

Estimates of Foreign Assets and Liabilities for Ireland*

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Abstract

This paper calculates foreign assets and liabilities for Ireland that are more reflective of foreign activities of Irish-resident entities. This is accomplished by stripping from the Irish international investment position the intermediation component that arises from the activities of investment funds and special purpose entities and, to some extent, correcting distortions arising from redomiciled PLCs, intellectual property transfers and aircraft leasing. My estimations not only reduce substantially gross external positions, but also shrink the extent of Irish net foreign indebtedness from 280 to 80 per cent of modified gross national income.

Keywords: Ireland, foreign assets, foreign liabilities, international investments

JEL classification: F21, F34, F39

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1. Introduction

Table 4 shows end-2016 foreign assets and liabilities in per cent of GDP in a cross-section of advanced countries. In relative terms, Ireland is second only to Luxembourg and Malta. In absolute terms, foreign assets and liabilities of Ireland stood at €4887 and €5380 billion respectively, while the modified gross national income (GNI*) was just €176 billion.¹ Irish financial integration gives rise to well-known distortions to national accounts and balance of payments statistics (Fitzgerald 2018). These distortions are not reflections of incorrect applications of statistical standards, but rather the inability of current concepts to capture statistics related to the nature of activities of domestic entities. This paper fills one gap by providing estimates of the Irish international investment position (IIP) that are more reflective of foreign activities of domestic residents.²

Having a non-distorted measure of foreign asset and liabilities is important for a range of reasons. Net IIP is an important variable in many macroeconomic models; the magnitude of gross positions has a non-negligible impact on stock-flow adjustments; the level and the composition of the international balance sheet are important in understanding external vulnerabilities and the extent of international risk sharing; net IIP is an important determinant of equilibrium relative prices and, consequently, real exchange rates.

There are three main reasons that give rise to distortions in Ireland: activities of multinationals, such as intellectual property (IP) transfers, and aircraft leasing that boost foreign direct investment (FDI) assets/liabilities; redomiciled PLCs that boost portfolio equity liabilities and FDI assets; and market-based finance entities, such as investment funds and special purpose entities (SPE), and IFSC banks that have few linkages to the Irish economy. These entities engage in international financial intermediation, affecting both asset and liability sides of IIP.

Currently, a major research effort is underway by the Central Bank of Ireland in order

¹Due to unavailability of some data for 2017, the analysis in this paper is restricted to end-2016.

²While the methodology used in this paper does not provide the exact values of foreign assets and liabilities, I have chosen to use the words calculate and estimate interchangeably.

to understand better the Irish financial landscape. For instance, [Golden et al. \(2015\)](#) and [Lane and Moloney \(2018\)](#) provide a general overview of this landscape with an emphasis on market-based finance entities. [Barrett, Godfrey and Golden \(2016\)](#) provide some findings on Irish-resident special purpose vehicles. [Kelly and Osborne-Kinch \(2018\)](#) review developments in the Irish insurance industry. Related to these, [Lane \(2015\)](#) examines the funding side of the Irish domestic banking system.

By exploring granular balance-sheet data on financial corporations collected by the Central Bank of Ireland, I strip from the Irish IIP the international intermediation component arising from the activities of investment funds, special purpose entities and credit institutions. This paper also, to some extent, corrects distortions arising from redomiciled PLCs, intellectual property transfers and aircraft leasing. Previewing the results, unsurprisingly, the estimates of international balance-sheet items that reflect activities of domestic entities are reduced substantially. In particular, my estimations reduce the net external liabilities from €493 billion (or 280 per cent of GNI*) to €141 billion (or 80 per cent of GNI*).

The remainder of this descriptive paper is structured as follows. Section 2 lays out the accounting framework. Section 3 describes the sources of data and provides an overview of the official balance-sheet statistics, while section 4 describes the estimation results. Lastly, section 5 concludes.

2. Accounting Framework

2.1. International Investment Position

While the accounting framework described in this section is sufficiently general, I will approach it from the Irish perspective. To start, the net international investment position (*NIIP*) of a country is defined as the difference between foreign assets (*FA*) and foreign liabilities (*FL*). In turn, foreign assets and foreign liabilities are aggregates of various

functional categories:

$$\begin{aligned}
 FA &= FDIA + PEQA + PDA + ODA + DERA + OEQA + RES \\
 FL &= FDIL + PEQL + PDL + ODL + DERL + SDR
 \end{aligned}
 \tag{1}$$

where $FDIA(L)$, $PEQA(L)$, $PDA(L)$, $ODA(L)$ and $DERA(L)$ are stocks of foreign direct investment, portfolio equity and investment fund shares, portfolio debt securities, other debt instruments and financial derivatives. Furthermore, foreign assets are augmented with holdings of other equity assets ($OEQA$) and foreign exchange reserves (RES), while foreign liabilities also incorporate special drawing rights (SDR).³

At the most basic level, the functional categories of equity and debt securities, other debt instruments and financial derivatives can be broken down by institutional sectors: central bank (CB); deposit-taking corporations excluding the central bank (BANKS); general government (GG); and other sectors. The latter, in turn, is composed of other financial corporations (OFC), nonfinancial corporations (NFC), households (HH) and non-profit institutions serving households (NPISHs). Due to data availability, I aggregate the latter three sub-categories into a generic nonfinancial category (NF).

