of 73 per cent of GNI*, which was reached in 2016 and maintained over the period 2017-2019. To see how the compositional change of non-financial assets evolved over the period 2000-2019, see figure A5 in Annex 3.

2.4: Public sector investment

Public sector investment⁴ is vital to maintain, replace and grow the stock of non-financial assets. Net acquisition of non-financial assets, which is additions less disposals of tangible and intangible assets, is a significant contributing factor⁵, for determining if the stock of non-financial assets deplete over time or grow in line with national income to assist in the delivery of essential public services. Furthermore, to have such a metric to assess public sector investment will be vital in the coming years as the National Development Plan⁶ (NDP) which was launched in 2018 begins to ramp up – a 10 year investment of €116bn for Ireland's public capital infrastructure.

Net acquisition of non-financial assets amounted to just over €4.3 billion or 2 per cent of GNI* at end-2019. General government and public corporations accounted for 83 and 17 per cent of the total public investment respectively. Financial corporations, for the first time as far back as the data allows to examine, outperformed non-financial corporations for investment in 2019, responsible for a significant 70 per cent of total public corporation investment. The CBoI and AIB are the main drivers for 2019, the former relates to the purchase of the Dublin Landing buildings⁷ while the latter has been heavily investing in software since 2015.

Investment in Ireland's public capital stock peaked at 5.4 per cent of GNI* in 2008. General government investment, affected more immediately by the crisis, began to decline from 2009 and did not begin to show signs of recovery until 2014. Public corporation investment continued to grow till 2011, mainly driven by corporations in the energy⁸ and transport sectors. The effect of the GFC on public investment has been more severe on certain sectors; 2019 has been the first year for the transport sector to have positive net investment since 2010.

⁴ Public sector investment is on a net basis i.e. after removing consumption of fixed capital.

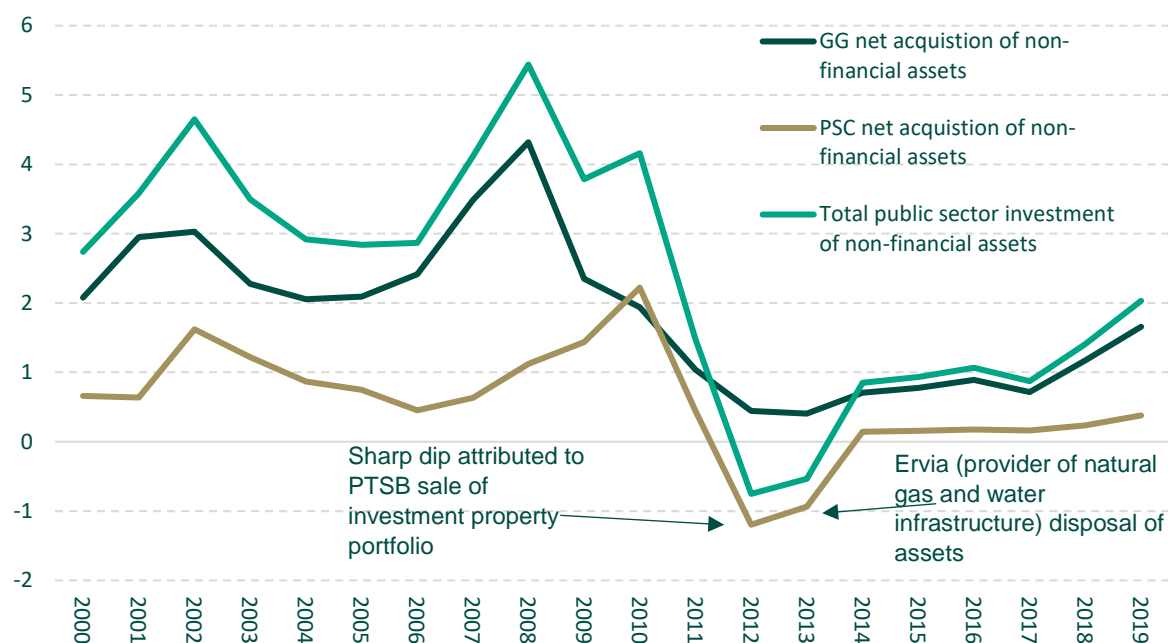
⁵ Net acquisition of non-financial assets plus valuation changes equal the total movement in the stock of non-financial assets.

⁶ <https://www.gov.ie/pdf/?file=https://assets.gov.ie/37937/12baa8fe0dcb43a78122fb316dc51277.pdf#page=null>

⁷ The CBoI's long-term city centre accommodation strategy is centred on the occupation of an integrated campus at North Wall Quay which includes the purchase of two properties at Dublin Landings. The final part of the strategy will be the sale of the CBoI Spencer Dock premises which was purchased as a strategic investment in 2015.

⁸ In 2013, Ervia Group's energy business (Bord Gais Energy) was classified as a disposal group held for sale. Ervia disposed of non-financial assets amounting to €1.34bn as part of this restructuring.

Figure 4: public sector investment, per cent of GNI*



Source: Department of Finance calculations

Over the period 2000-2010, Ireland's public investment was on average just under 4 per cent of GNI*. However, the sensitivity of public investment to the economic cycle, and a lag effect attributed to large capital projects, seen an average decline of 3 percentage points over the period 2011-2019, reducing public investment on average to just under 1 per cent of GNI* over this period.

2.5: Financial net worth

Financial net worth measures the net position of the stock of financial assets and liabilities at market value. A more comprehensive measure to the standard assessment of fiscal analysis often used in EU countries, which is based on Maastricht debt⁹. For example, net debt as often used in the standard fiscal analysis of EU countries is a subset of this more comprehensive measure. Net debt, measured by the Maastricht definition, includes currency and deposits, debt securities and loans on both sides of the balance sheet at face value but excludes financial instruments such as payables and financial derivatives.

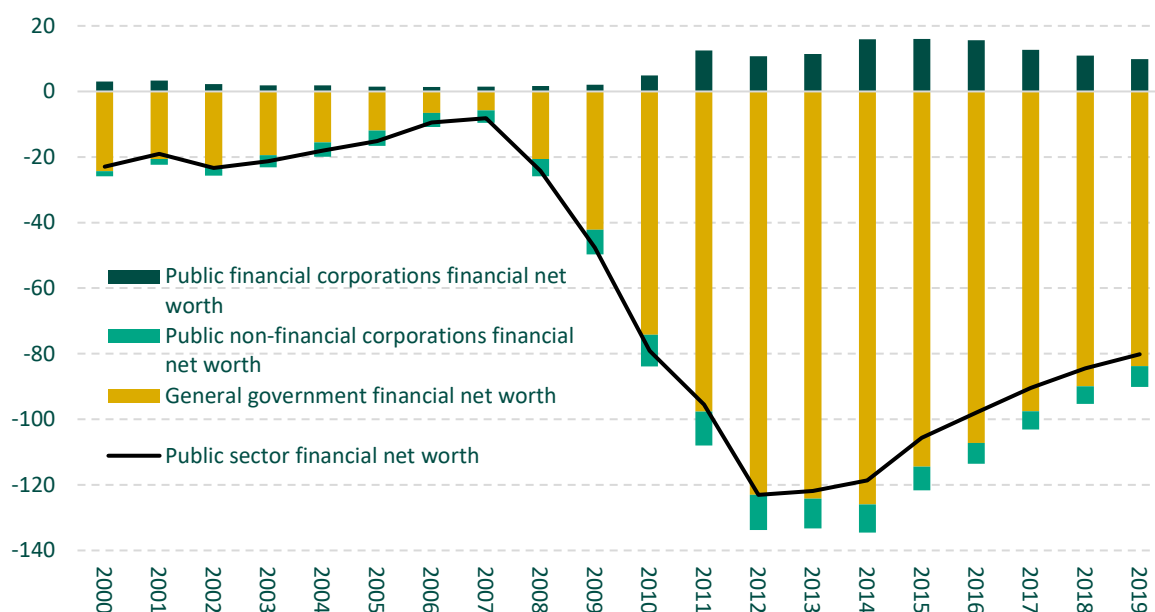
Before the GFC, PSFNW was on an upward trajectory. In 2007, a peak of -8 per cent of GNI* was reached, an improvement of 15 percentage points from the year 2000. Over this period, general government financial net worth improved by 18 percentage points, while public non-financial and financial corporation's financial net worth declined by 1 and 2 percentage points respectively.

However, as the GFC began in 2008, a significant downward trajectory was set in motion and continued until 2012, experiencing a trough of -123 per cent of GNI*, a decline of 116 percentage points. General government, heavily impacted by the GFC, experienced a deterioration of 118 percentage points, from -6 to -124 per cent of GNI* over the period 2007-2013. The financial net worth of public non-financial

⁹ Maastricht debt is measured at face value where financial net worth is measured at market value.

corporations deteriorated by 5 percentage points; while public financial corporations, mostly due to the inclusion of the AIB and Permanent TSB Groups, improved by 10 percentage points over this period.

Figure 5: public sector financial net worth 2000-2019, per cent of GNI*



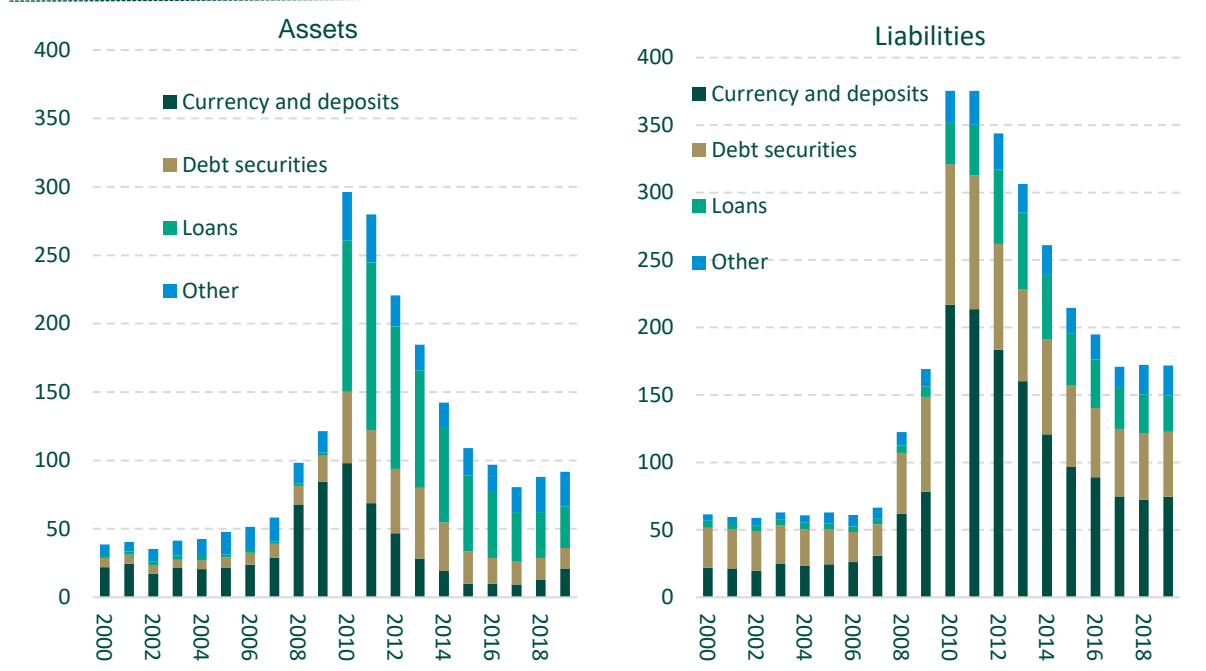
Source: Department of Finance calculations

In 2013, PSFNW began to improve. In 2019, PSFNW stood at -80 per cent of GNI*, an improvement of 42 percentage points on 2013. Although, general government continued to decline in 2014, to a trough for general government at -126 per cent of GNI*, a significant improvement began in 2015 and continued into 2019 which seen an improvement of 42 percentage points, which stood at -84 per cent of GNI* in 2019. Public non-financial and financial corporations improved by 3 and 1 percentage points respectively from 2013-2019.

Ireland's PSBS expanded significantly as a result of the GFC. In 2008, public sector financial assets stood at 98 per cent of GNI*, an increase of 40 percentage points on 2007. However, the most significant increase came in 2010, an enormous 175 percentage point increase to 297 per cent of GNI*. One of the main drivers of this level shift in assets was the Central Statistics Office's (CSO) classification of both the AIB and Permanent TSB Groups into the public financial corporation sector in 2010, resulting in the addition of combined assets to the value of 169 per cent of GNI* being added to the public financial corporation balance sheet. In addition to this increase, the CBol's balance sheet witnessed an approximate 4-fold expansion from 2007 to 2010, see Box 1 for more detail.

Public sector liabilities followed a similar trajectory as public sector assets, albeit, at a greater magnitude. A peak of 376 per cent of GNI* was attained in 2010. However, there is a notable difference by sector in the composition of public sector liabilities. In 2007, public sector liabilities accounted for 66 per cent of GNI*. An increase of 315 percentage points from 2006 to the peak in 2010. General government and public financial corporation's liabilities increased by 76 and 229 percentage points respectively while public non-financial corporations increased by 10 percentage points.

Figure 6: public sector financial assets and liabilities 2000-2019, per cent of GNI*



Source: Department of Finance calculations

A considerable amount of deleveraging occurred in Ireland's PSBS from 2010-2017. Over this period, public sector assets and liabilities reduced each year by an average of 31 and 29 per cent of GNI* respectively. This is largely attributed to the banks, AIB and PTSB were responsible on average for 18 and 17 per cent of GNI* for assets and liabilities respectively while the CBol reduced both assets and liabilities on average by 16 and 17 per cent respectively over this period.

As the crisis abated, the CBol carried out a Prudential Capital Assessment Review (PCAR) and a Prudential Liquidity Assessment Review (PLAR) in 2011. As a result, AIB was required to dispose of non-core financial assets while Irish Life & Permanent Group Holdings PLC was required to meet additional capital requirements. The years that followed saw both AIB and PTSB divest in a number key interests to deleverage their respective balance sheets.

In 2011, AIB completed the sale of its entire shareholding of Bank Zachodni WBK S.A in Poland, representing 70.36 per cent, resulting in the sale of assets and liabilities to the value of €13.8bn and €11.5bn respectively. In 2013, AIB discontinued the operations of Ark Life Assurance Limited, resulting in divesting of assets and liabilities to the value of €2.7bn and €3.6bn respectively. Moreover, the years from 2011-2017 witnessed debt securities on both sides of the balance reduce each year, the stock of loans and receivables to customer on the assets side of the balance sheet reduced from highs in 2010 of €86bn to levels of €60bn in 2017 while deposits by the CBol which was effectively funding support from the European Central Bank (ECB), on the liability side of the balance sheet, dramatically reduced also.

The PTSB Group followed a similar path. In 2012, the sale of the Life Group was finalised and what was formerly regarded as the Irish Life & Permanent Group Holdings PLC was now reduced to the Permanent TSB Group Holdings PLC. As a result, a substantial deleveraging of assets and liabilities occurred, €28.8bn and €27.8bn respectively. In 2014, the Group made a decision to sell most of its non-core Irish assets which totalled just over €1bn, consisting mainly of UK mortgages held in subsidiaries of the Group. Overall, the main components that reduced over the years from 2010-2017 on the Group's balance sheet resembled that of the AIB Group, notably debt securities on both sides of the balance sheet, loans and receivables to customers and deposits by the CBol, on the liability side of the balance sheet, again funding support from the ECB.

Box 1: A closer look at the CBol's balance sheet over the crisis years

By end-September 2008, after the failure of the Lehman Brothers investment bank, the GFC began to accelerate. Policy-makers across the globe took unprecedented actions to limit the impact of the crisis by direct financial interventions together with fiscal and monetary responses, such as the recapitalisation of the banks, deposit guarantees, provisions of credit and liquidity and programmes to deal with distressed assets. National Central Banks' balance sheets played a vital role in executing these policy measures.