A further disaggregation of OFCs into insurance corporations and pension funds (ICPF), money market funds (MMF) and other other financial corporations (OOFC) for portfolio equity assets and portfolio debt assets is provided in the Coordinated Portfolio Investment Survey of the International Monetary Fund.⁴ Finally, the other other financial corporations category is an aggregate of investment funds (IF), financial vehicle corporations (FVC), special purpose vehicles (SPV) and a catch-all other category that reflects mainly treasury operations of nonfinancial corporations active in Ireland.⁵

³While positions in SDR and $OEQA$ are negligible, these categories are included in the formulas to ensure completeness of the presentation. For a further description of the functional categories and accounting principles see IMF (2009).

⁴For a discussion of the original dataset see Lane and Milesi-Ferretti (2008); for a discussion of enhancements to the dataset see Galstyan et al. (2016).

⁵The CPIS does not provide a breakdown at this level of disaggregation.

2.2. Distortions: Three Examples

This sub-section provides three hypothetical examples of distortions to IIP that arise from investment funds, redomiciled PLCs and IP transfers.

Table 1 presents an example of two investment funds established in country B. The hypothetical funds, established by a non-resident entity, start off with zero net asset value. Once authorised, the fund is seeded with capital and begins to amass assets/liabilities. In the case of Fund 1, 40 per cent of liabilities are *vis-à-vis* domestic residents, while 30 per cent of assets are invested in Country B. In contrast, all assets and liabilities of Fund 2 are *vis-à-vis* foreign residents. In this hypothetical example, I consider Fund 2 to be engaged in international financial intermediation and remove both assets and liabilities of the fund from IIP of Country B.

Table 2 describes an example of redomiciled PLCs. The top panel shows the original structure, which involves a headquartered entity (HQ) in country A. The HQ firm has total liabilities of €100: €50 *vis-à-vis* domestic residents, €10 *vis-à-vis* Country B and €40 *vis-à-vis* RoW. It is assumed that 90 per cent of assets are held locally, with the remaining 10 per cent allocated to ROW. Similarly, Firm 1 in country B has total liabilities of €50: €20 are *vis-à-vis* domestic residents, and €30 are *vis-à-vis* RoW. Only 10 per cent of assets are foreign. I assume that the act of redomiciling involves the merger of HQ and Firm 1 of Country B in a new entity: Firm 2 (bottom panel). The new firm is now domiciled in Country B. Post redomiciliation, Firm 2 has total liabilities of €150, of which €120 are foreign. Similarly, the value of foreign assets of Firm 2 is now €105. The revised foreign claims on Firm 2 reflect the distortionary effect of such redomiciliation on the IIP of Country B.

Finally, Table 3 presents an example of IP transfer to a subsidiary. Before the transfer, IP (€50) appears on the asset side of the balance sheet of Country A. After the transfer to a subsidiary in Country B, the value of the transfer is recorded on the asset side of Country A as FDI. On the other hand, the transfer raises external liabilities of Country B by €50, and is recorded as FDI liability *vis-à-vis* Country A. Meanwhile, the asset side of the balance sheet now records the transferred IP as local asset. Finally, I show the conso-

lidated positions both before and after the transfer. Unsurprisingly, these are identical. On the other hand, world assets and liabilities, recorded on a residency basis, are higher after the transfer.

3. Data

3.1. Sources

The Central Bank of Ireland collects granular balance-sheet data on investment funds, money market funds, financial vehicle corporations and special purpose vehicles.⁶ Since 2015, the Central Bank of Ireland also collects granular data on insurance corporations. The assets and liabilities of these entities are reported on a first counterparty basis. Importantly, the assets are located mainly outside Ireland while the liabilities are also mostly *vis-à-vis* foreign residents (Lane and Moloney 2018).

Accordingly, stripping pass-through entities from the IIP reduces substantially Irish foreign assets and liabilities. A reasonable definition of a pass-through entity suggests that most of its assets and liabilities should be foreign owned. Accordingly, I impose a 70 per cent threshold in my classification of entities.⁷ That is, entities whose foreign assets as a share of total assets and foreign liabilities as a share of total liabilities are greater than the threshold are eliminated. Balance-sheet items of the remaining entities are aggregated by functional categories.

In relation to the functional categories, Table 5 summarises the information collected by the Central Bank of Ireland and classifications that I have applied. For instance, investment funds report closing values for “Cash Deposits and Loans” that I have classified as “Other Debt Assets”. Similarly special purpose vehicles report closing values for “Debt Securities Issued (ISIN)” that are classified as “Portfolio Debt Liabilities”. Due to the diverse activities of these entities, elimination of a subset will not only affect the aggregate

⁶These vehicles mostly fall under the Section 110 taxation regime.

⁷Similarly, the Central Bank of Ireland defines credit institutions in the domestic market group as entities that have more than 20 per cent level of business with Irish residents. This threshold, however, still leaves some credit institutions in the group that, in terms of operations, have mainly foreign orientation. As such, the 70 per cent foreign threshold that I impose is relatively conservative.

and net international investment position, but will also affect the composition of foreign assets and liabilities.

The source of granular data on IFs, MMFs, FVCs, SPVs, ICs, and BANKS is the Central Bank of Ireland. Unabridged data on assets and liabilities of the central bank, general government, nonfinancials, and deposit-taking corporations are taken from the IIP statistics of the International Monetary Fund. Data on pension funds are taken from financial sector accounts. Finally, data on FDI and treasury companies are taken from the International Monetary Fund and the Central Statistics Office. It is unlikely that foreign assets and liabilities of the central bank and general government are distorted. Accordingly, these are used without any modifications. The adjustment of FDI and other sectors is described below.