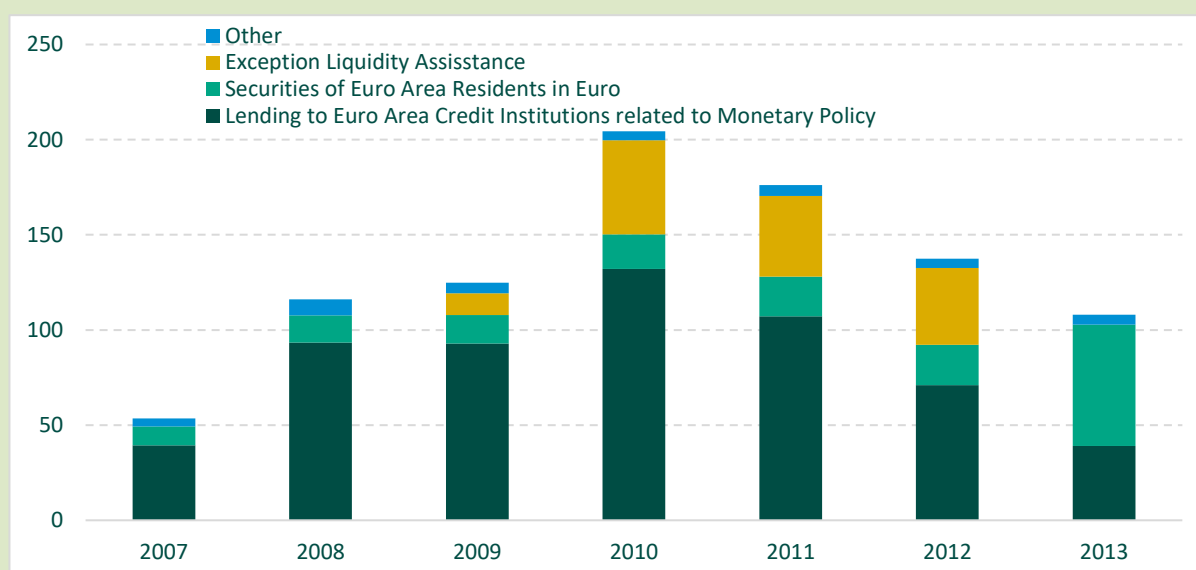
A combination of the CBol's participation in the Eurosystem monetary policy operation and operations outside of the Eurosystem led to a 4-fold expansion of the bank's balance sheet at the peak of the crisis in 2010. Eurosystem monetary operations included, lending to Euro Area local credit institutions to address the liquidity constraints in financial markets and securities held for monetary purposes such as covered bonds purchase programme which commenced in July 2009. Exceptional liquidity assistance (ELA) and other securities, in particular the securities acquired by the bank in February 2013 following the liquidation of the Irish Banking Resolution Corporation (IBRC) was advanced outside of the Eurosystem monetary operations.

At-end 2010, the total Eurosystem advances for lending to Euro Area credit institutions amounted to €546.7bn of which the CBol held €132bn while the ELA increased from €11.5bn to €49.5bn.

On the 7th February 2013, the provision of the ELA which amounted to €39.5bn ended following the liquidation of the IBRC. The CBol took ownership of the Promissory Note, Facility Deed and NAMA Bond which had been accepted as collateral for the ELA. The Government offered to exchange the Promissory Note for long-term marketable Government bonds which the CBol accepted. These long-term bonds included the Floating Rate Notes (FRN's) to the value of €25bn and Government guaranteed NAMA bonds to a value of €13.7bn.

In 2014, €12.2bn of the NAMA bonds were redeemed by NAMA while the remaining NAMA bonds were redeemed in 2017. At-end 2019, the CBol had disposed of €16.5bn of the FRN's.

Figure 7: CBol's financial assets, € billions



Source: CBol's annual reports and Department of Finance calculations

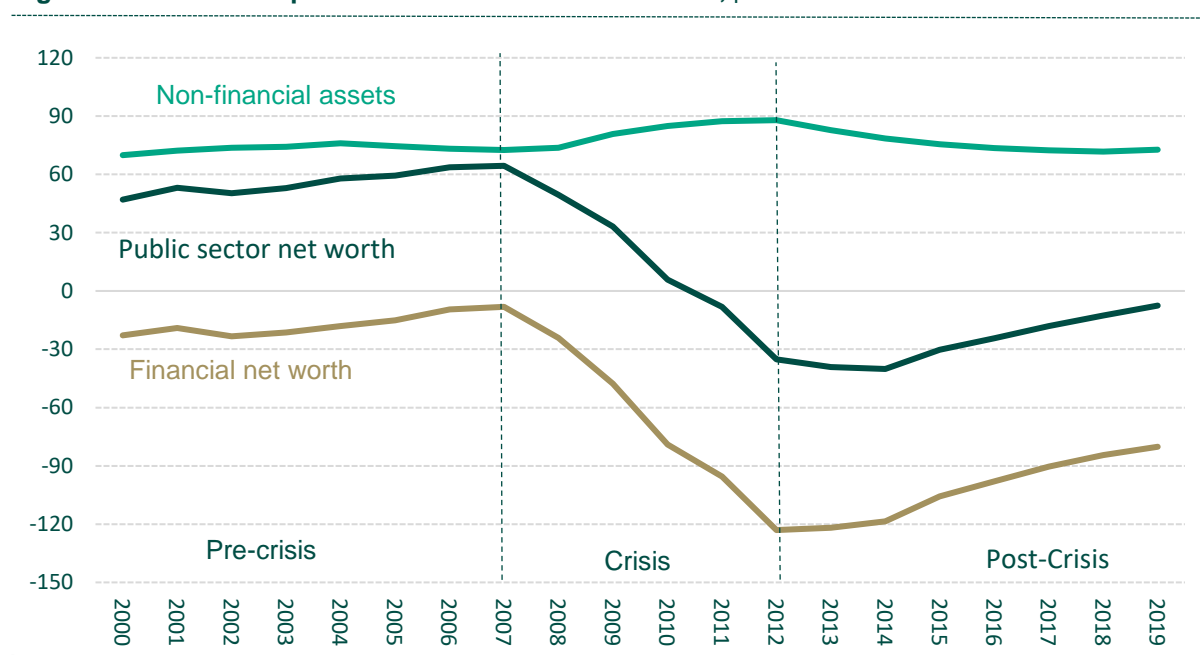
2.6: Evolution of public sector net worth from 2000

To understand the evolution of Ireland's PSNW, it is necessary to analyse the periods before, during and after the GFC.

Before the GFC, PSNW was on a path of continuous improvement, a desired outcome for which most advanced economies, who are applying a balance sheet approach, are pursuing today. At end-2007, PSNW stood at 64 per cent of GNI*, an increase of 17 percentage points from end-2000. The decomposition of net worth over this period, show that all components, with the exception of public corporation fiscal balance, make a positive contribution to the increase. For more detail on the decomposition of PSNW over this period, see figure A6, Annex 3.

The GFC was a severe and persistent shock for Ireland's PSBS. PSNW declined from a peak of 64 per cent of GNI* in 2007 to -35 per cent of GNI* in 2012, a significant reduction of 99 percentage points. Non-financial assets increased by 15 percentage points to a peak of 88 per cent of GNI* in 2012 – the large increase is mainly attributed to the denominator effect. PSFNW decreased by an unprecedented 115 percentage points to -123 per cent of GNI* at end-2012.

Figure 8: evolution of public sector net worth 2000-2019, per cent of GNI*



Source: Department of Finance calculations

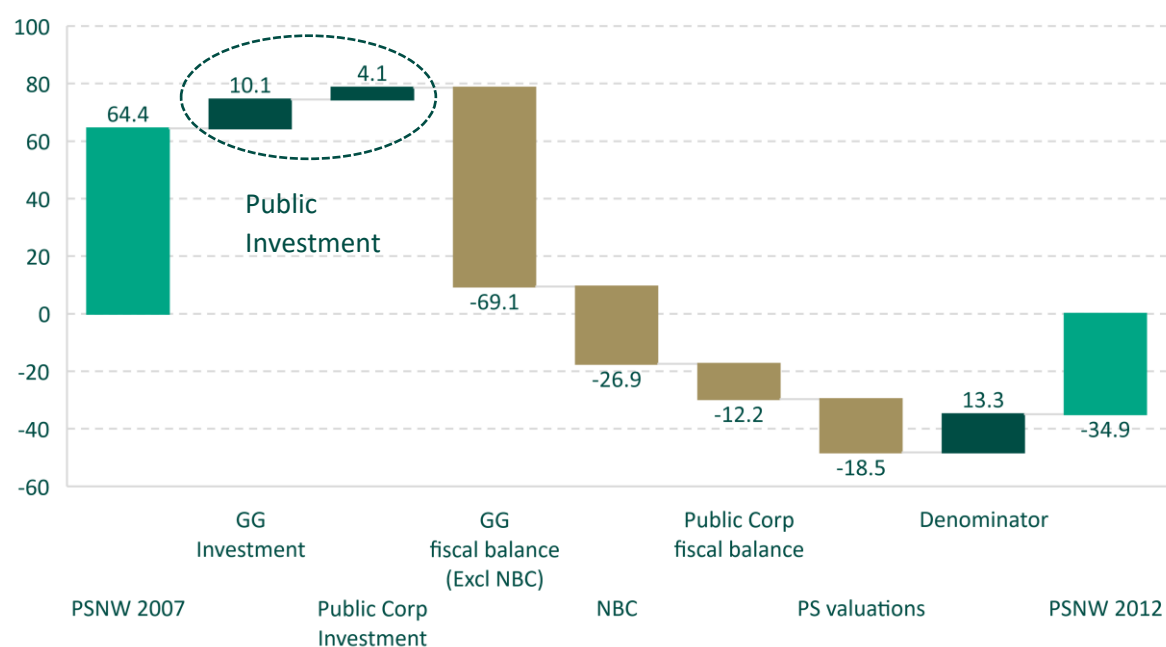
After the crisis, PSNW bottomed out in 2014 at -40.1 per cent of GNI*. The period which followed (2015-2019) enjoyed a significant improvement of 23 percentage points in PSNW, which stood at -8 per cent of GNI* at end-2019. Non-financial assets during the post-crisis period decreased by 15 percentage points, a reversal of the trend witnessed during the crisis – again attributed to the denominator effect¹⁰. Financial net worth improved by 43 percentage points, mostly driven by a combination of valuation changes and public corporation surpluses, 8 and 14 per cent of GNI* respectively. For more detail on the decomposition of the PSNW over this period, see figure A7 in Annex 3.

¹⁰ During the crisis period, the average growth rate of modified GNI was -5 per cent whereas the average growth rate of modified GNI for the post-crisis period was just under 8 per cent.

The impact of the GFC on Ireland's PSNW was so severe it is worthwhile to decompose the PSNW metric into public investment, fiscal balances and valuation changes to analyse how each component responded to the shock. The decomposition of PSNW also provides greater fiscal transparency, for example, during post-crisis periods, governments may be faced with having to improve their immediate fiscal position by lowering debt and deficits. If this is achieved by a fire sale of assets, what transpires is widely known as a fiscal illusion, as a non-financial asset is simply converted to a financial asset, cash, which may be used to run down liabilities in the form of debt securities, resulting in no fiscal consolidation having occurred. From figure 9 below, this clearly was not the case for Ireland during the GFC.

Public investment contributed 14.2 per cent of GNI* to PSNW. The impact of general government and public corporation deficits, 96.1 and 12.2 per cent of GNI* respectively, on PSNW was catastrophic and was by far, the main component responsible for the deterioration in Ireland's PSNW. Public sector valuation changes made a net impact of -18.5 per cent of GNI* to PSNW.

Figure 9: decomposition of PSNW during the crisis period (2007-12), per cent of GNI*



NBC = Net Banking Cost, financial support to the banks that impacted the GG deficit
Source: Department of Finance calculations

A prominent feature of Ireland's PSBS is the significant role general government plays. Before the GFC, general government was responsible for on average 84 per cent of the total PSNW. During and after the crisis, general government was the only sector with negative net worth. This is of no great surprise considering the deterioration in the general government balance from figure 9 above, and the financial support¹¹ provided to the banking sector which ultimately was responsible for classifying the AIB and PTSB Groups into the public sector. As a consequence of these transactions between general government and public financial corporations, a compositional shift in terms of the contribution to PSNW occurred between these two sectors - general government net worth deteriorated while public financial corporation's net worth improved. See figure A12 in Annex 3 for the contribution to net worth from each sector.

¹¹ <https://www.gov.ie/en/publication/ea6f4b-department-of-finance-annual-report-on-public-debt-in-ireland-2017/>

2.7: Other economic flows

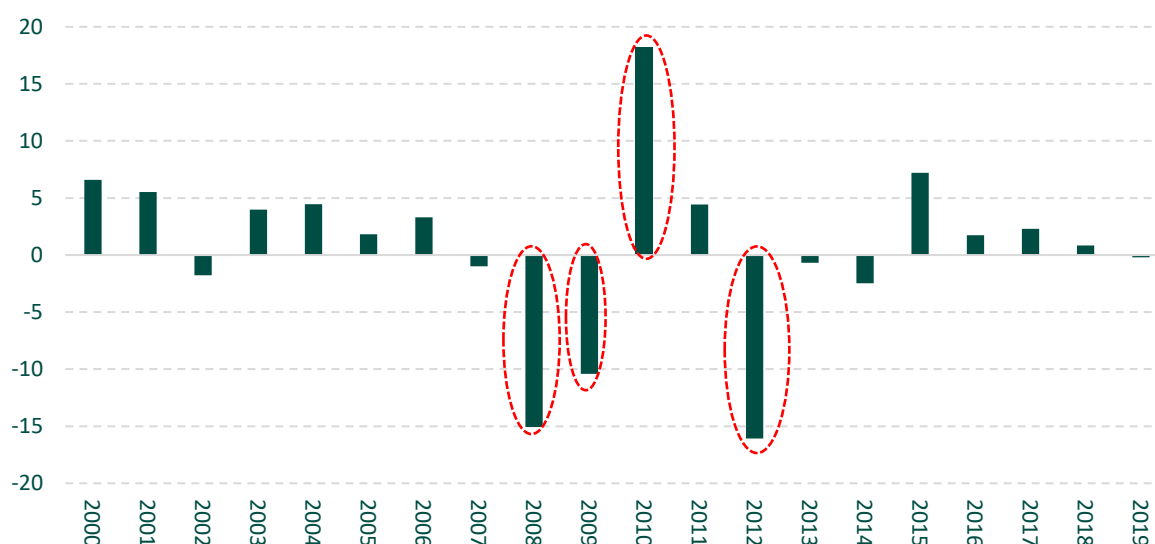
Other economic flows result from revaluations (price changes) and volume changes in assets and liabilities. A common approach is to discuss valuation changes for other economic flows as the volume changes are usually less significant. However, for Ireland in 2010, there is a considerable volume change in both assets and liabilities with the classification of both the AIB and PTSB into the public sector.

Valuation movements can make an important contribution to PSNW, albeit with positive and negative swings. The exposure to valuation swings can create short-term vulnerabilities for a balance sheet. Asset valuations are significantly more volatile than liability valuations. In Ireland's case, the risk is low as the stock of equities and investment funds, which are prone to large valuation changes due to their sensitivity to financial markets, is relatively modest, just over €11bn at end-2019 which equates to just over 3 per cent of total public sector assets. However, countries such as Finland¹² with a large stock of equities can benefit; as equity prices recover during post-crisis, positive valuations can boost PSNW which offsets post-crisis fiscal deficits.

Before the GFC, valuation movements made positive contributions to PSNW every year with the exception of 2002. However, these gains were soon wiped out in two consecutive years, 2008 and 2009. A significant 25.5 per cent of GNI* disappeared off PSNW over these two years. Non-financial assets accounted for the large majority of the decline in valuations for both years, which is no great shock considering the property price movements in the Irish market and that non-financial assets accounted for over 40 per cent of the total public sector assets in 2008.

In 2010, other economic flows largely driven by volume changes in assets and liabilities made a positive contribution of 18 per cent of GNI*. This was offset in 2012 with a negative contribution of 16 per cent of GNI* to PSNW. The latter was largely driven by the accumulation assets and liabilities onto the PSBS from both banks while the former was the largely the result of a considerable amount of deleveraging of assets and liabilities from the banking sector.

Figure 10: other economic flows from 2000, per cent of GNI*



Source: Department of Finance calculation

¹² <https://www.imf.org/en/Publications/WP/Issues/2018/04/06/Finlands-Public-Sector-Balance-Sheet-A-Novel-Approach-to-Analysis-of-Public-Finance-45747>
<https://www.tandfonline.com/doi/full/10.1080/1406099X.2019.1585062>

Box 2: How volatile is the public sector balance sheet?

A question that often concerns fiscal policymakers when deciding to implement a public sector balance sheet approach for fiscal analysis is; how stable are the balance sheet metrics such as PSNW and PSFNW when compared to the more usual stock measure, public sector gross debt (PSGD), a measure that can be misleading if Countries are running deficits largely driven by investment. As Hughes (2019) highlights, fiscal policymakers are concerned for two reasons;

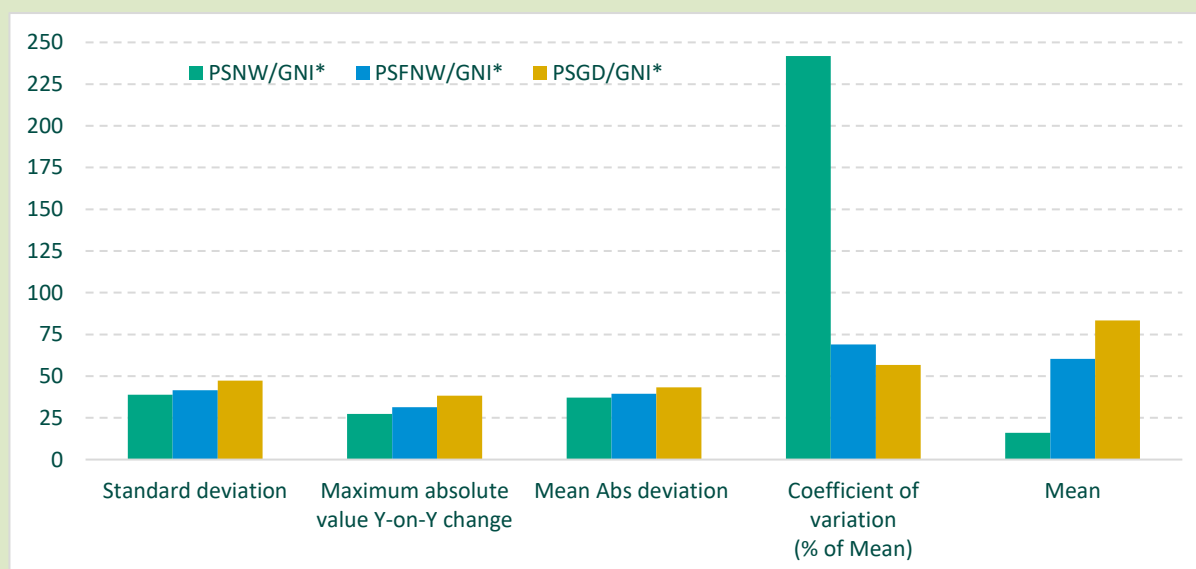
- i. A number of balance sheet items are recognised at fair value which makes their value prone to changes in market prices; and
- ii. A number of items on the balance sheet can be subject to large valuation changes due to revisions of the discount rate use to estimate their future costs.

To determine if this is the case for Ireland, a number of measures are calculated based on the three main metrics proposed above over the period 2000-2019. Overall, the more comprehensive measures, PSNW and PSFNW are less volatile than PSGD on most metrics. As shown in figure 10, PSGD is the most volatile metric on three out of the four measures with a standard deviation of 47 per cent of GNI*, a maximum absolute value Y-on-Y change of 38 per cent of GNI*, mean absolute deviation of 43 per cent of GNI* and a coefficient of variation of 57 per cent of GNI* during this period.

PSNW is actually the least volatile on three of the four measures with a standard deviation of 39 per cent of GNI*, maximum absolute value Y-on-Y change of 27 per cent of GNI*, mean absolute deviation of 37 per cent of GNI* and a coefficient of variation of 242 per cent of GNI* during this period. PSFNW lies between the least and most volatile metrics.

The coefficient of variation (standard deviation/mean) is heavily influenced by the magnitude of the mean. The first three measures of volatility capture their absolute deviations, in per cent of GNI*, and are better suited as viable fiscal targets. Thus, the more comprehensive metrics outperform PSGD in terms of lower volatility.

Figure 11: Year-on-year volatility in different balance sheet metrics, per cent of GNI*



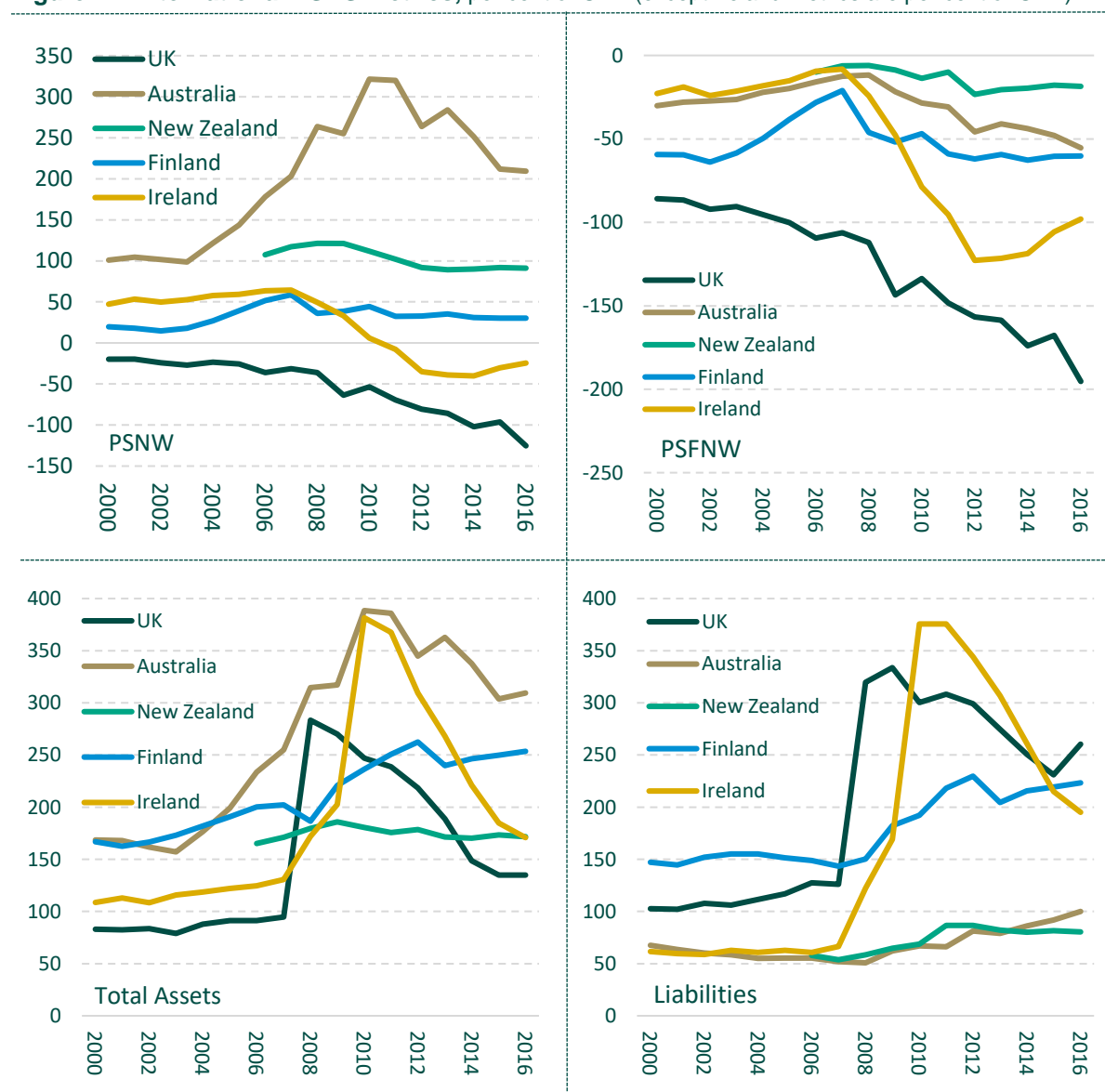
Source: Department of Finance calculations

2.8: Public sector metrics in an international context

The UK, New Zealand and Australia are leading the way in the production of PSBS statistics. Finland is included to reflect the similarities between Ireland as a small open economy.

In comparison to the group of countries, Ireland's pre-crisis levels of PSNW and PSFNW compare favourably; positioning Ireland in the middle of the group for PSNW, while sharing the lowest PSFNW of the group with New Zealand. However, the crisis transforms these trends significantly by having a severe impact on both Ireland and the UK's PSBS's - mainly due to their large financial sectors compared to their GDP which is not the case for the other countries in the sample. Both Australia's and New Zealand's liabilities experienced a slight increase at the start of the GFC but it was miniscule in comparison to increases experienced in Ireland and the UK, as illustrated in the liabilities chart in figure 12. This emphasizes the importance of the PSBS as an instrument of macroeconomic policy from financial sector purchases to quantitative and credit easing by Central Banks.

Figure 12: International PSBS metrics, per cent of GDP (except Ireland metrics are per cent of GNI*)



IMF data coverage extends to 2016 and the New Zealand data starts from 2006
Source: IMF public sector database & Department of Finance calculations

Box 3: Aggregated university balance sheet metrics

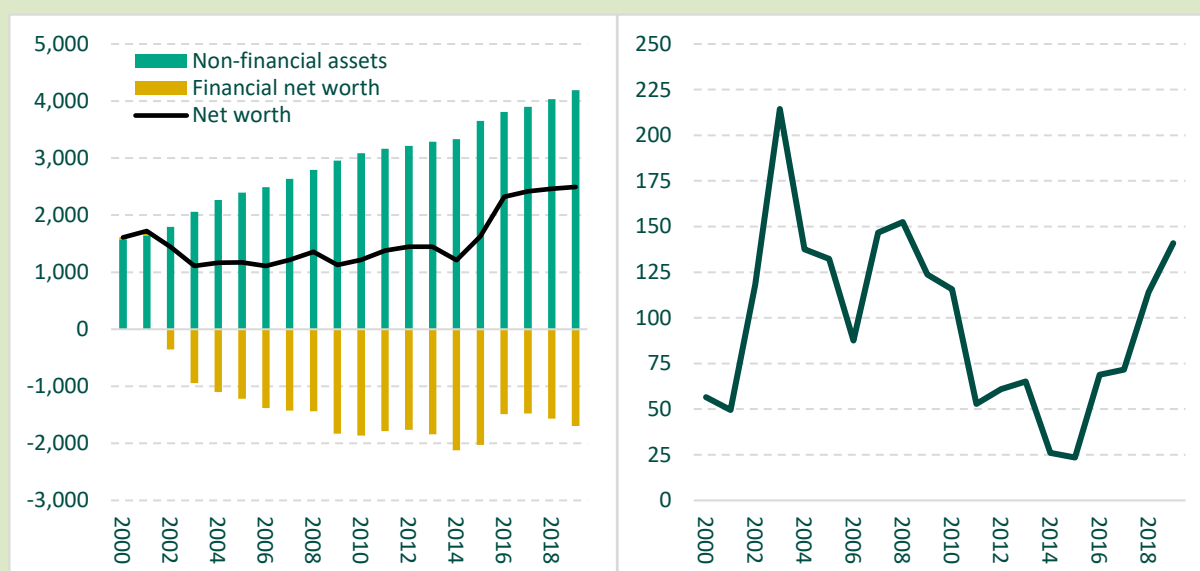
Ireland's PSBS has been compiled under the ESA 2010 methodology. ESA 2010 is a system for producing macro-economic statistics. Thus, it records the economic reality of transactions rather than their legal form.

In 2018, the CSO reclassified¹³ the universities into the public non-financial corporation sector of the economy. Up to 2013, they had been classified as Non-profit Institutions Serving Households - privately controlled non-market bodies. As a result of the reclassification and decision being retrospective in nature, university balance sheet data is included in public sector statistics.

Considering universities are the only public corporations to fall into the category where the statistical classification is a result of the economic transactions rather than legal ownership, it is worthwhile to examine the aggregated university balance sheet in isolation.

Universities, for the last 20 years, have continued to invest in non-financial assets, an average of just under €100 million per year on a net basis. Thus, the stock of non-financial assets has continued to increase over this period. In particular, over the last 5 years, a combination of adding to the stock of non-financial assets and reducing their net financial liabilities from the peak of 2014, universities net worth has peaked in 2019, just under €2.5 billion.

Figure 13: Aggregated University balance sheet metrics (LHS), investment (RHS) € millions



Source: Department of Finance calculations

2.9 Summary

Ireland's PSBS is recovering from the scarring effects left behind from GFC with national income¹⁴ doing the heavy lifting. However, in nominal terms, the public capital stock is increasing at a greater pace than net financial liabilities, thus, adding modest improvements to PSNW.

The above analysis illustrates, the most significant factor in the deterioration of PSNW was the net financial liabilities of general government. Therefore, to target debt reduction while continuing to invest in public infrastructure will be of great importance to return to a positive PSNW in the near future.

¹³ <https://www.cso.ie/en/releasesandpublications/in/gfs/informationnotice-classificationofuniversities/>

¹⁴ GNI* has grown on average from 2013 to 2019 by just under 8 per cent a year.

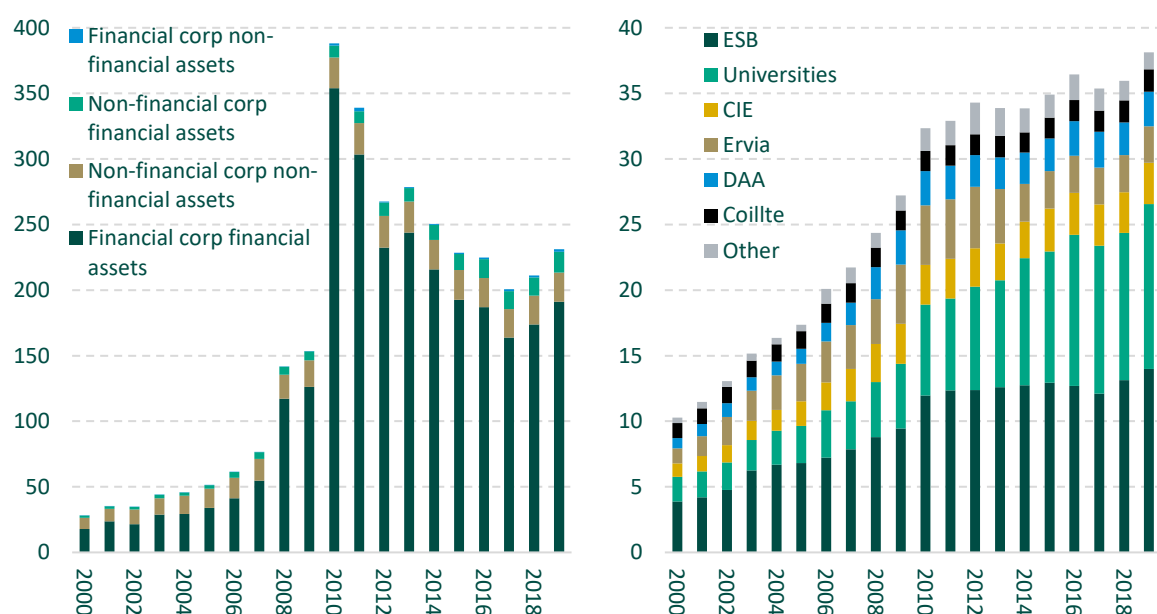
Section 3: Ireland's Public Corporations

3.1: Overview of Ireland's public corporations

Public corporations play an important role in the Irish economy. At end-2019, public corporations employed approximately 73,100 people, accounting for just over 3 per cent of the total employed in the Irish economy while contributing just over €570 million to the State via dividends, see Annex 3 for more detail on public corporation dividends and employment.

Ireland has 26 public corporations¹⁵, including the CBol, controlled by government which make up 44 per cent of the consolidated public sector assets in 2019. On the liability side, public corporations accounted for 33 per cent of the consolidated public sector liabilities in 2019. Moreover, the aggregated balance sheet for public corporations in Ireland is highly concentrated. At end-2019, public financial corporations accounted for 83 per cent of all public corporation assets.