3.2. Unabridged Composition

Figures 1 and 2 provides a snapshot of foreign assets and liabilities by the main functional categories for end-2016. Portfolio debt assets are the largest category and comprise 29 per cent of foreign assets, followed closely by FDI assets at 27 per cent. Most of the remainder is split between other debt assets (21 per cent) and portfolio equity assets (19 per cent). Finally, just under 4 per cent is allocated to financial derivatives, with reserve and other equity assets having negligible shares. Turning to liabilities, a large share is allocated to portfolio equity (46 per cent). The share of direct investment liabilities stands at 25 per cent of the total, followed by other debt liabilities (17 per cent) and portfolio debt liabilities (9 per cent). The share of financial derivatives in total liabilities stands at around 3 per cent.

Figure 3 shows a snapshot of assets (A) and liabilities (L) in equity and investment fund shares, debt securities, and other debt instruments, broken down by institutional sectors for end-2016. Across all three functional categories, OFCs account for the bulk of assets and liabilities in the IIP. Naturally, OFCs are particularly dominant in the equity and investment fund shares category in which they hold almost all of the €921 billion in assets recorded, and account for 79 per cent of the €2464 billion in liabilities *vis-à-vis* non-

residents. Nonfinancials, and, to a very limited extent, banks account for the remaining 20 and 1 per cent of liabilities incurred in equity and investment fund shares.

At the end of 2016, the value of portfolio debt assets stood at €1422 billion while that of portfolio debt liabilities stood at €481 billion. Of these assets, OFCs and banks account for the bulk of the holdings at 94 and 5 per cent respectively. Meanwhile, non-resident holdings of Irish portfolio debt liabilities are primarily in the OFCs (74 per cent) and the government sector (17 per cent). The remainder is split between banks on nonfinancials. Turning to other debt instruments, of €1028 billion assets, OFCs, banks and nonfinancials hold 73, 16, and 10 per cent shares correspondingly. Finally, OFCs, banks, nonfinancials and the government sector respectively account for 58, 18, 16, and 6 per cent of the €931 billion in other debt liabilities owed to non-residents.

4. Calculations

In this section, I describe the estimates of assets and liabilities across sectors for various functional categories for end-2016. The next subsection describes the calculations involved in removing international financial intermediation from the activities of financial firms. To arrive at an aggregate number, a further adjustment to the NFC sector is necessary. This is attempted in the second subsection.⁸ I wish to stress that the calculations are mine, and the unabridged positions for each sector, as reported below, might diverge from the published statistics. Tables 6 to 9 provide the post-processing results.

4.1. Financial Sector

At the end of 2016, the value of foreign assets of investment funds stood at €1740 billion.⁹ Elimination of entities above the threshold reduces the number to €108 billion. Of this, 55 per cent is in portfolio equity, 25 per cent in portfolio debt, 19 per cent in other debt instruments and just above 1 per cent in derivatives. Similarly, the end-2016 value of fo-

⁸Here the calculations are based on publicly available aggregate numbers. Accordingly, the potential for mismeasurement is higher than in the case of the financial sector.

⁹For a description of the Irish investment funds and money market funds industry see [Golden et al. \(2015\)](#) and [Lane and Moloney \(2018\)](#).

reign liabilities of investment funds is equal to €1780 billion, while the post-adjustment value reduces external liabilities to €118 billion. Unsurprisingly, most liabilities are comprised of equity and fund shares, with the remaining 6 per cent attributable to other debt liabilities and derivatives.

Turning to money market funds, the end-2016 value of foreign assets is equal to €476 billion. Elimination of foreign funds reduces the value of foreign assets to €24 billion, of which €19 billion is in portfolio debt while the remaining €5 billion is other debt assets. Similarly, the value of external liabilities of MMFs shrinks from €452 to €15 billion, and is composed entirely of equity liabilities.

Financial vehicle corporations (ie. securitisation vehicles) at end-2016 held foreign assets valued at €222 billion.¹⁰ Of this, 42 per cent was allocated to portfolio debt assets, 53 per cent to other debt instruments, and 5 per cent to derivatives. After restricting the sample of entities to Irish owned, the total value of assets declines to €12 billion, and is mostly composed of other debt assets (85 per cent) followed by portfolio debt assets (14 per cent) and derivatives (1 per cent). In addition to the level impact of my calculations, this shift from portfolio debt to other debt category highlights the importance of compositional changes in IIP due to the adjustment. The value of the external liabilities in the Irish sample is €16 billion, down from €171 billion. The estimated liabilities are split mostly between portfolio debt (55 per cent) and other debt (42 per cent). Just over 3 per cent of external liabilities take the form of derivatives.

The value of foreign assets and liabilities of special purpose non-securitisation vehicles stood at €158 and €184 billion respectively. After adjustment, the values are €5 and €18 billion correspondingly. Approximately 86 per cent of assets are held in other debt followed by 12 per cent in portfolio debt and 2 per cent in derivatives. The liability side is more evenly split between portfolio (52 per cent) and other debt (48 per cent) categories.

The next category of OFCs that has substantial activities in Ireland is insurance.¹¹ Insurance corporations held €278 billion worth of foreign assets at end-2016. Stripping

¹⁰For a description of Irish-based special purpose entities (securitisation and non-securitisation vehicles) see [Golden et al. \(2015\)](#) and [Barrett, Godfrey and Golden \(2016\)](#).

¹¹For a description of the Irish insurance industry see [Kelly and Osborne-Kinch \(2018\)](#).

out foreign entities reduces the total value of assets to €68 billion, of which 55 per cent are equity assets, followed by debt securities (28 per cent) and other debt assets (17 per cent). Similarly, foreign liabilities are reduced to €17 billion from €228 billion. The composition of liabilities in the reduced sample is tilted to other debt liabilities at 73 per cent followed by equity liabilities at 25 per cent.

There is no information on direct foreign holdings of Irish households. Their indirect holdings, however, are reflected, to some extent, in pension funds. Based on financial sector accounts, the total value of foreign assets (€91 billion) is almost evenly split between portfolio equity and portfolio debt assets at 53 and 47 per cent respectively. The liabilities of Irish pension funds are *vis-à-vis* residents only, hence their foreign liabilities are equal to zero.

In relation to credit institutions, Irish-resident banks have substantial external activities, in some cases with little relevance for the domestic economy (Lane 2015). Hence, adjustment to Irish oriented banks is warranted. In this regard, the central bank publishes balance-sheet information on three sets of groups: all credit institutions, Irish-headquartered group and domestic market group. The second aggregate refers to institutions whose ultimate parent entity is resident in Ireland, while the third aggregate requires that the resident parent entity have significant business with Irish households and NFCs. In this paper, I redefine the domestic market group to include the main five banks: the Bank of Ireland, AIB, KBC, Permanent TSB and Ulster Bank.¹² Of €57 billion in foreign assets of this group, approximately 60 per cent are loans to non-residents and 40 per cent are foreign issued debt securities. I estimate that 76 per cent of foreign liabilities are deposits from non-residents, 15 per cent are debt securities issued and 9 per cent are in equity.

Finally, an important feature of the Irish financial landscape are treasury companies that engage in financial intermediation. This year, the Central Statistics Office released information on the composition of assets and liabilities of these entities (CSO 2018). A split between resident and non-resident holdings at an aggregate level suggests that

¹²For historical reasons, Danske Bank is also included, but its contribution to the aggregate is negligible.

most assets (73 per cent) and liabilities (64 per cent) are foreign owned.¹³ Applying these shares to total assets and liabilities by functional category, I estimate that of €374 billion of foreign assets, most is held in other debt instruments (67 per cent), followed by portfolio equity and debt assets at 22 and 11 per cent respectively. Foreign liabilities (€356 billion) of these entities are mostly in other debt instruments (55 per cent) and portfolio equity liabilities (40 per cent). The remaining 5 per cent of the liabilities take the form of portfolio debt.

4.2. Nonfinancial Sector

Ireland is a major host for intellectual property by multinational firms, and hosts a large aircraft-leasing sector as well. Due to confidentiality, the Central Statistics Office does not provide detailed information on assets/liabilities of these sectors. There is, however, information on the combined value of net capital stock of Research and Development and Transport Equipment held at end of year at market prices (CSO 2017a). With currently available public information, this could act as a relatively good proxy for the value of the two sectors combined. Together, transport equipment and research and development amounted to €377 billion at the end of 2016. I subtract this value from FDI liabilities.¹⁴

Similarly, redomiciled PLCs conduct little activity in Ireland, while holding large investments abroad (CSO 2017b). The foreign assets of these entities are classified as FDI, while their liabilities are classified as portfolio equity. At the end of 2016, the value of redomiciled PLCs reflected in FDI was €444 billion. Accordingly, this amount has been subtracted from FDI assets and portfolio equity liabilities.

Finally, the Central Statistics Office uses two methods for measuring FDI activity: the asset/liability approach and directional representation (CSO 2017c). The first one aggregates assets and liabilities for resident parent companies and affiliates, while the second approach nets reverse investments. As highlighted in Figures 1-2, Ireland is an important destination for FDI. Substantial fractions of these are pass-through investments. Follo-

¹³Unfortunately, there are no public data on functional categories by residency.

¹⁴While this type of adjustment can skew gross positions, the effect of the adjustment on net position will tend to be less skewed.

wing the CSO recommendation, it is more prudent to use the directional representation for FDI statistics.

These calculations yield an estimate of FDI assets equal to €368 billion, and an estimate of FDI liabilities of €423 billion, down from €812 and €800 billion. Finally, removing redomiciled PLCs from total equity liabilities, results in an estimate of €62 billion of portfolio equity liabilities of nonfinancial corporations.

4.3. Modified International Investment Position (IIP*)

Table 10 compares euro values of functional categories before and after the adjustment, while Table 11 shows the results for foreign assets and liabilities in relative terms. For 2016, the official estimates of Irish foreign assets and liabilities stand at €4887 and €5380 billion. Removing international intermediation reduces these values to €1251 and €1392 respectively. Similarly, the official net IIP stands at negative €493 billion (-280 per cent of GNI*), while my estimations reduce the net external assets to negative €141 billion (-80 per cent of GNI*). A complete removal of treasury companies reduces both assets and liabilities to €877 and €1037 billion respectively, but raises the net IIP to negative €159 billion (-91 per cent of GNI*).

The table also provides additional estimates based on alternative thresholds. Unsurprisingly, higher thresholds result in higher gross positions. For instance, when the threshold on foreign exposures is set at 85 per cent, the estimates of foreign assets and liabilities stand at €1362 billion and €1492 billion respectively. Compared to foreign liabilities, the increment in foreign assets is higher in the case of 85 per cent threshold relative to the 70 per cent threshold. Accordingly, the net liability position is smaller by €9 billion.

Table 12 shows the composition of foreign assets and liabilities for advanced countries. In terms of assets, the share of Irish FDI at 29 per cent is close to the GDP-weighted average share of euro-area member states (28 per cent), while the share of Irish portfolio equity liabilities stands at 18 per cent, compared to the euro-area average of 15 per cent. The estimates also highlight a shift from portfolio debt to other debt category, with foreign debt asset share of 51 per cent, compared to the euro-area average share of 48 per

cent.