Figure 14: public corporation assets (LHS) and non-financial corporations assets (RHS), € billion



Source: Department of Finance calculations

Ireland's public non-financial corporations accounted for 17 per cent of all public corporation assets in 2019. However, the three largest non-financial corporations, ESB, Ervia and CIÉ accounted for over half of all public non-financial corporation assets while the largest corporation, ESB, accounted for just over a third of all public non-financial corporation assets in 2019.

On the liability side, non-financial corporations accounted for 15 per cent of all public corporation liabilities, with the three largest non-financial corporations accounting for just under 50 per cent of all public non-financial corporation liabilities and the largest non-financial corporation accounting for just under one third of non-financial liabilities in 2019. Thus, both sides of the non-financial corporation balance sheet are heavily influenced by a small number of non-financial corporations.

¹⁵ The largest 26 public corporations (consolidated Groups and individual entities) have been included in the analysis, see Appendix 1 for more detail.

3.2 Financial performance

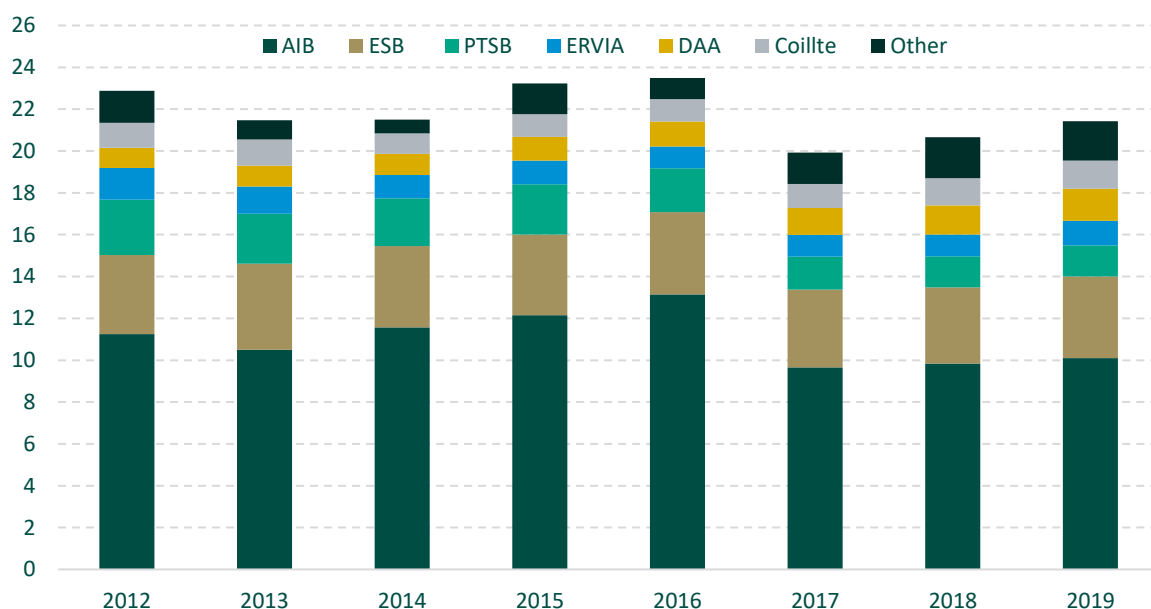
Public sector assets develop with the main objective of delivering essential public services, while at the same time looking to provide a return on capital invested by the State. The IMF highlight in their Fiscal Monitor October 2018, *Managing Public Wealth*, that raising the return on asset performance can increase profits of public corporations and show over a cross-country distribution of returns, that raising returns from the 25th to the 75th percentile, can increase profits on average by 1 per cent of GDP. Thus, better asset management can potentially provide greater returns to the State.

A good place to begin for Ireland, is to look at how equity held in public corporations by the State has evolved over the last number of years. In 2011, equity held in public financial corporations significantly increased, mainly due to the recapitalisation of AIB and PTSB. A combination of equity placing (€5bn), capital contribution (€6.1bn) and contingency capital notes (€1.6bn) by the State and a tendering of financial instruments, by the bank for cash (€2.1bn) raised €14.8bn to recapitalise AIB. Irish Life and Permanent Group Holdings had to raise €4bn to satisfy the PCAR conducted by the CBol, as a result the State invested €2.3bn of equity into the bank, while the remaining capital was raised by the bank. Equity in the CBol significantly increased from 2013 onwards, mainly due to the unrealised gains arising from the securities acquired following the IBRC liquidation.

In order to remove the volume change in equity between the government and financial corporations, most notably, acquiring equity in the banks, the analysis begins at 2012. CBol is excluded to address the circular flows between government and CBol – the increased gains in equity realised by the purchase of Floating Rate Notes by the NTMA on behalf of the State. These steps are taken to focus on the equity performance largely being driven by profitability or exogenous valuation changes.

Overall, the equity of public corporations has been fluctuating between €21.5 and €23.5 billion over the period 2012-2016. The step change in 2017 is attributed to the State reducing the equity held in AIB by 28.75 per cent. The equity held in AIB by the State accounts for just under 50 per cent of the total equity in public corporations. Therefore, the overall equity performance of public corporations is greatly influenced by banking sector.

Figure 15: equity of public corporations 2012-2019, € billions



Universities & CBol are excluded from the analysis.
Source: Department of Finance calculations.

3.21 Non-financial corporations

Ireland's non-financial public corporations¹⁶ play an important role in many key strategic areas of the economy such as travel, communication and utilities. A natural question to pose is whether all these corporations need to be public. On one side of the debate, given the small size of the Irish economy and to avoid creating monopoly structures, can be a strong argument to support corporations remaining under public control, while on the other hand, some corporations being privately operated could possibly reduce risks to the PSBS. Although, the argument for privatising corporations may only be justified when competing corporations exist in the market, in order for essential services to continue, otherwise the risk to the PSBS would still exist due to the strategic nature of such corporations.

Overall, equity in non-financial corporations has performed well over the last 10 years, grown on average each year by just under 2 per cent. Moreover, only two non-financial corporations have reported negative equity over the last 10 years, the CIÉ Group and An Post. However, An Post have reported positive equity for the last three consecutive years. The CIÉ Group are the largest provider of public transport in the State and operate socially desirable while economically unviable public service transport routes. As a result, CIÉ receives Exchequer funding to deliver these invaluable services across the State and which are key to a vibrant economy, see figure A10 in Annex 3 for more detail on Exchequer funding attributed to the CIÉ Group to assist in the delivery of such services.

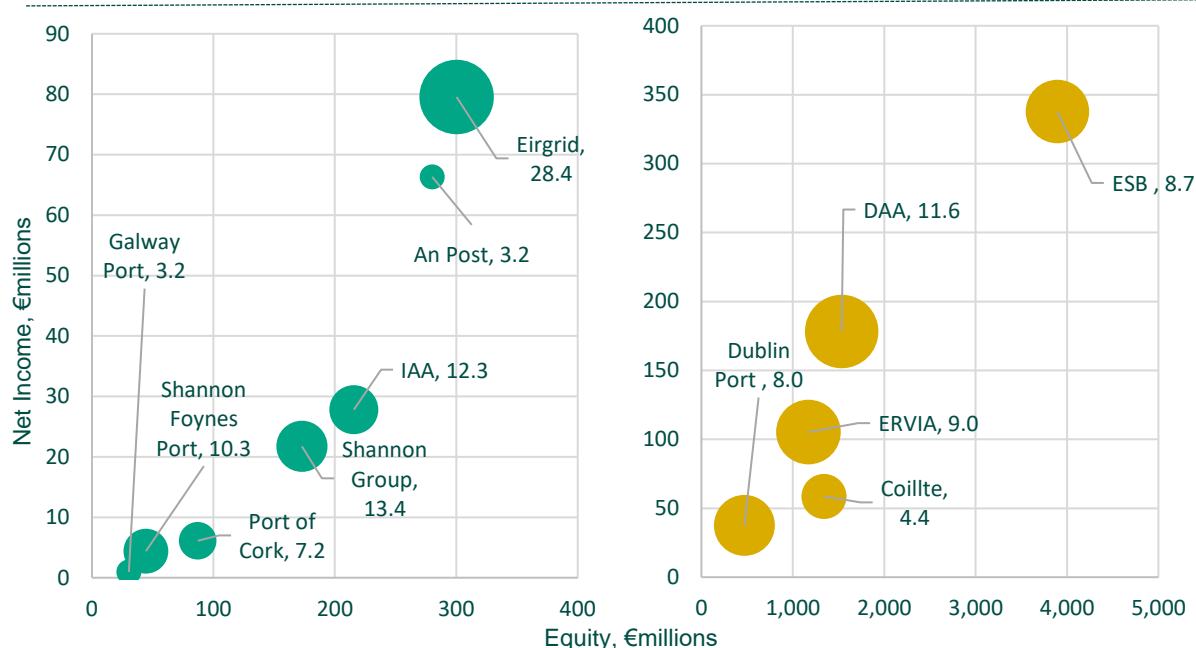
Profitability is a key measure for a corporation's ability to remain in business. Figure 15, looks at how non-financial corporations used their net assets to create profits in 2019, measured by return on equity (ROE). Given their strategic importance, achievement of an acceptable ROE is an inadequate metric by which to judge many Irish public corporations. However, it is useful to compare how corporations perform in similar industries to drive efficiencies and deliver the best return on taxpayer equity that is possible.

Figure 15 highlights that 13 of the 15 publically owned non-financial corporations have achieved a positive ROE for 2019. Given that the levels of ROE can be quite sector specific, the levels vary considerably from highs of 28.4 per cent in the energy sector to lows of 3.2 per cent in the Maritime transport sector. Corporations such as Eirgrid, Shannon Group, IAA, DAA and Shannon Foynes Port have all experienced double digits level of return on equity at end-2019.

Two corporations reported a loss for 2019, Bord Na Móna and the CIÉ Group. The second consecutive loss reported by Bord Na Móna. However, Bord Na Móna are undergoing a period of transition, moving toward a more green renewable path to assist in Ireland's strategy of reducing our carbon footprint while also having reduced net debt by €53 million in 2019, a significant 70 per cent reduction in one year.

¹⁶ Universities are excluded from the analysis.

Figure 16: public non-financial corporations net income and equity 2019, per cent



For presentational purposes, charts represent different positive scales of net income and equity.
 Port of Waterford is excluded for presentational purposes but very much reflects Galway port in this analysis.
 Bubble size relates to return on equity.
 Source: Department of Finance calculations

3.22 Financial corporations

Historically, public financial corporations consisted of the CBol, VHI and a financial subsidiary of An Post. With the inclusion of AIB and PTSB in 2010, a significant level shift occurred in terms of balance sheet size and sector contribution to PSNW. As the inclusion of the banks in the public sector could be longer than otherwise anticipated – unless the State can achieve a good return for the taxpayer¹⁷, and together with both the CBol and VHI having important public policy objectives, it is sufficient to focus on the financial performance of the two banks.

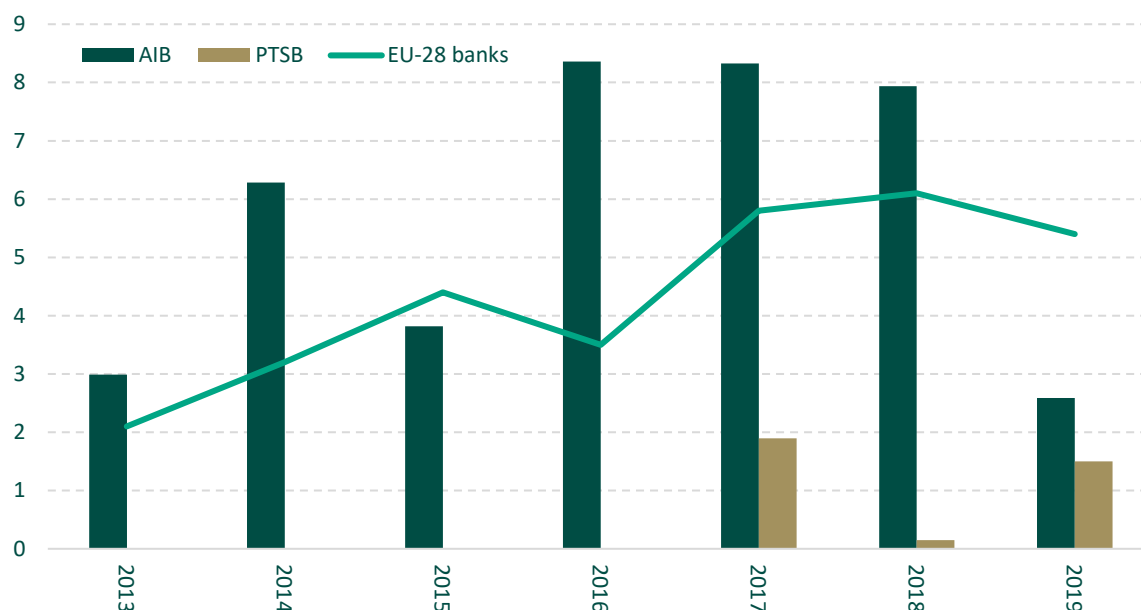
AIB returned to profitability in 2013. Net income for AIB returned to pre-crisis levels from 2016-2018, however, while continuing to deal with the legacy of the financial crisis, profits has been significantly impacted for 2019 – AIB setting aside €300 million regarding the tracker mortgage review.

PTSB has reported profits for the third consecutive year. However, the decline in operating income in 2019 as a result of the low interest rate environment lead to a decrease in profits by approximately €20 million when compared to 2018. PTSB has completed the Tracker Mortgage Examination in May 2019 and continues to reduce non-performing loans, €600 million in 2019 which leaves just over €1billion of non-performing loans.

ROE is a key indicator to assess the attractiveness for investors to invest in the banking sector. In time, with the aftermath of the Covid-19 crisis more transparent and together with the challenges from the low interest rate environment and from technology such as fintech, tackling these challenges successfully may result in reducing operational costs to boost returns while heavily investing in software to compete with consumer demands. However the banks respond to these challenges, will influence how quickly the State will be able to exit its remaining bank investments.

¹⁷ Minister of Finance has stated many times that there is no great desire to remain an active shareholder of the banks and will liquidate the State's position when the best return for the taxpayer can be achieved.

Figure 17: banks return on equity, per cent



Return on equity = profit after tax as a percentage of average equity

Source: Department of Finance calculations & the European Banking Federation

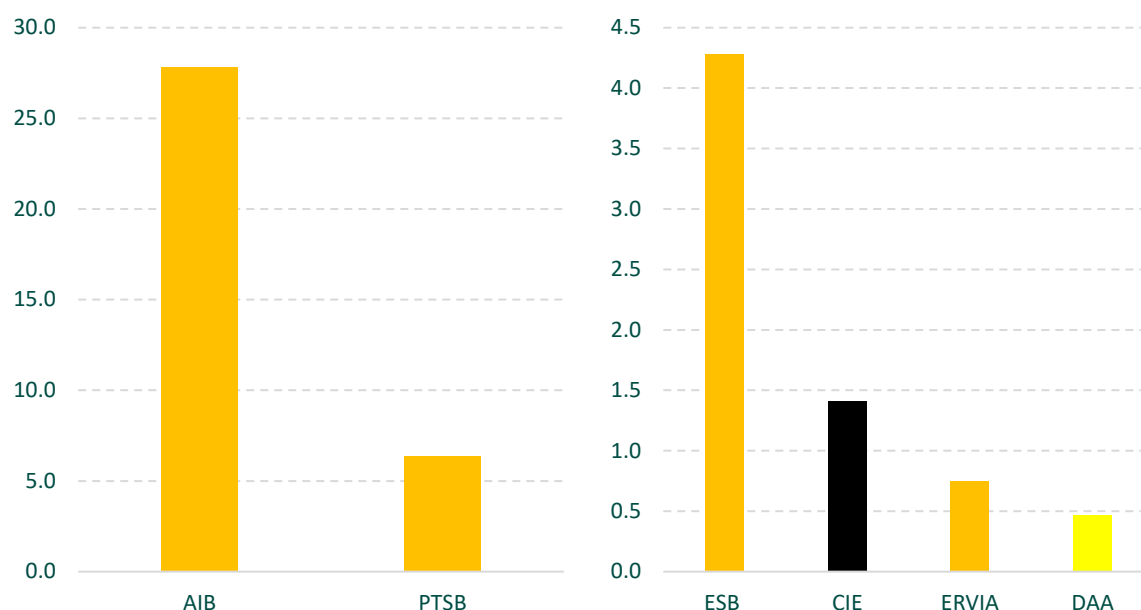
3.3 Potential fiscal risk

The public corporations balance sheet, over the period 2000-2019, have made positive contributions annually to Ireland's PSNW. However, public corporations can constitute a potential fiscal risk. To investigate the financial soundness of each corporation, we perform a high-level financial assessment of the major corporations in the public sector. Box 4 and Box 5 set out the methodology we use to make the high-levels assessment of the non-financial and financial corporations respectively, and figure 17 provides a summary. Tables A2 and A3 in Annex 1 show the results for each metric and a score assigned to each metric from 0 to 4, where 0 indicates a most satisfactory result while the increasing order from 0 to 4 represents a less satisfactory result. An average of equal weighting is taken to reflect the overall assessment. If an average is between two colour coded assessments, a conservative approach is taken.

Overall, the risk posed by public corporations is low. The outstanding liabilities of public corporations which fail the key indicator test amounted to 1.4 per cent of GNI* in 2019 - modest considering general government revenue accounted for 41.7 per cent of GNI* in 2019.

Profitability proves to be a challenge in the banking sector for 2019, with a return on tangible equity of 3.6 for AIB and a return on equity of 3 per cent for PTSB. Nonperforming loans, although the worst performing indicator for both AIB and PTSB, continues to decline and by end-2019, AIB and PTSB nonperforming loans stood at 5.4 and 6.4 per cent respectively, closing in on the European average which stood at 3.2 per cent in Q4 of 2019. A considerable improvement from the highs in 2013 of 33 per cent for AIB and 28 per cent for PTSB. The capital adequacy ratio for both AIB and PTSB stood at 17.3 and 17.6 per cent at end-2019, while the loan to deposit ratio were 85 and 91 per cent for AIB and PTSB respectively with both indicators comparing favourable to European standards.

Figure 18: outstanding public corporation liabilities end-2019, per cent of GNI*



Each corporation is colour coded to reflect the overall risk assessment.
Source: Department of Finance calculations

Outstanding liabilities are heavily concentrated for non-financial corporations. The ESB's outstanding liabilities for 2019 are greater than the combined outstanding liabilities of the remaining corporations when universities are excluded.

With a debt ratio just under 120 per cent, CIÉ has a rating of black, indicating the company is highly leveraged with reduced financial flexibility. ESB has a current ratio of less than 1 but has substantial access to credit facilities with a number of financial institutions to safeguard against any liquidity issues that may arise.

Box 4: Key Indicators for Conducting an Initial, High-level Assessment of Financial Soundness of Non-financial Public Corporations

For the non-financial public corporations, the high-level assessment is based on the following four key financial indicators:

Profitability

Return on equity: Determines the relationship between profit and equity and indicates whether the company is generating profits and whether these are in line with commercial rate of return. For loss making companies, it indicates how quickly the equity is being eroded.

>15%	8%-15%	0%-8%	-10-0%	<-10%
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Solvency

Debt ratio: Determines the relationship of liabilities to assets and indicates whether the company is solvent (assets are larger than the liabilities) and the degree to which the company is leveraged. Highly leveraged companies have less financial flexibility.

<30%	30%-50%	50%-80%	80%-100%	>100%
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Debt to EBITA: Determines the relationship between debt to profit and indicates the company's ability to services its debt from operating cash flows.

<1.5	1.5-2	2-3	3-5	>5
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Liquidity

Current ratio: Determines the relationship of current assets and current liabilities and indicates the company's ability to meet its short-term liabilities using its short-term assets.

>2	1.5% - 2	1.2 - 1.5	1 - 1.2	<1
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The overall rating was calculated based on a number of ratios that were rated in each category.
Sources: Standard & Poor's Rating Service (2013) Corporate Methodology and Department of Finance analysis.

Box 5: Key Indicators for Assessing Financial Soundness of Public Banks

For the financial public corporations, the high-level assessment is based on the following four key financial indicators:

Profitability

Return on equity: Indicates whether the bank is generating profits. For loss making corporations, it indicates how quickly the assets are being eroded.

>10%	5%-10%	0%-5%	-5-0%	<-5%
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Capital adequacy

Capital adequacy ratio: Indicates whether the bank is solvent and the extent to which the bank has adequate capital reserves to absorb losses.

>15%	12%-15%	10%-12%	8%-10%	<8%
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Quality of loan Portfolio

Nonperforming loan ratio: Indicates the proportion of the loan portfolio which is non-performing, which can be an indication of the quality of the bank's credit assessment process

<1%	1%-2%	2%-5%	5%-10%	>10%
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Liquidity

Loan to deposit ratio: Indicates the bank's reliance on its own deposits to make loans to customers, without outside borrowing and its exposure to a sudden reduction of liquidity in the capital markets.

>100%	80% - 100%	60% - 80%	50% - 60%	<50%
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The overall rating was calculated based on a number of ratios that were rated in each category.
Sources: Standard & Poor's Rating Service (2013) Corporate Methodology and Department of Finance analysis.

3.4: Summary

Overall, Ireland's public corporations are financially sound and in good shape up to end 2019. At an aggregated level, the public corporation balance sheet has made positive contributions to PSNW each year for the last 20 years, see figure A12 in Annex 3. At an individual level, only one corporation has failed the high level financial assessment for 2019, while the majority of Ireland's public corporations have been largely profitable over the last 20 years, maintaining a solid financial position, and are subject to regular monitoring¹⁸. See figure A13 in Annex 3 for public corporations net lending/net borrowing from 2000-2019.

¹⁸ NewERA provides financial and commercial advice to Government Ministers and Departments in relation to shareholdings in State-owned companies. <https://www.ntma.ie/annualreport2019/downloads/8953-NTMA-Annual%20Report-2019-NewERA.pdf>

Section 4: Intertemporal Public Sector Balance Sheet

4.1: Overview

The most valued asset of any government is the ability to raise revenue via taxation. To compile an intertemporal public sector balance sheet, the present values of future revenue and expenditure are added to the static public sector balance sheet. Thus, expenditure levels and how they are financed play a key role.

The vast bulk of general government expenditures are financed via taxation. Gross voted expenditure which consists of current and capital expenditures account for approximately 80 to 85 per cent of the overall general government expenditure. The remaining expenditures is from non-market¹⁹ bodies who have own resource revenue to finance a portion of their expenditure. These include corporations such as Irish Rail etc.

As government policy responds to demographical shifts, most notably aging pressures into the future, expenditure levels will vary. Pension²⁰ and health expenditures are core expenditures that will be likely to increase as a result of an aging population and people living longer lives.

In Ireland, pensions are funded via a pay as you go model which essentially means, pensions are paid from taxes collected that year as opposed to a pre-funded pension fund. Pension reforms that were due to take place in 2021 have now been reversed. These reforms would have increased the pension age from 66 to 67 in 2021 followed by a further increase in the pension age to 68 in 2028. Following this decision, a pension commission has been established to consider sustainability and eligibility issues in respect of State pension arrangements.

Health reforms are also underway in Ireland via Slaintecare which is a 10 year programme to transform health and social care service. The Slaintecare report²¹, which has achieved a cross political party consensus, outlines that for this reform to be successful, additional funding for health will be required. As health and long-term care expenditure increase to achieve the necessary reforms to provide a better health system for an aging population, they will be largely funded via taxation - impacting the future fiscal path.

To be able to assess how key policy decisions taken by the government such as pension and healthcare reforms impact the PSBS will be important to plan for a sustainable future. By implementing a balance sheet approach and looking at the future fiscal path, this framework allows an analysis of various policy scenarios to determine their effect on the net worth measure. However, this analysis comes with health warnings in terms of the assumptions used to forecast the fiscal path and the relevant macroeconomic variables.

To construct a long-term fiscal path, medium-term macroeconomic assumptions from Budget 2021 are implemented up until 2021 and long-term projections (beyond 2021) rely on macroeconomic assumptions from *"The 2021 Aging Report"*²² by the European Commission. Fiscal revenues is assumed to remain constant relative to modified Gross National Income (GNI*) and expenditure is assumed to vary in line with aging costs, see Annex 2 for more detail.

Our preferred measure is the PSFNW for long-term analysis, mainly due to the fact that running a deficit can be used to finance non-financial assets and in turn can lead to revenue streams such as national

¹⁹ An entity is said to be non-market if they do not charge economically significant prices. A price is said to be economically significant when it has a substantial influence on the amounts of products the producers are willing to supply and on the amounts of products that the purchasers wish to acquire.

²⁰ Pensions includes the State pension and public sector pensions.

²¹ <https://assets.gov.ie/22609/e68786c13e1b4d7daca89b495c506bb8.pdf>

²² https://ec.europa.eu/info/publications/2021-ageing-report-underlying-assumptions-and-projection-methodologies_en

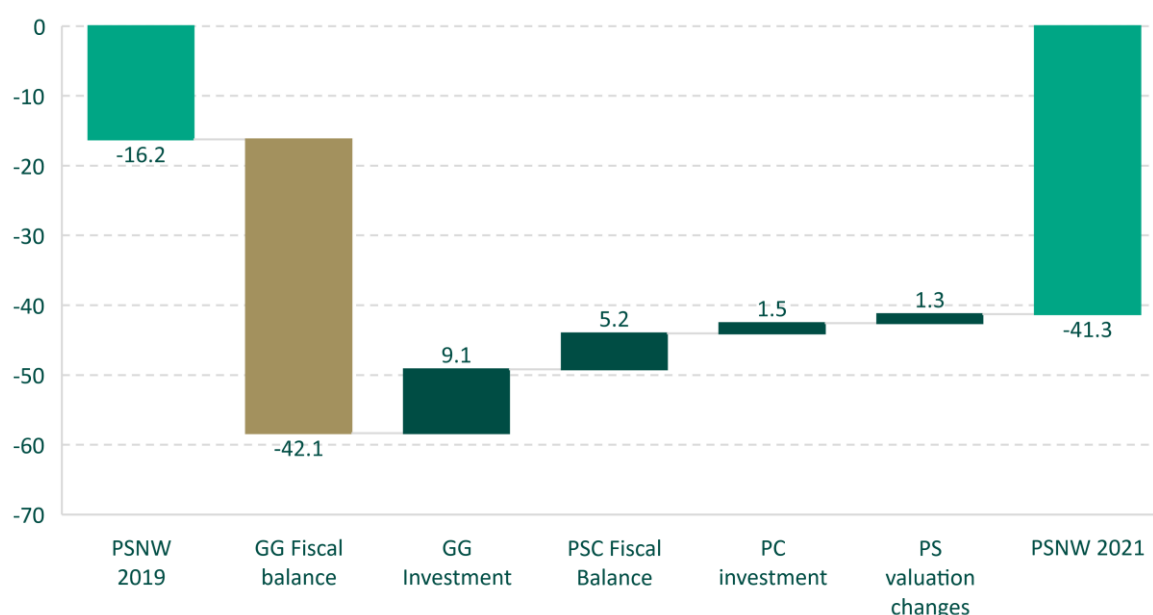
tolls on roads etc. and if the more preferred metric for the static balance sheet, PSNW is used, which includes non-financial assets, a double count can occur.

A negative PSFNW indicates that the long-run sustainability of current fiscal policies will eventually have to change to fulfil the budget constraint. Therefore, for illustrative purposes, we look at various scenarios for the future fiscal path and the impact each scenario has on PSFNW. It is also worth noting that targeting PSFNW via policy can add safety buffers in times of unprecedented shocks to the economy as witnessed during the GFC and the current pandemic.

4.2: Medium-term fiscal path

The global pandemic continues to have an adverse effect on public finances. In absent of such a pandemic, in more normal times, the Department of Finance disseminates medium-term (t-1 to t+3 years) fiscal forecasts biannually. Due to the high-level of volatility, caused from different levels and durations of lock downs, the Budget 2021 fiscal forecasts extend only to 2021. Incorporating these fiscal forecasts to reflect the medium-term fiscal path, figure 19 below highlights the impact on PSNW for 2021.

Figure 19: decomposition of PSNW incorporating Budget 2021 fiscal forecasts, € billions



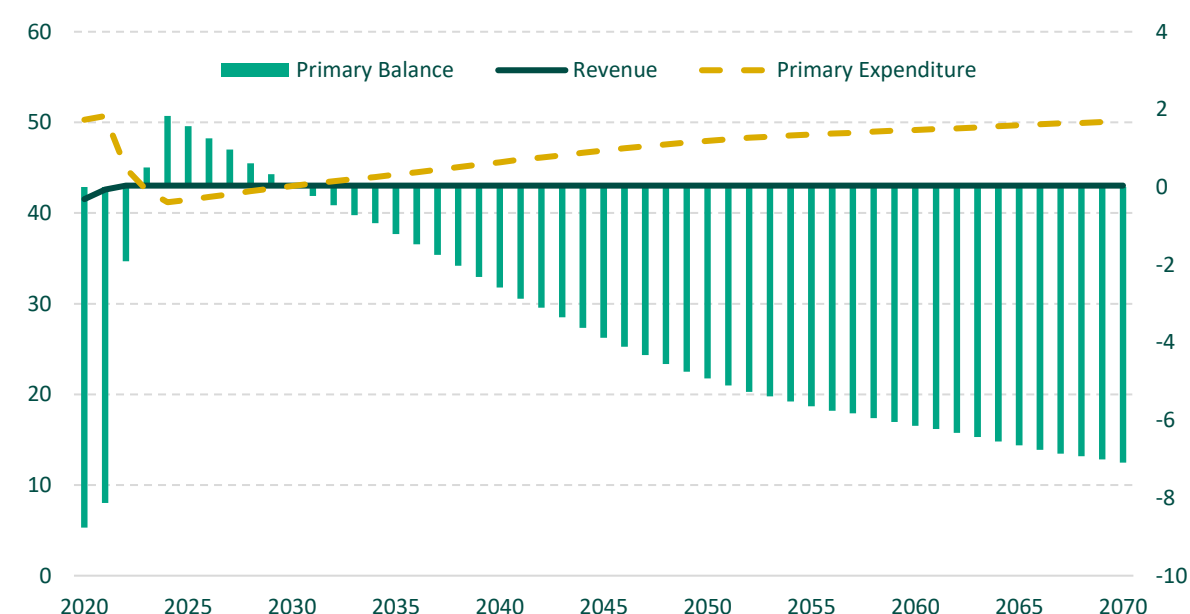
Source: Department of Finance calculations

4.3: Long-term fiscal path

For the long-term fiscal path, four scenarios are considered. Firstly, a baseline scenario where the future fiscal path represents a no policy change. That is, as age related expenditure increase to respond to changing demographics, the primary balance evolves naturally with no government policy to raise taxes or reduce expenditure levels to improve the primary balance. All scenarios are constructed using the medium-term Budget 2021 forecasts, thus, include the Covid-19 shock and are based on the assumption that the public finances will approach a near balanced budget by 2024. The near balanced assumption by 2024 is taken to reflect the views expressed by the Minister of Finance in response to the large general government deficits forecasted in Budget 2021 as a result of the government providing the necessary supports to households and firms to mitigate the worse effects of the pandemic. An important assumption, as without it, the primary deficit would explode without this correction.

Figure 20 highlights the fiscal path under the baseline assumptions. One notably feature of figure 20 is the steep declining pattern of the primary balance over the long-term, which is driven by Ireland's rapidly aging population through to 2070, see figure A2 in Annex 2.

Figure 20: long-term fiscal variables under baseline assumptions, per cent of GNI*



Left axis reflects revenue and primary expenditure, right axis reflects primary balance

Source: Department of Finance calculations

Scenario two includes structural reform of pension eligibility – the qualifying pension age was set to increase to 67 in 2021 followed by an increase in the pension age to 68 in 2028. This scenario presents an opportunity to assess if this reform was to happen, how this may impact the PSBS into the future and indicates a €50bn²³ differential between pension reform going ahead and being reversed, in nominal terms out to 2070.