Turning to the other side of the balance sheet, the estimated share of FDI liabilities in Ireland has increased by 5 percentage points to 30 per cent, and is larger than the euro-area average of 23 per cent. Importantly, the estimates suggest a substantial reduction in the share of portfolio equity liabilities from 46 to 24 per cent, mostly driven by the elimination of international intermediation activities of Irish-resident mutual funds. At 24 per cent, however, the share of equity liabilities is still more than twice as large as the euro-area average. Finally, there is a marked increase in the share of other investment liabilities from 17 to 35 per cent. The estimated share of external debt liabilities, thus, stands at 45 per cent, compared to the euro-area average of 60 per cent.

To make a full circle, I compare the standing of Ireland in a cross-section of countries in terms of foreign asset/liability ratios. After modifications, the ratios of Irish foreign assets and liabilities to GDP stand at 450 and 510 per cent respectively.¹⁵ In terms of asset shares, Ireland now lags behind Belgium, while in terms of liability shares - behind the United Kingdom. While a substantial reduction in both foreign assets and liabilities has been achieved by removing international financial intermediation, the new estimates still could be edging towards the higher end. A granular approach to correct the external balance sheets of non-financial corporations is still needed.

5. Conclusions

Given the complexities in the Irish net international investment positions, previous studies have shied away from using the official data on foreign assets and liabilities. This descriptive paper provides the first attempt to calculate the value of foreign assets and liabilities that are more reflective of foreign activities of domestic-resident entities. My calculations not only reduce substantially gross external positions, but also shrink the extent of net foreign indebtedness from 280 to 80 per cent per cent of modified gross national income.

Furthermore, the estimates suggest significant shifts in the composition of foreign

¹⁵Relative to GNI*, the percentage shares are 710 and 790.

assets and liabilities relative to the officially reported positions. In particular, the combined share of portfolio equity and FDI liabilities declines from 71 to 55 per cent of total external liabilities, compared to an average of 33 per cent of euro-area member states. Meanwhile, the share of external debt liabilities of Ireland rises to 45 from 26 per cent, compared to the euro-area average of 60 per cent. Thus, the debt/equity split demonstrates a relatively strong cushion against adverse foreign shocks.

While these results provide the first step in disentangling the effects of globalization on Irish IIP statistics, more remains to be done. In particular, while recent publications by the Central Statistics Office of modified current account (CA*) are welcome, an internally consistent methodology for CA* and IIP* is necessary to ensure adequate reconciliation between stocks and flows.

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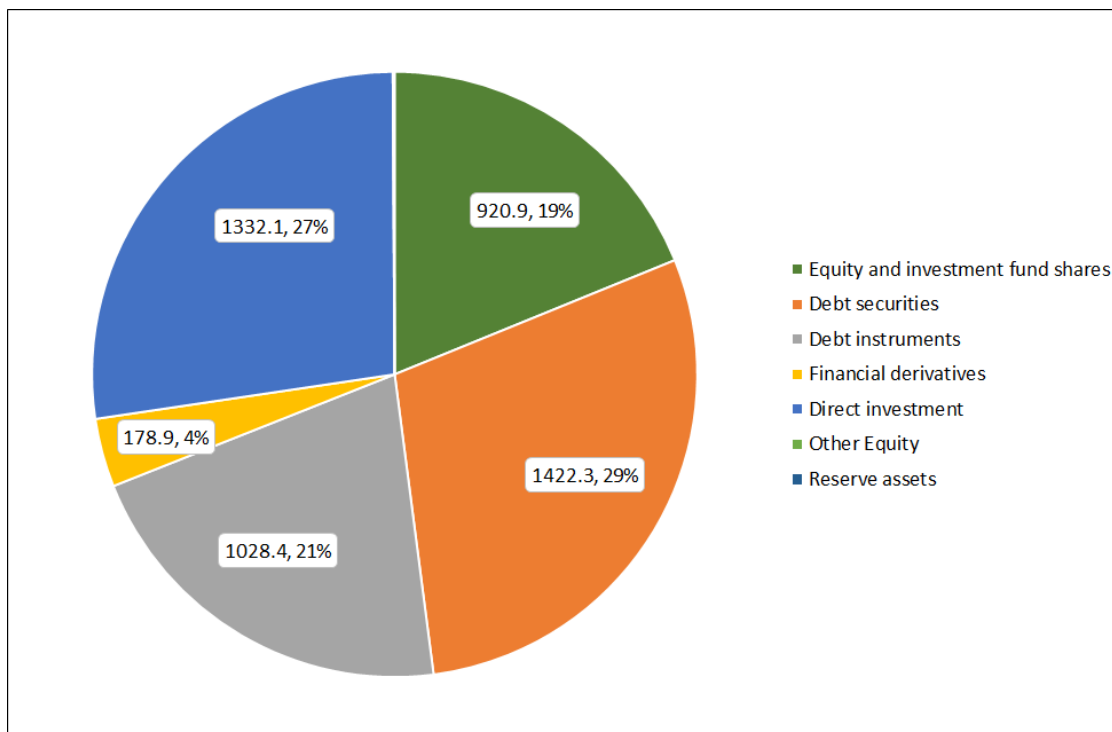
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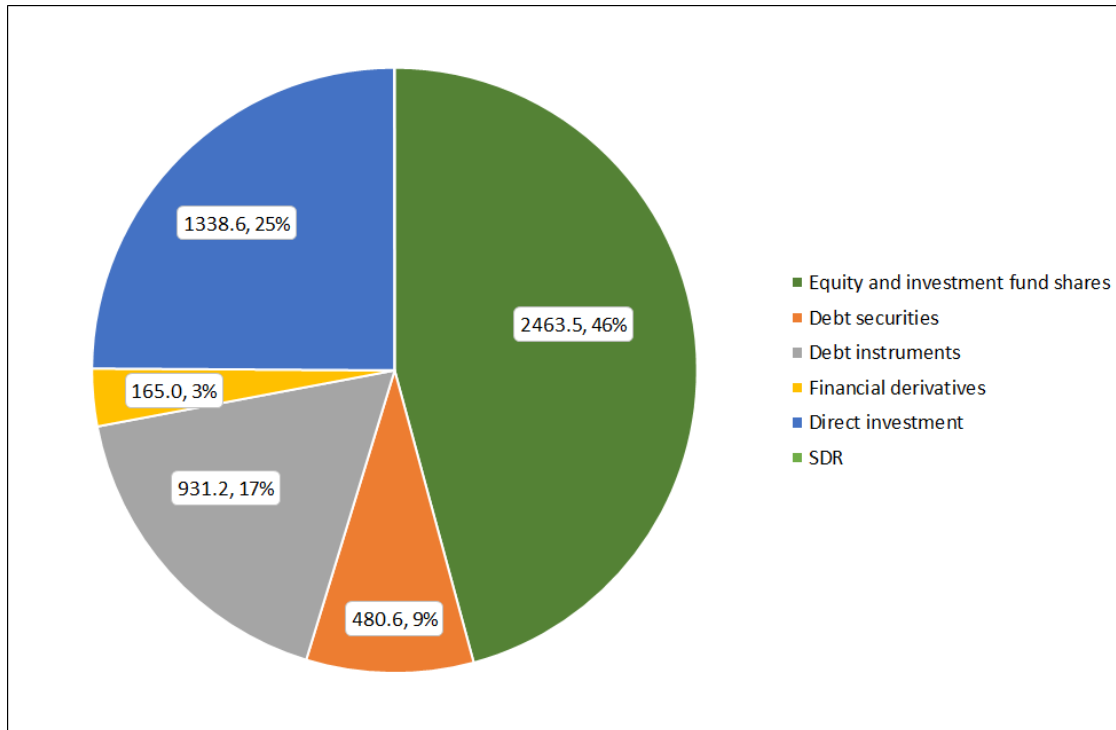
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Figure 1: Composition of Foreign Assets