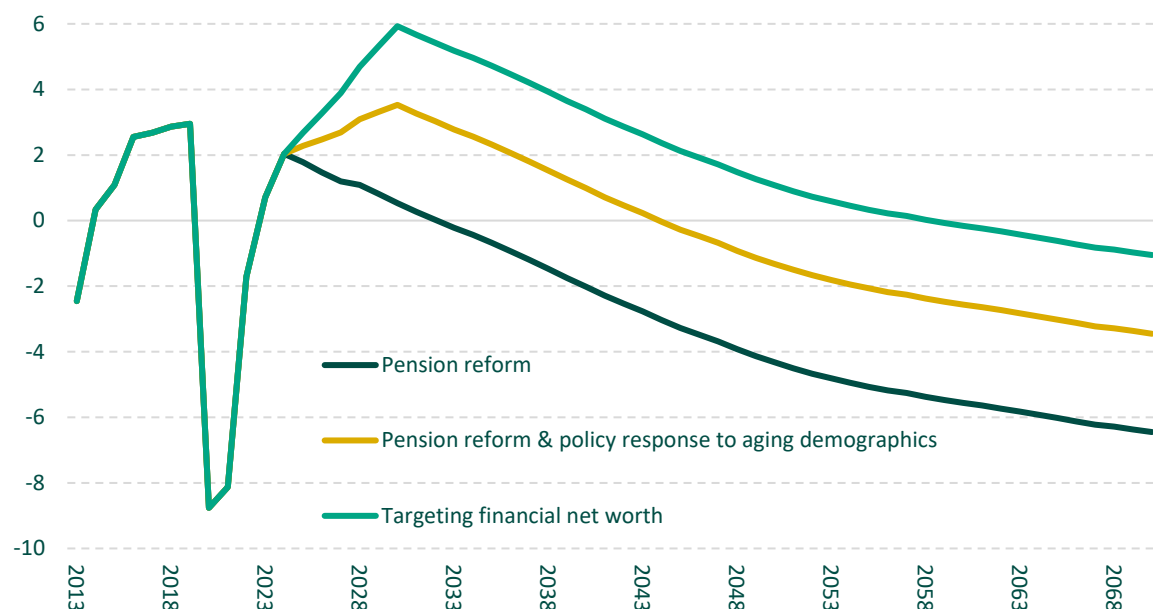
The third and fourth scenarios look at two policy responses. The third scenario is a policy response to the aging pressures on the public finances. This policy looks to reduce primary expenditure by 0.5 per cent of GNI* from 2025 to 2030.

The fourth scenario, a more ambitious response, sets a policy to reduce primary expenditure by 0.9 per cent of GNI*. This reduction is implemented to target an intertemporal PSFNW of 67 per cent of GNI*

²³ This figure is based on a fixed discount rate of 4 per cent.

which would be 12 percentage points lower than the static PSFNW is for 2019. The reduction of 0.9 per cent of GNI* still allows general government expenditure to grow on average by 1.9 per cent year-on-year. Figure 21 shows the trajectory of the future fiscal paths under the various scenarios.

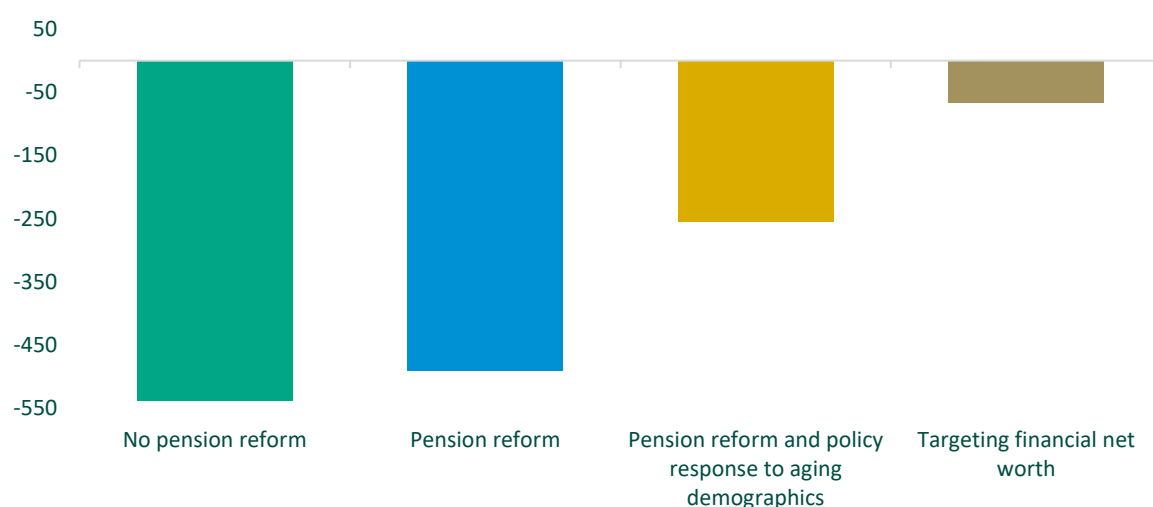
Figure 21: long-term fiscal variables under future fiscal path scenarios, per cent of GNI*



Source: Department of Finance calculations

By varying the future fiscal path under these informative scenarios, allows one to gauge the impact of policy proposals on the PSBS. Figure 22 below, illustrates the results and highlights the benefit of acting early to combat demographical pressures. In the absence of pension structural reform, Intertemporal PSFNW deteriorates by 49 per cent of GNI* while implementing a moderate policy response to aging pressures early in the cycle can improve Ireland's intertemporal PSFNW by an additional 284 per cent of GNI*, both comparisons are in respect to the baseline.

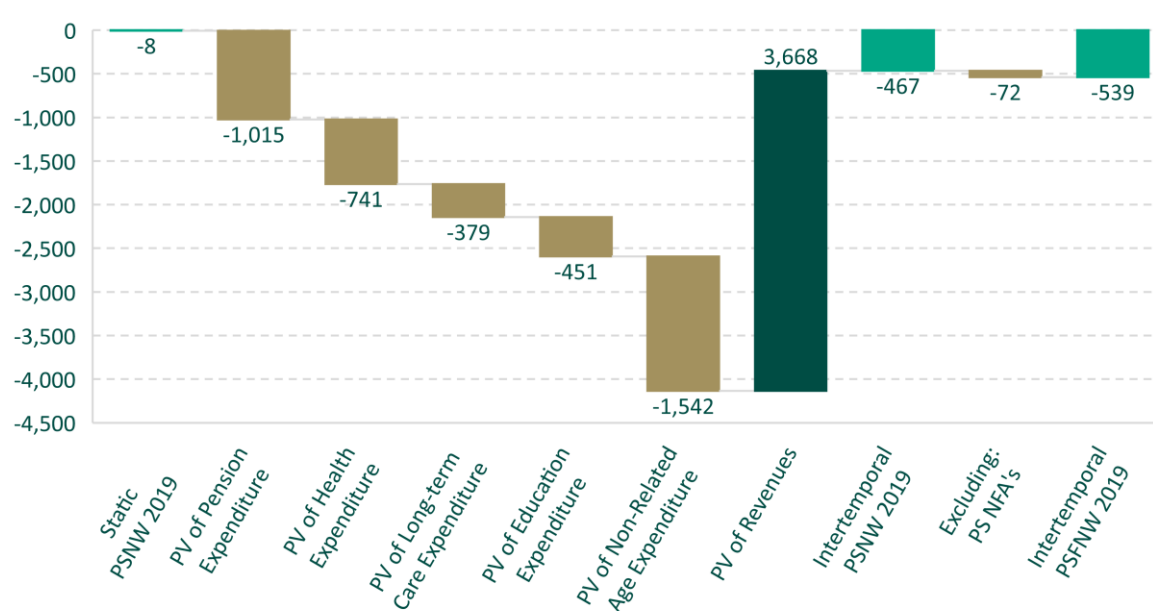
Figure 22: intertemporal PSFNW under various scenarios, per cent of 2019 GNI*



Source: Department of Finance calculations

Targeting financial net worth could potentially be a policy designed to focus policymaker's on how the future fiscal path will impact the balance sheet metrics. For example, multi-year budgetary processes occur for Member States of the Euro Area with constraints around deficits and debt thresholds. Implementing similar targets for balance sheet metrics raises a number of interesting points such as the following: deficits are not necessarily a bad thing if they are used to finance capital infrastructure with a high level of return, while a strict adherence to deficit targets may dampen public investment which in turn may impact economic growth, thus, a balance sheet approach will provide greater transparency of what's driving the deficits or provide a positive argument for running a deficit in the first instance. In addition targeting financial net worth can build fiscal buffers to safeguard against tail wind shocks to the economy and intergenerational equity. This policy has been implemented in New Zealand²⁴ with great success and has transformed the solvency of their public sector balance sheet. See figure 23 for the compositional movements of the baseline scenario.

Figure 23: components of intertemporal PSFNW under baseline assumption, per cent of 2019 GNI*



Source: Department of Finance calculations

4.4: Summary

Ireland's PSBS over the short-term will be severely impacted as a result of the global pandemic, largely driven by general government deficits due to financial supports provided by government to households and firms to mitigate the worse effects of the pandemic.

Over the long-term horizon, the future fiscal path can be a source of strength or weakness depending on which path is taken. The intertemporal PSBS can be an important additional tool for fiscal analysis. By utilising the intertemporal PSBS, policymakers will be able to assess how long-term policy proposals such as NDP and pension and healthcare reforms will impact the PSBS into the future and if such policies are sustainable and deliver on intergenerational equity.

²⁴ https://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/pubs/rp/RP9596/96rp36

Section 5: Conclusion

The analysis in this paper presents a number of key findings relating to Ireland's PSBS. Firstly, Ireland's PSBS, having entered the GFC from a position of strength, both by historical and international standards, was severely impacted by the crisis. General government deficits were largely responsible for the deterioration in PSNW while public corporations emerged largely unscathed from the crisis. In fact, the risk to the PSBS weighed more heavily towards private corporations and as a consequence via government financial intervention, an expansion of the public sector ensued.

Secondly, public sector investment was seriously dampened as a result of the GFC and a significant gap remains from pre-crisis levels. With government policy ramping up public investment with the launch of the NDP in 2018, monitoring of the newly developed public sector investment metric will provide evidence based evaluation of such policies.

Thirdly, public corporations have proved to be a source of strength²⁵ for Ireland's PSBS. Collectively, public corporations have made consistent positive contributions to PSNW while individually they pose a low fiscal risk to the Exchequer.

Lastly, expanding fiscal reporting and analysis to include the wider public sector allows policy makers to use the intertemporal public sector balance sheet to evaluate the fiscal position under various future fiscal paths. This paper highlights that a policy response will be vital to address demographical shifts while acting early can significantly build fiscal buffers.

Now that Ireland has joined an elite group of countries utilising a balance sheet approach for fiscal sustainability analysis and future fiscal planning, it is imperative to implement this approach as an anchor in our fiscal sustainability framework. The Government decision taken in September 2019 to move towards a whole set of Government accounts on an accrual basis will enhance and improve, over time, the quality and timely manner of public sector statistics.

²⁵ In the event that loss making public corporations existed prior to the establishment of the Register of Public Sector Bodies, this could impact the analysis but also reinforces the argument of the importance of having a PSBS to capture such events.

Annex 1

Methodology for compiling a Public Sector Balance Sheet for Ireland

Framework: The European System of National Accounts 2010 (ESA 2010) methodology.

Scope: Under the ESA 2010 methodology, the public sector can be divided up into three subsectors, public financial corporations, public non-financial corporations and general government. The Central Statistics Office (CSO) compile a general government balance sheet under ESA 2010 methodology. The public sector balance sheet builds onto the general government balance sheet by extending the scope to include the public financial and non-financial corporations.

Coverage: Based on the “*Register of Public Sector Bodies Ireland 2018*”²⁶ published by the CSO in April 2019, the coverage of entities included for the financial public corporations is 100 per cent and for non-financial public corporations is approximately 72.5 per cent which equates to around 99 per cent of the overall size of the non-financial public corporation balance sheet, see table A1 below.

Data: The data for the General Government balance sheet is taken from the CSO Stat Bank. The data for both the financial and non-financial public corporations is taken from annual reports. For consolidation purposes, a number of entities were surveyed in relation to deposits and debt placements with financial institutions.

Consolidation: A public financial corporation balance sheet is compiled which removes cross-holdings which may exist between the financial corporations, which includes the Central Bank of Ireland, to give the true magnitude of each balance sheet instrument. This approach is replicated for the non-financial public corporations, however, unlike the financial corporations, cross-holdings are rare between non-financial corporations. This allows each subsectors to be analysed in isolation to reflect their contribution to the wider public sector balance sheet. Accounting for the cross-holdings between the three subsectors, a consolidated public sector balance is compiled.

Table A1: public corporations covered in Ireland’s public sector balance sheet

Non-Financial Corporations	Total assets, 2019 (In Euro millions)	Central government shareholding, per cent
An Post	1,014	100
Bord na Móna	475	95
Coillte	1,719	100
Córas Iompair Éireann (CIÉ)	3,151	100
Electricity Supply Board (ESB)	14,159	95
Ervia	2,775	100
Eirgrid	1,247	100
Dublin Airport Authority (DAA)	2,639	100
Irish Aviation Authority (IAA)	432	100
Shannon Group	259	100
Ports	1,016	100
Universities	10,226	N/A
Financial Corporations		
Central Bank of Ireland (CBol)	116,376	100
Allied Irish Bank (AIB)	69,979	71.05
Permanent Trustees Savings Bank (PTSB)	15,192	74.92
Voluntary Health Insurance (VHI)	2,061	100

[^] Includes Dublin, Cork, Galway, Shannon and Waterford Ports

^{^^} Includes Trinity, DCU, UCD, UCC, UL, NUIG & NUIM

Source: Financial Statements of the above mentioned corporations

²⁶https://www.cso.ie/en/media/csoie/methods/governmentfinancestatisticsannual/Register_of_Public_Sector_Bodies_in_Ireland_October_2019.pdf

Table A2: non-financial corporation's high-level financial assessment metrics

	Return on Equity	Debt Ratio	Debt to EBITA	Current Ratio
ESB	9.0	72.5	3.8	0.7
CIÉ	0.0	119.9	4.5	0.7
Ervia	9.5	65.0	3.9	1.1
DAA	12.2	41.8	1.3	1.7
Scores based on above metrics				
ESB	1.0	2.0	3.0	4.0
CIÉ	4.0	4.0	3.0	4.0
Ervia	1.0	2.0	3.0	3.0
DAA	1.0	1.0	1.0	1.0

Scores range from 0 to 4, where green corresponds to 0, yellow for 1, orange for 2, red for 3 and black for 4
Source: Department of Finance Calculations

Table A3: financial corporation's high-level financial assessment metrics

	Return on Equity	Capital Adequacy Ratio	Non-performing loan ratio	Loan to deposit ratio
AIB	2.6	17.3	5.4	85.0
PTSB	1.5	17.6	6.4	91.0
Scores based on above metrics				
AIB	2.0	0.0	3.0	1.0
PTSB	2.0	0.0	3.0	1.0

Scores range from 0 to 4, where green corresponds to 0, yellow for 1, orange for 2, red for 3 and black for 4
Source: Department of Finance Calculations

Box A1: moving from opening to closing public sector net worth

The accounting identity 1) below illustrates the movement from opening to closing net worth.

$$1) \quad NW_1 = NW_0 + NOB_1 + OEF_1$$

Where NW = net worth, NOB = net operating balance and OEF = other economic flows.

Net operating balance (NOB) is the difference between revenue and expense while other economic flows primarily relate to volume and valuation changes. Net lending or borrowing (NLB) is the difference between revenue and expenditure; which includes expenses and the net acquisition of non-financial assets. NLB is often referred to as the "fiscal balance" or "deficit/surplus".

By the definition of net operating balance and net lending/borrowing, these can be denoted as follows:

$$2) \quad NOB_1 = Rev_1 - Exp_1$$

$$3) \quad NLB_1 = Rev_1 - (Exp_1 + Inv_1),$$

In which Rev, Exp and Inv corresponds to revenue, expense and net investment in non-financial assets respectively.

This allows us to rearrange 1) as follows;

$$NW_1 - NW_0 = NLB_1 + Inv_1 + OEF_1$$

Which reflects the change from opening net worth to closing net worth.

Annex 2

Medium-Term Projections: We construct a base-line forward projection of the PSBS. We project the PSBS forward to 2021 (medium-term) using Budget 2021 macro and fiscal variables. Table A4 summaries the Budget 2021 projections for key variables.