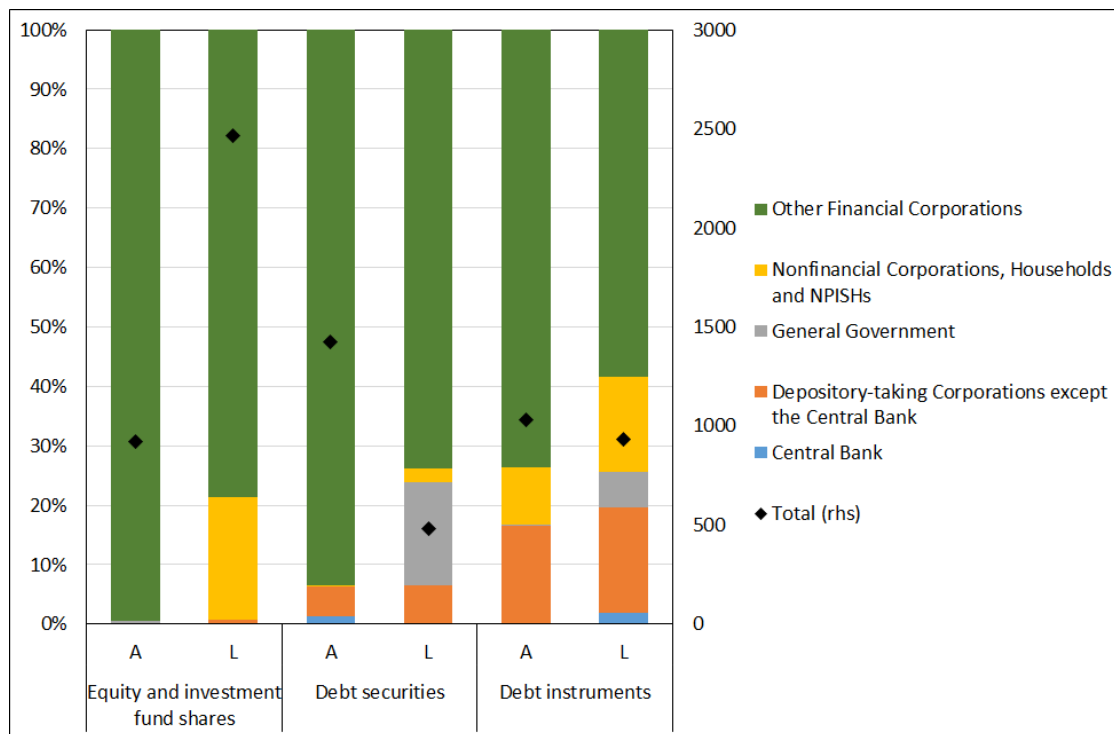
Notes: Author's calculations. Data refer to end-2016. Calculations are based on the IMF IIP data. Euro values (in billions) are computed using the end-of-period US dollar to euro rate from the IMF IFS dataset.

Figure 2: Composition of Foreign Liabilities



Notes: Author's calculations. Data refer to end-2016. Calculations are based on the IMF IIP data. Euro values (in billions) are computed using the end-of-period US dollar to euro rate from the IMF IFS dataset.

Figure 3: Functional Categories by Sectors



Notes: Author's calculations. Data refer to end-2016. Calculations are based on the IMF IIP data. Euro values (in billions) are computed using the end-of-period US dollar to euro rate from the IMF IFS dataset.