Table A4: key variables under baseline assumption

	2019	2020	2021
	<i>per cent</i>		
Nominal GNI* Growth	7.6	-5.1	2.7
	<i>per cent of GNI*</i>		
Fiscal balance	0.9	-10.7	-9.8
Primary balance	3.0	-8.8	-8.1
Revenue	41.7	41.5	42.6
Expenditure	40.8	52.2	52.4
Primary Expenditure	38.8	50.3	50.7
Interest Expenditure	2.1	1.9	1.7
General government gross debt	95.6	107.8	114.7
PS static net worth			
PS static financial net worth			
Memorandum item:			
Nominal GNI* (Euro Billions)	213,700	202,825	208,350

Source: Budget 2021 Fiscal and Economic Outlook

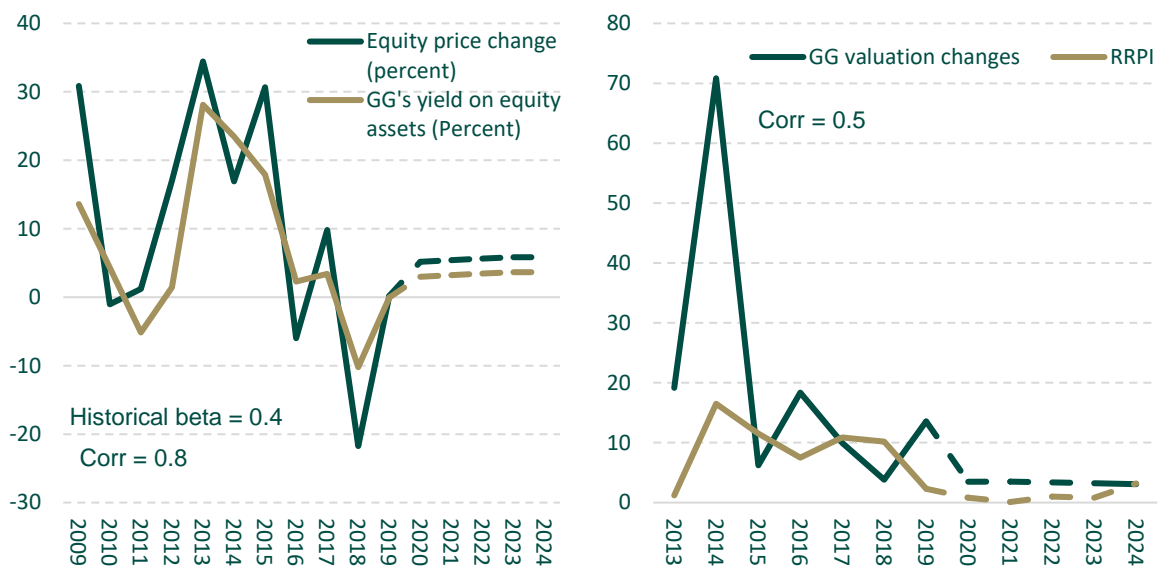
We make the following assumptions on future asset and liability transactions.

General Government: We assume that investment in debt securities, loans and equities follow the last 5 years average, while the stock of currency and deposits is assumed to remain constant relative to GNI*. Transactions in other assets are assumed to be zero. Transactions in liabilities are determined as the residual from the projected net lending path less transactions in financial assets.

Public corporations: We assume that the operating balance of public corporations (excluding the central bank) remains at a constant 0.6 percent fraction of 2019 GNI*, while net acquisition of non-financial assets are assumed to grow in line with National Development Plan investment forecasts for non-Exchequer bodies. The operating balance of the Central Bank of Ireland is held constant at its nominal value in 2019 and Central Bank of Ireland net acquisitions of non-financial assets are assumed to be zero. Transactions in financial assets are assumed to be growing with nominal GNI* so that transactions in financial liabilities are determined as a residual from public corporations' net lending.

To set up a complete PSBS, we also need to project valuation changes of public sector assets and liabilities: Setting up a baseline scenario of valuation changes allows us to simulate the impact of shocks through valuation changes, e.g. on equity prices. For the general government we proxy valuation changes of non-financial assets with the Residential Property Price Index and assume that valuation changes of financial liabilities are zero. Valuation changes of currency and deposit and other accounts receivable are proxied by the short-term interest rate. Debt securities' valuation varies inversely with the long-term bond yield. Valuation gains and losses of equities and financial derivatives are projected using equity price changes from the ISEQ 20 index. Other accounts are assumed to stay constant in nominal value. We project public corporations' balance sheets along the same lines.

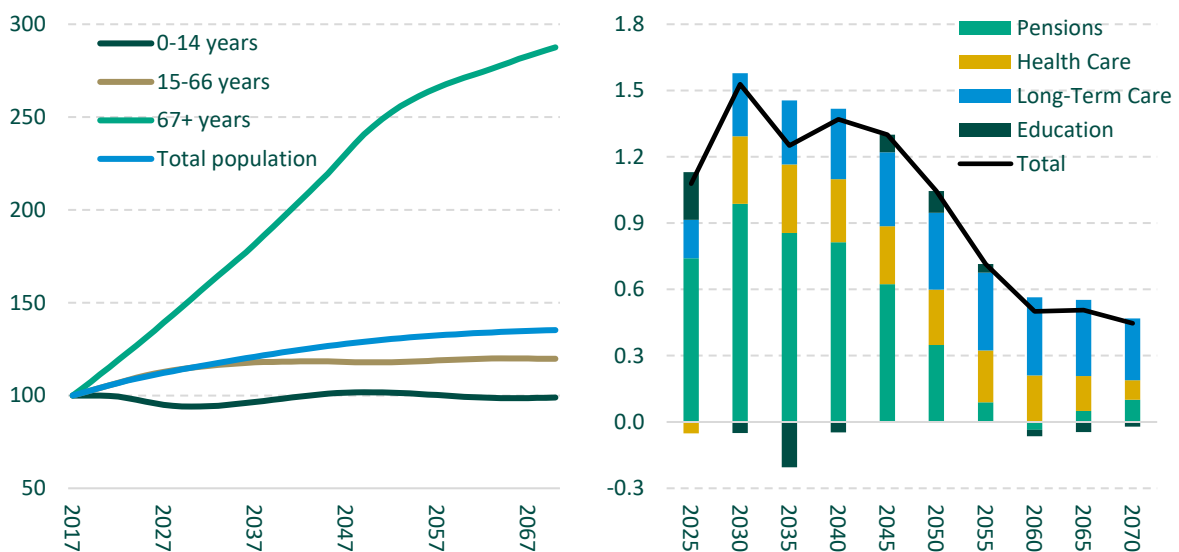
Figure A1: valuation of GG equity holdings and ISEQ 20 index (LHS), valuation of non-financial assets and house prices (RHS), annual percentage changes



Source: Department of Finance calculations

Long-term projections beyond 2021: We use nominal GDP growth rates produced from the macroeconomic assumptions for Ireland by the European Commission in the “*The 2021 Aging Report*” to project modified gross national income (GNI*) from 2021-2070. We assume that fiscal revenues remain at the projected level of 2021 of 43 per cent of GNI* until 2070. We use decomposed expenditure from the forthcoming aging paper by the Department of Finance which defines age related expenditure as the sum of public expenditure on pensions, healthcare, long-term care and education. Using these long-run projections we calculate the present value of future revenues and expenditure using a discount rate of 4 per cent, 2 per cent attributed to the long-term inflation rate and a 2 per cent real discount factor.

Figure A2: population by age group, index, 2017=100 (LHS), change in age-related expenditure (RHS), relative to 2020 in per cent of GNI*

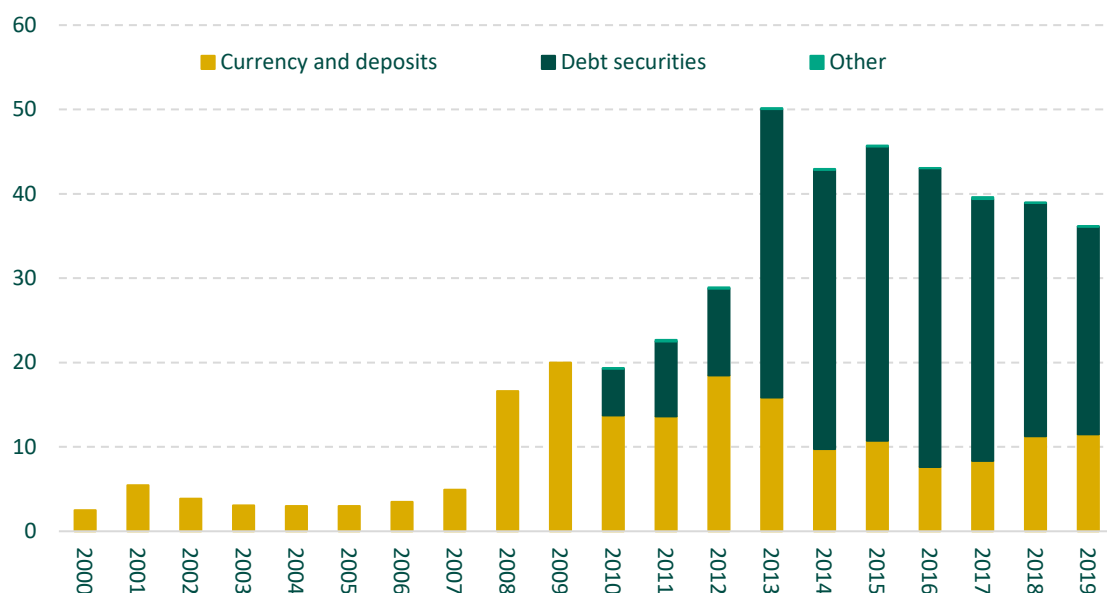


Source: Department of Finance calculations

Annex 3

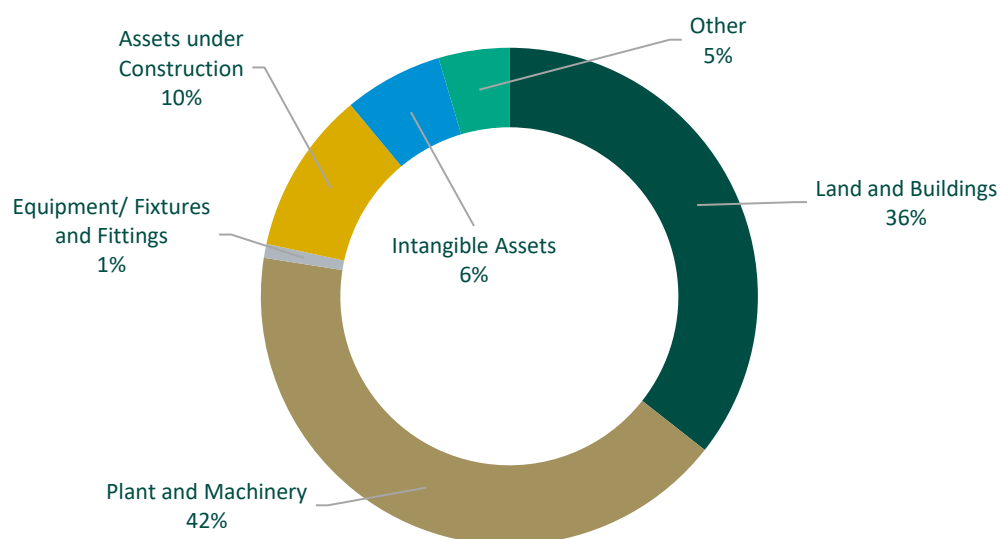
Additional graphs monitored by the Department of Finance

Figure A3: cross-holdings for public sector 2000 - 2019, per cent of GNI*



Source: Department of Finance calculations

Figure A4: composition of non-financial assets for public corporations, end-2019



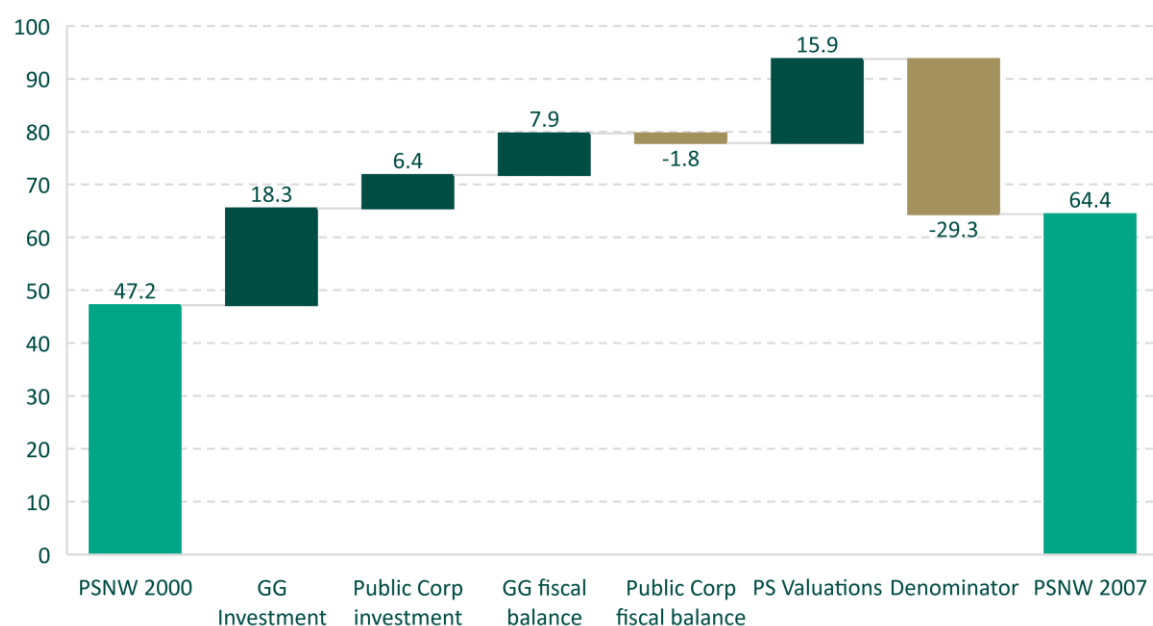
Source: Department of Finance calculations

Figure A5: evolution of non-financial assets in the public sector from 2000, per cent of GNI*



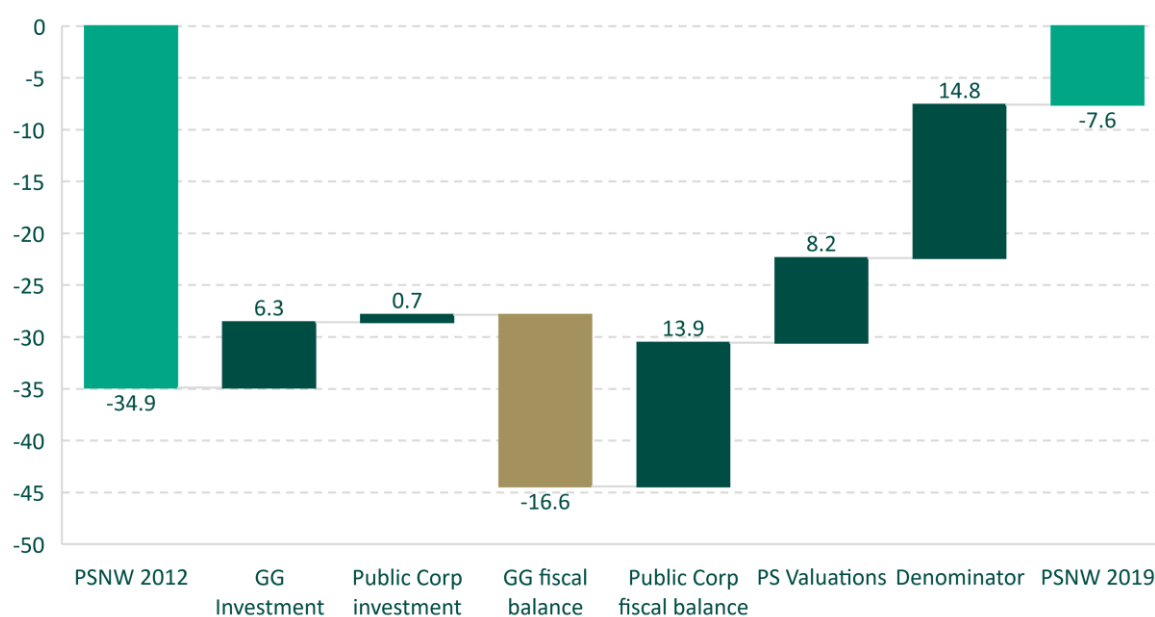
Source: CSO and Department of Finance calculations