Table 1: Investment Funds

Fund 1				Fund 2			
Assets		Liabilities		Assets		Liabilities	
B	30	B	40	B		B	
ROW	70	ROW	60	ROW	100	ROW	100
Total	100	Total	100	Total	100	Total	100

Notes: B stands for Country B, while ROW stands for rest of the world. See subsection 2.2 for explanations.

Table 2: Redomiciled PLC

Before Transfer							
Country A				Country B, Firm 1			
Assets		Liabilities		Assets		Liabilities	
A	90	A	50	A		A	
B		B	10	B	45	B	20
ROW	10	ROW	40	ROW	5	ROW	30
Total	100	Total	100	Total	50	Total	50

After Transfer											
Country A		Country B, Firm 1		Country B, Firm 2							
Assets		Liabilities		Assets		Liabilities		Assets		Liabilities	
A		A		A		A	90	A		A	50
B		B		B		B	45	B		B	30
ROW		ROW		ROW		ROW	15	ROW		ROW	70
Total		Total		Total		Total	150	Total		Total	150

Notes: A, B stand for Country A and country B respectively, while ROW stands for rest of the world. See subsection 2.2 for explanations.

Table 3: Intellectual Property Transfers

Before Transfer											
Country A				Country B, subsidiary				Consolidated			
Assets		Liabilities		Assets		Liabilities		Assets		Liabilities	
A	50	A	100	A		A	20	A/B	50	A/B	100
B	20	B		B		B					
ROW	30	ROW		ROW	20	ROW		ROW	50	ROW	
Total	100	Total	100	Total	20	Total	20	Total	100	Total	100
After Transfer											
Country A				Country B, subsidiary				Consolidated			
Assets		Liabilities		Assets		Liabilities		Assets		Liabilities	
A	50	A	100	A	50	A	70	A/B	50	A/B	100
B	20	B		B		B					
ROW	30	ROW		ROW	20	ROW		ROW	50	ROW	
Total	100	Total	100	Total	70	Total	70	Total	100	Total	100

Notes: A, B stand for Country A and country B respectively, while ROW stands for rest of the world. A/B captures consolidation of A and B. See subsection 2.2 for explanations.

Table 4: Foreign Assets and Liabilities in Per Cent of GDP

	A/GDP	L/GDP	NIIP/GDP
Luxembourg	18985	18952	33
Malta	2118	2075	43
Ireland	1692	1862	-171
Netherlands	1138	1074	64
Switzerland	669	554	115
United Kingdom	507	511	-4
Belgium	462	415	47
Norway	414	216	198
Denmark	321	269	53
Finland	311	307	3
France	286	301	-15
Sweden	276	271	5
Germany	250	198	52
Austria	230	224	5
Canada	209	199	10
Iceland	172	168	4
Portugal	172	273	-101
Japan	171	112	58
Spain	152	231	-79
Italy	145	154	-9
Australia	129	185	-56
United States	128	173	-45
Greece	126	259	-133
New Zealand	90	150	-59

Notes: Author's calculations. Data refer to end-2016. A and L are stocks of foreign assets and liabilities, NIIP stands for net international investment position.

Table 5: Reporting Forms and Classifications

Category	IF/MMF	Class	Category	FVC/SPV	Class	Category	IC	Class
Assets			Assets			Assets		
Cash Deposits and Loans		ODA	Debt Securities Held (ISIN)		PDA	Currency and Deposits		ODA
Debt Securities		PDA	Debt Securities Held (Non-ISIN)		PDA	Debt Securities		PDA
Derivatives		DERA	Deposits and Loan Claims		ODA	Equity		PEQA
Equities		PEQA	Derivatives		DERA	Financial Derivatives		DERA
Other Assets		ODA	Securitized Loans		ODA	Insurance Technical Reserves		ODA
Overdraft Accounts		ODA				Investment Fund Shares		PEQA
Property and Land		FDIA				Loans		ODA
Securities Borrowing		ODA				Non-Financial Assets		FDIA
						Remaining Assets		ODA
Liabilities			Liabilities			Liabilities		
Derivatives		DERL	Debt Securities Issued (ISIN)		PDL	Debt Securities Issued		PDL
Equity		PEQL	Derivatives		DERL	Equity		PEQL
Loans		ODL	Loans and Deposits Received		ODL	Financial Derivatives		DL
Other Liabilities		ODL			ODL	Insurance Technical Reserves		ODL
Overdraft Accounts		ODL				Loans		ODL
Securities Lending		ODL				Remaining Liabilities		ODL

Notes: IF, MMF, FVC, SPV and IC stand for investment funds, money market funds, financial vehicle corporations, special purpose vehicles and insurance corporations respectively. Column Category describes the reference to the particular asset/liability type in the reporting form submitted to the Central Bank of Ireland. Column Class captures classifications used in this paper. FDIA, PEQA(L), PDA(L), ODA(L) and DERA(L) are stocks of foreign direct investment assets, portfolio equity and investment fund shares, portfolio debt securities, other debt instruments and financial derivatives.

Table 6: Equity and Debt Assets

	PEQA	PDA	ODA
Total	229.7	196.3	438.4
Central Bank	0.0	18.7	1.6
Depository-taking Corporations except the Central Bank	0.5	22.9	33.8
General Government	4.3	1.9	2.2
Other sectors	225.0	152.7	400.7
Nonfinancial Corporations, Households and NPISHs	0.0	1.1	98.5
Other Financial Corporations	225.0	151.6	302.2
Insurance Corporations	36.9	19.2	11.3
Pension Funds	48.0	42.6	0.0
Money Market Funds	0.0	19.0	4.9
Investment Funds	58.9	26.9	20.7
Financial Vehicle Corporations	0.0	1.7	10.2
Special Purpose Vehicles	0.0	0.6	4.1
Treasuries	81.2	41.7	251.1

Notes: Author's calculations. Data refer to end-2016. PEQA, PDA and ODA are stocks of portfolio equity and investment fund shares, portfolio debt securities and other debt instruments. Values are measured in euro billions.