Figure A6: decomposition of PSNW during the pre-crisis period, per cent of GNI*



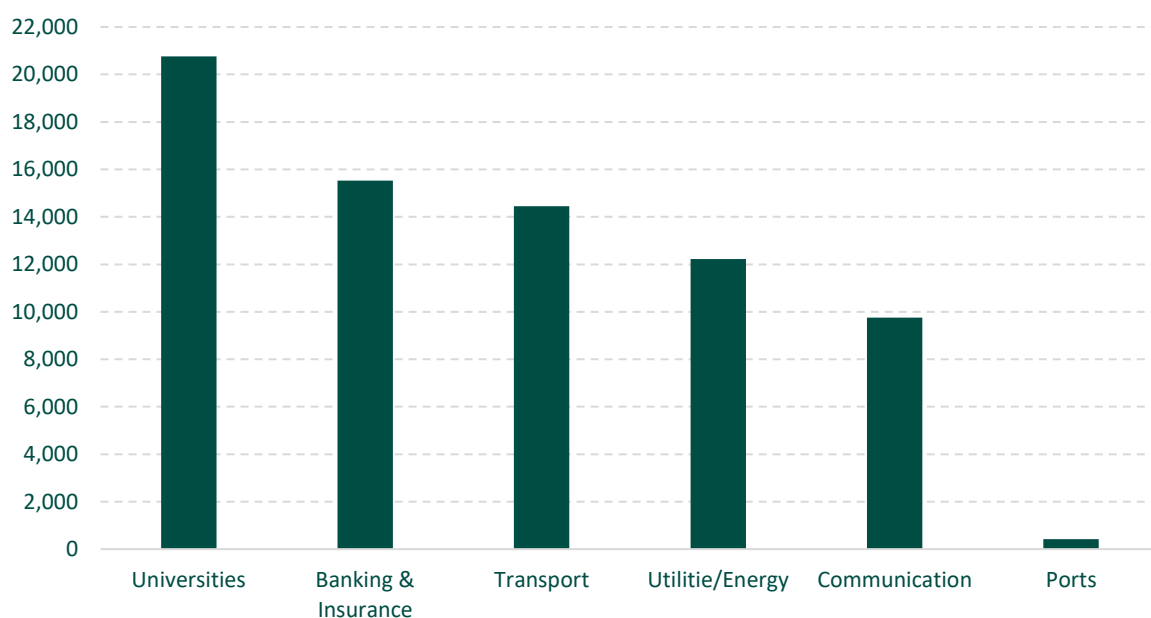
Source: Department of Finance calculations

Figure A7: decomposition of PSNW during the post-crisis period, per cent of GNI*



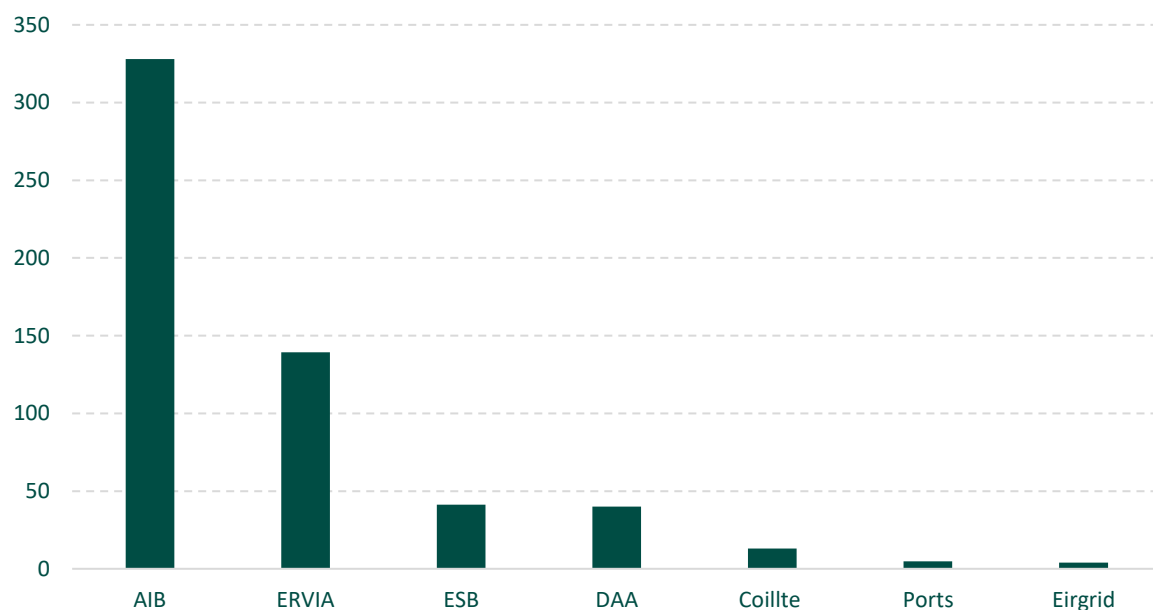
Source: Department of Finance calculations

Figure A8: number of employees in public corporations by sector end-2019



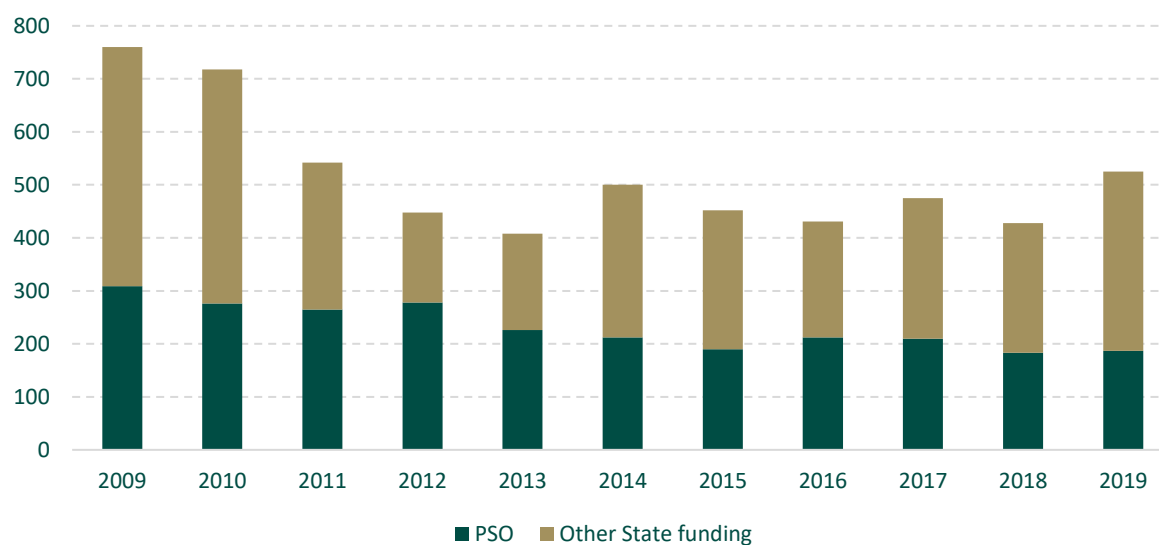
Source: Department of Finance calculations

Figure A9: dividends paid to the State for 2019, € millions



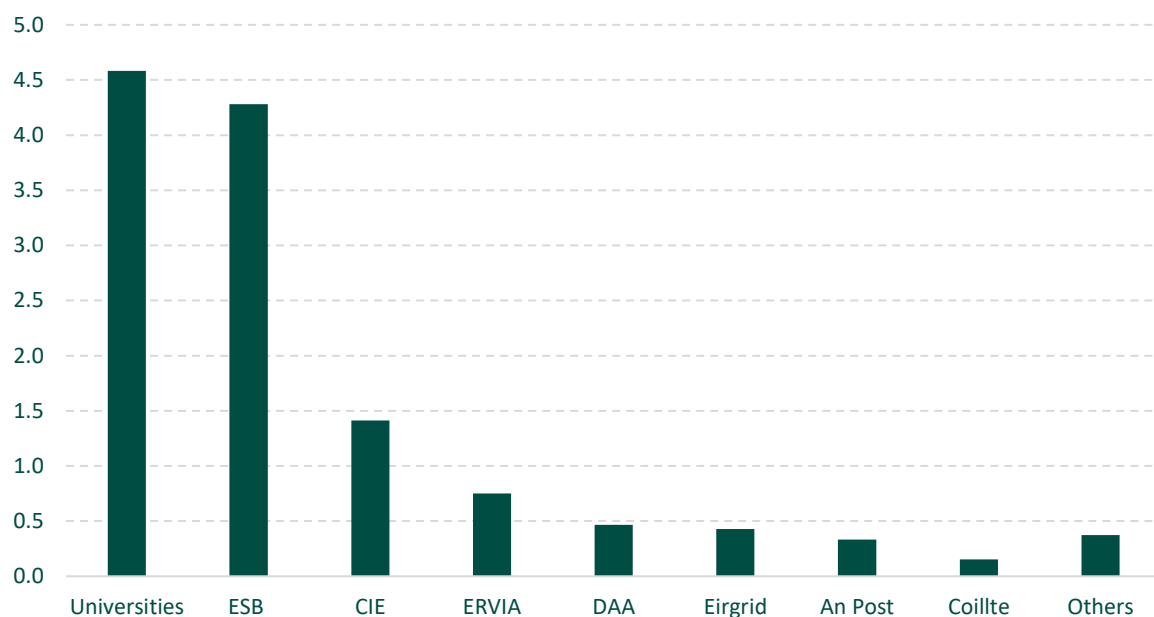
Source: Department of Finance calculations

Figure A10: total exchequer funding provided to the CIÉ Group 2009-2019, € millions



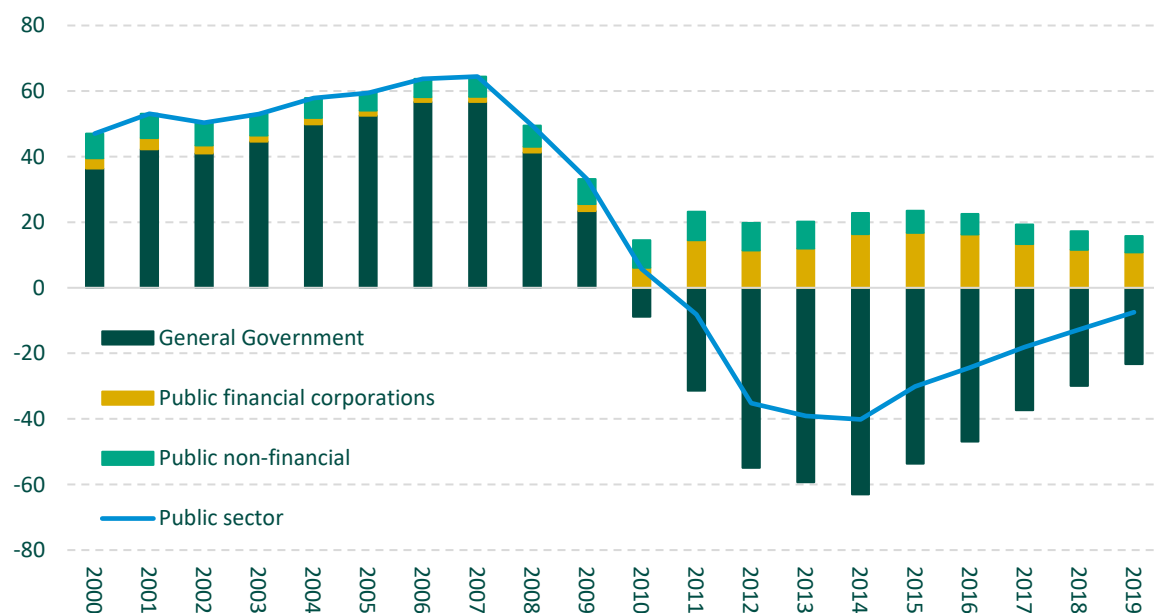
PSO = Public Service Obligation is income from the Exchequer for economically unviable routes CIÉ operate
Source: CIÉ Annual Report 2019

Figure A11: public non-financial corporation liabilities end-2019, per cent of GNI*



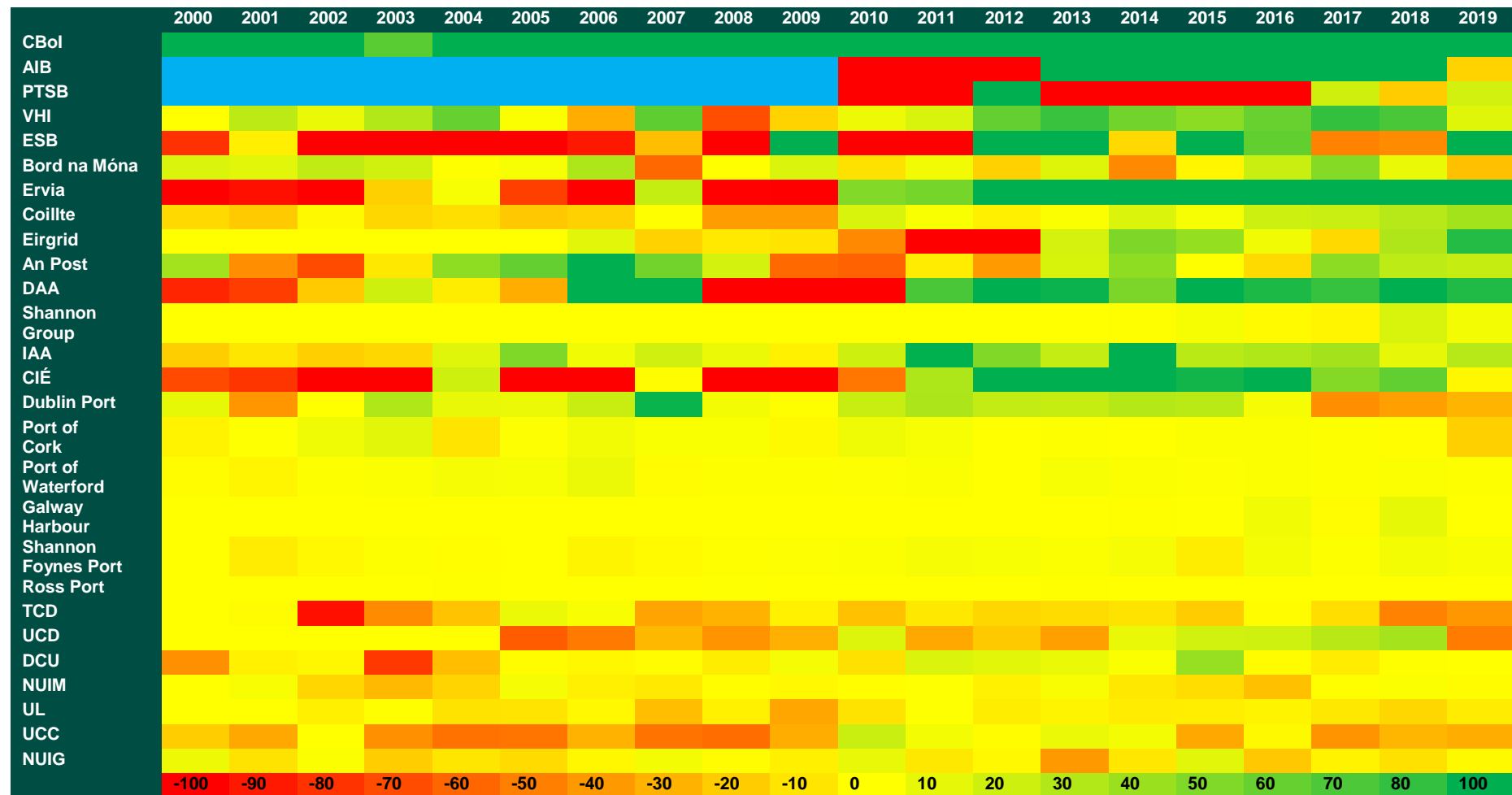
Source: Department of Finance calculations

Figure A12: sector contribution to PSNW from 2000, per cent of GNI*



Source: Department of Finance calculations

Figure A13: public corporations net lending/borrowing 2000 – 2019, € millions



Source: Department of Finance calculations



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