Table 7: Equity and Debt Liabilities

	PEQL	PDL	ODL
Total	339.4	136.8	482.0
Central Bank	0.0	0.0	17.8
Depository-taking Corporations except the Central Bank	4.0	6.4	32.3
General Government	0.0	83.9	54.3
Other sectors	335.5	46.5	377.6
Nonfinancial Corporations, Households and NPISHs	61.7	11.1	150.0
Other Financial Corporations	273.8	35.4	227.6
Insurance Corporations	4.1	0.2	12.2
Pension Funds	0.0	0.0	0.0
Money Market Funds	15.3	0.0	0.0
Investment Funds	111.2	0.0	4.8
Financial Vehicle Corporations	0.0	8.5	6.6
Special Purpose Vehicles	0.0	9.4	8.8
Treasuries	143.1	17.3	195.3

Notes: Author's calculations. Data refer to end-2016. PEQL, PDL and ODL are stocks of portfolio equity and investment fund shares, portfolio debt securities and other debt instruments. Values are measured in euro billions.

Table 8: Financial Derivatives

	A	L
Financial derivatives	14.4	10.4
Insurance Corporations	0.3	0.0
Investment Funds	1.5	1.9
Financial Vehicle Corporations	0.1	0.5
Special Purpose Vehicles	0.1	0.0
Other	12.4	8.0

Notes: Author's calculations. Data refer to end-2016. A and L are stocks of foreign assets and liabilities. Values are measured in euro billions.

Table 9: Direct Investments

	A	L
Direct investment	368.0	422.7
Other equity (A) / SDR (L)	1.3	1.0
Reserve assets	3.4	0.0

Notes: Author's calculations. Data refer to end-2016. A and L are stocks of foreign assets and liabilities. Values are measured in euro billions.

Table 10: Functional Categories Before and After

	A	A*	L	L*
Equity and investment fund shares	921	230	2463	339
Debt securities	1422	196	481	137
Debt instruments	1028	438	931	482
Financial derivatives	179	14	165	10
Direct investment	1332		1339	
Direct investment (directional)	812	368	800	423
Other equity (A) / SDR (L)	1	1	1	1
Reserve assets	3	3		
Total	4887	1251	5380	1392

Notes: Author's calculations. Data refer to end-2016. A and L are unabridged stocks of foreign assets and liabilities. A* and L* are modified stocks of foreign assets and liabilities. Values are measured in euro billions.

Table 11: Foreign Assets and Liabilities

	70% threshold		85% threshold		95% threshold	
	A	L	A	L	A	L
IIP	4887	5380	4887	5380	4887	5380
IIP*	1251	1392	1362	1494	1876	1996
IIP**	877	1037	988	1139	1502	1641
NIIP	-493		-493		-493	
NIIP*	-141		-132		-120	
NIIP**	-159		-151		-139	
NIIP / GNI*	-280		-280		-280	
NIIP* / GNI*	-80		-75		-69	
NIIP** / GNI*	-91		-86		-79	

Notes: Author's calculations. Data refer to end-2016. IIP stands for international investment position, NIIP stands for Net IIP, GNI* stands for modified Gross National Income. IIP and NIIP are measured in euro billions. * and ** on IIP and NIIP capture two different estimates: including activities of treasury companies and excluding activities of treasury companies respectively.

Table 12: Composition of Foreign Assets and Liabilities Across Countries

	FDIA	PEQA	PDA	OIA	FDIL	PEQL	PDL	OIL
Luxembourg	52	15	19	12	45	33	11	9
Malta	32	38	10	19	78	1	0	20
Netherlands	62	9	10	14	54	10	19	14
Switzerland	36	14	14	19	37	25	3	32
United Kingdom	14	13	9	38	14	11	17	34
Belgium	43	14	16	25	49	8	22	21
Norway	14	41	28	13	24	11	33	32
Denmark	25	23	19	19	19	21	30	21
Finland	21	24	21	20	17	16	29	26
France	23	11	25	27	14	12	33	29
Sweden	33	27	9	23	28	18	32	18
Germany	22	12	23	34	20	10	28	32
Austria	33	12	22	29	28	6	39	25
Canada	40	32	9	17	33	14	33	19
Iceland	41	22	2	15	53	2	30	15
Portugal	26	9	26	30	27	6	17	50
Japan	16	17	28	20	4	28	22	39
Spain	37	13	16	25	25	11	27	33
Italy	22	30	20	19	16	8	39	32
Australia	27	26	16	20	26	16	35	16
United States	31	30	12	17	24	20	33	16
Greece	10	5	49	33	6	3	7	83
New Zealand	14	32	19	14	28	10	37	18
EA(avg)	28	15	21	27	23	10	29	30
Ireland	27	19	29	21	25	46	9	17
Ireland*	29	18	16	35	30	24	10	35

Notes: Author's calculations. Data refer to end-2016. FDIA(L), PEQA(L), PDA(L) and OIA(L) refer to shares (in per cent) of foreign direct investment, portfolio equity and investment fund shares, portfolio debt securities and other investments in foreign assets (liabilities). Ireland* refers to the estimated IIP. EA(avg) captures the GDP-weighted average of euro-area members states listed in the table (excluding Ireland).